

# Endoscopic Spine

Imaging and Instrumentation



**Arthrex**<sup>®</sup> 

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## Helping Surgeons Treat Their Patients Better<sup>®</sup>

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Since its inception, Arthrex has been committed to one mission: Helping Surgeons Treat Their Patients Better. We are strategically focused on constant product innovation through scientific research, surgeon collaboration, and medical education to make less invasive surgical procedures simpler, safer, and more reproducible. Each year, we develop more than 1000 new innovative products and procedures to advance minimally invasive orthopedics worldwide.

Arthrex has always remained a privately held company, which allows for the rapid evaluation of new technologies and ideas, and the freedom to develop products and techniques that truly make a difference without economic considerations or compromise. Our experienced team of dedicated professionals represents a shared passion and commitment to delivering uncompromising quality to the health care providers who use our products and the millions of patients whose lives we impact.

The medical significance of our contributions serves as our primary benchmark of success and will continue into the future as the legacy of Arthrex.

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## Introduction to Endoscopic Approaches in Spine

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As a global leader in sports medicine and surgical education, Arthrex continually strives to provide surgeons and patients with groundbreaking ultra–minimally-invasive and motion-preserving procedures.

Innovation in the medical device industry is largely driven by manufacturers. As a privately held company, we are uniquely positioned to rapidly develop new technologies and advance truly minimally invasive procedures that prioritize surgeon needs and patient outcomes.

Limited nonpermanent options for back pain mean patients must often undergo frequent treatments and invasive procedures that result in limited motion, damage to soft-tissue anatomies, and unsightly scars.

Put simply, there is a gap in today’s continuum of care between conservative treatment and maximally invasive surgical procedures.

Arthrex seeks to bridge that gap by leveraging our more than 40 years of expertise in orthopedics in the spine space, with endoscopic surgical approaches and orthobiologic innovations designed to help spare soft tissue, preserve motion, and provide the best possible outcomes for patients.

World-class medical education offerings for health care professionals and administrators help make less-invasive surgery simpler, safer, and more reproducible. Our endoscopic spine-specific surgical curriculum pathway includes individualized and expert faculty instruction and immersive, hands-on training in our dedicated spine lab as well as practice support, all designed to set surgeons and facilities up for success in endoscopic approaches to the spine.

We develop our products and procedures with an unwavering dedication to constant innovation, unmatched provider education, and world-class scientific research. Together, we can expand your treatment offerings, maximize your practice efficiency, and help make active lifestyles a reality for millions of patients.



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# Synergy Integration, Imaging, and Image Management

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## Synergy Matrix™ Video Integration



The Synergy Matrix system was the world’s first OR integration platform capable of supporting the 4K video signal produced by the Synergy Vision™ and Synergy<sup>ID</sup>™ camera systems and distributing it to multiple displays within the OR. The next-generation platform expands on the success of the Synergy Matrix integration system with the inclusion of an integrated touch panel that provides improved system performance, reliability, and overall user experience.

Please direct questions or requests for customized Synergy Matrix integration quotes to the Synergy Integration team at [SynergyIntegration@Arthrex.com](mailto:SynergyIntegration@Arthrex.com).

Product Description	Item Number
Synergy Matrix software license	AR-3200-1052
Synergy Matrix Core software license	AR-3200-1053

### Key Features and Benefits

- Newly redesigned user interface is available on a touchscreen in every integrated OR
- Programmable room presets allow for quick routing and configuration of a room’s audio and video sources to destinations. As an example, a room preset can be set for laparoscopic procedures so that with the touch of a button, the room automatically routes the configured sources to the desired displays in the room
- Robust room-to-room communication and source sharing gives users more control over which outside rooms have viewing capabilities of their internal sources. Shared sources can be granted permission for a specific time range or removed from sharing by the source owner as needed

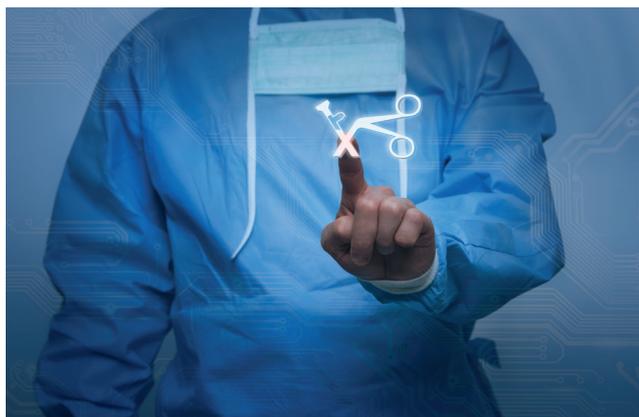
- Room camera control allows users to modify the pan, tilt, and zoom settings for the room camera. In addition, room camera settings can be saved as a preset to allow for quick configuration of a room camera’s position. For example, a room camera preset can be set for privacy so that with the touch of a button, the room camera’s position automatically adjusts away from the patient’s location
- Improved remote support and proactive system monitoring allow for integrated rooms to be upgraded and serviced independently
- Equipped with the latest in 4K imaging and integration technology, the Synergy Matrix system is a state-of-the-art video-over-IP solution that can lower the cost of ownership and positively impact OR workflow
- Room-to-room connectivity supports sharing video and audio sources across integrated ORs, conference rooms, pathology labs, and observation rooms
- The Synergy Matrix system provides more capabilities at a fraction of the footprint required in the OR, thereby saving valuable OR space

### Synergy Matrix™ Core

The Synergy Matrix Core system provides in-room 4K video and audio integration while simplifying the installation process and focusing on key functionality. The value-driven platform uses the same touch panel controller as the Synergy Matrix system but with a simplified user interface, providing both uniformity and familiarity for the OR staff, while featuring intuitive and easy-to-use functionality.

The Synergy Matrix Core system uses an all-in-one switch assembly installed in each integrated room, allowing for true 4K video and audio routing without requiring cable pulls to a centralized IT closet and operating completely independent of the facility’s network.

## Synergy.net™ Data Integration Software



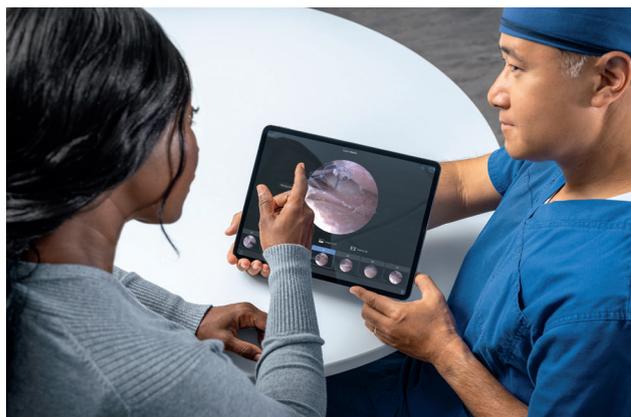
Synergy.net data integration software brings connectivity to your OR by integrating seamlessly with your hospital network to connect to your EHR, PACS, worklists, and surgeon preferences.

Synergy.net software allows for all surgeon and procedure settings to sync to each OR, creating a consistent and reliable experience. Intraoperative media can be sent to different destinations, whether you are inputting data to an EHR record or PACS or pushing data to the SurgeonVault cloud-based surgeon communication tool.

Product Description	Item Number
Synergy.net management software HL7	AR-3200-1034
Synergy.net HL7 software single license	AR-3200-1047
Synergy.net pairing license key	AR-3200-1067

- Interfaces with EHRs and other HL7-based systems
- Provides a single database for all cases captured by all Synergy devices
- Improves DICOM capabilities, which includes transfer of video to a PACS
- Offers network printing from any Synergy device

## SurgeonVault® Application



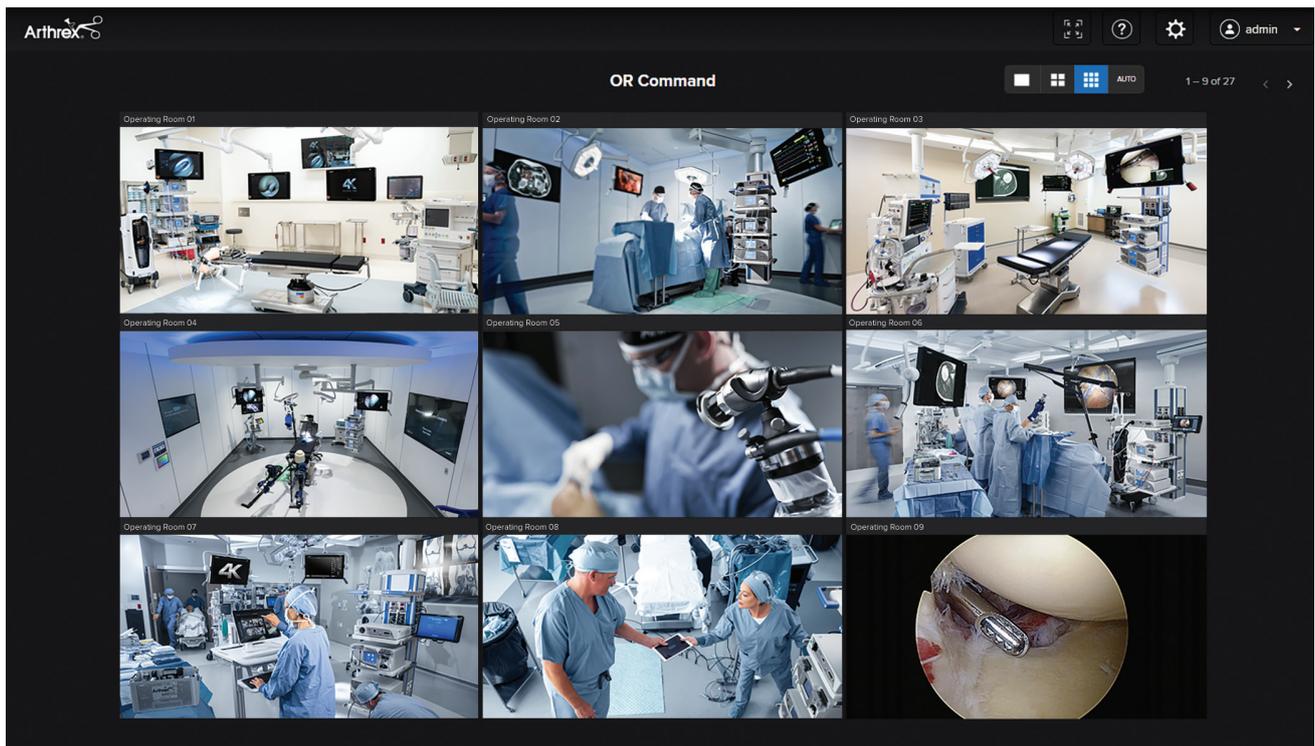
The SurgeonVault secure cloud-based surgical communication application provides surgeons with access to their data at any time and allows them to distribute surgical videos and stills and other selected content directly to their patients.

### Key Features and Benefits

- Improved surgeon-patient communication
  - Surgeons can quickly and easily share case and library content to meet their patients' needs
  - Patients receive access to a secure, multimedia-rich patient portal rather than traditional static content
  - Improved communication to patients may improve patient satisfaction scores
- User friendly interface with templates and library content for quick, easy surgeon onboarding
- Surgeons can access the SurgeonVault app via any iOS device or web browser
- Latest encryption technology ensures content remains private and secure for patients and surgeons

Product Description	Item Number
SurgeonVault single-user license: monthly term	SVSIN-MTM
SurgeonVault single-user license: 1-year term	SVSIN-1YR
SurgeonVault enterprise license unlimited users: 1-year term	SVENT-1YR

## Synergy OR Command™ Room Status



A powerful tool for maximizing OR efficiency and workflow, Synergy OR Command room status provides surgeons and staff with a centralized dashboard view of simultaneous video streams across all operating rooms. Authorized users can access Synergy OR Command room status through a networked browser or smart device. Benefits of Synergy OR Command room status include adaptive scheduling, minimized downtime, accelerated surgeon workflows, and real-time information for decision-makers. Whether viewing the user interface on a computer, tablet, or dedicated wall display in an OR corridor, Synergy OR Command room status provides the efficiency needed in today's busy OR.

### Key Features and Benefits

- Improve workflow efficiencies with OR visibility
- Kiosk Mode for dedicated displays
- Privacy Mode allows staff to mute video feeds
- Configurable dashboard layout options
- OR turnover status
- Room camera control
- Scope view from Synergy camera consoles

Product Description	Item Number
Synergy OR command room status	AR-3200-1044

### Synergy 4K Imaging Platforms



Experience the Synergy Vision™ imaging system, an all-in-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.

- **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 <sup>HD</sup> ™ 4K console	AR-3200-0025
Synergy Vision console	AR-3200-0026
Synergy Vision Connect console <b>(a)</b>	AR-3200-0027
Synergy Vision tablet <b>(b)</b>	AR-3200-1016
Synergy digital documentation tablet	AR-3200-1021

## Synergy 4K Imaging Platforms (Cont.)



The camera console comes with base software to manage 4K image and video capture, printing, and USB export. Additional software modules are offered to better address customer's individual needs. By offering software modules focused on functionality, facilities can select the features that best serve their unique needs.

### Synergy Software Modules

Product Description	Item Number
Premium bundle	AR-3200-1091
Data management module	AR-3200-1092
Workflow support module	AR-3200-1093
Clinical enhancement module	AR-3200-1094

#### Base Module Features

- Still image capture and video recording
- Print still images
- 4K image display
- Export to USB

#### Data Management Module Features

- Export media to DICOM or network folders
- Synergy.net™ pairing license

#### Workflow Support Module Features

- Network-based system allows live video streaming to any authorized remote viewer
- Export images to the Synergy Surgeon App™ software:
  - Review and edit still images and videos
  - Annotate on stills
  - Create presentations and postoperative reports for patients

- Heads-up display
- Capture images from a secondary device
- Surgical preparation checklist
- 4K video capture

#### Clinical Enhancement Modules Features

- Augmented reality overlay to enhance spectral and textural changes in the surgical image
- Enhance or reduce the color red in live image to improve visualization
- Consistent illumination across the entire image with highlight feature

#### Premium Bundle

- Comprehensive bundle that includes all Synergy software features

### Synergy Accessories

Product Description	Item Number
Synergy System Integration Cable Kit	AR-3200-1040
Input/output 1080p video signal converter	AR-3210-1005
C-mount HD optical zoom coupler	AR-3210-0006
C-mount right angle coupler	AR-3210-0009
C-mount optical non-zoom coupler	AR-3210-0012
4K wireless transmitter, broaddata	LBW-5-H2-12G-T-A
4K wireless receiver, broaddata	LBW-5-H2-12G-R-A
DVI input/output video signal converter	90T0009
SDI input/output video signal converter	90T0011
VGA input/output video signal converter	90T0013
S-video input/output video signal converter	90T0015
Synergy laser light source	AR-3200-1018

## UHD 4K Monitors



- 27 in, 32 in, and 55 in UHD 4K display options available
- Versatile multiformat signal support
- With and without Synergy Matrix™ video integration enabled

### Monitors

Product Description	Item Number
32 in 4K HDR 12G SDI display	AR-3250-3212
Mini LED surgical display, 27 in	27HQ710S
4K monitor, 27 in	27HJ713S-W
UHD 4K monitor, 55 in	K9307930
UHD 4K monitor w/ Synergy Matrix decoder, 55 in	K9307931
55 in 4K medical grade display w/ decoder	K9352362
55 in 4K medical grade display 12G version	K9352361
55 in 4K medical grade display non-MNA version	K9352360

### Monitor Covers

Product Description	Item Number
Protection cover for 32 in monitor, black	703459-15
Protection cover for 27 in monitor, black	703458-15
Tablet cover for UHD4, black	703510-15

## 4K and HD Camera Heads



The Synergy Vision™ imaging system supports two camera heads. With unique features and benefits for each style, these camera heads were designed for both orthopedic and endoscopic procedures. The picture produced by all of the Synergy camera heads increases depth perception and creates more precise color reproduction. All of these camera heads carry the industry-leading standard autoclavable warranty while maintaining a comfortable and ergonomic design.

### Camera Heads

Product Description	Item Number
4K Synergy <sup>UHD4™</sup> camera head, broadband, autoclavable	AR-3210-0029
4K Synergy <sup>UHD4</sup> C-mount camera head, broadband, autoclavable	AR-3210-0030
4K Synergy <sup>UHD4</sup> ultra camera head, autoclavable	AR-3210-0031
4K Synergy <sup>UHD4</sup> ultra C-mount camera head, autoclavable	AR-3210-0032
Synergy <sup>HD</sup> 4MOS camera head	AR-3210-0033
Synergy Visionary™ camera head	AR-3210-0034
Synergy Vision camera head	AR-3210-0035

## Light Guides



Arthrex's light guides are made from hundreds of high-quality fibers. Instead of gluing fibers, we fuse ours at the proximal end to maximize light transmission. The unique handle increases durability and prevents accidental removal of the light guide. Additionally, our transparent casing makes it easier to monitor when to replace light guides.

Product Description	Item Number
Light guide cable, blue, 5 mm × 2.7 m <b>(a)</b>	AR-3240-5027
Light guide cable, grey, 5 mm × 2.7 m	AR-3240-5028
Light guide cable, blue, 3.5 mm × 2.7 m	AR-3240-3527
Light guide cable, blue, 5 mm × 4 m	AR-3240-5040
Light guide cable, grey, 5 mm × 2.7 m, 90° distal end <b>(b)</b>	SS9-GYW50W108
Light cable, wolf style, blue, 5 mm × 275 cm	FTIMG26203TB
Light cable, wolf style, blue, 3.5 mm × 275 cm	FTIMG26206TB

## Camera Case



Product Description	Item Number
Tray for camera head	AR-3106C

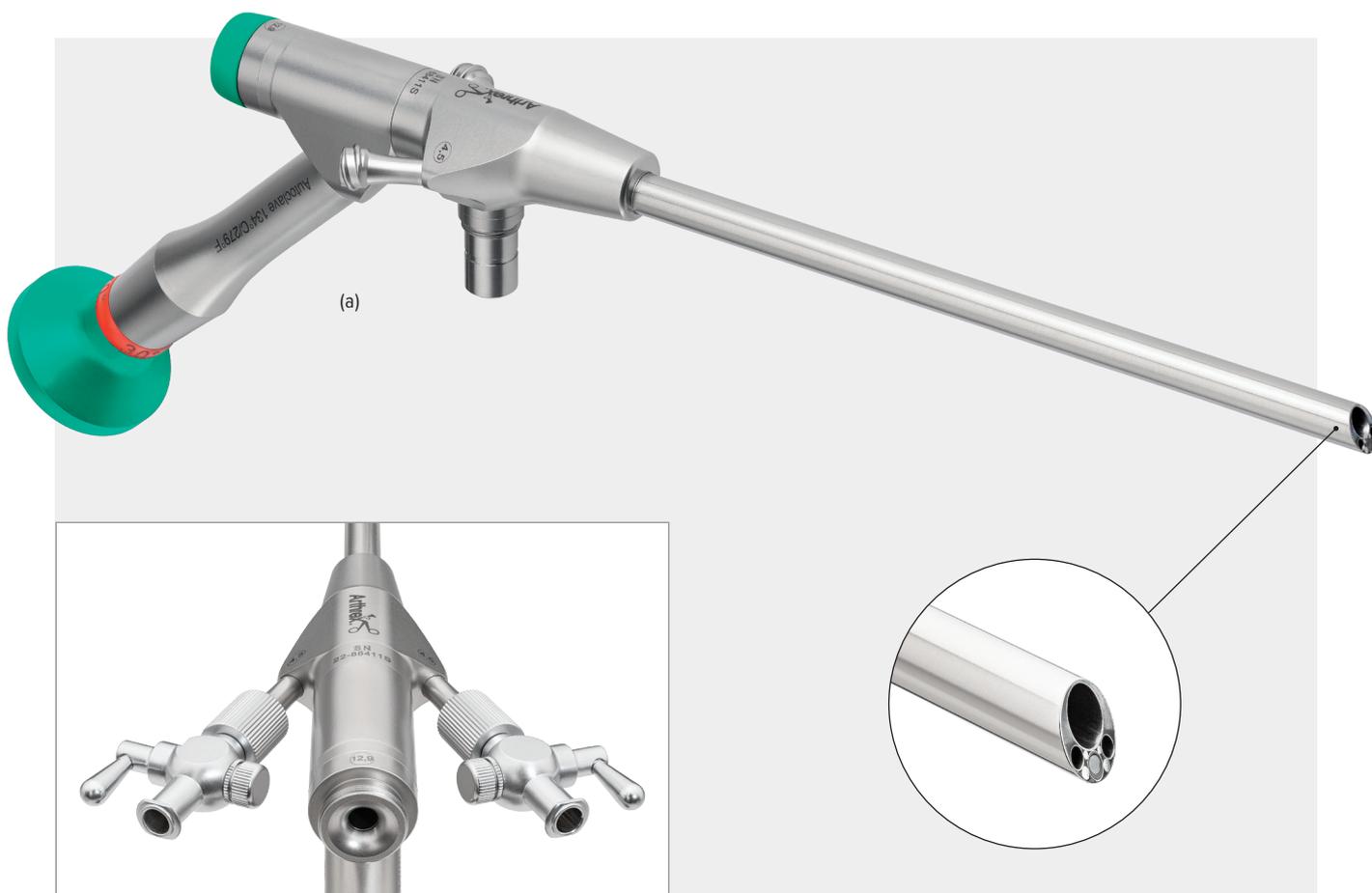
## Spine Endoscopes

Designed for a uniportal approach, these spine-specific working channel endoscopes can be used through an incision between 7.5 mm and 11 mm, minimizing soft-tissue disruption.

Unlike microscopes, loops, and exoscopes, which are placed outside the body, endoscopes provide tissue-level visualization.

### Features and benefits

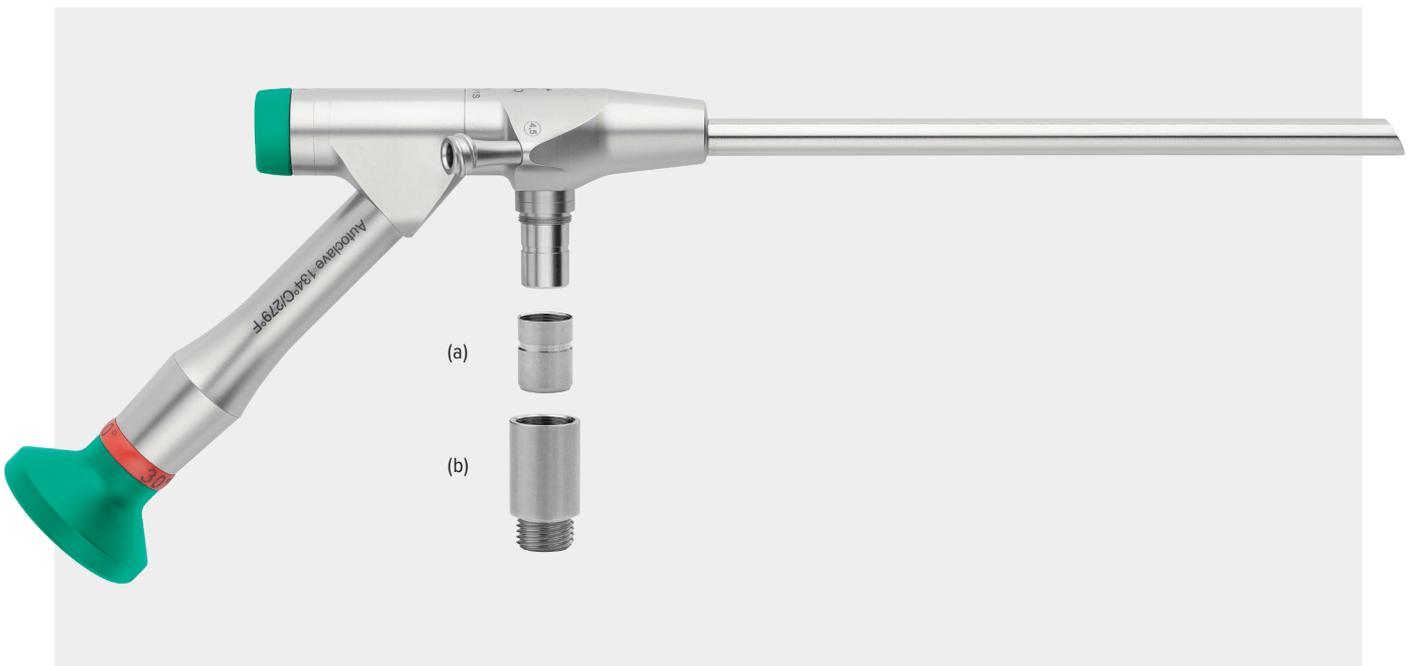
- Can be used in conjunction with depth stop (see page 61) and cannula holder (AR-S3420-CH), providing an ergonomic solution
- Integrated irrigation for a clear surgical field
- Camera tip reaches level of tissue for direct visualization
- Flexible for use with multiple visualization platforms



Product Description	Item Number
Spine endoscope, 6.3 mm × 130 mm, 15° ■	AR-S3350-6315-130
Spine endoscope, 6.3 mm × 130 mm, 30° ■	AR-S3350-6330-130
Spine endoscope, 6.3 mm × 181 mm, 15° ■	AR-S3350-6315-181
Spine endoscope, 6.3 mm × 181 mm, 30° ■	AR-S3350-6330-181
Spine endoscope, 6.3 mm × 215 mm, 30° ■	AR-S3350-6330-215
Spine endoscope, 7 mm × 130 mm, 15° ■	AR-S3350-7015-130
Spine endoscope, 7 mm × 130 mm, 30° (a) ■	AR-S3350-7030-130
Spine endoscope, 7 mm × 181 mm, 15° ■	AR-S3350-7015-181
Spine endoscope, 7 mm × 181 mm, 30° ■	AR-S3350-7030-181
Spine endoscope, 7 mm × 215 mm, 30° ■	AR-S3350-7030-215
Spine endoscope, 10 mm × 139 mm, 15° ■	AR-S3350-1015-139

Scope compatibility guide: ■ 6.3 mm ■ 7 mm ■ 10 mm

## Spine Endoscopes (Cont.)

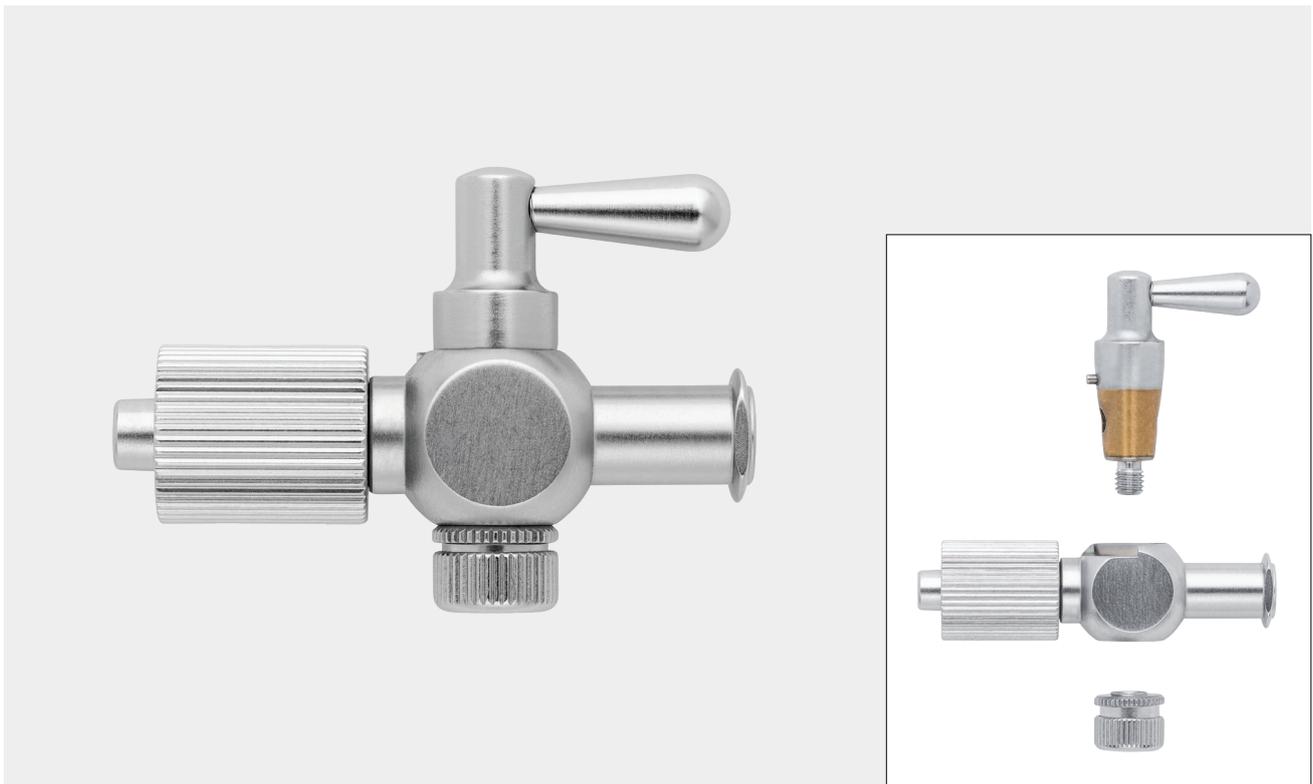


Product Description	Item Number
Wolf Adapter for Spine Endoscope (a)	8300042617
Storz Adapter for Spine Endoscope (b)	89542801



Product Description	Item Number
Spare Cap, endoscope, blue, 1 mm (c) ■	AR-S3375-100-BLU
Spare Cap, endoscope, green, 1 mm ■	AR-S3375-100-GRE
Spare Cap, endoscope, yellow, 1 mm ■	AR-S3375-100-YEL

## Spine Endoscopes (Cont.)



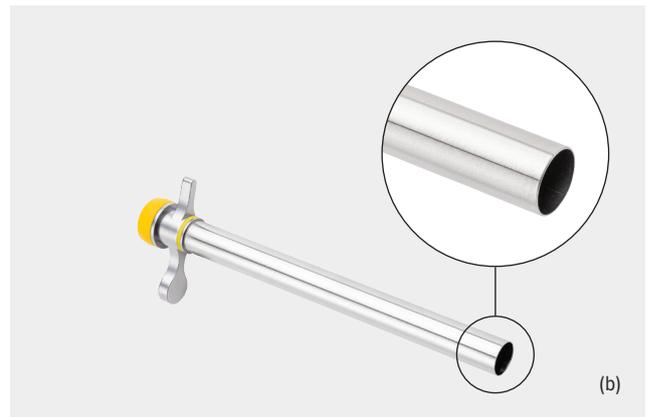
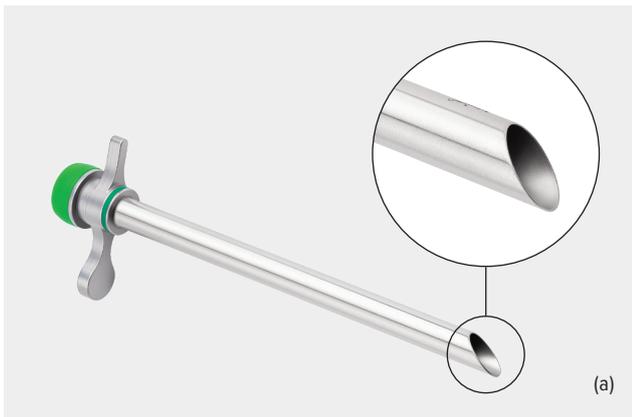
Product Description	Item Number
Stopcock	AR-S3350-000-001

### Depth Stops

Product Description	Item Number
Spine Endoscope Depth Stop, 6.3 mm ■	AR-S3350-063-DS
Spine Endoscope Depth Stop, 7 mm ■	AR-S3350-070-DS
Spine Endoscope Depth Stop, 10 mm ■	AR-S3350-100-DS
Spine Endoscope Disposable Depth Stop, 6.3 mm ■	AR-S3350-063-DS-S
Spine Endoscope Disposable Depth Stop, 7 mm ■	AR-S3350-063-DS-S
Spine Endoscope Disposable Depth Stop, 10 mm ■	AR-S3350-100-DS-S

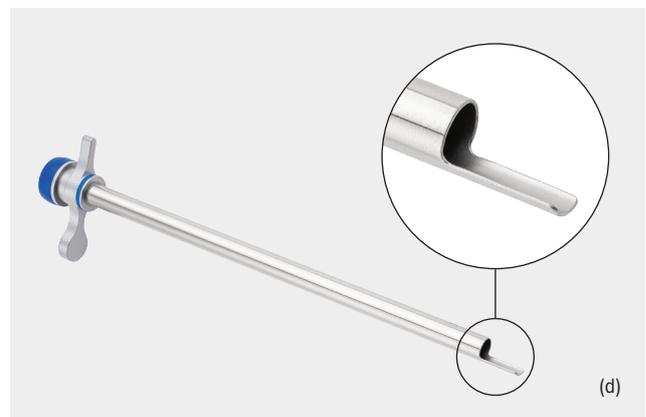
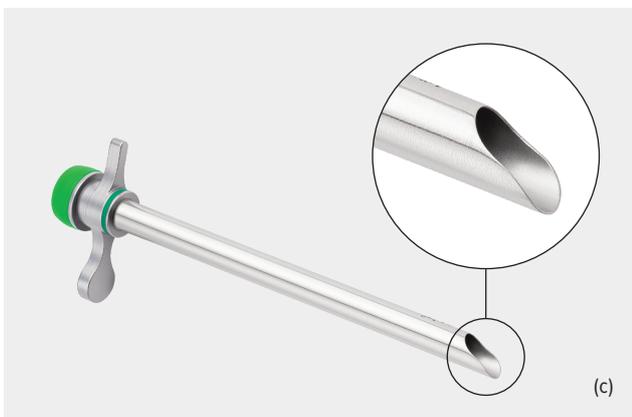
Scope compatibility guide: ■ 6.3 mm ■ 7 mm ■ 10 mm

## Cannulas



Product Description	Item Number
Cannula, w/ oblique window, 7.5 mm × 178 mm ■	AR-S3420-075-178
Cannula, w/ oblique window, 7.5 mm × 212 mm ■	AR-S3420-075-212
Cannula, w/ oblique window, 7.5 mm × 212 mm, 30° ■	AR-S3420-075-21230
Cannula, w/ oblique window, 8 mm × 125 mm (a) ■	AR-S3420-080-125
Cannula, w/ oblique window, 8 mm × 178 mm ■	AR-S3420-080-178
Cannula, w/ oblique window, 8 mm × 212 mm ■	AR-S3420-080-212
Cannula, w/ oblique window, 8 mm × 212 mm, 30° ■	AR-S3420-080-21230
Cannula, w/ oblique window, 11 mm × 134 mm ■	AR-S3420-110-134

Product Description	Item Number
Cannula, w/ flat tip, 11 mm × 134 mm (b) ■	AR-S3420-110-134FT



Product Description	Item Number
Cannula, w/ elevator tip, 7.5 mm × 125 mm ■	AR-S3420-075-125ET
Cannula, w/ elevator tip, 7.5 mm × 178 mm ■	AR-S3420-075-178ET
Cannula, w/ elevator tip, 7.5 mm × 212 mm ■	AR-S3420-075-212ET
Cannula, w/ elevator tip, 8 mm × 125 mm (c) ■	AR-S3420-080-125ET
Cannula, w/ elevator tip, 8 mm × 178 mm ■	AR-S3420-080-178ET
Cannula, w/ elevator tip, 8 mm × 212 mm ■	AR-S3420-080-212ET

Product Description	Item Number
Cannula, w/ open tip, 7.5 mm × 178 mm (d) ■	AR-S3420-075-178OT
Cannula, w/ open tip, 7.5 mm × 212 mm ■	AR-S3420-075-212OT
Cannula, w/ open tip, 8 mm × 178 mm ■	AR-S3420-080-178OT
Cannula, w/ open tip, 8 mm × 212 mm ■	AR-S3420-080-212OT

Scope compatibility guide: ■ 6.3 mm ■ 7 mm ■ 10 mm

## Synergy Video Cart



Requires AR-3260-1012 for dual-monitor setup

The video cart features a modular shelf design to conform to any setup need. The power cords are prewired and cable management can be accomplished on either side of the cart. Large wheels and handles on each side of the cart ensure ease of movement throughout the OR.

The main monitor boom arm allows the monitor 38 in of reach and 15 in of vertical adjustment. Arm tension is adjustable to hold 19 in to 32 in monitors, and an easy-access handle and locking position facilitate cart movement. Mounted in the middle rear of the top shelf, the secondary arm is easily accessible by OR staff.

The monitor stand includes the cart with transformer, 5 shelves, 1 drawer, 1 foot pedal holder, 1 secondary arm, and a main monitor boom arm.

## Synergy Video Cart (Cont.)

- Multiple configurations
- Adjustable shelves
- Printer access from rear of cart on top shelf
- 38 in extended boom arm
- 200° rotatable touch panel arm
- Transformer included

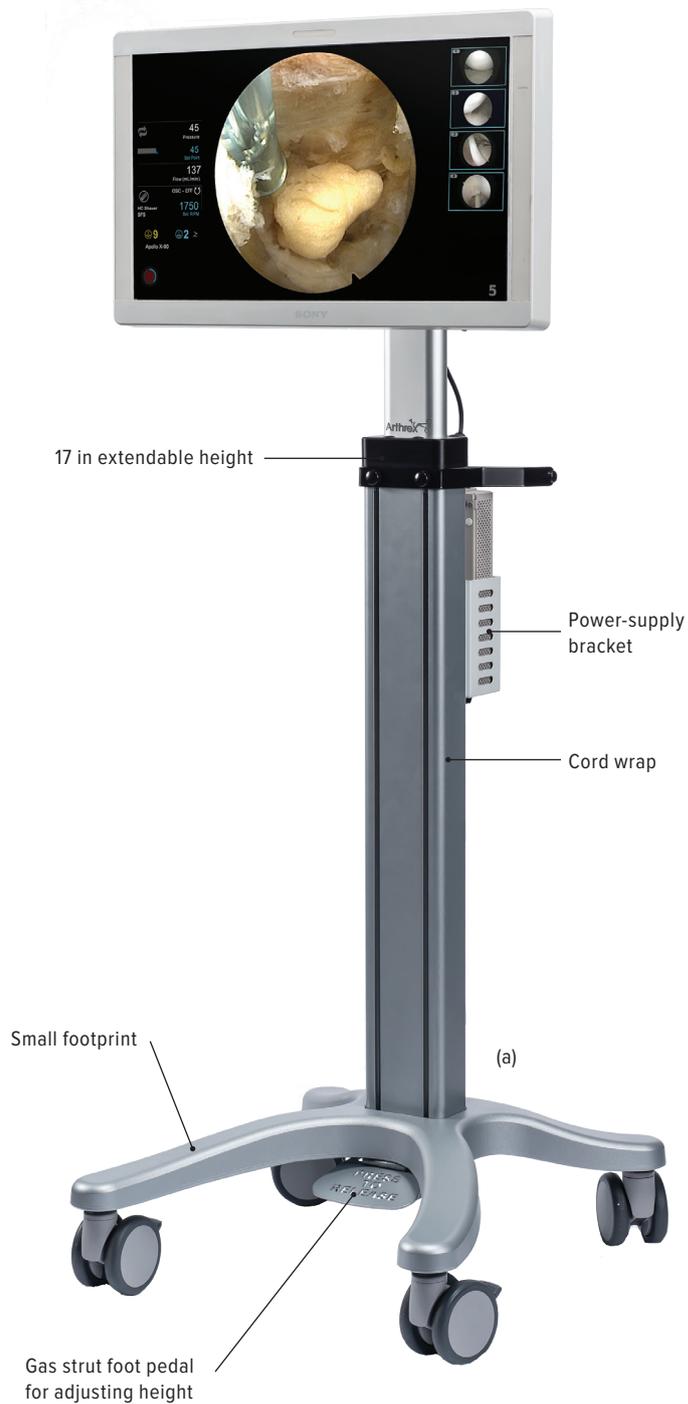


Product Description	Item Number
Component shelf for video cart	AR-3260-1000
Drawer for video cart	AR-3260-1001
D & E tank holder for video cart	AR-3260-1004
Foot switch bracket, SP-920-2 for video cart	AR-3260-1005
Foot switch bracket, AR-8310SP and AR-8315 for video cart	AR-3260-1006
Foot switch bracket, AR-8315C for video cart	AR-3260-1007
Foot switch bracket, AR-6483 and AR-9800 for video cart	AR-3260-1008
Foot switch bracket, AR-8310 for video cart	AR-3260-1009
Pole pump mount for video cart	AR-3260-1010
Synergy camera cup for video cart	AR-3260-1011
Dual-monitor assembly for video cart	AR-3260-1012
Pump pullout shelf for video cart	AR-3260-1015
Cart handle (spare part)	AR-3260-1017
Monitor handle (spare part)	AR-3260-1018
Rear door, right, for video cart (spare part)	AR-3260-1019
Rear door, left, for video cart (spare part)	AR-3260-1020
Monitor boom arm for video cart (spare part)	AR-3260-1021
Secondary arm for video cart (spare part)	AR-3260-1022
IV bag hanger, 4 bag, for video cart	AR-3260-1023
Dual-yoke CO <sub>2</sub> switching valve w/ hardware	AR-3260-1026
Hardware Kit for dual-yoke switching valve (spare part)	AR-3260-1027
Patch panel (spare part)	AR-3260-1029
3-pack paint (l gray, d gray, black)	AR-3260-1036
Housing, transformer (spare part)	AR-3260-1037
Monitor dock (spare part)	AR-3260-1038
Top shelf for video cart, CCU length (spare part)	AR-3260-1039
Shelf component screws (spare part)	AR-3260-1052
Door magnet, qty. 1 (spare part)	AR-3260-1053
Channel nut screws, qty. 6 (spare part)	AR-3260-1054
Mushrooms, qty. 2 (spare part)	AR-3260-1055
Grommets, assorted (spare part)	AR-3260-1056
Hinges, qty. 2 (spare part)	AR-3260-1057
Synergy video cart w/ boom, 120V	AR-3260-0001
US bed rail for video cart	AR-3260-1014
Casters for video cart (spare part)	AR-3260-1024
Casters Kit, 4, for video cart (spare part)	AR-3260-1025
Power cord, US	AR-3260-1040
Transformer 120V (spare part)	AR-3260-1050

## Secondary Monitor Stand

- Small footprint
- Adjustable monitor height
- Large casters for ease of mobility
- Locking casters
- Dimensions: 22 in (w) × 57.5 in (h) × 23 in (l)

Product Description	Item Number
Arthrex Secondary Monitor Stand (a)	002314-00
4-Outlet Power Strip, 15 ft cord	002313-00
Tablet Arm, single link, for stand	002314-00
Caster, 4-in twin wheel, brake	703129-15
Caster, 4-in twin wheel, swivel	703128-15
Adjustable Shelf for Stand	002315-00



## NanoScope™ Console

The NanoScope system combines the latest technologies in small imaging sensors, LED lighting, and image management with an intuitive control unit.

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



Product Description	Item Number
NanoScope Console	AR-3200-0030

## NanoScope™ System

The NanoScope 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. The network-based system allows for bidirectional communication to your facility EHR, PACS, Synergy Surgeon App™ software, and SurgeonVault® system.



### Tablet Control Unit Components

- 13 in HD monitor
- Handpiece connector
- Microphone
- Ethernet, USB, and HDMI ports

### NanoNeedle Scope Standard Lengths

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

## NanoScope™ System (Cont.)

Product Description	Item Number
NanoScope Tablet Control Unit	AR-3200-0030
NanoScope Console Mobile Cart (a)	AR-3502-CRT
NanoScope Console Battery Supply Replacement	150-0012-00-A



## Spine NanoCannula Kit

- Dual-lumen cannula
- Side-by-side use of NanoScope™ probe and instrumentation
- 7 mm outer diameter
- 2.8 mm working channel

Product Description	Item Number
Spine NanoCannula Kit	AR-3210-0045-0010

Note: NanoScope probe not included.





SKYTRON GS70H SALUS



# Fluid Management

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Trademarks are the property of their respective owners.

### The Suctioner® Surgical Suction Mat



This disposable surgical mat combines the absorbency of the poly-backed Dri-Safe® pad and the nonslip, anti-fatigue memory foam construction of The Surgical Mat™ with powerful, quiet, and continuous suction capability. These features are designed to support a drier, safer, cleaner OR. The Suctioner mat has graduated slots to move fluid toward lateral suction tubes.

It easily attaches to any OR vacuum source in seconds and efficiently manages unwanted fluids, keeping them off the OR floor. The mat's antimicrobial properties also aid in reducing the risk of cross-contamination. This latex-free surgical mat is ideal for all surgical procedures.

Product Description	Item Number
The Suctioner Surgical Mat, 22 in × 35 in (comfort mat), 35 in × 56 in (total), blue, qty. 8	USA-X10

### The EcoSuctioner® Surgical Suction Mat



- All-in-one ergonomic suction mat that allows two people to stand comfortably during a procedure
- Designed with directional grooves for improved quiet, continual suction; attaches to any suction source
- Large, rugged absorbent mat included on underside creates more nonslip surface in OR
- Lightweight suction mat, weighs 0.79 kg, allowing for quick and easy setup and removal
- Reduces laundry on the floor

Product Description	Item Number
The EcoSuctioner Surgical Mat, 28 in × 40 in (comfort mat), 35 in × 56 in (total), green, qty. 8	USA-XG8

The Suctioner, Dri-Safe, The Surgical Mat, and The EcoSuctioner are trademarks of Flagship Surgical, LLC.

## The SuctionBlu™ Mat



The SuctionBlu disposable surgical mat combines the absorbency of the poly-backed Dri-Safe® pad and the nonslip, anti-fatigue memory foam construction of The EcoSuctioner® mat with powerful, quiet, continuous suction capability. These features are designed to create a drier, safer, and cleaner operating room.

The graduated slots on The SuctionBlu mat use gravity to direct fluids toward the suction tube. The SuctionBlu mat easily attaches to any OR vacuum source in seconds and efficiently manages unwanted fluids, keeping them off the floor.

The SuctionBlu mat is a smaller, more economical version of The EcoSuctioner mat but larger than The Suctioner® mat.

Product Description	Item Number
The SuctionBlu Surgical Mat, 36 in × 56 in, blue	USA-XBL

## The Surgical Mat™ and The Mini Mat™ Surgical Mats



The Surgical Mat and The Mini Mat surgical mats were designed to address three OR issues: comfort, safety, and fluid buildup. Both mats are constructed of a resilient memory foam material that provides relief and support when standing on hard concrete floors and steel step stools. The mats feature a nonslip molded foam design and custom tapered fluid channels to keep the surgical team's feet dry and reduce the risk of tracking body fluids across the OR. The Surgical Mat and The Mini Mat surgical mats are latex-free and ideal for all surgical procedures.

Product Description	Item Number
The Surgical Mat Surgical Mat, 20 in × 39 in, blue, qty. 10 <b>(a)</b>	USA-010
The Mini Mat Surgical Mat, 13 in × 17 in, blue, qty. 10 <b>(b)</b>	USA-A10

The Suctioner, Dri-Safe, The Surgical Mat, and The EcoSuctioner are trademarks of Flagship Surgical, LLC.

## EcoDri-Safe™ Absorbent Rolls



Containing fluids and streamlining clean-up procedures has never been easier than with the new EcoDri-Safe absorbent rolls. The 28 in × 100 ft rolls are perforated every 20 inches to create 60 easy-to-tear-off 20 in × 28 in floor mats on every roll.

**EcoDri-Safe absorbent rolls are ideal wherever fluid containment can be an issue:**

- Operating rooms
- Scrub sinks
- Laboratory stations
- Central processing
- Emergency rooms
- Procedure rooms

Product Description	Item Number
EcoDri-Safe Non-Poly-Backed, 100 ft × 28 in, 20 in × 28 in, 60 sheets per roll	USA-ECO100
EcoDri-Safe Poly-Backed, 100 ft × 28 in, 20 in × 28 in, 60 sheets per roll	USA-ECO100PLY
EcoDri-Safe Dispensing Cart	USA-ECODISP

EcoDri-Safe is a trademark of Flagship Surgical, LLC.

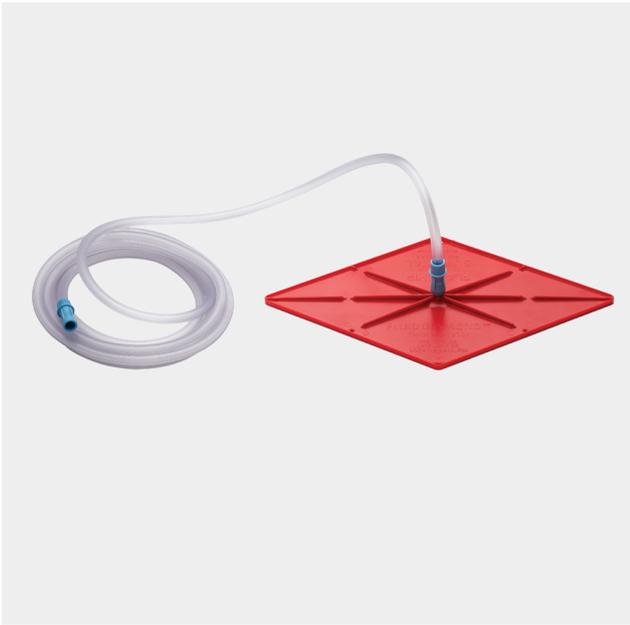
## Dri-Safe® Absorbent Pads



- Super absorbent, economical, disposable floor pads that eliminate expensive laundry costs
- Use wherever fluids buildup, including OR floors, in front of scrub sinks, lab station floors, etc
- Dri-Safe pads help prevent slips and falls and the transmission of harmful contaminants to health care providers
- Impermeable poly-backing option promotes safety, keeps the pads firmly in place, and locks in fluids

Product Description	Item Number
Dri-Safe Absorbent Pad, 28 in × 40 in, blue, qty. 20	USA-B28X40
Dri-Safe Absorbent Pad, 28 in × 40 in, blue, poly-backing, qty. 20	USA-B28X40PLY
Dri-Safe Absorbent Pad, 30 in × 56 in, blue, qty. 15	USA-B30X56
Dri-Safe Absorbent Pad, 30 in × 56 in, blue, poly-backing, qty. 15	USA-B30X56PLY

## Fluid Diamond® Floor Aspirator

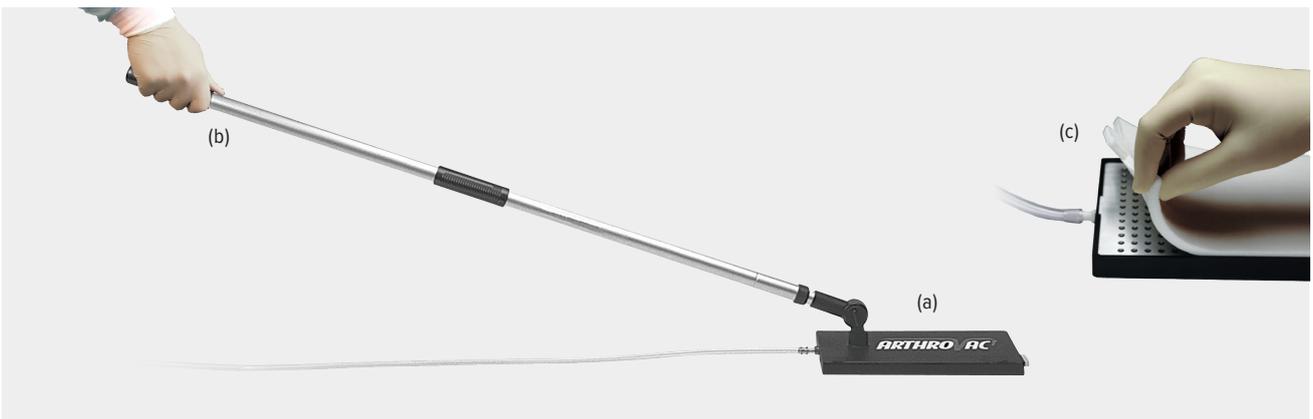


- Fast, effective fluid collection
- Powerful suction action keeps floors dry and reduces the potential for slipping or falling
- Eliminates the need for slippery, costly towels and blankets on the OR floor to absorb fluids
- Designed with quieting pad and anti-floor-sticking technology
- Attaches to any surgical suction source
- Includes easily attachable suction tubing

Product Description	Item Number
Fluid Diamond Floor Aspirator, qty. 30	USA-FDX

Fluid Diamond is a trademark of Flagship Surgical, LLC.

## ArthroVac™ Floor Suction System



The ArthroVac active suction device is used to clean up unwanted fluid inside the OR. Attach the ArthroVac system to an OR vacuum to suck fluid quickly and quietly into a waste container.

Product Description	Item Number
ArthroVac Floor Suction System (a)	AR-4004
ArthroVac Telescoping Handle and Connector (b)	AR-4004H
ArthroVac Felt Pads, qty. 10 (c)	AR-4004P

## Office Suction Pump and Disposable Canister

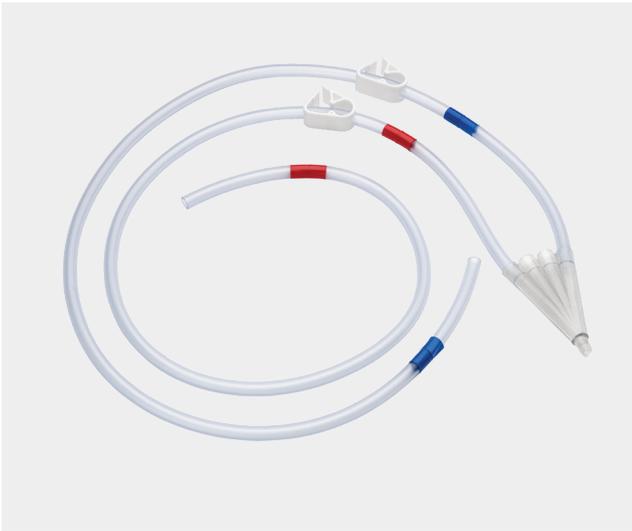


A medical suctioning device and solution with minimal noise, the office suction pump produces a maximum vacuum of 560 mmHg for use with Nano arthroscopy. Additionally, the 800 cc disposable collection cannister is designed for convenient and reliable aspiration of waste.

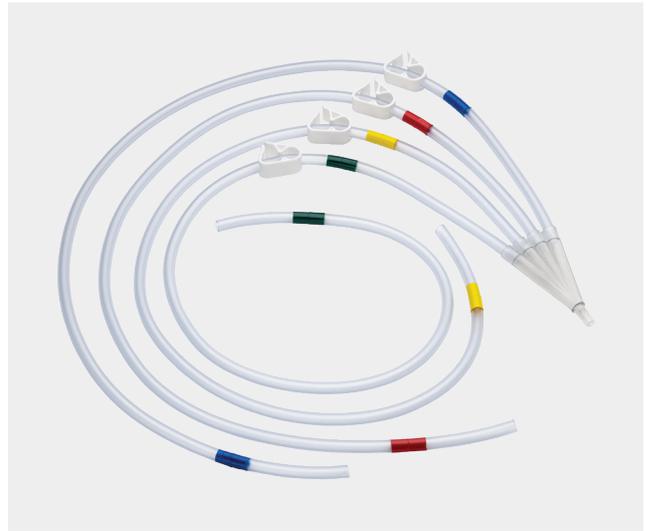
- Works with the 2.26 and 3.3 high-flow NanoScope™ sheaths
- New antibacterial filter design helps prevent contamination
- High-quality vacuum regulator and antivibration vacuum gauge setting
- Oilless, permanent lubrication
- Collection bottle with overflow protection
- Superior performance and reliability for continuous operation design
- Easy to carry and easy to clean

Product Description	Item Number
Vacuum Pump	<b>18600</b>
Canister Kit	<b>22330</b>
Canister Kit (12-pack)	<b>22330-12</b>

## Multiport Suction Tubing



Product Description	Item Number
Multiport Suction Tubing, 2 port	AR-S1002



Product Description	Item Number
Multiport Suction Tubing, 4 port	AR-S1004

## Irrigation Tubing



Gravity tubing is compatible with all arthroscopic sheaths and cannulas and can maintain proper distention even in complicated surgical cases that demand high flow.

### Gravity Tubing

Product Description	Item Number
2-spike Tubing (a)	AR-6412
4-spike Tubing	AR-6414
Y-Inflow Tubing, 7 mm (b)	AR-6200



MSK  
Pinnacle 2

Arthrex  
Stryker

Autoclave 134°C/219°F

2316-0012  
EPR-2002  
EPR-2002

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4.5

2316



# High-Speed Drill System

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## Primado2 Control Unit



### Primado2 Control Unit

P200-CU-120

Power supply: AC 120 V 50/60 Hz

Dimension: 278 mm (w) × 268 mm (d) × 160 mm (h)

Weight: 6.9 kg

- Compact design for easy setup
- Extensive options can be set up individually
- Main panel features simple, user-friendly operation

### Home Screen:

- Speed control
- Irrigation control
- Reverse rotation control
- Priming control
- Foot control setting displayed

## Setting Options

### Control unit:

- Brightness
- Volume
- Language settings (6 languages available)
- Displays rotation speed of engaged motor/attachment

### For Motor:

- Acceleration adjustment
- Brake adjustment
- Torque adjustment
- Oscillation adjustment (wire-pin driver only)

## Foot Control



**Primado2 Single Foot Control**  
FC-73  
1 pedal with 1 function button

- Open pedal design enables precise and easy control
- Each button can be set to a specific function per operator preference

### Function Options

---

- Foot control ON/OFF
- A ↔ B control (switching between motors)
- Speed control (Min. 30% → default → Max. 100%)
- Reverse rotation mode
- Irrigation ON/OFF
- Flush (continuous 100% irrigation when pressed)
- Disable
- Variable speed control
- IP rating: IPX8

## Slim Motor Series

- Compact and lightweight design prevents surgeon fatigue during procedures
- A variety of attachments are available
- Quick joint allows for an easy attachment-motor connection

Product Description	Item Number	
<p><b>Primado2 Slim Motor</b> Foot control only</p>	<p>P200-SMH</p>	
<p><b>Primado2 Slim Motor, short</b> Foot control only</p>	<p>P200-SMH-S</p>	
<p><b>Primado2 Slim Motor HS</b> Hand control only</p>	<p>P200-SMH-HS</p>	

## Slim Attachment Hub, 300 Series

Connects 300 series Slim Tube to Slim Motor series

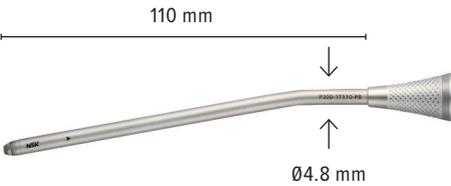
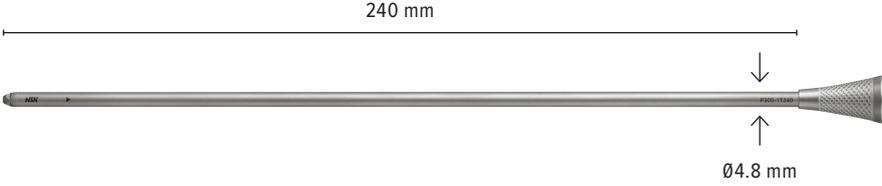
Product Description	Item Number	
Slim Attachment Hub, straight	P300-1AHS	
Slim Attachment Hub, angled	P300-1AHA	

## Slim Tube, 300 Series

- Connects to Slim Motor series using the Slim Attachment Hub
- Ideal for MIS spine procedures

Product Description	Item Number	
<b>Slim Tube 110</b> MIS	P300-1T110	
<b>Slim Tube 130</b> MIS	P300-1T130	
<b>Slim Tube 110/C</b> MIS	P300-1T110-C	
<b>Slim Tube 130/C</b> MIS	P300-1T130-C	

## Slim Tube, 300 Series (Cont.)

Product Description	Item Number	
Slim Tube 110/PB MIS	P300-1T110-PB	
Slim Tube 130/PB MIS	P300-1T130-PB	
Slim Tube 240 Endoscopic <span style="color: yellow;">■</span>	P300-1T240	

## Slim Tube Accessories

Product Description	Item Number
Slim Tube Beak	P300-1T-B*
Slim Tube Hood	P300-1T-H*
Irrigation Nozzle for 155	P200-IN-1A155
Irrigation Nozzle for 175	P200-IN-1A175

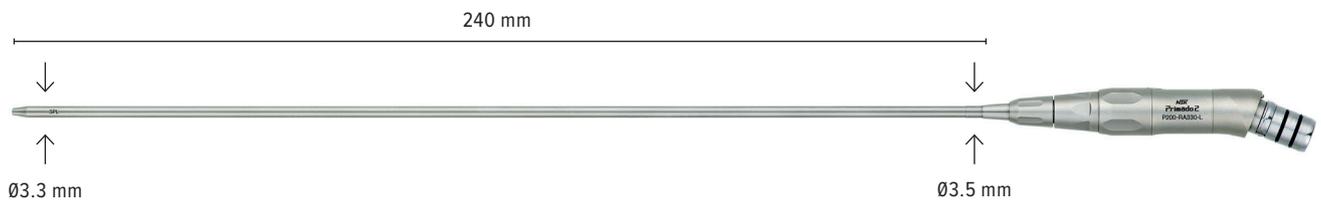
\*Cannot be used with the irrigation nozzle.

Scope compatibility guide: ■ 6.3 mm ■ 7 mm ■ 10 mm

## Super Slim Handpiece, 200 Series

- Designed for endoscopic spine surgery
- Connects directly to Slim Motor series

Product Description	Item Number
Super Slim Handpiece 200 SPL/L Endoscopic ■ ■	P200-RA330-L



## Standard Attachment, 300 Series

- Connects directly to Slim Motor series
- Ideal for open spine procedures

Product Description	Item Number	
STD Attachment 40/Straight Open	P300-2S40	<p>39 mm</p> <p>05.5 mm</p>
STD Attachment 60/Straight Open	P300-2S60	<p>59 mm</p> <p>05.5 mm</p>
STD Attachment 80/Straight Open	P300-2S80	<p>79 mm</p> <p>05.5 mm</p>
STD Attachment 40/Angled Open	P300-2A40	<p>39 mm</p> <p>05.5 mm</p>
STD Attachment 60/Angled Open	P300-2A60	<p>59 mm</p> <p>05.5 mm</p>
STD Attachment 80/Angled Open	P300-2A80	<p>79 mm</p> <p>05.5 mm</p>

## Standard Attachment Accessories

Product Description	Item Number
Irrigation Nozzle (extra short)	PD-IN-2ES
Irrigation Nozzle (medium)	PD-IN-2M
Irrigation Nozzle (short)	PD-IN-2S
Irrigation Nozzle (long)	PD-IN-2L

## Metal Cutting Handpiece



Product Description	Item Number
Metal Cutting Handpiece 200	P200-3MC

## Endoscopic Burs

### Super Slim Handpiece 200 ■ ■



#### Diamond Bur ■ ■

Head Size (mm)	Item Number
2.0	PDS-1D330-20
2.5	PDS-1D330-25
3.0	PDS-1D330-30
3.5	PDS-1D330-35

#### Coarse Diamond Bur ■ ■

Head Size (mm)	Item Number
2.0	PDS-1CD330-20
2.5	PDS-1CD330-25
3.0	PDS-1CD330-30
3.5	PDS-1CD330-35

### Slim Tube 240 ■



#### R Diamond Bur ■

Head Size (mm)	Item Number
3.0	PDS-1RD240-30
4.0	PDS-1RD240-40
5.0	PDS-1RD240-50

#### R Coarse Diamond Bur ■

Head Size (mm)	Item Number
3.0	PDS-1RCD240-30
4.0	PDS-1RCD240-40
5.0	PDS-1RCD240-50



#### R Fluted Bur ■

Head Size (mm)	Item Number
4.0	PDS-1RF240-40

## MIS Burs

Compatible with the 110 mm or 130 mm attachments.



### R Coarse Diamond Bur

Head Size (mm)	Length	
	110	130
3.0	PDS-1RCD110-30	PDS-1RCD130-30
4.0	PDS-1RCD110-40	PDS-1RCD130-40
5.0	PDS-1RCD110-50	PDS-1RCD130-50

### MH Coarse Diamond Bur

Head Size (mm)	Length	
	110	130
3.0	PDS-1MHCD110-30	PDS-1MHCD130-30
4.0	PDS-1MHCD110-40	PDS-1MHCD130-40



### R Fluted Bur

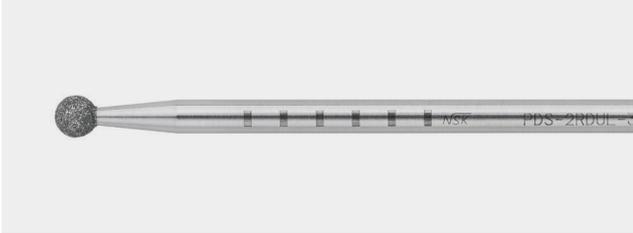
Head Size (mm)	Length	
	110	130
3.0	PDS-1RF110-30	PDS-1RF130-30
4.0	PDS-1RF110-40	PDS-1RF130-40

### MH Fluted Bur

Head Size (mm)	Length	
	110	130
2.5	PDS-1MHF110-25	PDS-1MHF130-25
3.0	PDS-1MHF110-30	PDS-1MHF130-30

## Open Burs

- Compatible with 300 series standard attachments
- Universal length burs can be used with all standard attachments



### R Diamond Bur

Head Size (mm)	Item Number
3.0	PDS-2RDUL-30
4.0	PDS-2RDUL-40
5.0	PDS-2RDUL-50
6.0	PDS-2RDUL-60

### R Coarse Diamond Bur

Head Size (mm)	Item Number
3.0	PDS-2RCDUL-30
4.0	PDS-2RCDUL-40
5.0	PDS-2RCDUL-50
6.0	PDS-2RCDUL-60



### R Extra Coarse Diamond Bur

Head Size (mm)	Item Number
4.0	PDS-2RECDUL-40
5.0	PDS-2RECDUL-50
6.0	PDS-2RECDUL-60

### MH Coarse Diamond Bur

Head Size (mm)	Item Number
3.0	PDS-2MHCDUL-30
4.0	PDS-2MHCDUL-40



### Barrel Diamond Bur

Head Size (mm)	Item Number
3.0	PDS-2BCDUL-30
5.0	PDS-2BCDUL-50

## Open Burs (Cont.)



MH Fluted Bur

Head Size (mm)	Item Number
3.0	PDS-2MHFUL-30



R Fluted Bur

Head Size (mm)	Item Number
3.0	PDS-2RFUL-30
4.0	PDS-2RFUL-40
5.0	PDS-2RFUL-50
6.0	PDS-2RFUL-60



QuadEdge Bur

Head Size (mm)	Item Number
3.0	PDS-2QEUL-30
4.0	PDS-2QEUL-40
5.0	PDS-2QEUL-50
6.0	PDS-2QEUL-60

## Metal Cutting

Compatible with metal cutting handpiece.



Product Description	Item Number
Metal Cutting Carbide Bur, 1.6 mm	PDS-3MCS-CB16
Metal Cutting Carbide Bur, 3.0 mm	PDS-3MCS-CB30
Metal Cutting Diamond Disc, 25.4 mm	PDS-3MCS-DD254

## Lubrication

Required for proper device maintenance.



Product Description	Item Number
PANA Spray Plus	Z182600



Product Description	Item Number
EZ Spray Adaptor	PD-EZ-M



Product Description	Item Number
Spray Adaptor for Slim	P200-EZ-SM

Spray is not included



**Slim Motor Series:**  
Each attachment

**Spray Adaptor for Slim:**  
(P200-EZ-SM)



**EZ Spray Adaptor**





# Synergy<sup>Resection</sup><sup>TM</sup> System

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## Synergy<sup>Resection™</sup> Console



This versatile Synergy<sup>Resection</sup> system was designed for multiple orthopedic procedures and operates like two consoles in one chassis. It can simultaneously operate two accessory handpieces completely independent of each other. Operators can also use 1 or 2 foot pedals to control each of the accessory handpieces. Shaver handpieces offer 3 oscillating modes depending on the application or surgeon's preference: standard, efficient, or aggressive.

Integration of the Synergy<sup>Resection</sup> console with a Synergy video management system enables the heads-up display feature and allows for easy visibility of the shaver system settings on the monitor.

- 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
- Large and small hub: OSC: 3000 rpm max
- Large hub: FWD/REV: 8000 rpm max
- Small hub: FWD/REV: 6200 rpm max

Product Description	Item Number
Synergy <sup>Resection</sup> console	AR-8305

## Handpieces



### Hand Control

- Multifunction buttons
  - Change speed
  - Change direction
  - Turn on/off

(a)



### Hand Control (backhand)

- Multifunction buttons
  - Change speed
  - Change direction
  - Turn on/off
  - Suction opposite from button controls

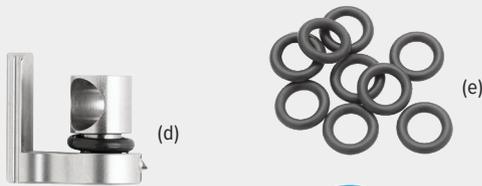
(b)



### Foot Control

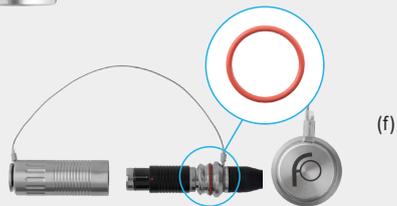
- Lightweight
- Control via footswitch

(c)



(d)

(e)



(f)



(g)

The unique double-sealed shaver handpieces are robust and reliable with a light ergonomic feel and come with or without hand-control options. These high-speed, high-torque handpieces feature a snap-lock collet that accepts standard, hip-length, and small joint blades and burs, making them among the most versatile handpieces available. With high-performance motors and constructed of cutting-edge materials, Synergy<sup>Resection™</sup> shaver handpieces are a great addition to the OR.

### Hand-Control Shaver Handpieces

Featuring ergonomic multifunction buttons that place control of speed and direction at your fingertips, the hand-control shaver handpieces are available in standard and backhand models.

### Foot-Control Shaver Handpiece

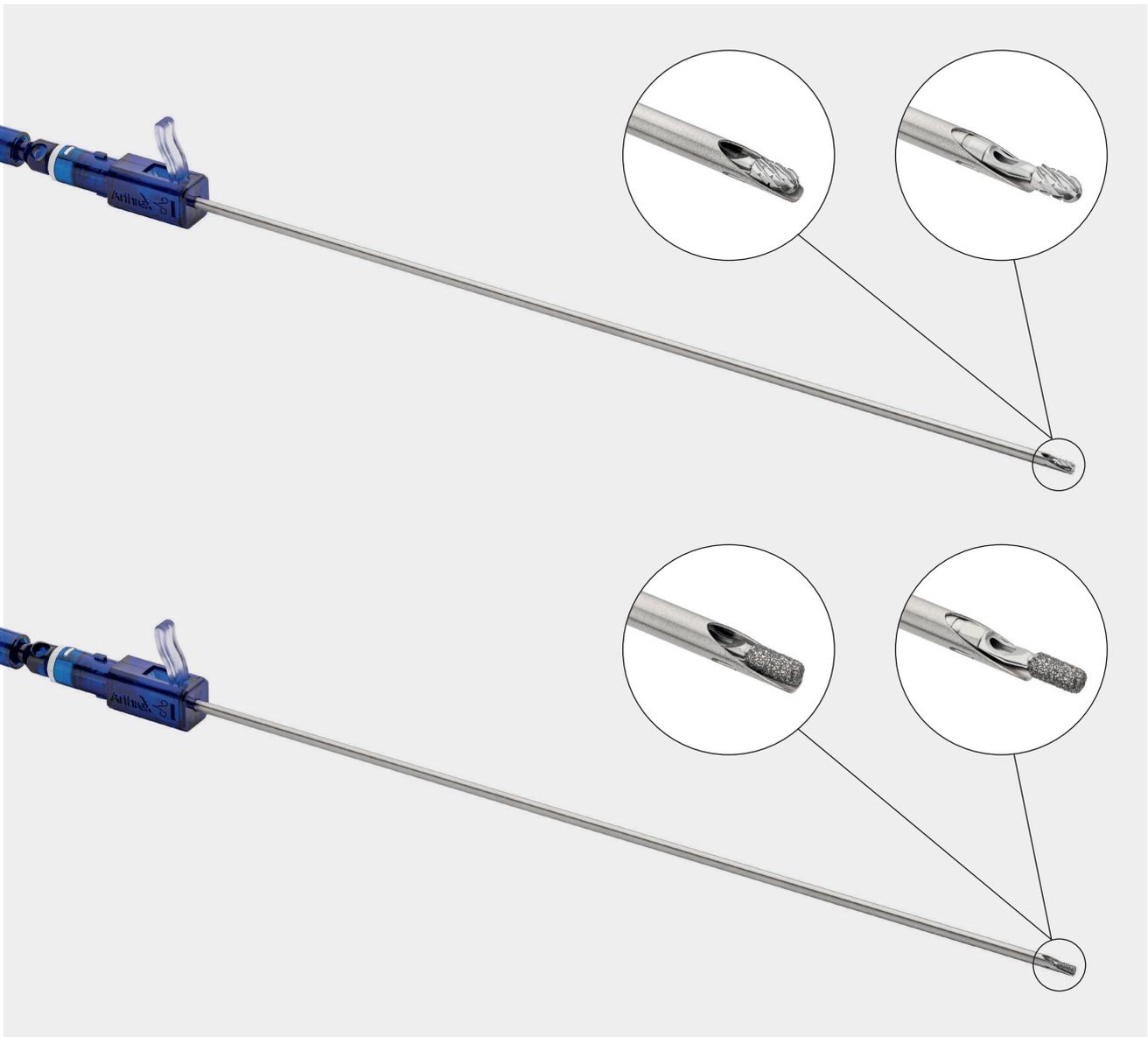
With the same lightweight, high-performance features as our hand-operated handpieces, the footswitch shaver handpiece provides another option for control.

Product Description	Item Number
Shaver handpiece, hand control <b>(a)</b>	AR-8332H
Shaver handpiece, hand control, backhand <b>(b)</b>	AR-8332RH
Shaver handpiece, footswitch control <b>(c)</b>	AR-8330F
Replacement valve assembly for AR-8330F, AR-8330H, AR-8330RH, AR-8332H, and AR-8332RH handpieces <b>(d)</b>	AR-8330V
Replacement O-rings for AR-8330V valve assembly (pack of 10) <b>(e)</b>	AR-8330VO
Replacement O-rings for F-style soaker cap (pack of 5) <b>(f)</b>	AR-8330FO
Replacement O-rings for t-style soaker cap (pack of 5) <b>(g)</b>	AR-8330TO

## Footswitches

Product Description	Item Number
Synergy <sup>Resection™</sup> single pedal footswitch	AR-S8311

## Spine Shaver Burs



Product Description	Item Number
Oval bur retractable, 3 mm × 330 mm ■ ■	AR-SOV-R30-330
Coarse diamond oval bur retractable, 3 mm × 330 mm ■ ■	AR-SOV-R30-330CD

Scope compatibility guide: ■ 7 mm ■ 10 mm





Arthrex

Arthrex

Autoclave 134°C/279°F

Arthro-Cut 12  
1189887-1342827  
1189887-20102

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45

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# Synergy ElectroSurgery System

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## Synergy ElectroSurgery Generator

The Synergy ElectroSurgery system was developed specifically for endoscopic spine procedures. High-frequency currents (4 MHz) allow for precise tissue resection and ablation to help avoid critical neurological structures.



(a)



(b)



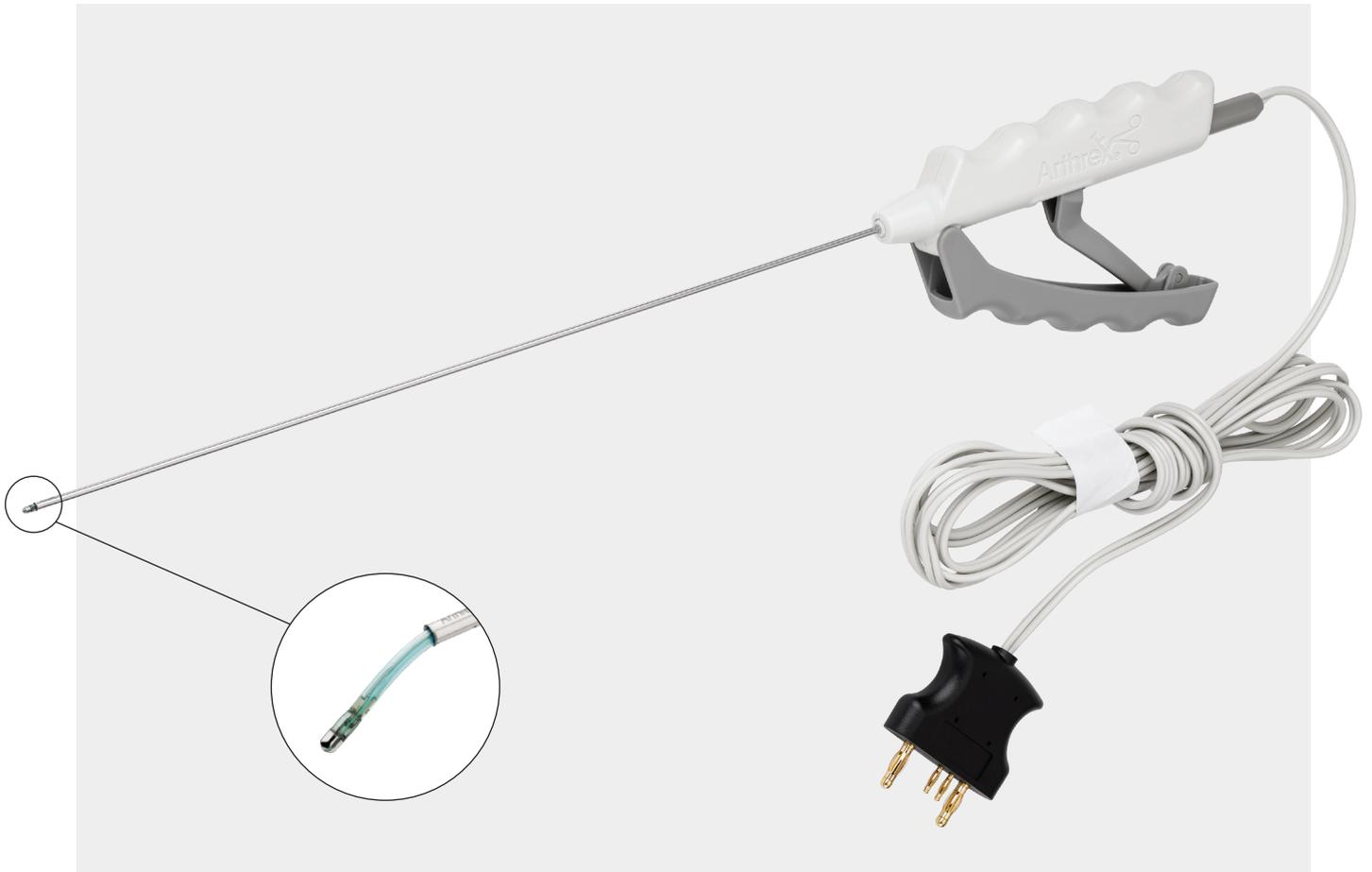
(c)

Product Description	Item Number
Synergy ES Console (a)	AR-S9800
Synergy ES Footswitch w/ Handle (c)	AR-S9800-F1
Synergy ES Footswitch (b)	AR-S9800-F2

Synergy  
ElectroSurgery

## FlexTip RF Probes

FlexTip RF probes feature an articulating tip and an ergonomic WishBone™ handle.



Product Description	Item Number
FlexTip RF Probe, 28 cm	AR-S9805-0028
FlexTip RF Probe, 35 cm	AR-S9805-0035

## Adapters



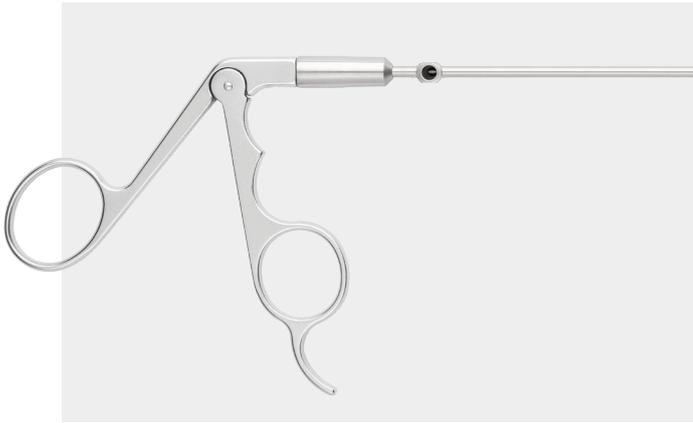
Product Description	Item Number
FlexTip Probe Adapter - Joimax	AR-S9805-010-J



# Instruments

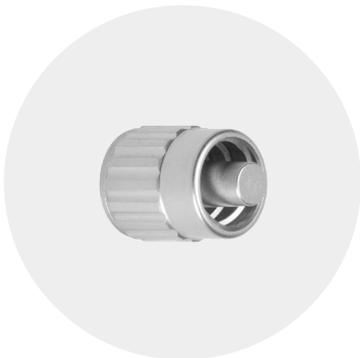
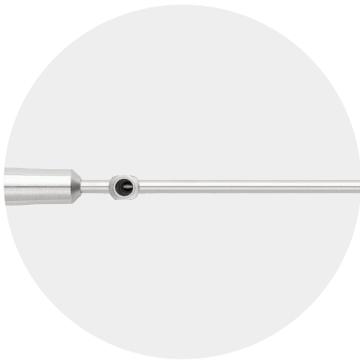
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## Hand Instruments



### Pistol Grip

Tried and tested, these pistol grip instruments feature comfortable, ergonomic loop handles for simple and precise control in a wide range of different hand positions and tissue resection procedures.



### WishBone™ Grip

Pioneered by Arthrex nearly 3 decades ago to prioritize surgeon comfort and ergonomics, this series of endoscopic instruments features superior feel and improved ergonomics that facilitate inverted and retrograde usage with either hand. Designed specifically for endoscopic procedures, this product line includes a comprehensive variety of tip styles, angles, sizes, and shaft diameters. Ceramic coating increases durability and life span, while silicone coating on the handle allows for increased comfort and control.

### FlushPort

The unique FlushPort connection design allows for easy and efficient instrument cleaning particularly of the inner lumen. The familiar Luer-lock connector offers the possibility of a simple connection of the instruments to, for example, the rinsing port of a washer-disinfector. The instruments come with an attached silicone cap; a metal cap is available to close the Luer lock during standard use, according to user preference.

### Luer Lock Cap (sold separately)

Closes the hand instrument's Luer-lock FlushPort connection during use. It is recommended to purchase 1 cap per hand instrument.

Product Description	Item Number
FlushPort Luer-Lock Cap, for use with FlushPort hand instruments, reusable	AR-150301F



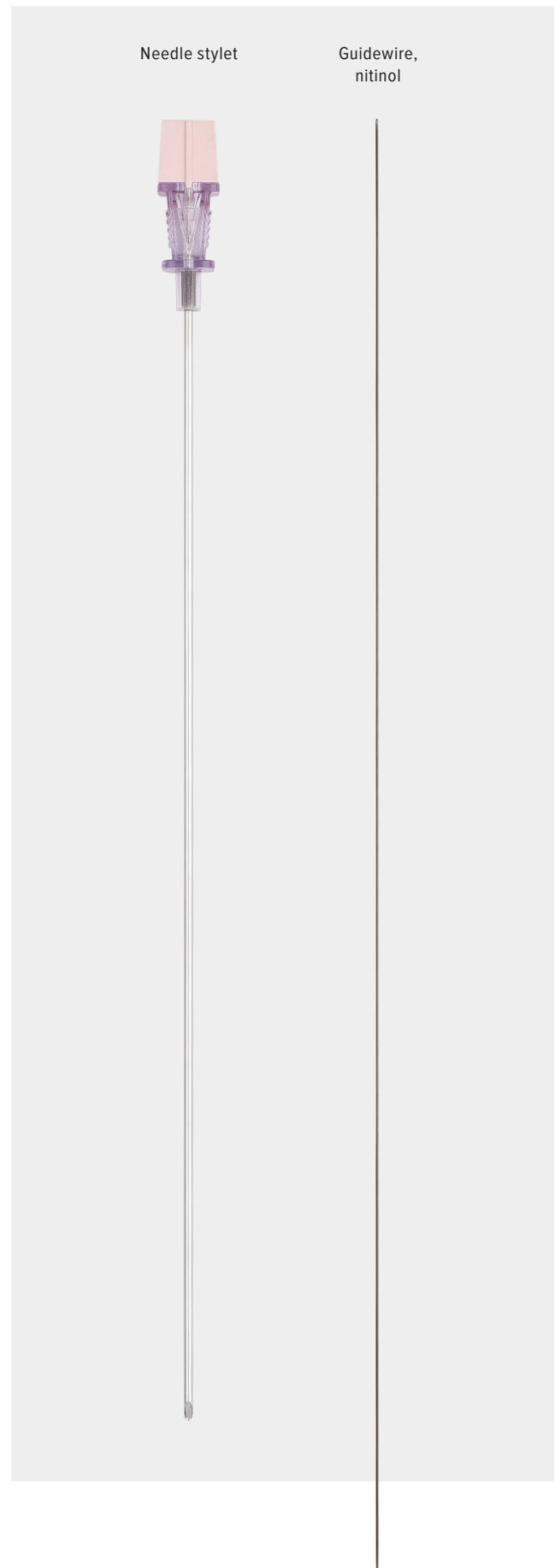
## Endoscopic Spine Access Kit

Sterile disposable kit includes all equipment necessary for initial access, conveniently contained in one package.

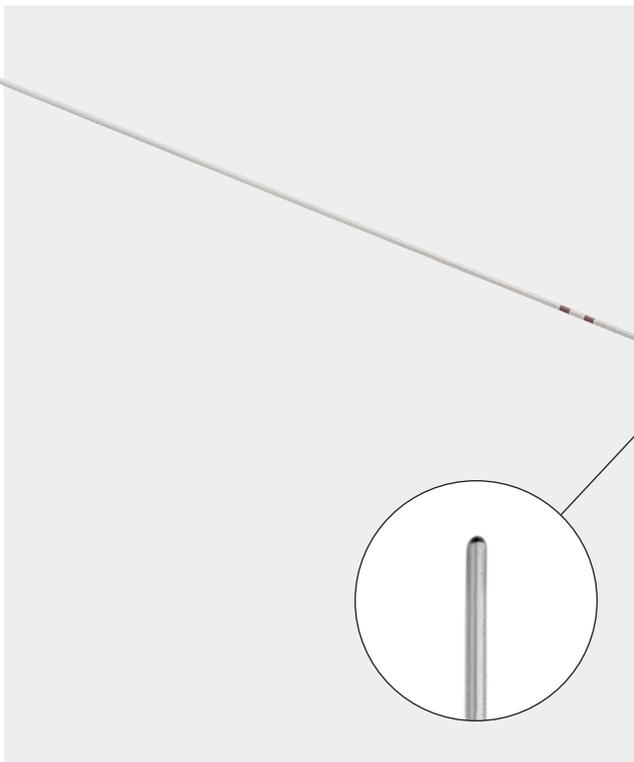
### Cannula Insertion Recommendations

1. Insert calibrated needle stylet
2. Remove stylet and insert guidewire through needle
3. Remove the needle, keeping guidewire in place
4. Insert serial dilator(s)/switching stick to the desired diameter
5. Insert cannula over serial dilator(s)
6. Remove guidewire and serial dilator(s)

Product Description	Item Number
Spine Access Disposable Kit	AR-S4000K-S

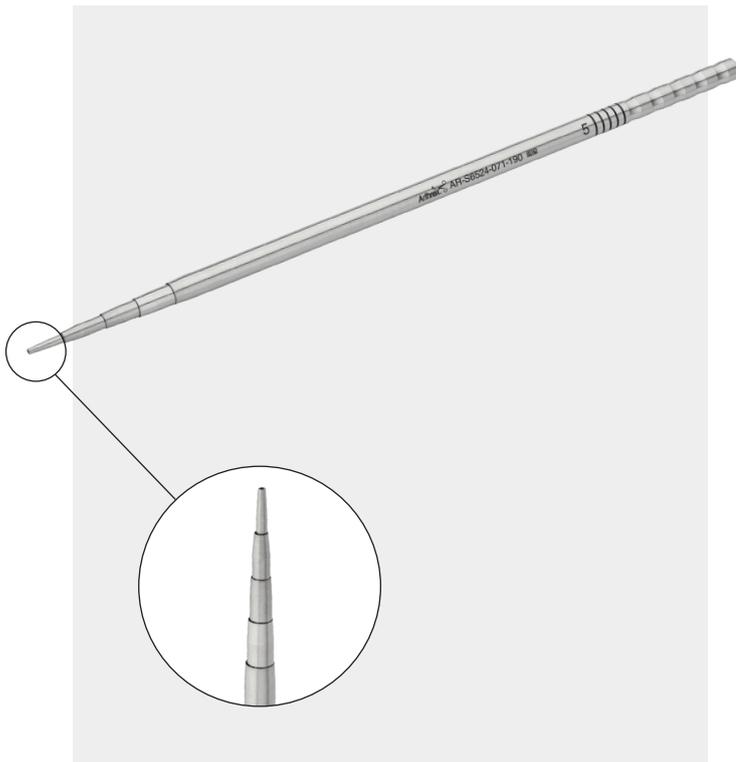


## Needles and Guidewires



Product Description	Item Number
Guidewire, 0.7 mm × 400 mm	AR-S4000-007-400
Guidewire, nitinol, 0.8 mm × 400 mm	AR-S4000-008-400
Distension needle w/ stylet, 17 ga × 7 in	AR-1369N-1

## Dilators



Conical dilators are ideal for step dilations during endoscopic and MIS procedures.

Product Description	Item Number
<b>6-Step Series</b>	
Dilator, 2.5 mm × 230 mm (a)	AR-S6524-025-230
Dilator, 4.1 mm × 220 mm (b)	AR-S6524-041-220
Dilator, 5.1 mm × 210 mm (c)	AR-S6524-051-210
Dilator, 6 mm × 200 mm (d) ■	AR-S6524-060-200
Dilator, 7 mm × 190 mm (e) ■	AR-S6524-071-190
Dilator, 10.1 mm × 160 mm (f) ■	AR-S6524-101-160
<b>4-Step Series</b>	
Dilator, 3 mm × 230 mm	AR-S6524-030-230
Dilator, 6 mm × 210 mm ■	AR-S6524-060-210
Dilator, 7 mm × 190 mm ■	AR-S6524-070-190
Dilator, 10.1 mm × 170 mm ■	AR-S6524-101-170
<b>3-Step Series XL</b>	
Dilator, 3 mm × 250 mm	AR-S6524-030-250
Dilator, 6 mm × 235 mm ■	AR-S6524-060-235
Dilator, 7 mm × 220 mm ■	AR-S6524-070-220
<b>Miscellaneous</b>	
Dilator, curved, 2.5 mm × 230 mm	AR-S6524-025-230C
Dilator, 4 mm × 230 mm	AR-S6524-040-230
Dilator, 5 mm × 230 mm	AR-S6524-050-230



Scope compatibility guide: ■ 6.3 mm ■ 7 mm ■ 10 mm

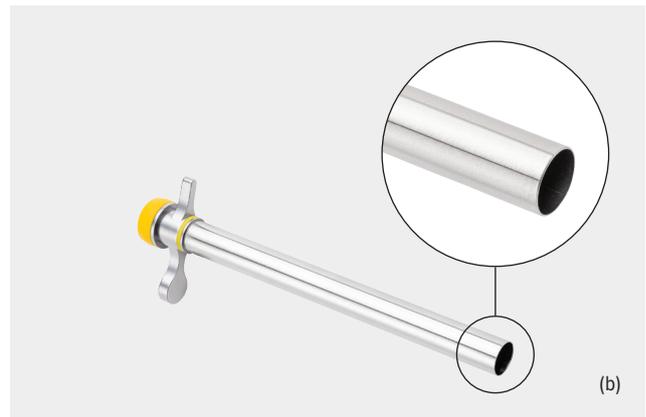
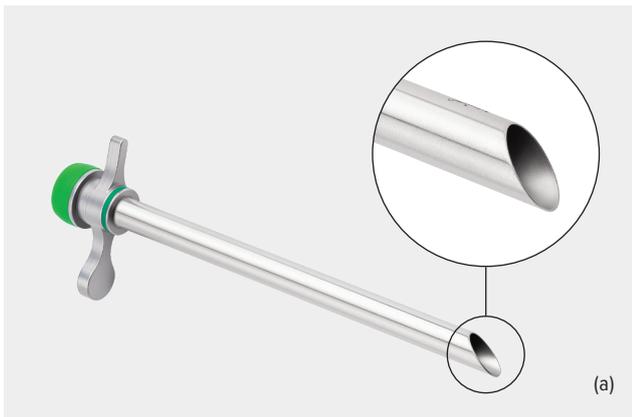
## Switching Sticks



Switching sticks are two-channel dilators that allow for single-step dilation.

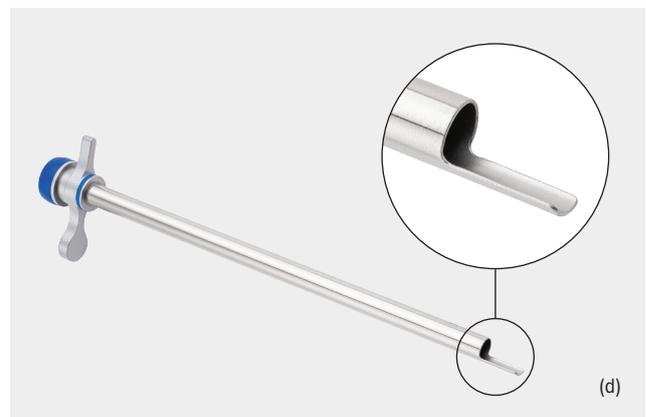
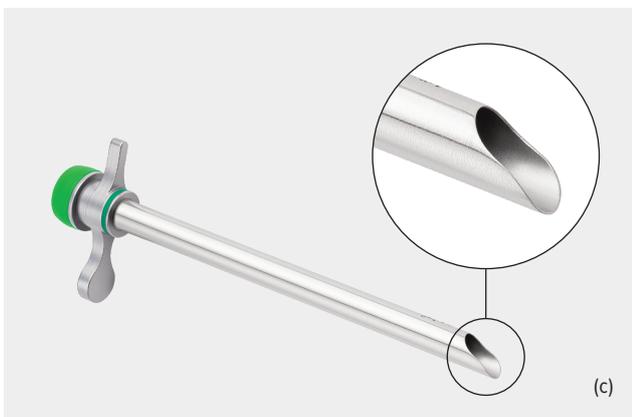
Product Description	Item Number
Switching Stick, 6.3 mm × 225 mm (a) ■	AR-S3020-063-225
Switching Stick, 7 mm × 225 mm (b) ■	AR-S3020-070-225
Switching Stick, 10 mm × 185 mm (c) ■	AR-S3020-100-185

## Cannulas



Product Description	Item Number
Cannula, w/ oblique window, 7.5 mm × 178 mm ■	AR-S3420-075-178
Cannula, w/ oblique window, 7.5 mm × 212 mm ■	AR-S3420-075-212
Cannula, w/ oblique window, 7.5 mm × 212 mm, 30° ■	AR-S3420-075-21230
Cannula, w/ oblique window, 8 mm × 125 mm (a) ■	AR-S3420-080-125
Cannula, w/ oblique window, 8 mm × 178 mm ■	AR-S3420-080-178
Cannula, w/ oblique window, 8 mm × 212 mm ■	AR-S3420-080-212
Cannula, w/ oblique window, 8 mm × 212 mm, 30° ■	AR-S3420-080-21230
Cannula, w/ oblique window, 11 mm × 134 mm ■	AR-S3420-110-134

Product Description	Item Number
Cannula, w/ flat tip, 11 mm × 134 mm (b) ■	AR-S3420-110-134FT



Product Description	Item Number
Cannula, w/ elevator tip, 7.5 mm × 125 mm ■	AR-S3420-075-125ET
Cannula, w/ elevator tip, 7.5 mm × 178 mm ■	AR-S3420-075-178ET
Cannula, w/ elevator tip, 7.5 mm × 212 mm ■	AR-S3420-075-212ET
Cannula, w/ elevator tip, 8 mm × 125 mm (c) ■	AR-S3420-080-125ET
Cannula, w/ elevator tip, 8 mm × 178 mm ■	AR-S3420-080-178ET
Cannula, w/ elevator tip, 8 mm × 212 mm ■	AR-S3420-080-212ET

Product Description	Item Number
Cannula, w/ open tip, 7.5 mm × 178 mm (d) ■	AR-S3420-075-178OT
Cannula, w/ open tip, 7.5 mm × 212 mm ■	AR-S3420-075-212OT
Cannula, w/ open tip, 8 mm × 178 mm ■	AR-S3420-080-178OT
Cannula, w/ open tip, 8 mm × 212 mm ■	AR-S3420-080-212OT

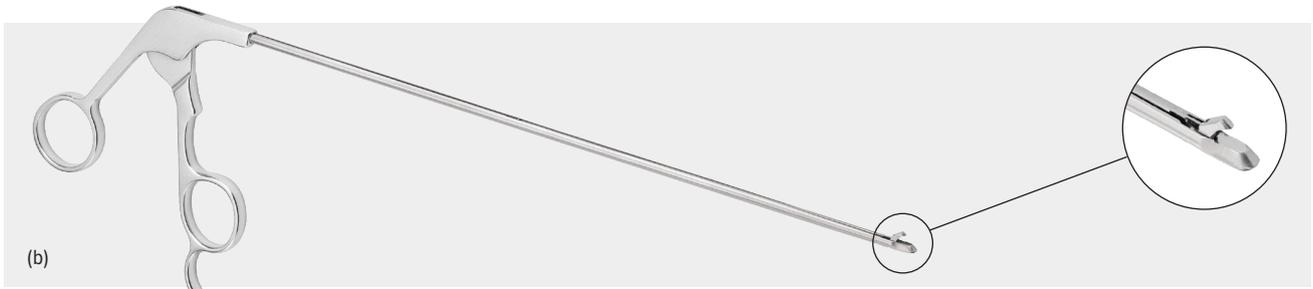
Scope compatibility guide: ■ 6.3 mm ■ 7 mm ■ 10 mm

## Punches



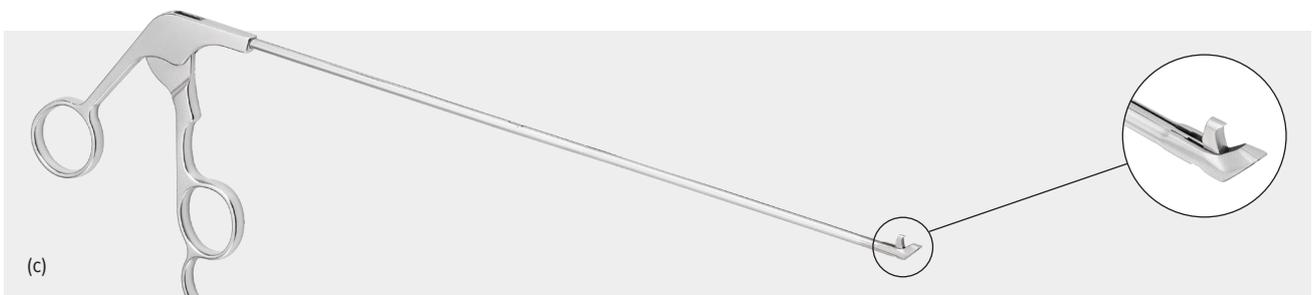
### Duckling Punches

Product Description	Item Number
Duckling Punch, 2.5 mm × 330 mm ■■■	AR-S7111-025-330
Duckling Punch, 2.5 mm × 330 mm, WishBone™ handle ■■■	AR-S7111-025-330W
Duckling Punch, 3.5 mm × 330 mm (a) ■■■	AR-S7111-035-330
Duckling Punch, 3.5 mm × 330 mm, WishBone handle ■■■	AR-S7111-035-330W



### Scissor Punches

Product Description	Item Number
Scissor Punch, 2 mm × 260 mm ■■■	AR-S7116-020-260
Scissor Punch, 2 mm × 260 mm, WishBone handle ■■■	AR-S7116-020-260W
Scissor Punch, 2.5 mm × 260 mm ■■■	AR-S7116-025-260
Scissor Punch, 2.5 mm × 260 mm, WishBone handle ■■■	AR-S7116-025-260W
Scissor Punch, 2.5 mm × 330 mm ■■■	AR-S7116-025-330
Scissor Punch, 2.5 mm × 330 mm, WishBone handle ■■■	AR-S7116-025-330W
Scissor Punch, 4 mm × 260 mm (b) ■■■	AR-S7116-040-260
Scissor Punch, 4 mm × 260 mm, WishBone handle ■■■	AR-S7116-040-260W
Scissor Punch, 4 mm × 330 mm ■■■	AR-S7116-040-330



### Up-Angle Scissor Punches

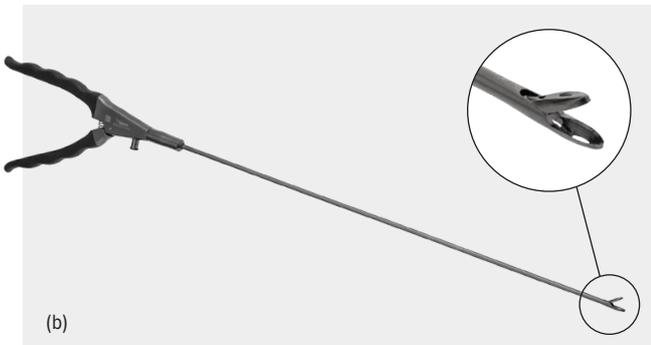
Product Description	Item Number
Scissor Punch, up angle, 2.5 mm × 330 mm ■■■	AR-S7116-025U-330
Scissor Punch, up angle, 2.5 mm × 330 mm, WishBone handle ■■■	AR-S7116-025U-330W
Scissor Punch, up angle, 3.5 mm × 260 mm (c) ■■■	AR-S7116-035U-260
Scissor Punch, up angle, 3.5 mm × 260 mm, WishBone handle ■■■	AR-S7116-035U-260W

## Forceps



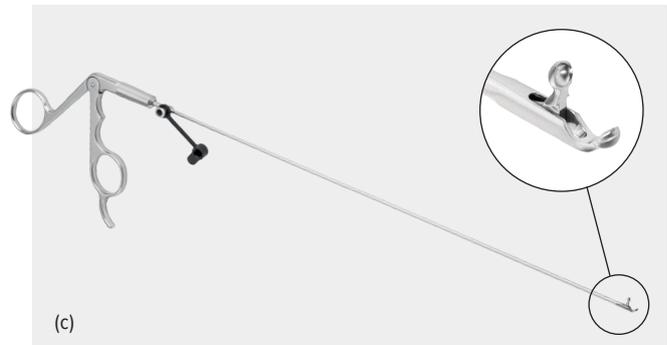
### Cup Forceps

Product Description	Item Number
Cup Forceps, 2.5 mm × 260 mm ■■■	AR-S7110-025-260
Cup Forceps, 2.5 mm × 260 mm, WishBone handle ■■■	AR-S7110-025-260W
Cup Forceps, 2.5 mm × 330 mm ■■■	AR-S7110-025-330
Cup Forceps, 2.5 mm × 330 mm, WishBone handle ■■■	AR-S7110-025-330W
Cup Forceps, 3 mm × 330 mm ■■■	AR-S7110-030-330
Cup Forceps, 3 mm × 330 mm, WishBone handle ■■■	AR-S7110-030-330W
Cup Forceps, 3.5 mm × 260 mm ■■■	AR-S7110-035-260
Cup Forceps, 3.5 mm × 260 mm, WishBone handle ■■■	AR-S7110-035-260W
Cup Forceps, 3.5 mm × 330 mm (a) ■■■	AR-S7110-035-330
Cup Forceps, 3.5 mm × 330 mm, WishBone handle ■■■	AR-S7110-035-330W
Cup Forceps, 4 mm × 260 mm ■■	AR-S7110-040-260
Cup Forceps, 4 mm × 260 mm, WishBone handle ■■	AR-S7110-040-260W
Cup Forceps, 4 mm × 330 mm ■■	AR-S7110-040-330
Cup Forceps, 4 mm × 330 mm, WishBone handle ■■	AR-S7110-040-330W



### Blakesley Forceps

Product Description	Item Number
Blakesley Forceps, 3.5 mm × 330 mm ■■■	AR-S7118-035-330
Blakesley Forceps, 3.5 mm × 330 mm, WishBone™ handle (b) ■■■	AR-S7118-035-330W



### Cup Forceps, Up Angled

Product Description	Item Number
Cup Forceps, up angle, 2 mm × 330 mm ■■■	AR-S7110-020U-330
Cup Forceps, up angle, 2 mm × 330 mm, WishBone handle ■■■	AR-S7110-020U-330W
Cup Forceps, up angle, 2.5 mm × 330 mm (c) ■■■	AR-S7110-025U-330
Cup Forceps, up angle, 2.5 mm × 330 mm, WishBone handle ■■	AR-S7110-025U-330W

Scope compatibility guide: ■ 6.3 mm ■ 7 mm ■ 10 mm

## Graspers



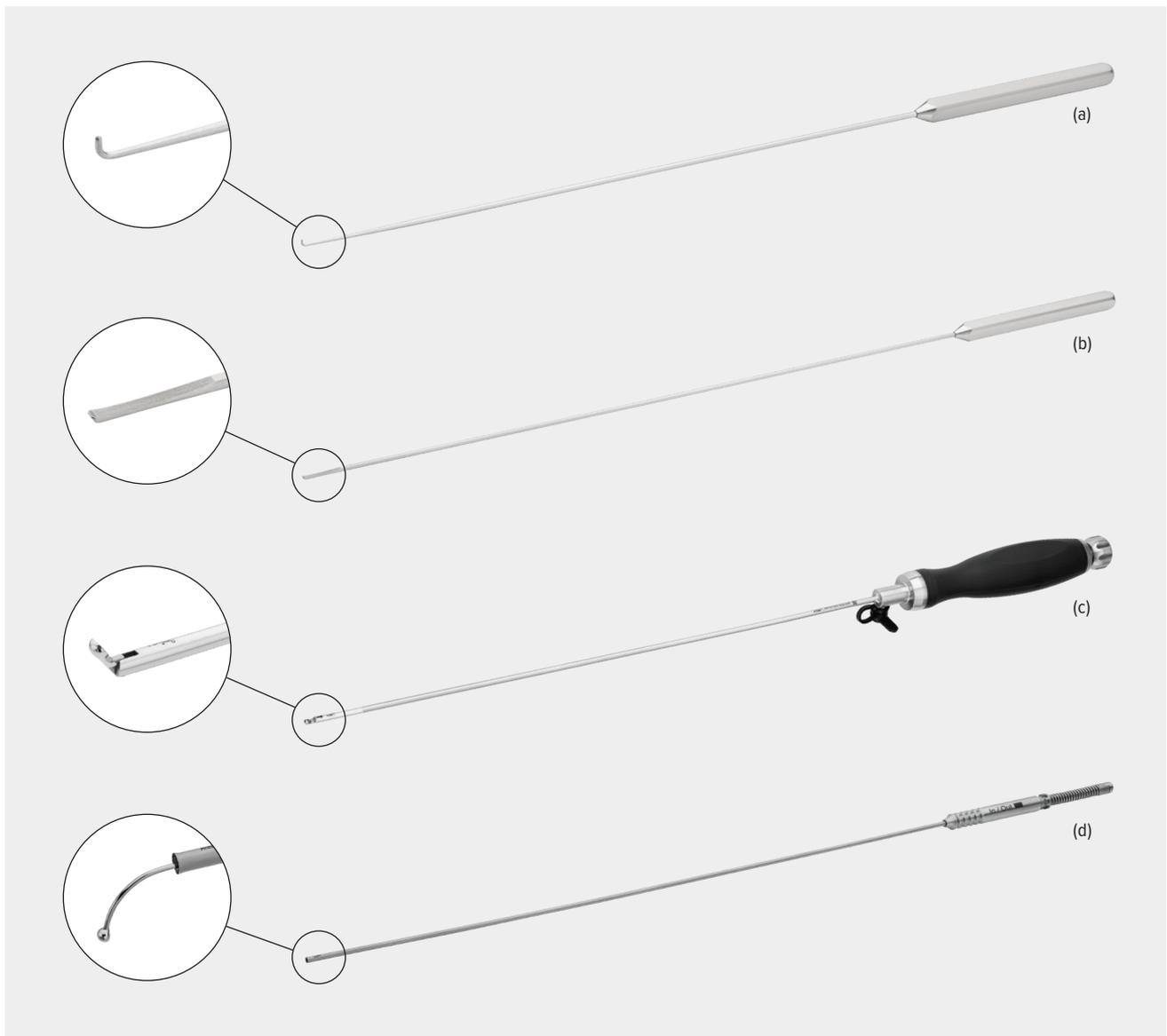
Product Description	Item Number
Cup Grasper, serrations, 2 mm × 330 mm cup ■■■	AR-S7121-020-330
Grasper, serrations, 2 mm × 330 mm, WishBone™ handle ■■■	AR-S7121-020-330W
Cup Grasper, teeth, 2.5 mm × 330 mm ■■■	AR-S7120-025-330
Cup Grasper, teeth, 2.5 mm × 330 mm, WishBone handle ■■■	AR-S7120-025-330W
Cup Grasper, semi-flexible, teeth, 2.5 mm × 330 mm cup (a) ■■■	AR-S7125-025F-330
Grasper, semi-flexible, teeth, 2.5 mm × 330 mm, WishBone handle ■■■	AR-S7125-025F-330W
Cup Grasper, semi-flexible, 3 mm × 260 mm ■■■	AR-S7125-030F-260
Cup Grasper, semi-flexible, 3 mm × 260 mm, WishBone handle ■■■	AR-S7125-030F-260W
Cup Grasper, semi-flexible, 3 mm × 330 mm (b) ■■■	AR-S7125-030F-330
Cup Grasper, semi-flexible, 3 mm × 330 mm, WishBone handle ■■■	AR-S7125-030F-330W

## Scissors

Product Description	Item Number
Hook Scissors, 2.5 mm × 260 mm (c) ■■■	AR-S7115-025-260
Hook Scissors, 2.5 mm × 260 mm, WishBone handle ■■■	AR-S7115-025-260W
Hook Scissors, 2.5 mm × 330 mm ■■■	AR-S7115-025-330
Hook Scissors, 2.5 mm × 330 mm, WishBone handle ■■■	AR-S7115-025-330W



## Manual Instruments



Product Description	Item Number
Hook Probe, 2.5 mm × 260 mm (a) ■■■	AR-S10030-025-260
Hook Probe, 2.5 mm × 310 mm ■■■	AR-S10030-025-310
Bone Awl, 3 mm × 310 mm ■■■	AR-S7324-030-310
Osteotome, V Cut, 3 mm × 310 mm ■■■	AR-S7323-030V-310
Blunt Dissector, 2.5 mm × 310 mm (b) ■■■	AR-S1342-025-310
Osteotome, 3 mm × 260 mm ■■■	AR-S1342-030-260
Osteotome, 3 mm × 310 mm ■■■	AR-S7323-030-310
Bone Curette, 2 mm × 260 mm ■■■	AR-S7305-020-260
Bone Curette, 3.5 mm × 330 mm (c) ■■■	AR-S7305-035-330
Kerrison/Ball Tip Probe, handle	AR-S7400-000-000H
Kerrison/Ball Tip Probe, handle, WB	AR-S7400-000-000W
Ball Tip Probe Shaft, flexible, 1.8 mm × 330 mm (d) ■■■	AR-S7405-018-330
Ball Tip Probe Shaft, flexible, 2.4 mm × 330 mm	AR-S7405-024-330
Probe, articulating, 3 mm × 330 mm ■■■	AR-S7310-030-330
Ball Tip Probe, flexible, assembly ■■■	AR-S7310-035-380

Scope compatibility guide: ■ 6.3 mm ■ 7 mm ■ 10 mm

## Manual Instruments (Cont.)



Product Description	Item Number
Kerrison/Ball Tip Probe, handle	AR-S7400-000-000H
Kerrison/Ball Tip Probe, handle, WB	AR-S7400-000-000W
Kerrison, 2.5 mm × 360 mm, 40° <span style="color:blue">■</span> <span style="color:green">■</span> <span style="color:yellow">■</span>	AR-S7440-025-360
Kerrison, 3.5 mm × 260 mm, 40° <span style="color:blue">■</span> <span style="color:green">■</span> <span style="color:yellow">■</span>	AR-S7440-035-260
Kerrison, 3.5 mm × 360 mm, 40° <span style="color:blue">■</span> <span style="color:green">■</span> <span style="color:yellow">■</span>	AR-S7440-035-360
Kerrison, 4 mm × 260 mm, 40° (a) <span style="color:green">■</span> <span style="color:yellow">■</span>	AR-S7440-040-260
Kerrison, 4 mm × 360 mm, 40° <span style="color:green">■</span> <span style="color:yellow">■</span>	AR-S7440-040-360
Kerrison, 5 mm × 260 mm, 40° <span style="color:yellow">■</span>	AR-S7440-050-260
Kerrison, 6 mm × 260 mm, 40° <span style="color:yellow">■</span>	AR-S7440-060-260
Kerrison, up angle, 4 mm × 260 mm, 40° <span style="color:yellow">■</span>	AR-S7440-040U-260
Kerrison, 3.5 mm × 360 mm, 90° (b) <span style="color:blue">■</span> <span style="color:green">■</span> <span style="color:yellow">■</span>	AR-S7490-035-360
Kerrison, 4 mm × 260 mm, 90° <span style="color:green">■</span> <span style="color:yellow">■</span>	AR-S7490-040-260
Kerrison, 4 mm × 360 mm, 90° <span style="color:green">■</span> <span style="color:yellow">■</span>	AR-S7490-040-360
Kerrison, 5 mm × 260 mm, 90° <span style="color:yellow">■</span>	AR-S7490-050-260
Kerrison, 6 mm × 260 mm, 90° <span style="color:yellow">■</span>	AR-S7490-060-260



Scope compatibility guide: ■ 6.3 mm ■ 7 mm ■ 10 mm

## Rasps and Trephines

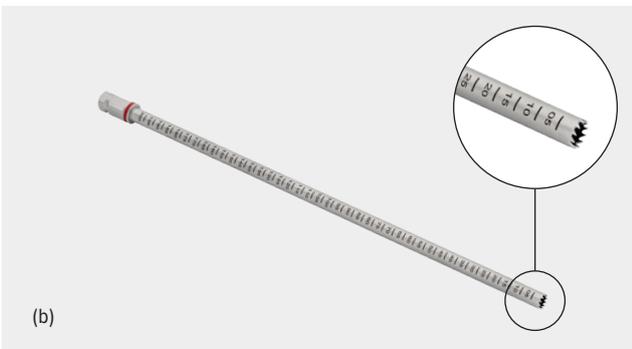


Product Description	Item Number
Trephine Handle	AR-S7700-000-000H



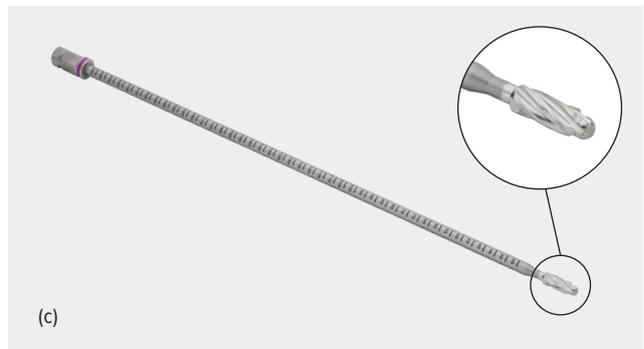
(a)

Product Description	Item Number
Trephine Protection Tube, 6 mm × 160 mm <span style="color: purple;">■</span>	AR-S7700-060-160
Trephine Protection Tube, 7.5 mm × 160 mm <span style="color: red;">■</span>	AR-S7700-075-160
Trephine Protection Tube, 8.5 mm × 160 mm (a) <span style="color: black;">□</span>	AR-S7700-085-160



(b)

Product Description	Item Number
Trephine, 3.55 mm × 350 mm <span style="color: orange;">■</span>	AR-S7705-035-350
Trephine, 5.1 mm × 225 mm <span style="color: purple;">■</span>	AR-S7705-051-225
Trephine, 6.6 mm × 225 mm (b) <span style="color: red;">■</span>	AR-S7705-066-225
Trephine, 7.6 mm × 225 mm <span style="color: black;">□</span>	AR-S7705-076-225



(c)

Product Description	Item Number
Rasp, 5.1 mm × 260 mm (c) <span style="color: purple;">■</span>	AR-S7715-051-260
Rasp, 6.6 mm × 260 mm <span style="color: red;">■</span>	AR-S7715-066-260
Rasp, 7.6 mm × 260 mm <span style="color: black;">□</span>	AR-S7715-076-260
Rasp, 8.8 mm × 260 mm <span style="color: blue;">■</span>	AR-S7715-088-260

## Rod Pushers

Product Description	Item Number
Rod Pusher, 2.5 mm <span style="color: purple;">■</span>	AR-S6524-025-230P
Rod Pusher, 4 mm <span style="color: red;">■</span>	AR-S6524-040-230P
Rod Pusher, 5 mm (d) <span style="color: black;">□</span>	AR-S6524-050-230P



(d)

Trephine/Rasp compatibility: ■ 3.55 mm ■ 5.1 mm ■ 6.6 mm □ 7.6 mm ■ 8.8 mm

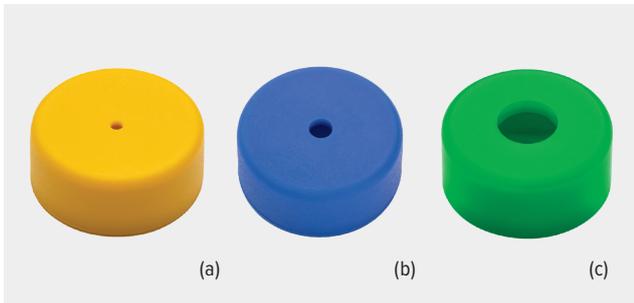
## Miscellaneous Instruments and Accessories



Product Description	Item Number
Mallet	AR-S4100-100-000



Product Description	Item Number
Extracting Forceps	AR-S4100-200-100



Product Description	Item Number
Spare Cap, endoscope, blue, 1 mm	AR-S3375-100-BLU
Spare Cap, endoscope, green, 1 mm	AR-S3375-100-GRE
Spare Cap, endoscope, yellow, 1 mm (a)	AR-S3375-100-YEL
Spare Cap, cannula, blue, 2 mm (b)	AR-S3375-200-BLU
Spare Cap, cannula, green, 2 mm	AR-S3375-200-GRE
Spare Cap, cannula, yellow, 2 mm	AR-S3375-200-YEL
Spare Cap, cannula, blue, 3.75 mm	AR-S3375-375-BLU
Spare Cap, cannula, green, 3.75 mm (c)	AR-S3375-375-GRE
Spare Cap, cannula, yellow, 3.75 mm	AR-S3375-375-YEL



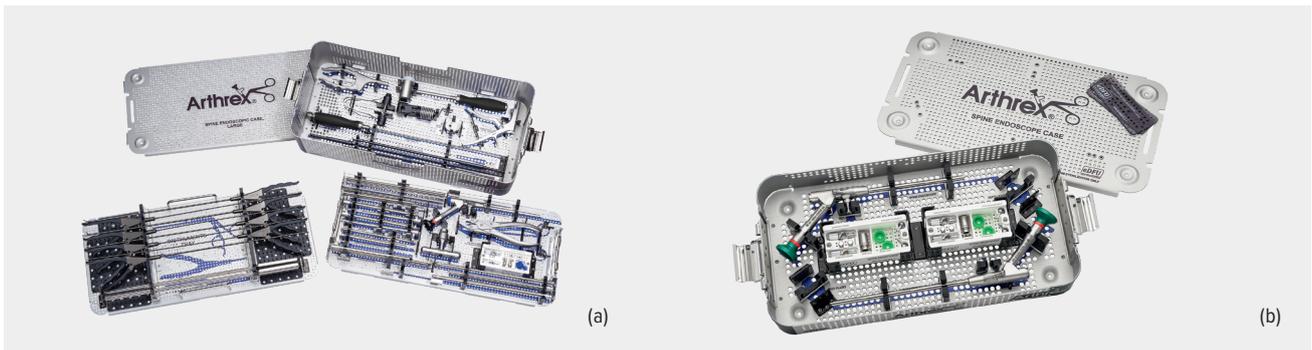
Product Description	Item Number
Rod Removal Forceps	AR-S4100-200-200



Product Description	Item Number
Stopcock	AR-S3350-000-001
Cannula Holder (d)	AR-S3420-CH
Spine Endoscope Depth Stop, 6.3 mm	AR-S3350-063-DS
Spine Endoscope Depth Stop, 7 mm	AR-S3350-070-DS
Spine Endoscope Depth Stop, 10 mm	AR-S3350-100-DS

Scope compatibility guide: ■ 6.3 mm ■ 7 mm ■ 10 mm

## Instrument Cases



Product Description	Item Number
Spine Endoscopic Case, large <b>(a)</b>	AR-S1000-C1
Spine Endoscopic Case, small	AR-S1000-C2
Spine Endoscope Case <b>(b)</b>	AR-S1000-C3
Spine Endoscope Accessory Case	AR-S1000-C3-1
Spine Endoscopic Trimano Arm Case	AR-S1000-C4
Endoscopic Spine Case Pin Mat	AR-S1000-C4-PM



Product Description	Item Number
Spine Endoscopic Trimano Arm Set <b>(c)</b>	AR-S1000-C4S*
Medfix® Rigid Arm, 400 mm length arm, L-column, w/ square QC	MF112-0150
Medfix Table Clamp for Rigid Arm, rotatable	MF112-0153
Medfix Rack Clamp, square QC fitting for rigid arm	MF112-0152
Medfix Vision Articulating Arm Set Insert	MFV-1000-INSERT
Spine Endoscopic Trimano Arm Case	AR-S1000-C4

\*Includes all items listed below

## Aesculap Rigid Containers

Product Description	Item Number
Bottom for 1/2 container height: 90 mm	JK340
Bottom for 1/2 container height: 120 mm	JK341
1/2-size lid w/ retention plate blue	JK386
Bottom for 1/1 container height: 90 mm	JK440
Bottom for 1/1 container height: 120 mm	JK441
Bottom for 1/1 container height: 135 mm	JK442
Bottom for 1/1 container height: 247 mm <b>(b)</b>	JK446
Full-size lid w/ retention plate blue <b>(a)</b>	JK486
Bottom for 3/4 container height: 90 mm	JK740
Bottom for 3/4 container height: 120 mm <b>(d)</b>	JK741
3/4-size lid w/ retention plate blue <b>(c)</b>	JK786
Single-use paper filter w/ indicator	JK095







Arthrex GRAFT GUN AR-S1500-100  
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10195214 02797

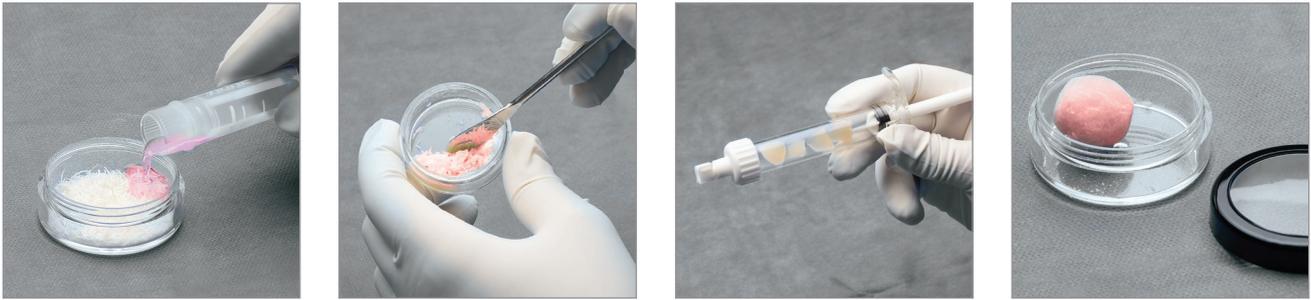
X 18 mm

VE-18100TS

# Bone Repair

ArthroCell™ Viable Bone Matrix .....	80
ArthroCell Plus™ Viable Bone Matrix .....	82
AlloSync™ Expand Demineralized Cortical Fibers.....	83
AlloSync™ Pure Demineralized Bone Matrix .....	84
AlloSync™ Putty, Gel, and Paste.....	86
AlloSync™ Bone Grafting Solutions .....	87
AlloSync™ Demineralized Cancellous Sponges, Chips, and Cortical Fibers .....	88
AlloSync™ Cancellous Chips, Cubes, and Cancellous Crush.....	89
BioSurge™ Cell and Bone Graft Processing System .....	90
BoneSync™ BioActive Synthetic Bone Void Filler .....	91
BoneSync™ Putty and Strips .....	92
OsteoAuger™ Bone Graft Harvesting System .....	96
BioXpress™ Graft Delivery Device .....	97
Graft Gun Delivery System .....	98
GraftNet™ XL Bone Collection Device.....	99
GraftNet™ Autologous Tissue Collector.....	100

## ArthroCell™ Viable Bone Matrix



ArthroCell allograft is a moldable cellular allogenic bone matrix intended for use in bone defects and remodeling for a variety of orthopedic applications.

- ArthroCell allograft is an HCT/P allogenic bone scaffold
- Final product is moldable for optimal handling (Figure 1)
- Cell viability and function are preserved using a novel cryoprotectant that is DMSO-free and does not require decanting prior to use
- Product shelf life is 2 years from date of processing when stored at  $-65^{\circ}\text{C}$  or colder
- Preparation time on back table is less than 20 minutes. ArthroCell allograft has a 4-hour working window for implantation after thaw without loss of cell viability.<sup>1</sup>
- ArthroCell allograft is a nonimmunogenic alternative to autograft with a history of clinical safety
- Donors processed for ArthroCell allograft undergo rigorous screening, testing, and culturing that meet FDA and American Association of Tissue Banks (AATB) guidelines

### ArthroCell allograft provides the essential elements for optimal bone repair

- An osteoconductive, 3-dimensional scaffold with cortical and cancellous components<sup>2</sup>
- A demineralized bone component with osteoinductive potential, which provides exposure of signaling molecules and bone morphogenetic proteins<sup>3</sup>
- Cells to support osteogenic healing processes<sup>4-6</sup>



Figure 1. ArthroCell allograft components.

Product Description	Item Number
ArthroCell Viable Bone Matrix, 2.5 cc	ABS-2009-02
ArthroCell Viable Bone Matrix, 5 cc	ABS-2009-05
Mixing Delivery Syringe, 14 cc	ABS-2000

The mixing syringe must be ordered for each graft size.

Mesenchymal stem cells (MSCs) are a type of adult stem cell present in ArthroCell allograft that have the ability to self-renew and differentiate into bone, cartilage, fat, muscle, or tendon.<sup>7</sup>

- MSCs are the osteogenic cells required for bone repair, remodeling, and maturation
- MSCs can differentiate into osteoblasts that subsequently make new bone
- MSCs do not stimulate allogenic rejection and are not eliminated by the host immune system<sup>8</sup>



## ArthroCell™ Viable Bone Matrix (Cont.)



### ArthroCell allograft cellular advantage

- Cellular component is recovered from donors aged 15 to 55 years, frozen, and packaged within 120 hours postmortem
- Cells are recovered from the vertebral body region, an area known to be rich in MSCs<sup>9</sup>
- Cells are preserved in a novel cryoprotectant to preserve cellular identity after thaw:
  - DMSO-free
  - Nontoxic
  - Decanting not required prior to use
- Additional cell population includes MSCs and osteoprogenitor cells. Flow cytometry analysis demonstrates high expression of SSEA-4, a marker for pluripotent cells and MSCs.<sup>9</sup>

### Donor tissue processing

- ArthroCell allograft is processed at Vivex Biomedical, Inc. in an aseptic manner in Class 100 clean rooms using proprietary procedures and screening criteria that meet the requirements of the AATB
- ArthroCell allograft is collected from donors who have been screened by licensed laboratories and physicians following a process that meets FDA and AATB requirements for testing

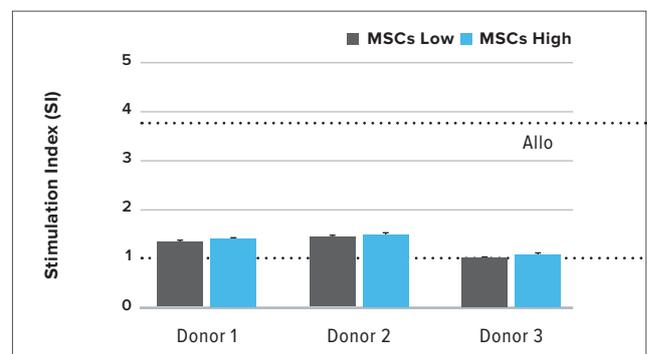
- Donor testing includes nucleic acid and/or antibody tests for the following pathogens:

- HIV-1 and -2
- Hepatitis B and C
- Human T-lymphocyte virus
- Syphilis rapid plasma screen
- T. pallidum IgG screen
- Cytomegalovirus (CMV) antibody (IgG and IgM)

### Donor screening

- Medical and social history review
- Physical examination
- Medical record evaluation, including autopsy (if performed)
- Licensed physician review of donor record
- Mixed lymphocyte reaction (MLR) assay:
  - MSCs are known to be immune-privileged cells that do not elicit an immune response.<sup>8</sup> To ensure complete safety of the cell component, an MLR assay was performed to assess the potential for activation of T-cell proliferation on samples of ArthroCell allograft along with positive and negative controls.<sup>10</sup>
  - Stimulation indices for the test samples were near or below that for the negative control, while positive controls performed as expected and demonstrated a robust response. ArthroCell allograft therefore does not stimulate an immune response (Figure 2).

### SI of PBMCs with UMTB® test MSCs from 3 donors (high and low)<sup>10</sup>



**Figure 2.** Stimulation index calculated from BrdU ELISA ABS450 relative to PBMCs. Dotted line at SI 3.84 represents response of positive 2-way allogeneic MLR response. Dotted line at 1.00 represents response of the negative control. Stimulation indices for test samples range from 1.02 to 1.35.

UMTB = University of Miami Tissue Bank

Peripheral blood mononuclear cells (PBMCs) only



## ArthroCell Plus™ Viable Bone Matrix

ArthroCell Plus is a next-generation viable bone graft that extends our current offerings. It is delivered in a premixed syringe, with size offerings of 1 cc, 2.5 cc, 5 cc, and 10 cc. In addition to its composition, ArthroCell Plus grafts contain the same novel cryoprotectant as our current ArthroCell graft offering, providing a product with minimal preparation time.

- Osteogenic, osteoconductive, and osteoinductive potential
- Final product is moldable for ease of use and optimal handling
- Novel cryoprotectant (DMSO-free) and noncytotoxic
- Convenient—can be stored in a cryogenic freezer (-65 °C) for up to 2 years

Product Description	Item Number
ArthroCell Plus Allograft, 1 cc	ABS-2090-01
ArthroCell Plus Allograft, 2.5 cc	ABS-2090-02
ArthroCell Plus Allograft, 5 cc	ABS-2090-05
ArthroCell Plus Allograft, 10 cc	ABS-2090-10



### References

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7. Grabowski G, Robertson RN. Bone allograft with mesenchymal stem cells: a critical review of the literature. *Hard Tissue.* 2013;2(2):22.
8. Ryan J, Barry F, Murphy J, Mahon B. Mesenchymal stem cells avoid allogeneic rejection. *J Inflamm.* 2005;2:8. doi:10.1186/1476-9255-2-8
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10. Vivex Biomedical, Inc. Data on file. Miami, FL.



## AlloSync™ Expand Demineralized Cortical Fibers



### 100% Demineralized Bone Fibers

- No added fillers for maximum demineralized bone content and osteoinductive potential
- Specific fiber geometry provides exceptional handling and controlled expansion
- Lyophilized fibers extend shelf life while preserving the osteoinductive potential

### Expands to Fill Gaps

- Wicks blood, bone marrow, and other physiological fluids that allow the graft to expand and improve fill

### Cellular Highways

- Fibers have demonstrated superior bone-forming capacity compared to standard particulate demineralized bone<sup>1</sup>
- Entangled fibers create a 3D interconnected matrix to promote cell migration and fusion

### Features and Benefits

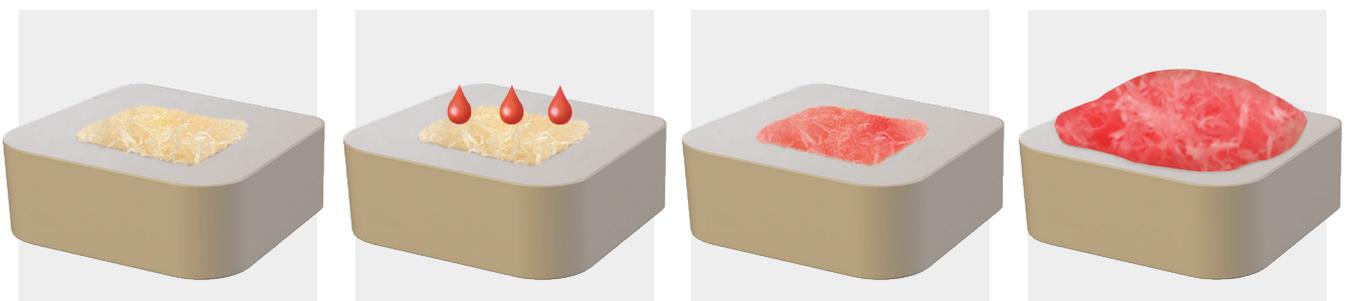
- Comprised of 100% demineralized cortical bone fibers
- Provides a scaffold for cellular attachment and proliferation
- Graft will expand and improve fill during hydration
- Sterile to device-grade standards (10<sup>-6</sup> SAL)
- Ambient temperature storage

The unique geometry of AlloSync Expand fibers is ideal for intraoperative handling and controlled expansion into bone voids. AlloSync Expand fibers come preloaded in a syringe that allows for consistent hydration of the graft with biologic fluids, such as bone marrow aspirate (BMA).

### Simplicity of Hydration

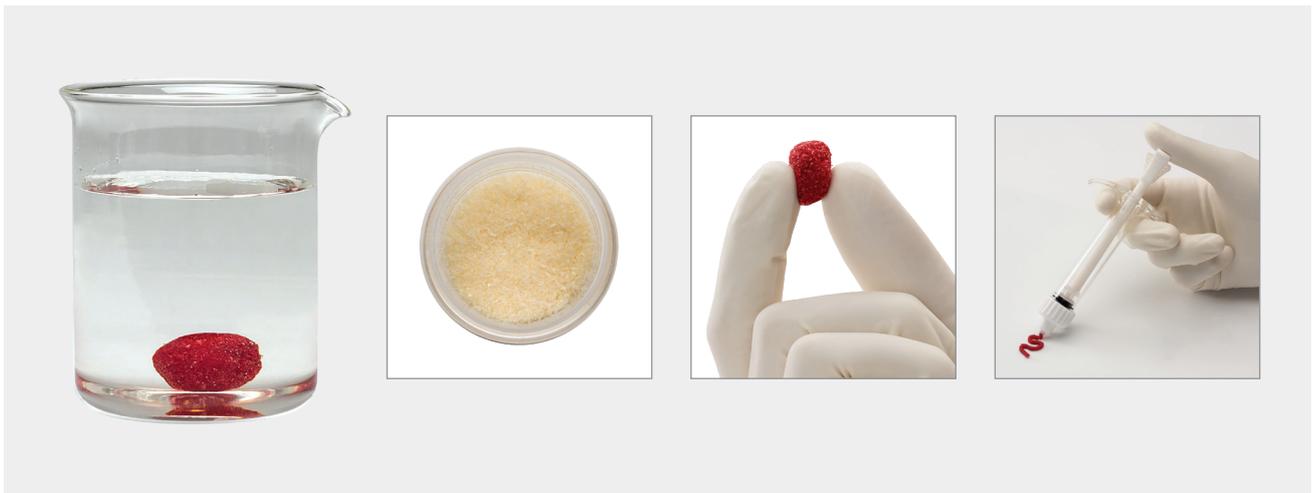
- Luer lock portal delivers a simple yet thorough hydration process
- Flexibility to select various hydration fluids

Product Description	Item Number
AlloSync Expand Fibers, 1 cc	ABS-2017-01
AlloSync Expand Fibers, 2.5 cc	ABS-2017-02
AlloSync Expand Fibers, 5 cc	ABS-2017-05
AlloSync Expand Fibers, 10 cc	ABS-2017-10



# ALLOSYNC

## AlloSync™ Pure Demineralized Bone Matrix

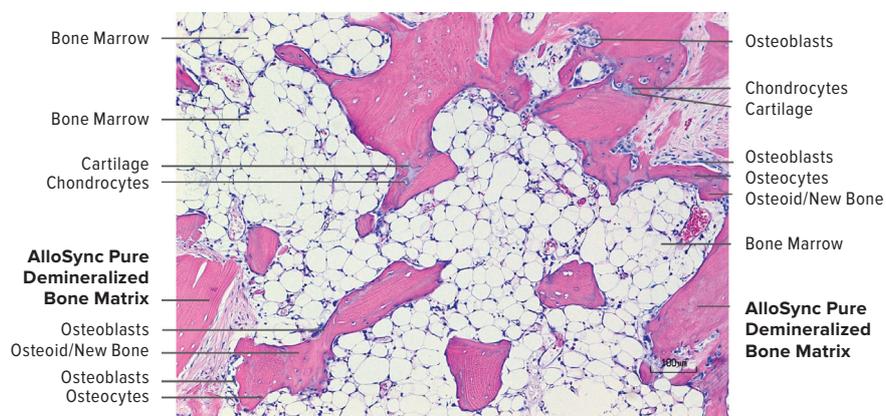


AlloSync Pure osteoinductive demineralized bone matrix (DBM) is derived from 100% human allograft bone with no extrinsic carriers. When prepared, AlloSync Pure DBM resists irrigation and can be used in a fluid environment. The clinician can control the handling properties of AlloSync Pure bone matrix, which includes decreasing the viscosity for injectable applications or increasing the viscosity to add autograft and/or allograft. The proprietary rice-shape fiber technology used to process AlloSync Pure bone matrix increases the osteoinduction and osteoconductive surface area to accelerate cellular ingrowth.<sup>1</sup>

### Features and Benefits

- Derived from 100% human allograft bone without any extrinsic carriers
- Post-sterilization, every lot is tested in vivo to ensure osteoinductivity

- Demineralization process preserves native bone morphogenetic proteins (BMPs) and growth factors
- Resists irrigation
- Histologically proven to contain all five elements of bone formation, including new bone, bone marrow, osteocytes, chondrocytes, and cartilage postimplantation at 28 days<sup>2</sup>
- May be hydrated with BMA, platelet-rich plasma (PRP), blood, saline, or other cellular components
- Sterile to device grade standards ( $10^{-6}$ ) and stored at ambient temperature
- Provided in a ready-to-use mixing jar
- 5-year shelf life

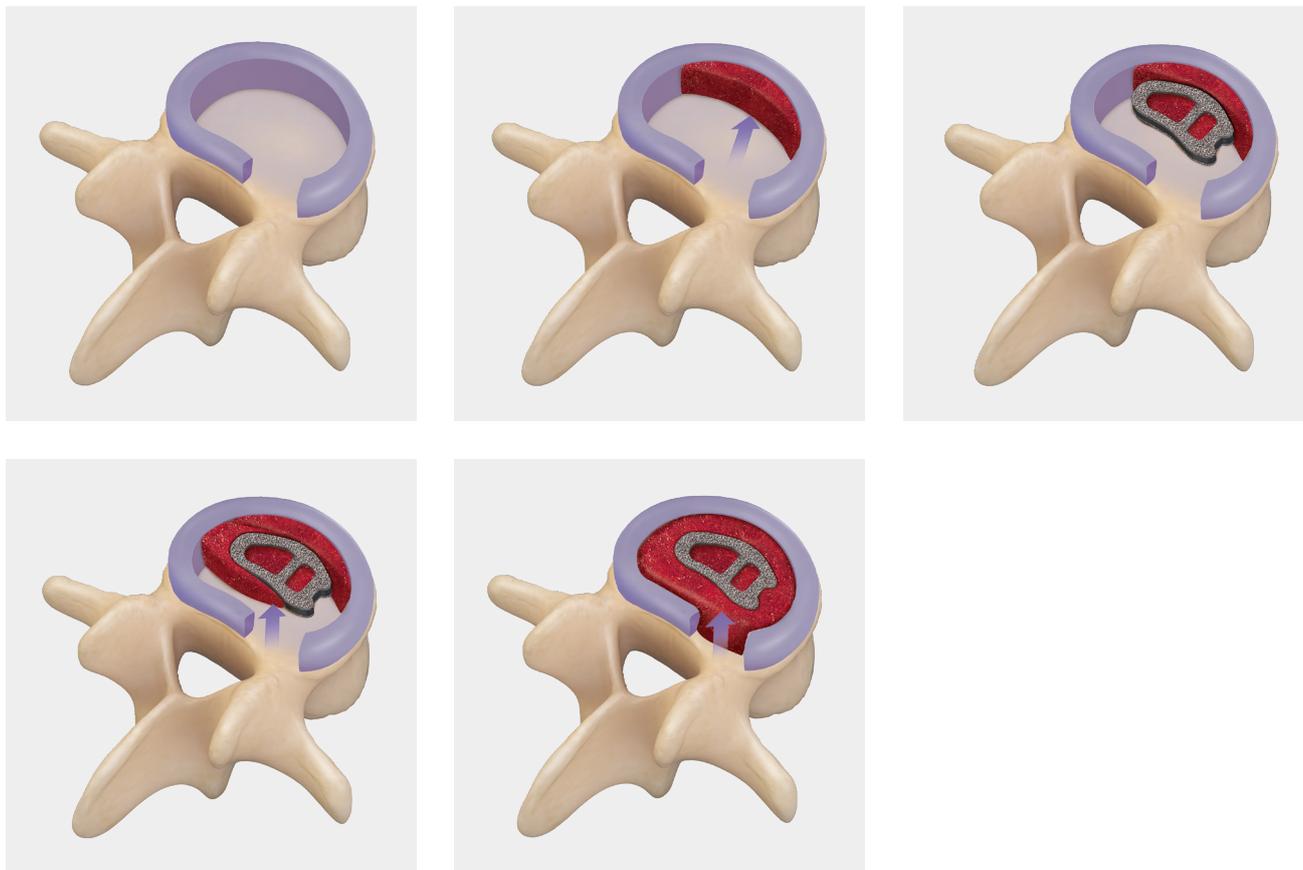


AlloSync Pure DBM histology

**ALLOSYNC PURE**

## AlloSync™ Pure Demineralized Bone Matrix (Cont.)

AlloSync Pure demineralized bone matrix is ideal for uses in an aqueous environment, such as during endoscopic fusion.



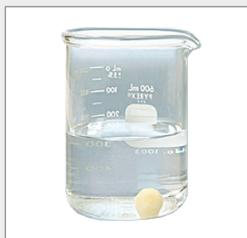
Product Description	Item Number
AlloSync Pure DBM, 1 cc	ABS-2010-01
AlloSync Pure DBM, 2.5 cc	ABS-2010-02
AlloSync Pure DBM, 5 cc	ABS-2010-05
AlloSync Pure DBM, 10 cc	ABS-2010-10

## AlloSync™ Putty, Gel, and Paste

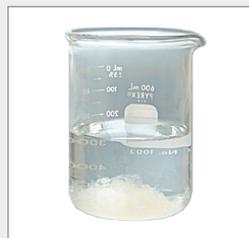
AlloSync gel, putty, and paste provide customizable consistencies



Comparison of Two DBMs



RPM Carrier



Glycerol Carrier

### AlloSync Bone Products May Provide Osteoinductive and Osteoconductive Properties

- Osteoinduction—signaling molecules such as bone morphogenetic proteins (BMPs) that aid in cell differentiation down osteoblastic pathways
- Osteoconduction—scaffolding from DBM particles for osteoblasts to form new bone
- Every lot of DBM is tested for osteoinductive potential, using either an in vitro assay or in vivo model
- Additional scaffolding properties are provided with the addition of cancellous bone chips

### Superior Handling Characteristics via the Reverse-Phase Medium (RPM) Carrier

- RPM is an inert, biocompatible copolymer consisting of polypropylene oxide and polyethylene oxide
- Material is flowable at room temperature and thickens to become more viscous at body temperature
- RPM allows the DBM graft to be moldable and packed into any defect size or shape
- AlloSync bone products will resist irrigation and can be used in a fluid environment without the fear of graft migration, unlike some other DBMs

### AlloSync Bone Products Offer Ease of Use and Terminal Sterility

- Provided as a ready-to-use, off-the-shelf product that requires no thawing or premixing preparation
- Terminal sterilization using electron beam results in a sterility assurance level (SAL) of  $10^{-6}$ ; process is not harmful to the DBM or its bioactivity
- Room-temperature storage

Product Description	Item Number
<b>AlloSync DBM Putty</b>	
Putty, 1 cc	ABS-2012-01
Putty, 2.55 cc	ABS-2012-02
Putty, 5 cc	ABS-2012-05
Putty, 10 cc	ABS-2012-10
<b>AlloSync DBM Gel</b>	
Gel, 1 cc	ABS-2013-01
Gel, 5 cc	ABS-2013-05
Gel, 10 cc	ABS-2013-10
<b>AlloSync CB DBM Putty</b>	
Putty, 5 cc	ABS-2014-05
Putty, 10 cc	ABS-2014-10
<b>AlloSync CB DBM Paste</b>	
Paste, 1 cc	ABS-2015-01
Paste, 3 cc	ABS-2015-03
Paste, 8 cc	ABS-2015-08

**ALLOSYNC**

## AlloSync™ Bone Grafting Solutions

### Promoting Bone Regeneration<sup>3</sup>

An AlloSync DBM equivalent product (same DBM/RPM ratio) was evaluated in a skeletally mature sheep model. Species-specific DBM was compared to an empty control and autograft. Transcortical defect holes were created in the tibial and metatarsal diaphysis; histology was assessed at 4, 8, and 16 weeks for bone regeneration and graft incorporation. Bone formation was either delayed or unable to bridge the gap within the empty control. The AlloSync equivalent product was able to provide a scaffold and induce osseous bridging across the defect site similar to autograft. This study indicates that AlloSync allograft bone is an effective bone grafting material.

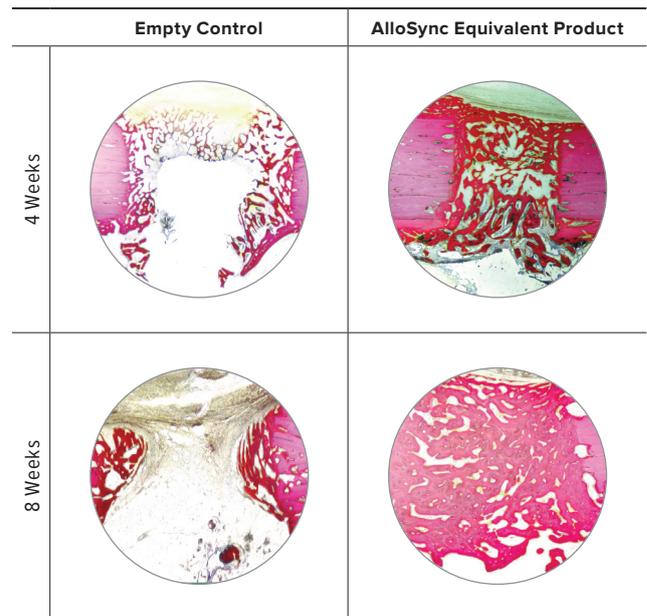


Figure 3.

## AlloSync™ Demineralized Cancellous Sponges, Chips, and Cortical Fibers

### Cancellous Sponges

- Post-sterilization, every lot is tested in vivo to ensure osteoinductivity
- Demineralized cancellous matrix is comprised of 100% cancellous bone
- Maintains natural bone architecture with interconnected porosity
- Provides optimal scaffold for cellular attachment and proliferation
- Contains exposed natural growth factors with verified osteoinductivity
- Naturally absorbs and retains bioactive fluids like PRP and concentrated BMA
  - After rehydration, the product is compressible like a sponge, allowing for flexibility to fit in and around different types of bone defects

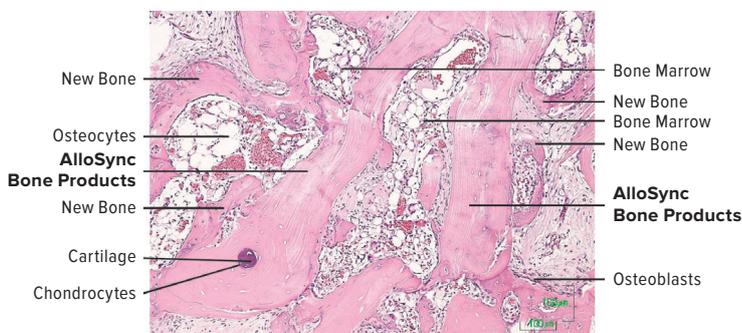
### Osteoinductivity Testing<sup>2</sup>

- The AlloSync demineralized sponge was tested in an intramuscular nude rat bioassay via histological evaluations
- After 28 days, the following findings were observed within the AlloSync demineralized sponge group (Figure 4):
  - The porous osteoconductive trabecular bone structure of the implant was maintained and found to be evident within the histological sections
  - Osteoblast-like cells were found lining the trabecular bone network
  - Cellular infiltration and neovascularization were apparent along the edges of the implant but also could be observed throughout the interior portion of the implant



### Features and Benefits

- New form of 100% DBM offering excellent handling characteristics without the need for an additional carrier
- Osteoconductive and verified osteoinductive properties
  - Demineralized cortical fibers provide an optimal scaffold for cellular attachment and proliferation
- Customizable hydration: naturally wicks up bioactive fluids such as PRP and BMA
  - Sterile to device-grade standards ( $10^{-6}$ ) and stored at ambient temperature



**Figure 4.** Shows AlloSync sponge histology with all five components of bone growth.

**ALLOSYNC**

## AlloSync™ Cancellous Chips, Cubes, and Cancellous Crush



AlloSync cancellous cubes, chips, and cancellous crush provide an osteoconductive scaffold for bone ingrowth and allow for remodeling with the patient's own bone. AlloSync cancellous bone grafts are available in multiple sizes and quantities.

Product Description	Item Number
<b>AlloSync Cancellous Cubes</b>	
AlloSync Cancellous Cube, 15 cc	<b>ABS-2900-15</b>
AlloSync Cancellous Cube, 30 cc	<b>ABS-2900-30</b>
<b>AlloSync Cancellous Chips</b>	
AlloSync Cancellous Chips (1 mm-4 mm), 5 cc	<b>ABS-2901-05</b>
AlloSync Cancellous Chips (1 mm-4 mm), 15 cc	<b>ABS-2901-15</b>
AlloSync Cancellous Chips (1 mm-4 mm), 30 cc	<b>ABS-2901-30</b>
AlloSync Cancellous Chips (4 mm-10 mm), 5 cc	<b>ABS-2910-05</b>
AlloSync Cancellous Chips (4 mm-10 mm), 15 cc	<b>ABS-2910-15</b>
AlloSync Cancellous Chips (4 mm-10 mm), 30 cc	<b>ABS-2910-30</b>
<b>AlloSync Cancellous Crush</b>	
AlloSync Cancellous Crush, 5 cc	<b>ABS-2905-05</b>

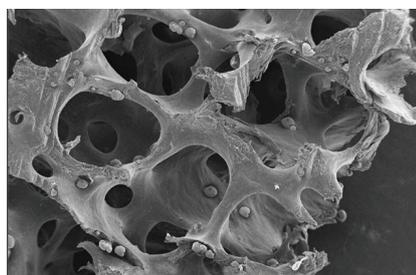
### References

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2. CellRight Technologies, LLC. Data on file (ConCelltrate® 100 histology and in-vitro alkaline phosphate induction assay). Universal City, TX; 2017.
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## BioSurge™ Cell and Bone Graft Processing System



The BioSurge system combines the superior matrices of the AlloSync™ bone grafting solutions line with the Angel® system's proprietary technology to prepare cPRP from BMA. Hydrated AlloSync bone grafts provide the optimal scaffold for cPRP from BMA, which is a rich source of platelets and nucleated progenitor cells.



Electron microscopy image showing several healthy cells attached to the AlloSync bone graft scaffold after hydration.



Hydrated AlloSync bone graft with Angel cPRP from BMA.



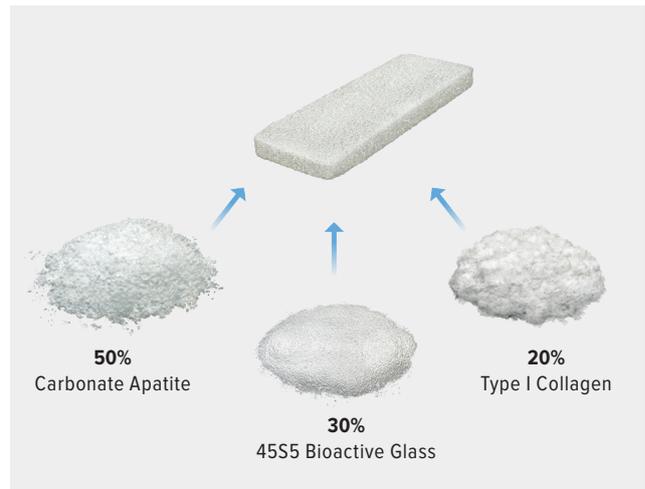
BioSurge system includes AlloSync and Angel system components.

Product Description	Item Number
BioSurge I System, 2.5 cc AlloSync Pure DBM w/ Angel cPRP and BMA tray	ABS-2016-01
BioSurge II System, 5 cc AlloSync Pure DBM w/ Arthrex Angel cPRP and BMA tray	ABS-2016-02
BioSurge IV System, 5 cc AlloSync DBM cortical fibers w/ Angel System	ABS-2016-04
BioSurge III System, 15 mm × 40 mm × 3 mm AlloSync DBM cancellous strip w/ Angel cPRP and BMA tray	ABS-2016-03
BioSurge V System, 12 mm × 3 mm AlloSync button disc w/ Angel cPRP and BMA tray	ABS-2016-05

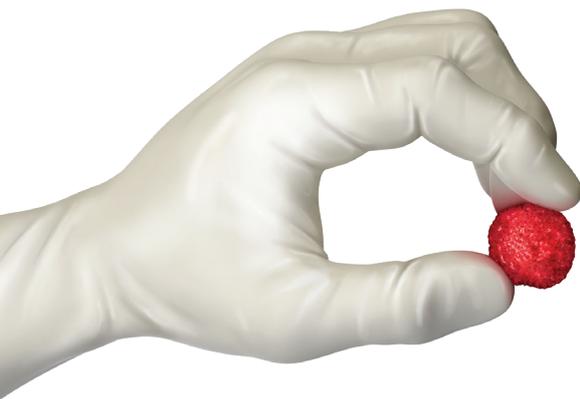
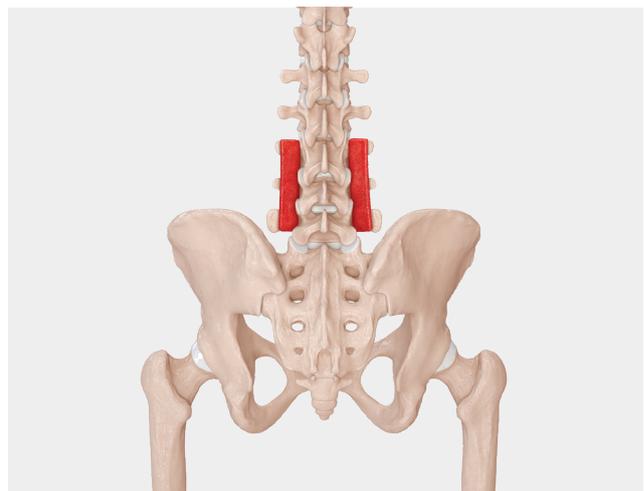
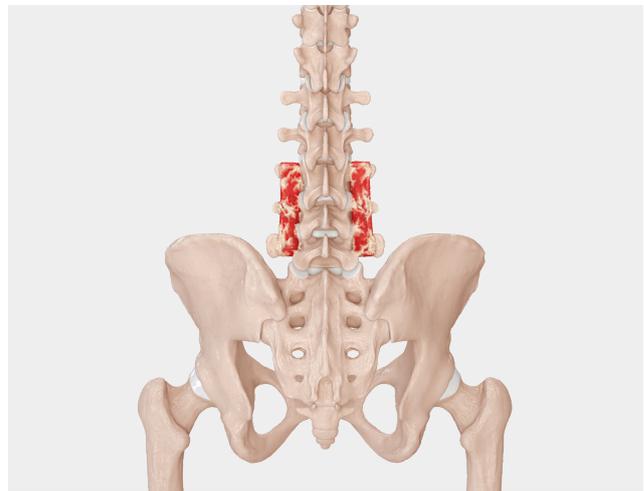
## BoneSync™ BioActive Synthetic Bone Void Filler

BoneSync BioActive is a second-generation bone void filler that includes 45S5 bioglass and provides an osteoconductive and osteostimulative matrix.<sup>1</sup>

- **Unique Composition:** BoneSync BioActive bone void filler consists of carbonate apatite anorganic bone mineral, 45S5 bioactive glass, and type I collagen. It is developed to resemble the composition and pore structure of natural human bone.<sup>2,3</sup>
- **Moldable Advantage:** BoneSync BioActive filler is available in putty and strip versions to fit various application needs, as the graft can be combined with either autogenous bone marrow or autograft bone mixed with saline.

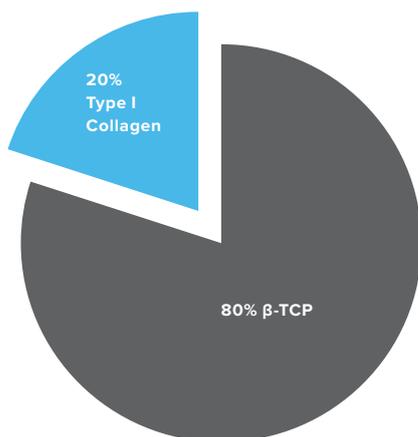
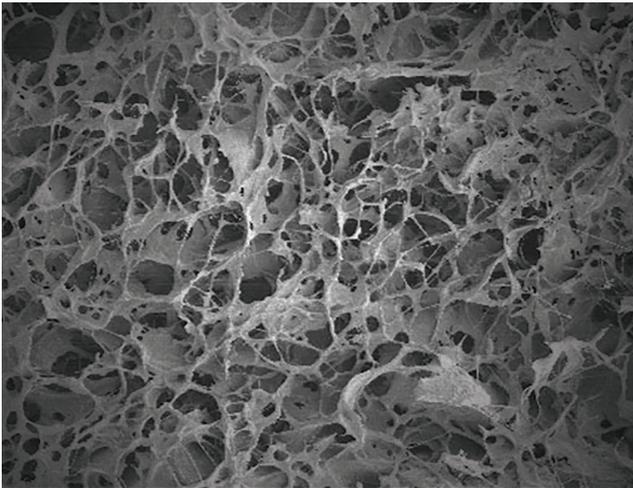


Product Description	Item Number
<b>Strip</b>	
BoneSync BioActive Matrix Strip, 5 cc	ABS-3500-05
BoneSync BioActive Matrix Strip, 10 cc	ABS-3500-10
BoneSync BioActive Matrix Strip, 20 cc	ABS-3500-20
BoneSync BioActive Matrix Strip, 40 cc	ABS-3500-40
<b>Putty</b>	
BoneSync BioActive Matrix Putty, 2.5 cc	ABS-3400-02
BoneSync BioActive Matrix Putty, 5 cc	ABS-3400-05
BoneSync BioActive Matrix Putty, 10 cc	ABS-3400-10
BoneSync BioActive Matrix Putty, 20 cc	ABS-3400-20



**BONESYNC**  
BIOACTIVE

## BoneSync™ Putty and Strips



### Advanced Engineering

The blend of 20% type I collagen and 80% highly purified beta-tricalcium phosphate ( $\beta$ -TCP) in BoneSync putty and strips provides an osteoconductive material for bone regeneration. It was developed to resemble the composition and pore structure of natural human bone.<sup>4</sup>

### Engineered Collagen Matrix

Capitalizing on more than 20 years of development expertise, with collagen technologies that have been used in more than 10 million patients, the source of collagen found in BoneSync bone void filler is specifically engineered to optimize safety, handling, and performance. The scaffold in BoneSync putty and strips, processed from purified type I collagen, is a critical design element that allows for rapid fluid imbibition, cellular ingrowth, and controlled resorption.

### Highly Purified $\beta$ -TCP

The highly purified  $\beta$ -TCP component of the BoneSync putty and strips is designed for a resorption profile consistent with bone formation. The porous architecture is specifically engineered for osteoconductivity.<sup>1</sup>

### Benefits of the Collagen-Engineered Matrix in Orthopedic Applications

- Specifically engineered to provide a scaffold with a porosity resembling natural bone
- Facilitates incorporation of cells in BMA and tissue cells during the healing process<sup>5</sup>
- The highly purified type I collagen in BoneSync bone void filler is the most abundant type of collagen found in bone
- Purification and biocompatibility minimize the potential for immune response

**BONESYNC**

## BoneSync™ Putty and Strips (Cont.)



### Fluid Retention

With an interconnected pore structure engineered for absorbing fluids, BoneSync putty and strips effectively retain BMA within the material.

### Cell Binding

Higher densities of collagen provide greater protein-binding sites and have been associated with more effective incorporation of bioactive proteins.<sup>1</sup>

The collagen in BoneSync putty and strips facilitates the binding of bone-forming cells and proteins.

### Diverse Configurations

BoneSync filler is offered in both putty and strip configurations to meet varying application needs and preferences. Each configuration benefits from purified biomaterials and advanced engineering while offering unique advantages to the surgeon.



Strip

Compression-resistant matrix combines the cell-binding benefits of cross-linked type I collagen with the volume and radiopacity of highly purified  $\beta$ -TCP granules.<sup>1</sup>

#### Configuration Benefits

- Excellent carrier for BMA
- Bends to conform to uneven surfaces
- Maintains postoperative graft volume



Putty

Moldable putty has the cell-binding benefits of type I collagen and the volume and radiopacity of highly purified  $\beta$ -TCP granules.

#### Configuration Benefits

- Versatile with excellent handling
- Optimal for placement in irregularly shaped defects

# BONESYNC

## BoneSync™ Putty and Strips (Cont.)

### Compression Resistance

The framework of  $\beta$ -TCP and cross-linked type I collagen in BoneSync putty and strips resists compression and maintains the structure of the material.<sup>5</sup> This configuration has fixed dimensions but is also flexible, conforming to uneven surfaces, for various applications in the skeletal system.

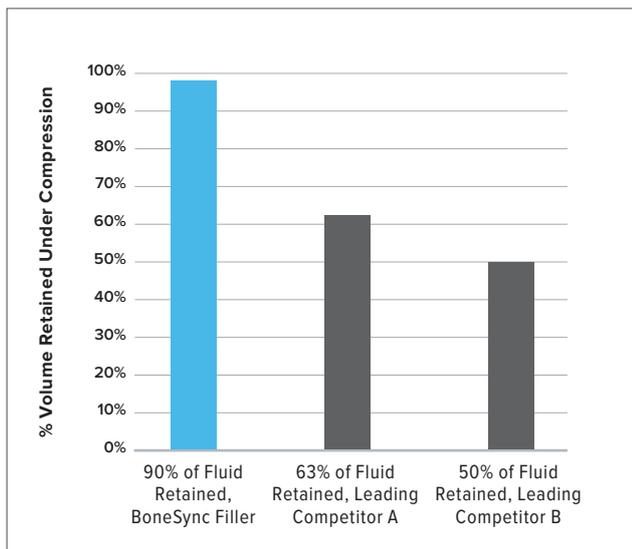


- Retains BMA within the matrix, facilitating bone fusion
- Maintains graft volume under compression

### Compression-Resistant Matrix

A matrix with compression resistance has an increased ability to retain BMA and its active cells.

### Fluid Retention Under Compression<sup>6</sup>

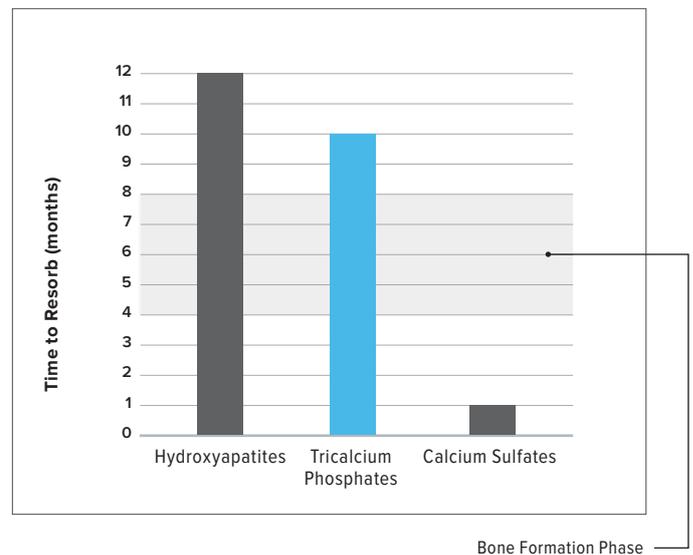


### Resorption Profile Consistent With the Formation of New Bone

The residence time of an osteoconductive strip is a crucial factor for bone healing. A relatively short resorption profile often results in limited or weak bone growth, while longer residence time often results in ineffective tissue incorporation.

The composition and microarchitecture of the  $\beta$ -TCP component of BoneSync putty and strips is engineered to support the replacement of the graft material by new bone.<sup>7</sup>

### $\beta$ -TCP vs Competing Graft Components<sup>7</sup>



### BoneSync™ Putty and Strips

Product Description	Item Number
<b>BoneSync Putty</b>	
Putty, 2.5 cc	ABS-3202
Putty, 5 cc	ABS-3205
Putty, 10 cc	ABS-3210
Putty, 15 cc	ABS-3215
<b>BoneSync Strips</b>	
Strip, 10 cc	ABS-3310
Strip, 15 cc	ABS-3315

**BONESYNC**

## BoneSync™ Putty and Strips (Cont.)

### Clinical Evidence

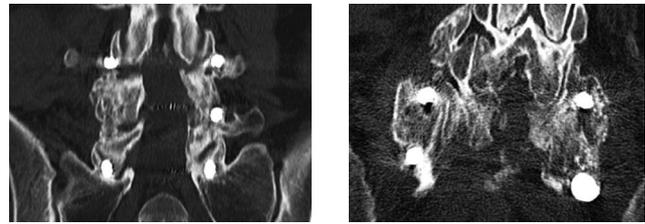
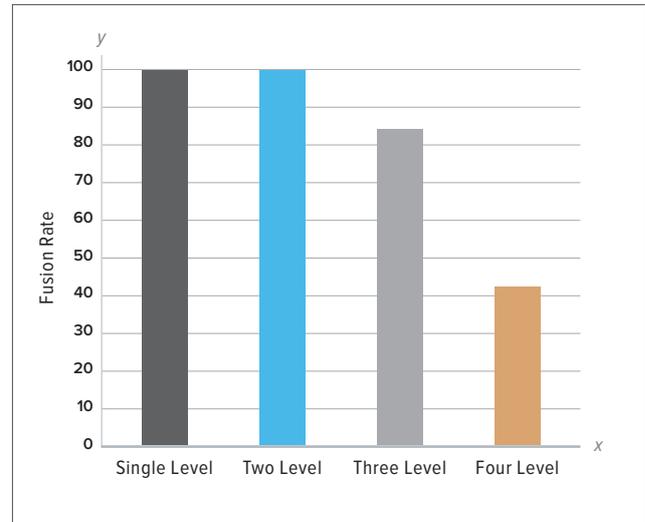
A BoneSync equivalent osteoconductive scaffold demonstrated fusion rate that was equivalent to autograft in a retrospective study on posterolateral lumbar fusion. This clinical study found 100% fusion in all single- and two-level lumbar spine fusion procedures, with an overall fusion rate of 90%. No significant differences were observed for the fusion scores in patients that received putty versus strip.<sup>4</sup>

- Fusion rates for BoneSync equivalent scaffold were equivalent to autograft
- In cases of successful fusion, definitive, uninterrupted bridging of well-mineralized trabecular bone observed 12 months after surgery, as determined by an independent radiologist blinded to treatment
- BoneSync equivalent scaffold applied as indicated with BMA alone, no addition of autograft or allograft
- Spinal fusion comparisons performed in each patient individually; the BoneSync equivalent scaffold applied to the symptomatic side and autograft to the contralateral side

### Clinical Performance – 90% Overall Fusion<sup>4</sup>

Fusion rates were equivalent to autograft, including the ability to achieve fusion in 100% of single- and two-level procedures.

### Fusion Rates in Multilevel Procedures<sup>4</sup>



Representative radiographs from the referenced study.<sup>4</sup> CT scans from two patients at 12 months post-op.

### Diverse Configurations

The  $\beta$ -TCP component of BoneSync filler is engineered with a porosity level that balances radiopacity, residence time, and structure. An extremely porous graft material will likely limit radiopacity and structure, while an extremely dense material will likely limit graft incorporation into natural tissue.

- Provides radiographic visualization of graft placement
- Indicates active resorption during healing

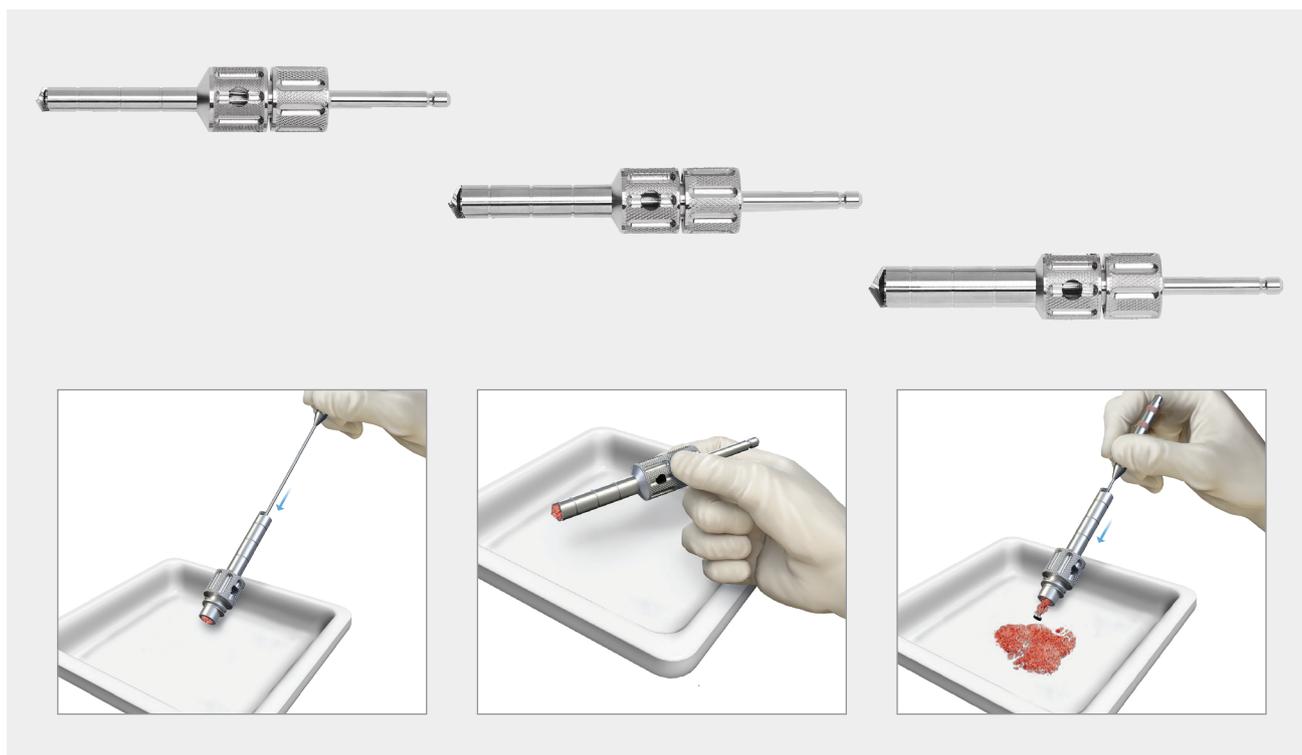


### References

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2. Matsuura A, Kubo T, Doi K, et al. Bone formation ability of carbonate apatite-collagen scaffolds with different carbonate contents. *Dent Mater J.* 2009;28(2):234-242. doi:10.4012/dmj.28.234
3. Ellies LG, Carter JM, Natiella JR, Featherstone JD, Nelson DG. Quantitative analysis of early in vivo tissue response to synthetic apatite implants. *J Biomed Mater Res.* 1988;22(2):137-148. doi:10.1002/jbm.820220206
4. Mataragas, N. Data on file (Radiographic analysis of fusion success with Integra collagen ceramic matrix, as compared to autograft use, in posterolateral lumbar spine arthrodesis). Integra Life Sciences Corp. Princeton, NJ; 2010.
5. Geiger M, Li RH, Friess W. Collagen sponges for bone regeneration with rhBMP-2. *Adv Drug Deliv Rev.* 2003;55:1613-1629.
6. SeaSpine. Data on file. Carlsbad, CA.
7. SeaSpine. Data on file. Carlsbad, CA.

# BONESYNC

## OsteoAuger™ Bone Graft Harvesting System



The OsteoAuger bone graft harvesting system allows for the quick and efficient recovery of morselized autogenous bone graft. Its simple design uses two separate compartments for the drill and morselized bone. This user-friendly design makes harvesting and reimplantation faster and more convenient.

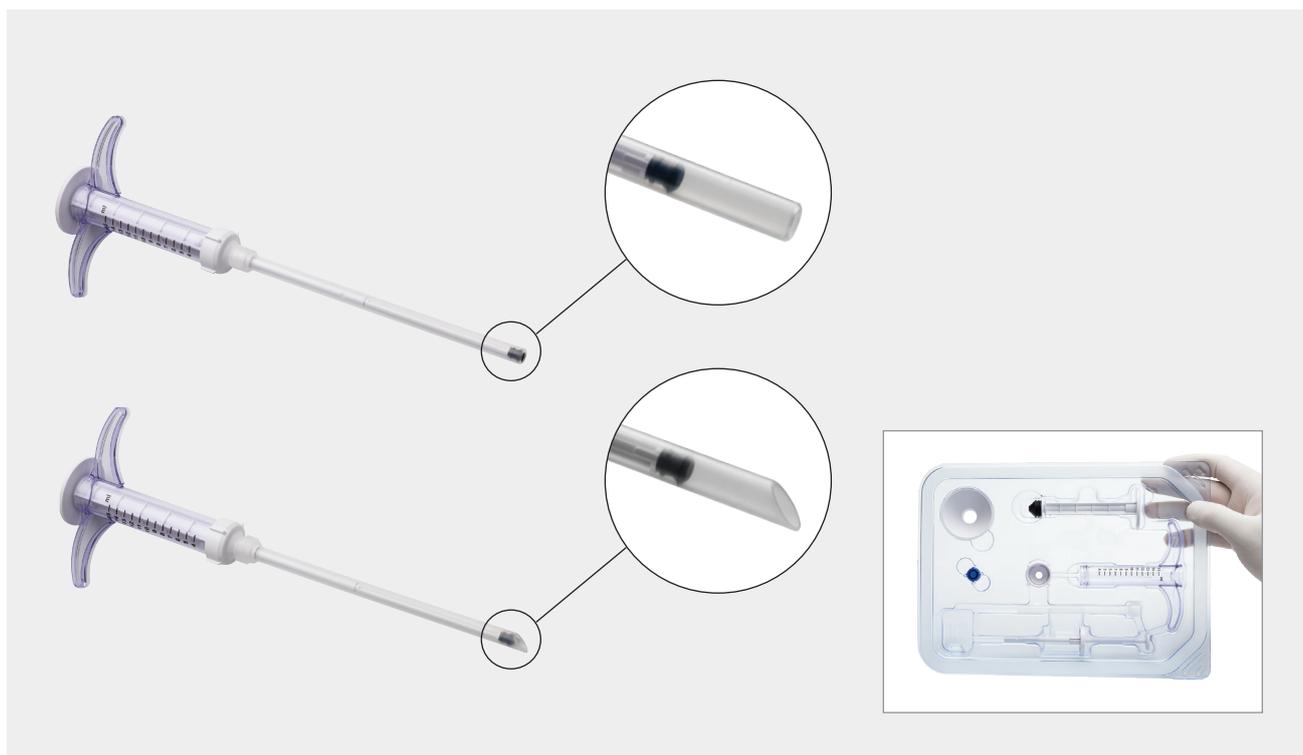
### Features and Benefits

- **Effective:** Autograft bone has long been acknowledged as the gold standard graft for fusion
- **Minimally Invasive:** Small incision prevents patient discomfort and harvest site morbidity
- **Precise:** Three drill sizes allow predefined amounts of bone to be harvested
- **Consistent:** Morselizing tip on the disposable trephine allows for consistent autograft bone output



Product Description	Item Number
OsteoAuger Bone Graft Harvesting System, 6 mm	ABS-8000-06
OsteoAuger Bone Graft Harvesting System, 8 mm	ABS-8000-08
OsteoAuger Bone Graft Harvesting System, 10 mm	ABS-8000-10

## BioXpress™ Graft Delivery Device



The BioXpress graft delivery device is designed for targeted delivery of hydrated allograft, autograft, or synthetic bone graft materials while maximizing material use.

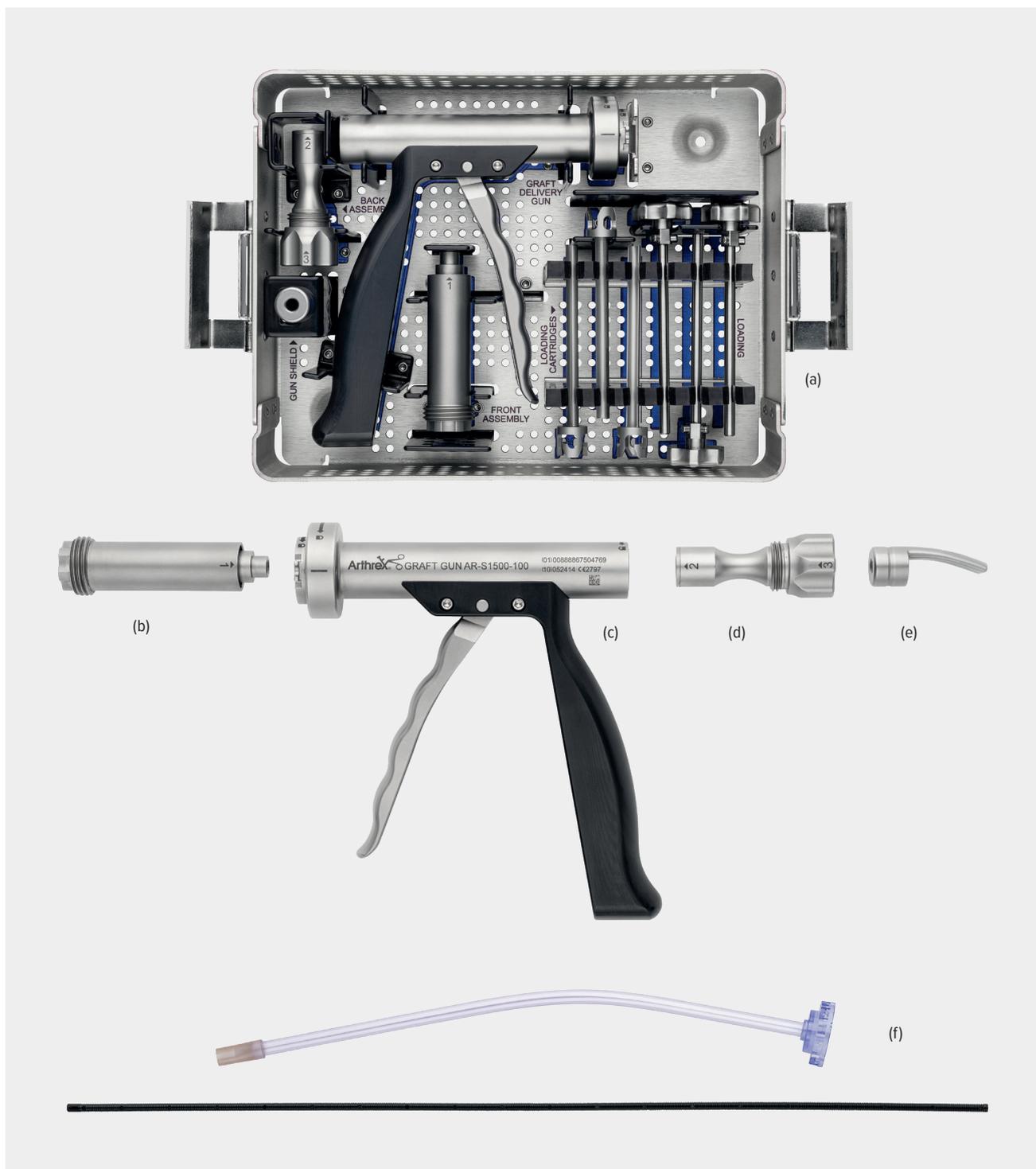
### Features and Benefits

- Dual plunger for loading the arthroscopic cannula with the graft and unloading into the desired location
- Targeted delivery with flat and tapered tips
- Ensures minimal material waste

Product Description	Item Number
Blunt Tip Cannula, 10 cm	ABS-10053-10
Angled Tip Cannula, 10 cm	ABS-10053-10-45
Blunt Tip Cannula, 15 cm	ABS-10053-15
Angled Tip Cannula, 15 cm	ABS-10053-15-45



## Graft Gun Delivery System



### Features and Benefits

- Delivers bone graft into the disc space during fusion procedures
- Easy delivery of any combination of autograft and allograft up to 100% autograft chips
- Designed to provide direct visibility for delivering bone graft through a decompression tube

Product Description	Item Number
Graft Gun Case (a)	AR-S1000-C5
Graft Gun (c)	AR-S1500-100
Graft Gun Front Assembly (b)	AR-S1500-101
Graft Gun Back Assembly (d)	AR-S1500-102
Graft Gun Shield (e)	AR-S1500-103
Graft Loading Device	AR-S1500-200
Graft Delivery Kit, disposable (f)	AR-S1510-001K-S

## GraftNet™ XL Bone Collection Device



The GraftNet XL bone collection device is designed to collect a large volume of autologous bone for a multitude of applications, such as spinal fusion or craniotomy. When connected to suction, the device may be used to collect autologous bone from the surgical site using a high-speed bur. The GraftNet XL bone collection device makes gaining access to autograft bone as simple as Resect and Collect™.

### Features and Benefits

- Ergonomically designed lid with a lock-and-unlock feature to protect and provide easy access to the collected bone graft
- Universal adaptors at inflow and outflow make for easy assembly
- Drape clip and three-foot tubing improve sterile field workflow



Product Description	Item Number
GraftNet XL Bone Collection Device	ABS-1052



## GraftNet™ Autologous Tissue Collector



The suction-activated GraftNet device is designed to collect autologous bone from the surgical site and can be used for a multitude of applications, including spine, cranial, orthopedic, oral, and maxillofacial. The small, inline device allows for maximum harvesting of autologous bone chips generated using a high-speed burr and collected through a connected suction tip, such as a Frazier suction tube. This recovered autologous bone is collected in an easily accessed, sterile filtered chamber. The GraftNet autologous tissue collector makes recovering and gaining access to autologous bone chips as simple as Resect and Collect.™

### Features and Benefits

- Universal adapters make for easy attachment to common suction devices
- Maximize autologous bone collection
- Quickly access recovered tissue
- Increase opportunity for arthrodesis success with maximum autograft volume

Product Description	Item Number
GraftNet Autologous Tissue Collector	ABS-1050



**GraftNet**™  
AUTOLOGOUS TISSUE COLLECTOR

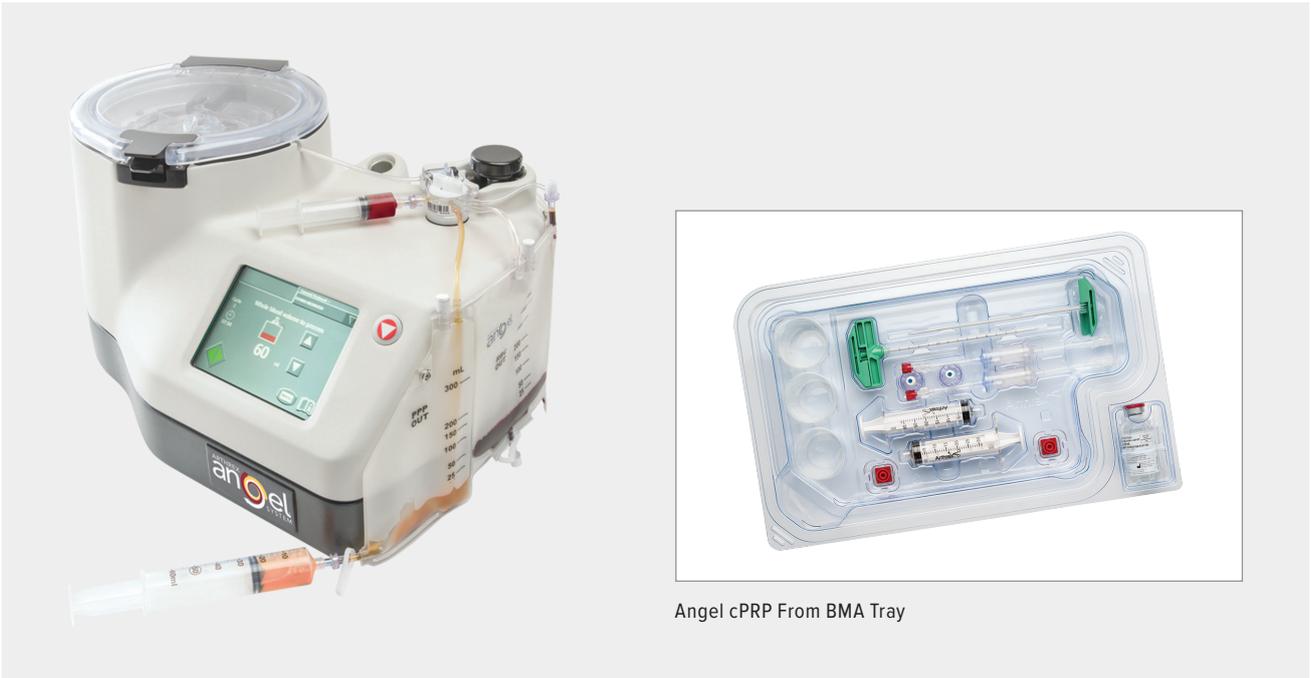




# Autologous Blood Products

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## Angel® PRP and Bone Marrow Processing System

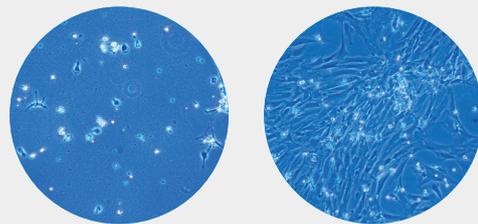


Angel cPRP From BMA Tray

Technology is what sets the Angel cPRP system apart from the competition. The Angel cPRP and bone marrow processing system uses proprietary sensor technology and one-button automation to deliver customized PRP concentrate. The Angel system is the only device that can provide PRP or cPRP from BMA with adjustable cellular levels. Bone marrow is a rich source of platelets, nucleated cells, and progenitor cells.

- Proprietary platelet sensor system
- Adjustable platelet concentrations
- Adjustable white blood cell (WBC) concentrations
- Programmable—can store up to 30 custom processing protocols
- Each processing kit can process 3 cycles of up to 180 mL on the same patient
- Flexible processing volume, 40 mL to 180 mL
- Closed system; delivers PRP, platelet-poor plasma (PPP), and red blood cells (RBCs) into separate, sterile compartments

### In vitro culture expansion of progenitor cells over 96 hours<sup>1</sup>



48 hours

96 hours

#### Reference

1. Arthrex, Inc. LA1-00036-EN\_B. Naples, FL; 2018.

## Angel® cPRP and Bone Marrow Processing System (Cont.)



High-specificity 3ST light sensor technology

### Advantages of 3-Sensor Technology (3ST)

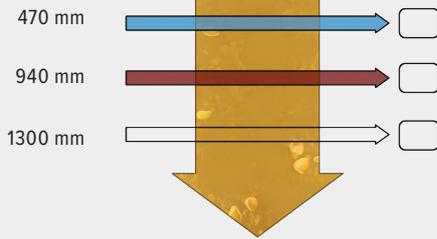
- No syringe switching
- No manual steps to prepare PRP
- Delivers PRP, PPP, and RBCs into separate, sterile compartments
- Ability to modulate platelet, leukocyte, and RBC content
- Consistent PRP output

High-specificity 3ST light sensor technology and automated valve actuation are the foundation of the Angel cPRP system. The results of these features are the production of a high yield of PRP and PPP from whole blood.

Product Description	Item Number
Angel System Centrifuge	ABS-10060
Angel System Centrifuge, refurbished	ABS-10060R
Angel cPRP Processing Set	ABS-10063
Angel PRP Kit	ABS-10061T
Arthrex Biologics Cart	ABS-10100

## Angel® cPRP and Bone Marrow Processing System (Cont.)

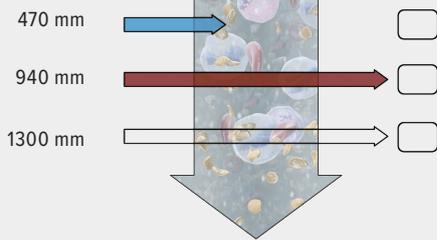
### Detectors



### Plasma

When plasma is present, all three light beams pass through and contact the detector. The Angel device recognizes the presence of plasma and turns the valve to collect PPP. The PPP is deposited in the PPP collection reservoir.

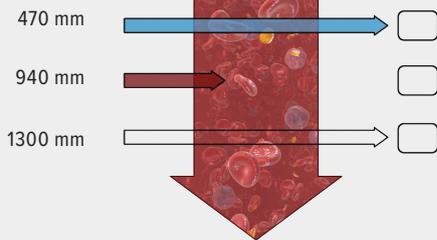
### Detectors



### Platelets and Nucleated Cells

When platelets and nucleated cells are present, the 470 nm wavelength of light is absorbed. The absence of the 470 nm beam on the detector alerts the Angel system to stop collecting PPP. The Angel system will then actuate the valve to collect PRP. The PRP is directed into the collection syringe on top of the unit.

### Detectors



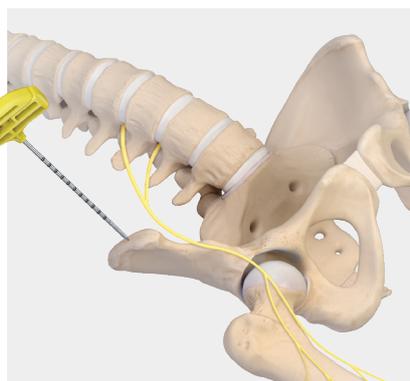
### RBCs

The 940 nm wavelength is absorbed by RBCs. When the detector no longer detects the 940 nm beam, the Angel system will allow a percentage of RBCs to pass through into the PRP collection syringe. The percentage of RBCs collected in the PRP syringe is determined by the hematocrit (HCT) setting selected by the operator.

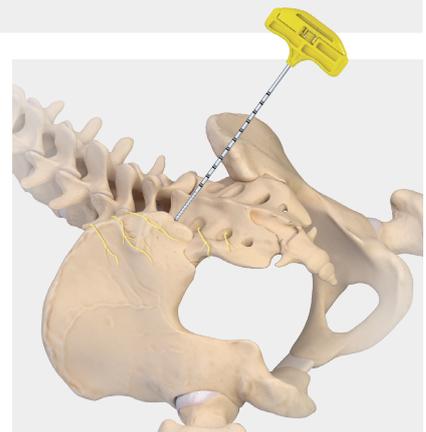
## Potential BMA Recovery Sites Using the Vortex™ Needle



Bilateral Vertebral Body Harvest Technique



Anterior Superior Iliac Spine (ASIS) Harvest Technique



Posterior Superior Iliac Spine (PSIS) Harvest Technique

## Vortex™ Threaded Recovery Needle



Patent pending

The unique design of the Vortex threaded recovery needle for BMA recovery features a threaded tip and vent holes, allowing the user to easily and accurately reposition the tip of the needle within the bone for optimal aspiration volume.

Designed for precise depth and directional control while aspirating bone marrow, the Vortex needle allows the user to maximize the concentration of osteoprogenitor cells recovered from the patient.<sup>1</sup>

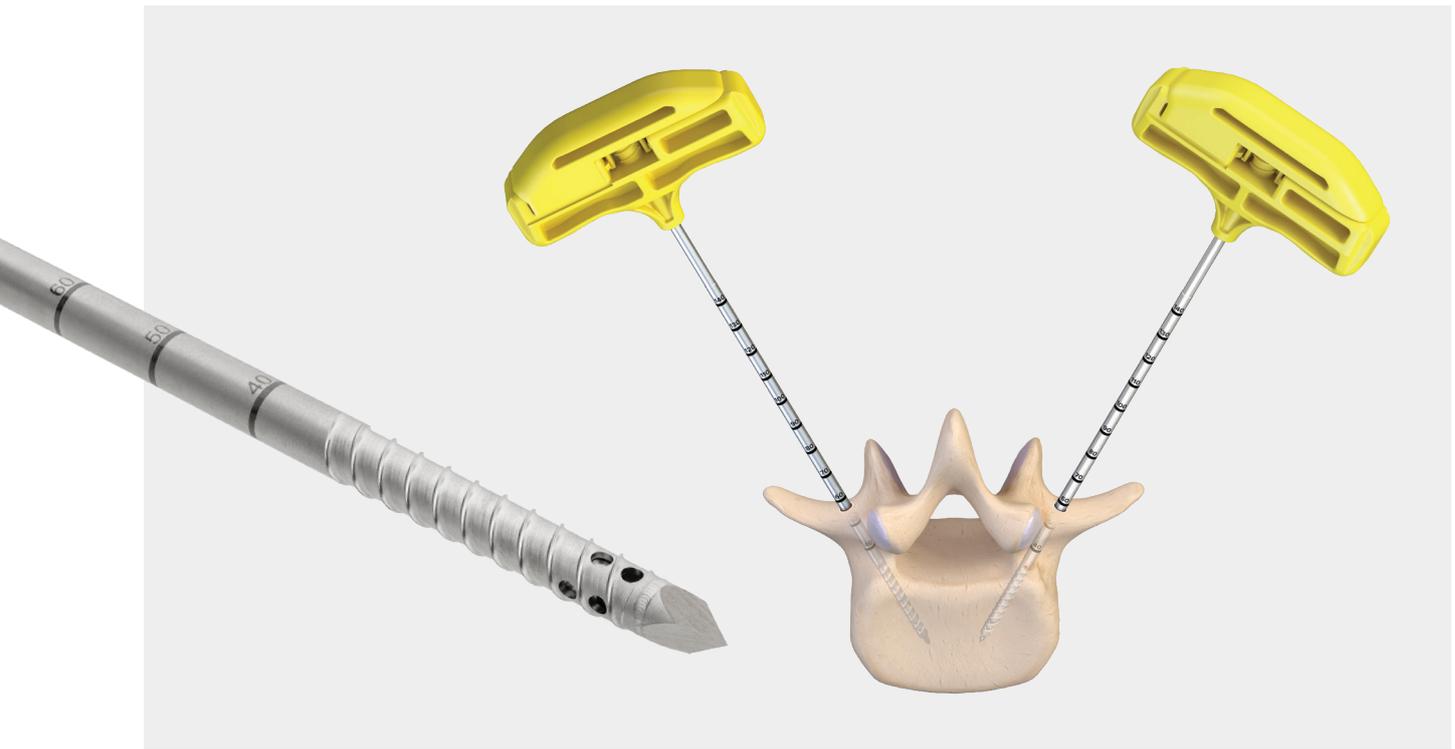
### Technical Pearls

- To maximize the concentration of osteoprogenitor cells collected, it is recommended to change the depth of the needle after every aspiration of 2 cc of bone marrow. This is done by completing alternating ½ and 1½ turns of the needle.
- The use of a C-arm is recommended to assist with proper targeting

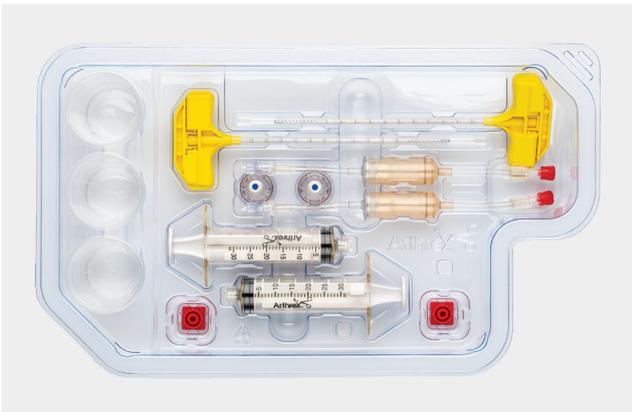
Product Description	Item Number
Vortex Threaded Recovery Needle	
Threaded BMA Needle, 8 ga, closed tip	AR-1101TH-8CT
Threaded BMA Needle, 8 ga, open tip	AR-1101TH-8OT
Threaded BMA Needle, 13 ga, closed tip	AR-1101TH-13CT
Threaded BMA Needle, 13 ga, open tip	AR-1101TH-13OT
Vortex Threaded Recovery Needle Kit	
Vortex Threaded Recovery Needle, 8 ga, open tip Prep Tray Syringe	AR-1101THK-8
Vortex Threaded Recovery Needle Kit	
Vortex Threaded Recovery Needle, 13 ga, open tip Prep Tray Syringe	AR-1101THK-13
Vortex Needle Power Adapter	AR-1001-TH-PWR
DrillSaw Sports 400™ Power System	
Handpiece	AR-400
Lithium-ion Battery Housing, for AR-400	AR-400UBH-1
Aseptic Transfer Kit, for AR-400	AR-400ATK-1
Battery Pack, for AR-400, nonsterile	AR-400UB
Reamer Attachment, Hudson style	AR-400RZH

**VORTEX**  
Threaded Bone Marrow Recovery Needle

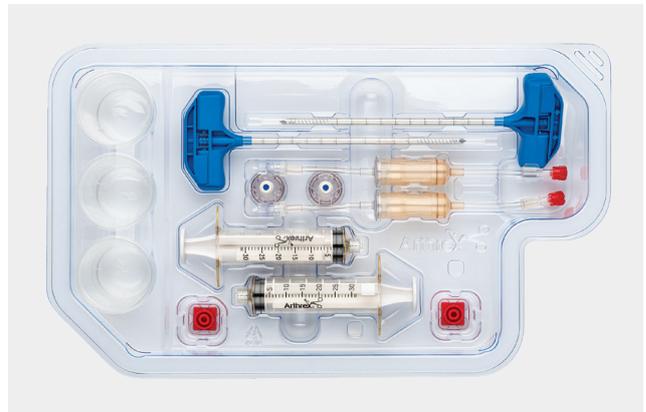
## Vortex™ Threaded Recovery Needle With Angel® cPRP System



The Vortex needle can be ordered with the Angel cPRP processing kit for efficient aspiration from a wide array of orthopedic and spine applications such as a vertebral body, ASIS, or PSIS.



Aspiration Kit With Angel cPRP From BMA System, closed tip, 13 ga



Aspiration Kit With Angel cPRP System, closed tip, 8 ga

## Vortex™ Threaded Recovery Needle With Angel® cPRP System (Cont.)

Product Description	Item Number
Angel® System	
Angel BMA Processing Kit, 8 ga closed tip, w/o ACD-A	ABS-10062-TH8CT
Angel BMA Processing Kit, 8 ga open tip, w/o ACD-A	ABS-10062-TH8OT
Angel BMA Processing Kit, 13 ga closed tip, w/o ACD-A	ABS-10062-TH13CT
Angel BMA Processing Kit, 13 ga open tip, w/o ACD-A	ABS-10062-TH13OT
Angel BMA Processing Kit w/ Vortex Threaded Recovery Needle, 8 ga closed tip, w/ ACD-A	ABS-10062K-TH8CTA
Angel BMA Processing Kit w/ Vortex Threaded Recovery Needle, 8 ga open tip, w/ ACD-A	ABS-10062K-TH8OTA
Angel BMA Processing Kit w/ Vortex Threaded Recovery Needle, 13 ga closed tip, w/ ACD-A	ABS-10062K-TH13CTA
Angel BMA Processing Kit w/ Vortex Threaded Recovery Needle, 13 ga open tip, w/ ACD-A	ABS-10062K-TH13OTA
Angel BMA Processing Kit w/ Vortex Threaded Recovery Needle, 8 ga closed tip, w/o ACD-A	ABS-10062K-TH8CT
Angel BMA Processing Kit w/ Vortex Threaded Recovery Needle, 8 ga open tip, w/o ACD-A	ABS-10062K-TH8OT
Angel BMA Processing Kit w/ Vortex Threaded Recovery Needle, 13 ga closed tip, w/o ACD-A	ABS-10062K-TH13CT
Angel BMA Processing Kit w/ Vortex Threaded Recovery Needle, 13 ga open tip, w/o ACD-A	ABS-10062K-TH13OT
Angel System Centrifuge	ABS-10060
Angel System Centrifuge, refurbished	ABS-1006OR
Arthrex Biologics Cart	ABS-10100

To order, please call Arthrex, Inc. at (800) 933-7001. Contact your local Arthrex representative for additional information.

### Reference

1. McLain RF, Boehm CA, Rufo-Smith C, Muschler GF. Transpedicular aspiration of osteoprogenitor cells from the vertebral body: progenitor cell concentrations affected by serial aspiration. *Spine J.* 2009;9(12):995-100.

## Arthrex ACP® Double-Syringe System



Rotor Set With Buckets

- The Arthrex ACP (autologous conditioned plasma) system allows for rapid and efficient concentration of platelets and growth factors from autologous blood for use at the treatment site
- The unique double-syringe design allows for convenient and safe handling, as the whole preparation process takes place in a closed system
- The Arthrex ACP system is affordable, easy to use, and has a quicker procedure time when compared to other PRP devices<sup>1</sup>
- White blood cells, specifically neutrophils, are NOT concentrated within the ACP system. These cells can be detrimental to the healing process due to release of degradative proteins and reactive oxygen species.<sup>2,3</sup>

Product Description	Item Number
ACP Double Syringe w/ Cap	ABS-10010S
Arthrex ACP Kit Series I	ABS-10011
Arthrex ACP Kit Series II	ABS-10012



Arthrex ACP System Cart and Centrifuge

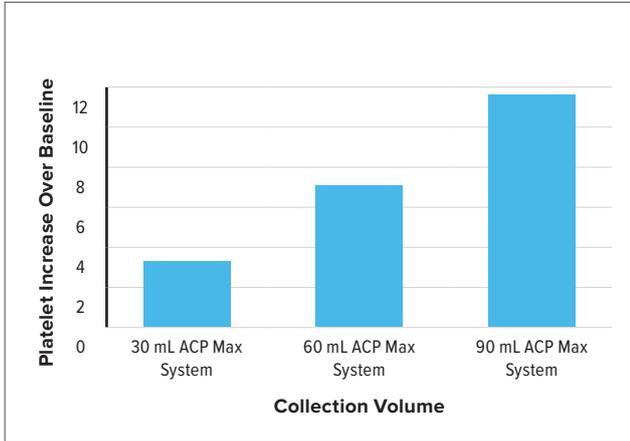
### References

1. Arthrex, Inc. Data on file (APT-2470). Naples, FL; 2014.
2. Scott A, Khan KM, Roberts CR, Cook JL, Duronio V. What do we mean by the term "inflammation"? A contemporary basic science update for sports medicine. *Br J Sports Med.* 2004;38(3):372-380. doi:10.1136/bjism.2004.011312
3. Jiang N, Tan NS, Ho B, Ding JL. Respiratory protein-generated reactive oxygen species as an antimicrobial strategy. *Nat Immunol.* 2007;8(10):1114-1122. doi:10.1038/ni1501

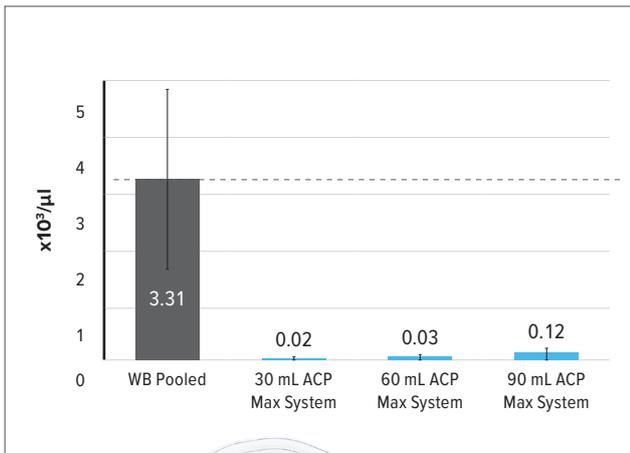
## ACP Max™ PRP System

The ACP Max system allows for the efficient concentration of platelets from whole blood (WB) volumes of 30 mL, 60 mL, or 90 mL. The system's final output results in a neutrophil-poor PRP solution with up to 12× platelet concentration over baseline.<sup>1-3</sup>

### ACP Max Platelet Increase Over Baseline<sup>1-3</sup>



### Neutrophil Concentrations in PRP vs WB<sup>1-3</sup>



Product Description	Item Number
ACP Max PRP System	ABS-10013
ACP Max PRP System w/ ACD-A	ABS-10015

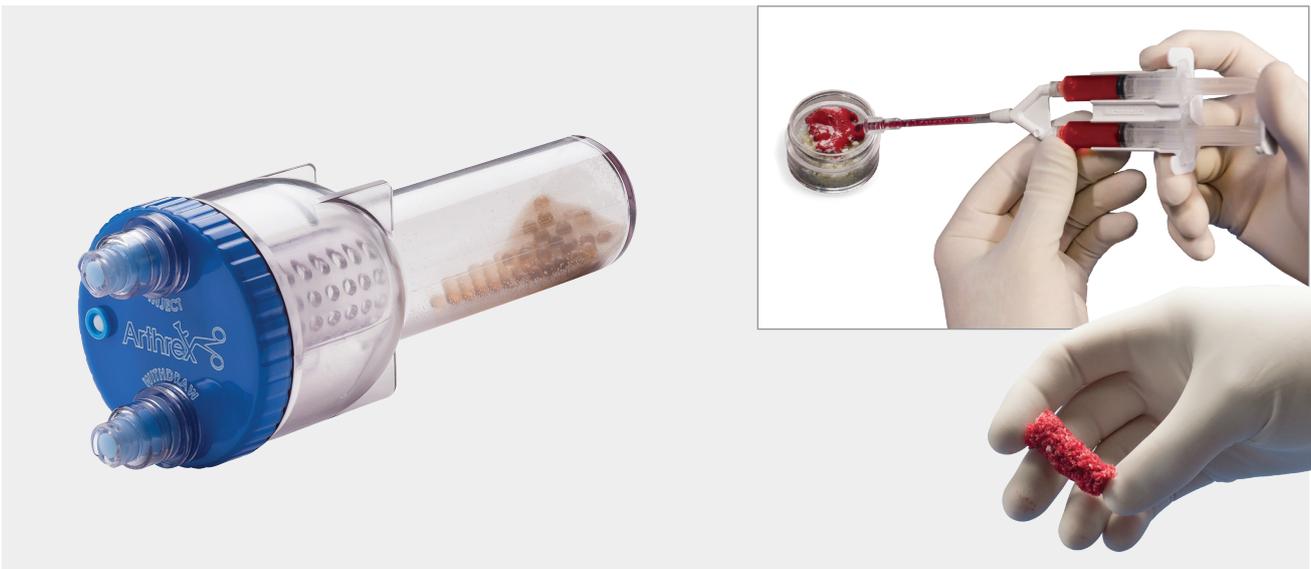


### References

1. Arthrex, Inc. Data on file (APT-5368). Naples, FL; 2021.
2. Arthrex, Inc. Data on file (APT-5535). Naples, FL; 2022.
3. Arthrex, Inc. Data on file (APT-5756). Naples, FL; 2022.

# ACP MAX™

## Thrombinator™ System for Use With Arthrex PRP Systems



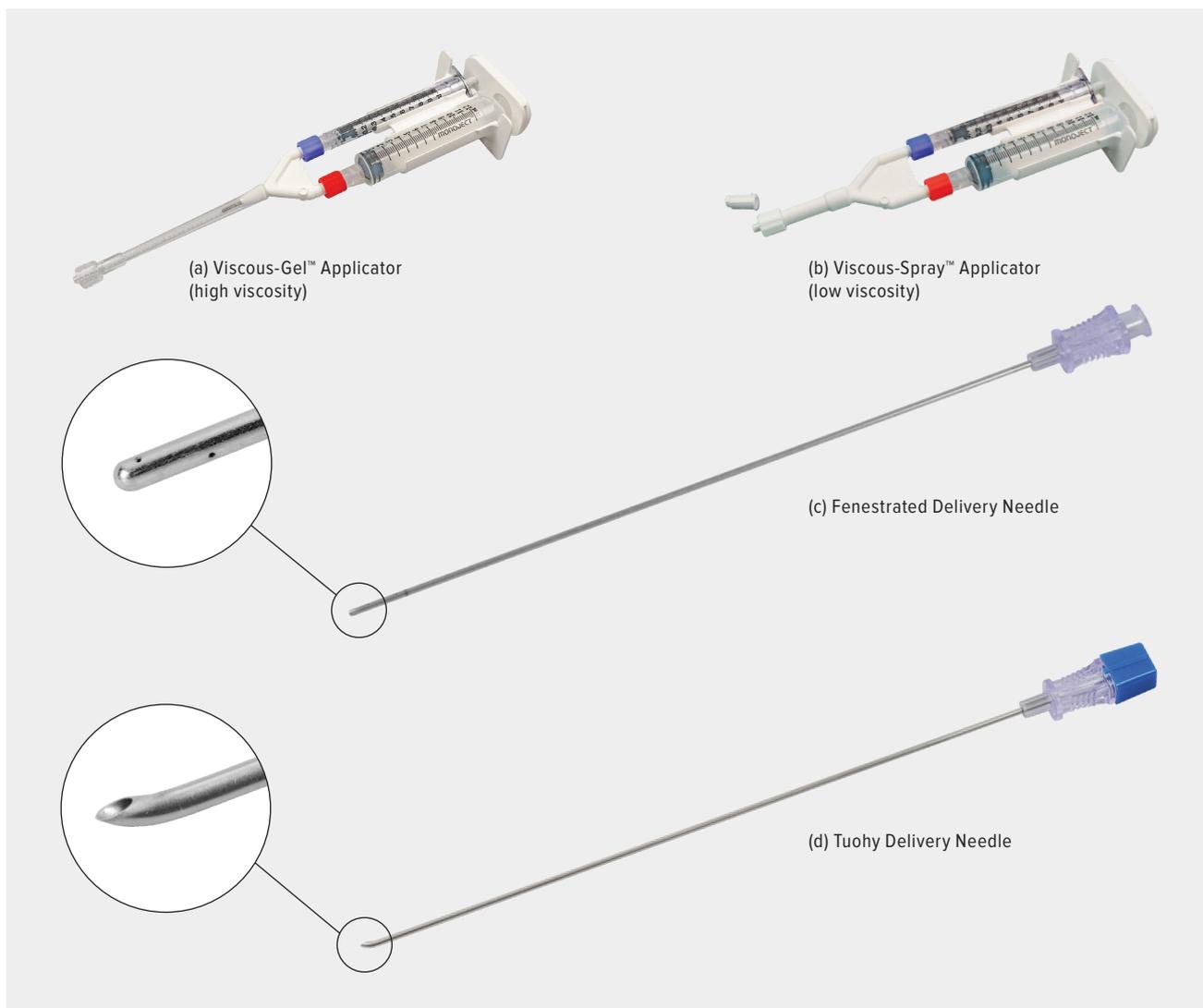
The Thrombinator system is designed to produce an autologous activation serum at the point of care. The serum produced by the Thrombinator system can be used to improve the handling of bone grafts. Autologous activation serum improves handling by activating platelets to produce a gel that serves as a binding agent for bone graft material. The Thrombinator process uses the principles of the clotting cascade to produce an activation serum without the use of harsh chemical reagents such as ethanol. The Thrombinator design eliminates the need for lengthy incubation times and heating requirements. Autologous activation serum can be produced in less than 20 minutes from peripheral whole blood (WB), PPP, or PRP.

- Rapid preparation (less than 20 minutes)
- Prepare from WB, PPP, or PRP
- Produces clot in as little as 15 seconds
- Centrifugation not required

Product Description	Item Number
Thrombinator System for Use With the Angel cPRP System	ABS-10080
Angel System Centrifuge	ABS-10060
Arthrex ACP Kit Series II	ABS-10012
Accessories	
Dual Cannula, semiflexible, endoscopic, 32 cm	SA-3650
Dual Spray Tip	SA-3660
Endoscopic Applicator w/ Mixing Tip, 30 cm, 1:1 ratio	SA-3662
Blending Connector w/ Single Flexible Cannula	SA-3673
Blending Connector w/ Single Spray	SA-3674
Mixing Applicator Low Viscosity w/ Spray Tip	SA-3675
Blending Connector w/ Mixer	SA-3678



## Viscous Delivery Systems



- Quick and simple to attach and detach
- Easy to fill—no need to disassemble
- 11:1 ratio allows homologous mixture of two fluids
- Use to provide a low- or high-viscosity fluid
- ACP or PRP can be mixed with allograft or autograft bone prior to application to an orthopedic surgical site as a spray, gel, or clot
- Extra long, blunt, fenestrated, and beveled delivery needles

Product Description	Item Number
Viscous-Gel™ Applicator, high viscosity <b>(a)</b>	ABS-10050
Viscous-Spray™ Applicator, low viscosity <b>(b)</b>	ABS-10051
Viscous-Spray II Applicator, low viscosity	ABS-10052
Adipose Tissue Harvesting Kit	ABS-10055
Fenestrated Delivery Needle <b>(c)</b>	ABS-20000
Tuohy Delivery Needle <b>(d)</b>	ABS-21000
Cannula Bending Tool	AR-6650
Ratio Applicator Assembly, 11:1 ratio	SA-1001
Applicator w/ Dual Spray Tips, 11:1 ratio	SA-1060
Dual Cannula, 6 ga × 10 cm (4 in)	SA-3600
Dual Cannula, 20 ga × 5 cm (2 in)	SA-3615
Dual Cannula, 20 ga × 10 cm (4 in)	SA-3618

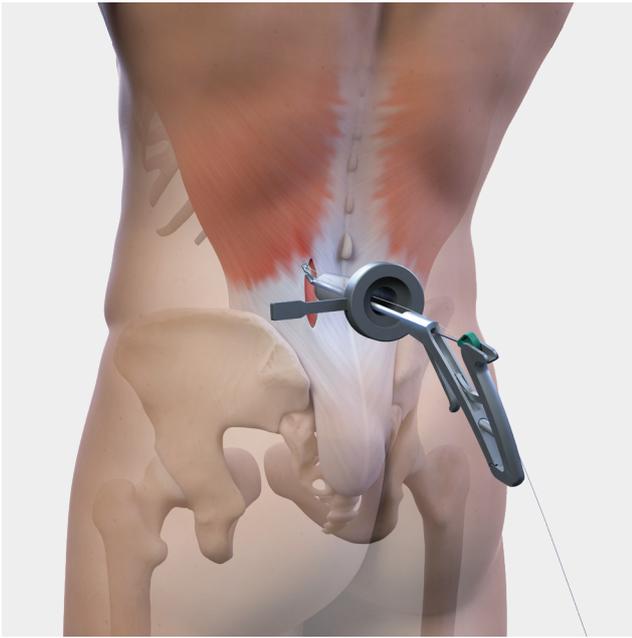
Product Description	Item Number
Dual Cannula, 20 ga × 18 cm (7 in)	SA-3619
Dual Cannula, 20 ga × 26 cm (10.25 in)	SA-3620
Dual cannula, semiflexible, endoscopic, 32 cm	SA-3650
Dual Spray Tip	SA-3660
Endoscopic Applicator w/ Mixing Tip, 30 cm, 1:1 ratio	SA-3662
Blending Connector w/ Single Flexible Cannula	SA-3673
Blending Connector w/ Single Spray	SA-3674
Mixing Applicator, low viscosity, w/ spray tip	SA-3675
Applicator Procedure Kit, 11:1 ratio	SA-4400
Dual Spray Procedure Kit, 11:1 ratio	SA-4460
Gas Assisted Procedure Kit, 11:1 ratio	SA-6111
Applicator Assembly, 3 cc, 1:1 ratio	SA-3303



# Soft-Tissue Repair

Spine Scorpion™ Suture Passer .....	116
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## Spine Scorpion™ Suture Passer



The Spine Scorpion suture passer draws on more than 20 years of experience in the minimally invasive suture market. Designed specifically for minimally invasive spine approaches, the Spine Scorpion suture passer removes the frustration associated with closing the fascia at the end of the case.

The Spine Scorpion suture passer is ideal for closing the fascia at the end of minimally invasive spine procedures. The low-profile design allows for easy access to the fascia, at all depths, for procedures done through either a tubular or mini open approach. The Spine Scorpion suture passer automatically passes and retrieves multiple types of suture, including 0 and 2-0 sutures.

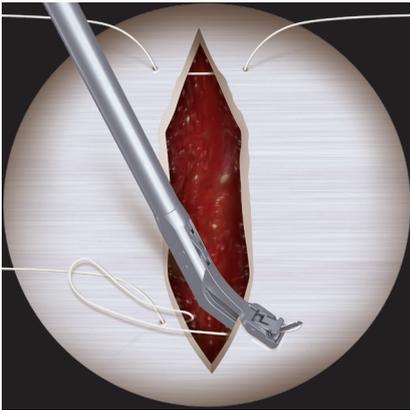
### Features and Benefits

- Can close fascia up to 75% faster<sup>1</sup>
- Efficient, consistent fascial closure at any depth
- Automatically and seamlessly passes and retrieves suture
- One-step suture loading
- Low-profile design for easy access through tubular or mini open approaches

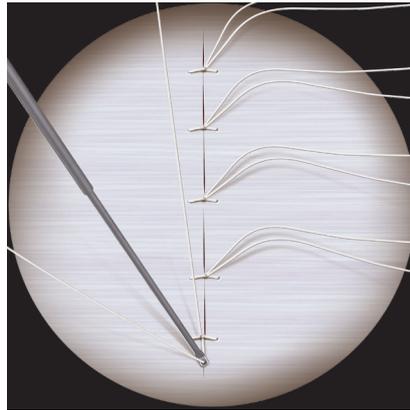


Spine  
**Scorpion**

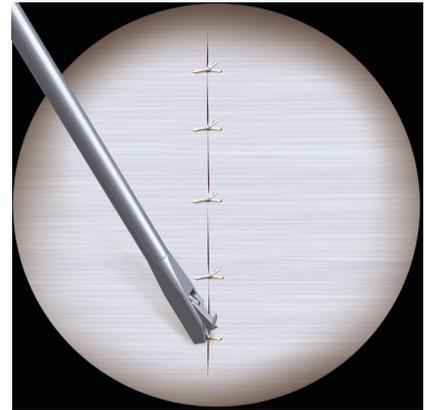
## Spine Scorpion™ Suture Passer (Cont.)



Pass...



Tie...

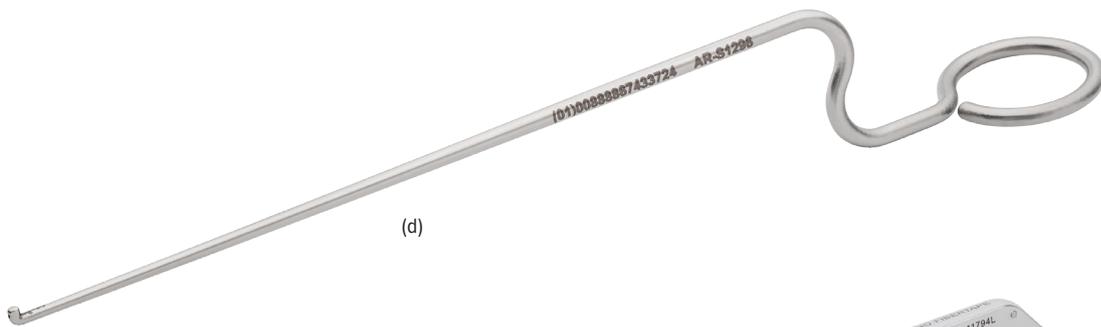


Cut.

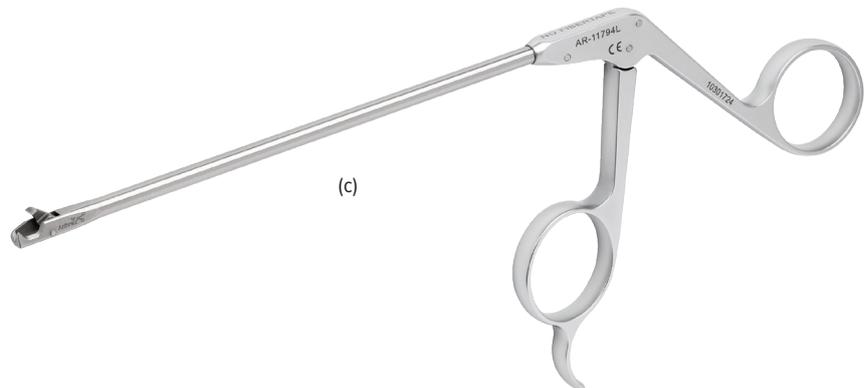


(e)

Product Description	Item Number
Spine Scorpion Suture Passer (a)	AR-13998C
SureFire® Scorpion Needle (b)	AR-13991N
Suture Cutter, 4.2 mm, open ended, left notch (c)	AR-11794L
Suture Cutter, 4.2 mm × 220 mm, open ended, left notch	AR-16794L
Small Knot Pusher	AR-1296
Single-Hole Knot Pusher	AR-1299
Knot Pusher, closed end	AR-1305
Bayonetted Knot Pusher (d)	AR-S1296
Spine Scorpion Instrument Case	AR-13998CC
Spine Scorpion Instrument Set (e)	AR-13998CS



(d)



(c)

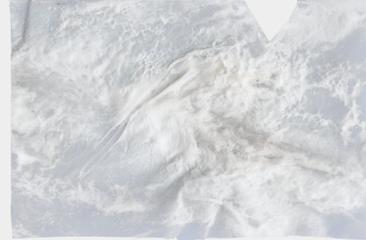
### Reference

1. Arthrex, Inc. Data on file (APT-05722). Naples, FL; 2021.

## Arthrex Amnion™ Matrix



Arthrex Amnion Matrix - Thin



Arthrex Amnion Matrix - Thick

Amniotic-derived tissues contain endogenous growth factors and cytokines<sup>1-5</sup> that maintain the natural properties of amnion. Arthrex Amnion matrix is an anatomical barrier that helps provide mechanical protection<sup>5</sup> while supporting tissue with nutrient-rich growth factors.<sup>6-8</sup>

- Amniotic membrane is a thin, semitransparent, and resilient membrane that lines the inner lining of the placenta
- Arthrex Amnion matrix provides essential biological and mechanical protection while helping to prevent adhesion<sup>6</sup>
- Just as amniotic tissue protects and cushions the fetus during development, Arthrex Amnion matrix helps provide the same support to damaged tissue<sup>4</sup>
- Arthrex Amnion matrix harnesses growth factors essential for signaling<sup>4,7</sup>

Product Description	Item Number
<b>Arthrex Amnion Matrix-Thin</b>	
2 cm × 2 cm	ABS-4100-022
2 cm × 3 cm	ABS-4100-023
3 cm × 3 cm	ABS-4100-033
4 cm × 4 cm	ABS-4100-044
4 cm × 6 cm	ABS-4100-046
4 cm × 8 cm	ABS-4100-048
7 cm × 7 cm	ABS-4100-077
2 cm × 12 cm	ABS-4100-212
<b>Arthrex Amnion Matrix-Thick</b>	
2 cm × 2 cm	ABS-4200-022
2 cm × 3 cm	ABS-4200-023
2 cm × 4 cm	ABS-4200-034
2 cm × 6 cm	ABS-4200-036
2 cm × 8 cm	ABS-4200-038
3 cm × 3 cm	ABS-4200-033
5.5 cm × 4 cm	ABS-4200-054

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Arthrex  
**AMNION**Matrix

## Biovance® Amniotic Membrane Allograft



### Applications

- Surgical covering
- Wrap or barrier
- Prevent scar-tissue adhesion to nerves

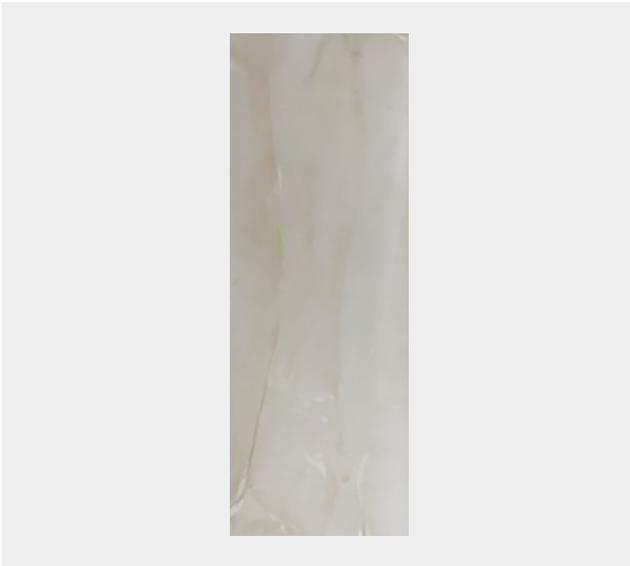
Product Description	Item Number
Biovance Amniotic Membrane, 1 cm × 2 cm	<b>DHAM0012</b>
Biovance Amniotic Membrane, 2 cm × 2 cm	<b>DHAM0022</b>
Biovance Amniotic Membrane, 2 cm × 3 cm	<b>DHAM0023</b>
Biovance Amniotic Membrane, 2 cm × 4 cm	<b>DHAM0024</b>
Biovance Amniotic Membrane, 3 cm × 3.5 cm	<b>DHAM0035</b>
Biovance Amniotic Membrane, 4 cm × 4 cm	<b>DHAM0044</b>
Biovance Amniotic Membrane, 5 cm × 5 cm	<b>DHAM0055</b>
Biovance Amniotic Membrane, 6 cm × 6 cm	<b>DHAM0066</b>

Biovance human amniotic membrane allograft is derived from the placenta of a healthy, full-term pregnancy. Unlike other placenta-derived allografts, Biovance amniotic membrane is completely decellularized, devoid of cells, hormones, growth factors, cytokines, and other substances. Biovance amniotic membrane acts as a barrier membrane during the wound regeneration process and supports tissue growth. It contains key extracellular matrix proteins that allow for the migration of host cells to permeate the graft and promote tissue repair.

### Features and Benefits

- Flexible to use across a wide variety of applications
- Biologic membrane supports the body's healing process
- Room temperature storage
- Non-side-specific
- Available in multiple sizes for a variety of surgical application needs
- 10-year shelf life

## CentaFlex™ Placental Matrix



### Potential applications

- Surgical covering
- Wrap or barrier
- Prevent scar-tissue adhesion to nerves

Product Description	Item Number
CentaFlex Placental Matrix, 3 cm × 8 cm	HPM0038
CentaFlex Placental Matrix, 3 cm × 6 cm	HPM0036
CentaFlex Placental Matrix 3 cm × 4 cm	HPM0034
CentaFlex Placental Matrix, 2 cm × 3 cm	HPM0023
CentaFlex Placental Matrix, 3 cm × 3 cm	HPM0033
CentaFlex Placental Matrix, 2 cm × 2 cm	HPM0022
CentaFlex Placental Matrix, 0.5 cm × 4 cm	HPM0054

CentaFlex decellularized human placental matrix allograft is derived from human umbilical cord. CentaFlex placental matrix has the strength to support repair, without the trade-off of an overly thick tissue. It serves as a cell-friendly structure to allow noninflammatory cell attachment, proliferation, and growth. CentaFlex placental matrix can be quickly hydrated with a sterile fluid for maximum flexibility and easy handling. Additionally, it is terminally sterile.

### Features and Benefits

- Robust and strong to hold a suture
- Available in multiple sizes for a variety of surgical application needs
- Flexible to use across a wide variety of applications
- Non—side-specific
- Room temperature storage
- 10-year shelf life

## Interfyl® Connective Tissue Matrix



Interfyl connective tissue matrix is used to fill irregular spaces or soft-tissue deficits resulting from wounds, trauma, or surgery. Derived from the chorionic plate, Interfyl connective tissue matrix is suited for a variety of surgical applications when there is a need to replace or supplement damaged or inadequate integumental tissue. It is minimally manipulated and retains the fundamental structure and functional characteristics of connective tissue, and is available in particulate and flowable formulations.

### Features and Benefits

- Flowable and particulate formulations
- Conforms to irregular surfaces
- Room temperature storage
- 10-year shelf life

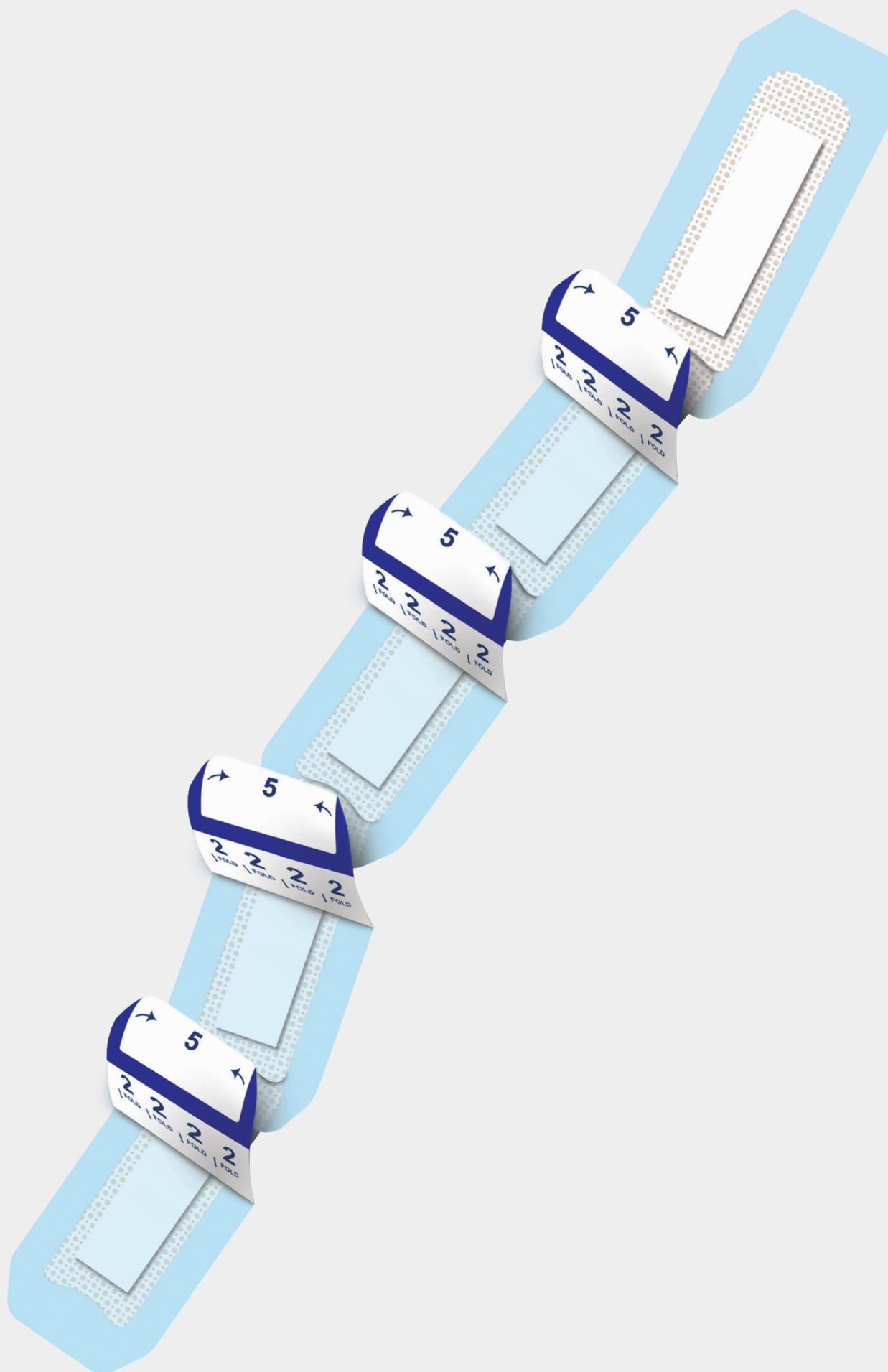
### Potential applications

- Augmentation of deficient or inadequate soft tissue and treatment of deep dermal wounds
- Surgical wounds
- Soft-tissue voids as a result of tunneling wounds, fistula tracts, or dermal undermining, including those with exposed vital structures (bone, tendon, ligament, or nerve)

Product Description	Item Number
Interfyl Tissue Matrix, 50 mg particulate	<b>HCTM050</b>
Interfyl Tissue Matrix, 100 mg particulate	<b>HCTM100</b>
Interfyl Tissue Matrix, 0.3 mL flowable	<b>HCTM030</b>
Interfyl Tissue Matrix, 0.6 mL flowable	<b>HCTM060</b>
Interfyl Tissue Matrix, 1 mL flowable	<b>HCTM010</b>
Interfyl Tissue Matrix, 1.5 mL flowable	<b>HCTM015</b>

**Interfyl®**

Human Connective Tissue Matrix  
A Celularity Innovation



# Wound Care

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## JumpStart® Antimicrobial Wound Dressings

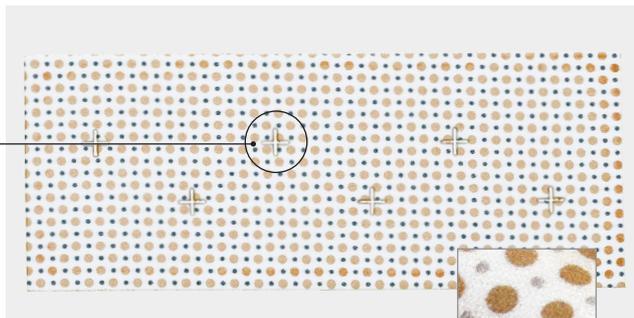
### JumpStart Dressings Powered by V.Dox™ Technology

JumpStart dressings are provided on an ultra-thin, lightweight, polyester substrate and contain laser-cut fenestrations to allow easy passage of wound exudate into the absorbent layer or a secondary dressing. The flexible design easily contours to the body. JumpStart dressings may be applied directly over sutures, staples, Steri-Strip™ wound closures, and liquid skin adhesives. The dot matrix pattern of embedded microcell batteries generate microcurrents on the dressing surface in the presence of a conductive medium, such as sterile saline, water-based gel, or wound exudate.

- Polyester substrate with embedded microcell batteries made of elemental silver and elemental zinc
- Fenestrations allow wound drainage to pass through dressing to absorbent layer
- Water resistant (may be left in place while showering)
- Omnidirectional stretch for enhanced mobility and comfort

### JumpStart Contact Layer Dressing

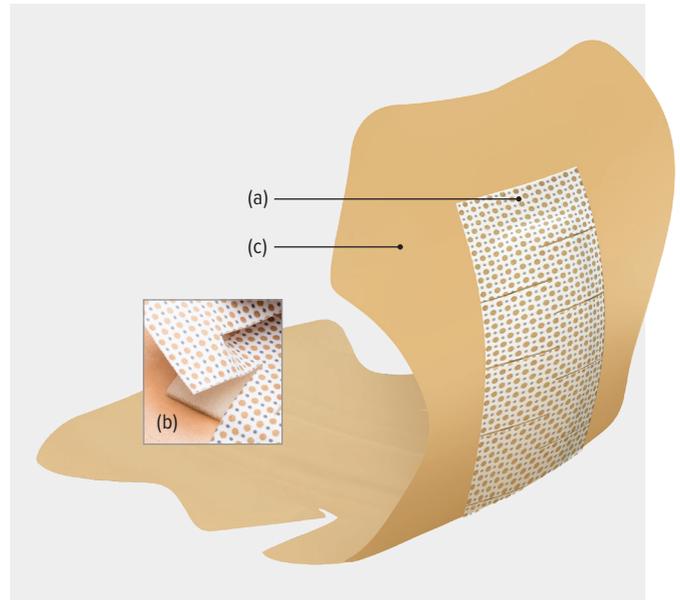
- JumpStart's antimicrobial wound contact layer powered by V.Dox technology
- Polyester substrate with embedded microcell batteries made of elemental silver and elemental zinc
- Fenestrations allow wound drainage to pass through dressing to absorbent layer



Dot matrix of elemental zinc and elemental silver microcell batteries

### JumpStart Composite Dressing

- JumpStart dressing wound contact layer powered by V.Dox technology **(a)**
- Highly absorbent middle layer **(b)**
- Adhesive dressing **(c)**



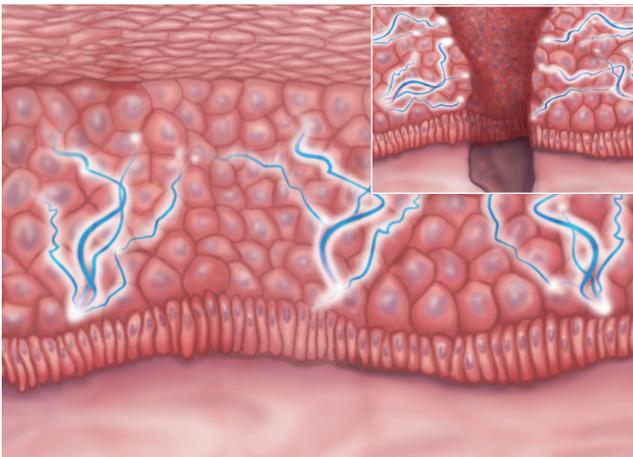
### JumpStart Contact Layer Dressing

Dressing Size (in)	Qty/Box	Item Number
1 × 1, fenestrated	10	ABS-4001
1.5 × 8	10	ABS-4005
1.5 × 10	10	ABS-4006
2 × 2	10	ABS-4002
2 × 5	10	ABS-4025
3 × 3	10	ABS-4003
4 × 4	10	ABS-4004
8 × 8	1	ABS-4008
12 × 12	1	ABS-4012

### JumpStart Composite Dressing

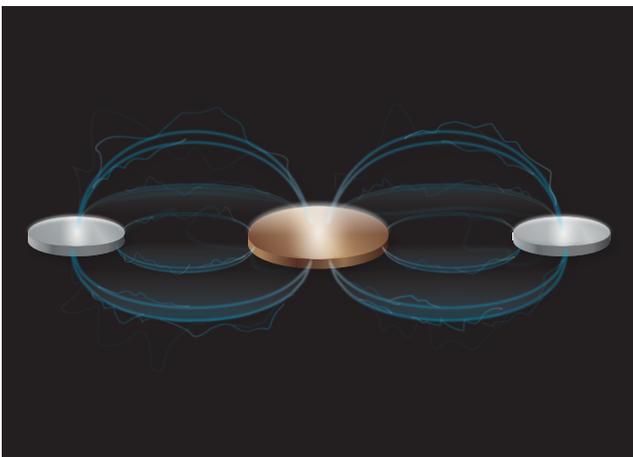
Adhesive Size (in)	Dressing Size (in)	Qty/Box	Item Number
2.5 diameter	1 diameter	10	ABS-4054
4 diameter	1 diameter	10	ABS-4056
4 × 4	2 × 2	5	ABS-4053
5 × 6	1.5 × 5	5	ABS-4051
4.5 × 10	1.5 × 7	5	ABS-4052
6 × 11.5	2 × 9	5	ABS-4050
4.4 × 9.6	1.5 × 6.5	5	ABS-4057
4.2 × 7.5	1.4 × 4.5	5	ABS-4058

## The Science of JumpStart® Wound Dressings



### Inspired by the body

The skin naturally creates and uses electrical energy to promote healing. Electric fields in the skin create surface energy potential, known as transepithelial potential (TEP). When skin is wounded, a change in electric potential occurs, which drives the cell migration and wound healing process.



### Powered by electricity

JumpStart antimicrobial wound dressings—powered by patented V.Dox™ technology—employ moisture-activated microcell batteries that wirelessly generate microcurrents designed to mimic the skin's electrical energy.



### Energized by results

JumpStart dressings reduce the risk of infection by killing a broad spectrum of bacteria without antibiotics while supporting the body's natural healing process.

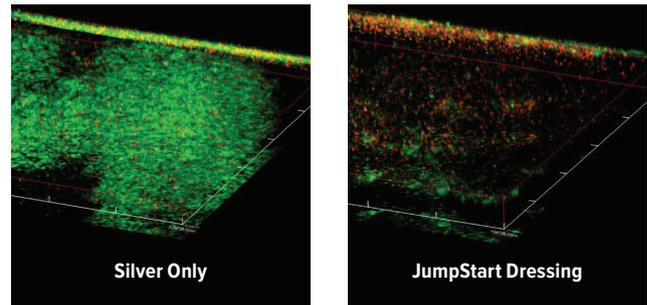
Published studies show JumpStart dressings reduce the risk of infection<sup>1-5</sup> and promote the healing process<sup>6</sup> to optimize outcomes.



## The Science of JumpStart® Wound Dressings (Cont.)

### Reduce risk of infection

- Killed a broad spectrum of pathogens, including multidrug-resistant and biofilm-forming bacteria<sup>1-3</sup>
- Disrupted existing biofilm infection and prevented biofilm from forming in preclinical studies<sup>4</sup>
- Prevented bacterial growth, with sustained antimicrobial impact for up to 7 days<sup>5</sup>
- Demonstrated electricidal antimicrobial impact versus silver dressings<sup>6</sup>



Live/dead fluorescence staining demonstrated bacterial killing of *P. aeruginosa* within JumpStart antimicrobial wound dressing compared to a standard silver-based dressing at 24 hours. Green = alive, red = dead.

### Promote healing

Improved re-epithelialization with JumpStart dressings versus standard dressings.<sup>6</sup>



Prospective case series; skin graft harvest sites (N=13) demonstrated significantly greater re-epithelialization with JumpStart dressing (71.8%) vs control (46.9%) (P=.015).

### Not Just a Postoperative Dressing

Bioelectric dressings have demonstrated benefits when applied preoperatively, in addition to as part of routine postoperative care.

- When applied 2 hours before the development of an acute wound, bioelectric dressing can prevent biofilm formation<sup>4</sup>
- JumpStart dressing has been shown to be equally as effective in preventing bacteria formation as traditional skin preparation products<sup>7</sup>
- When used both pre- and postoperatively, JumpStart dressing can provide enhanced antibacterial protection to wound sites

Surgical site infections (SSI) occur in **1% to 2%** of all patients worldwide undergoing inpatient surgery<sup>8-10</sup>

SSIs affect **millions** of patients each year  
**US: 1.5 million**<sup>11</sup>  
**Europe: 500,000**<sup>9</sup>

SSIs increase annual treatment costs  
**US: +\$3.5 to \$10 billion**<sup>12</sup>  
**Europe: +€1.5 to €19 billion**<sup>13</sup>

SSIs prolong hospitalization  
**US: +9.7 days**<sup>12</sup>  
**Europe: +6.5 days**<sup>13</sup>

## The Science of JumpStart® Wound Dressings (Cont.)

### Evidence for Successful Use in Spine

- Retrospective hospital-registry study
- SSIs persist as a leading complication of spinal fusion surgery<sup>14</sup>
- The majority (57.5%) of infections studied were resistant to the prophylaxis administered during the procedure<sup>14</sup>
- There is an anatomic gradient in the microbiology of spinal fusion surgical site infection<sup>14</sup>
  - Gram-positive: cervical spine
  - Gram-negative: lumbar spine
- JumpStart dressing kills and protects against both gram-positive and -negative bacteria<sup>14</sup>

**3%** estimated mortality rate with SSI<sup>11</sup>

**75%** of SSI-associated deaths are directly attributable to the infection<sup>11</sup>

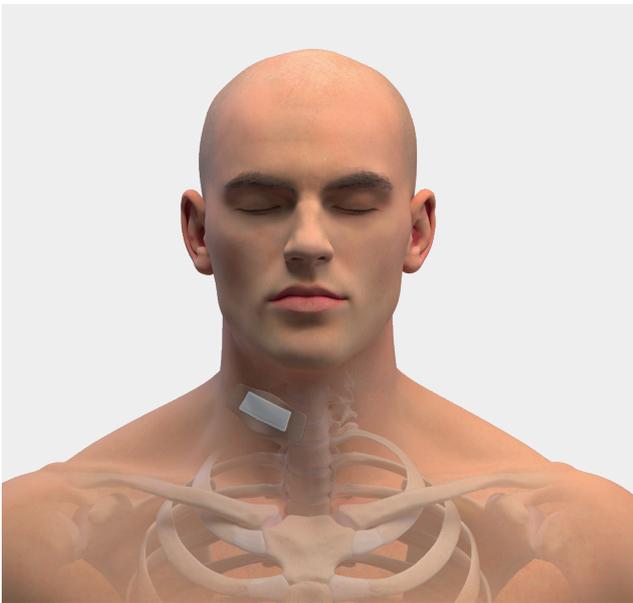
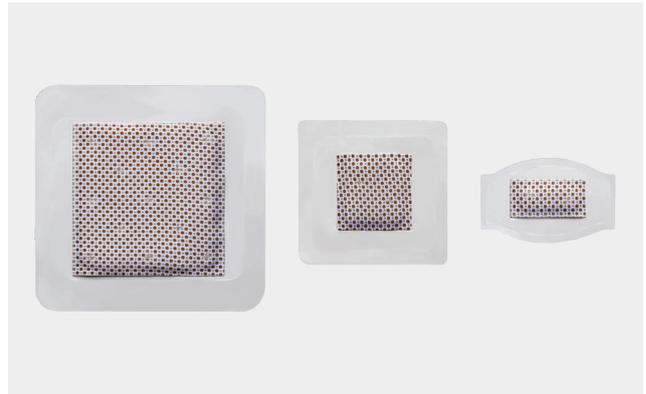
**50%** of SSIs are preventable<sup>8,9,15</sup>



## JumpStart ClearFit™ Dressing

The JumpStart ClearFit dressing line features the unique V.Dox™ technology with a clear film adhesive for gentle dressing placement and removal.

Product Description	Item Number
JumpStart ClearFit dressing, 4 in × 4 in	ABS-4061
JumpStart ClearFit dressing, 6 in × 6 in	ABS-4062
JumpStart ClearFit dressing, 3.5 in × 2.25 in	ABS-4063



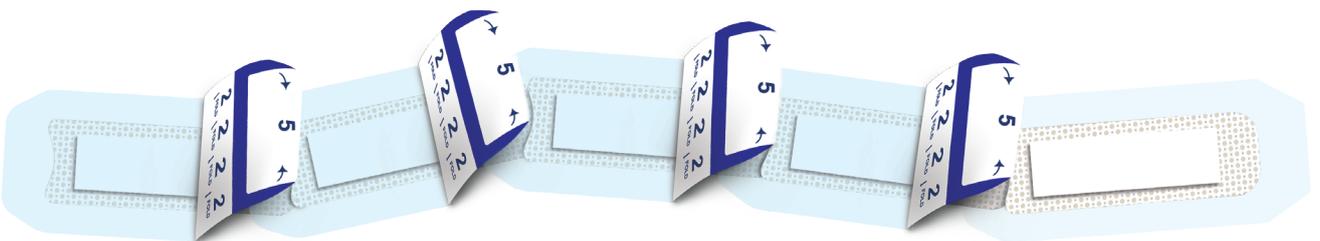
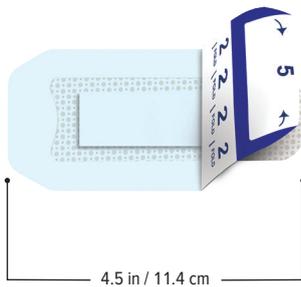
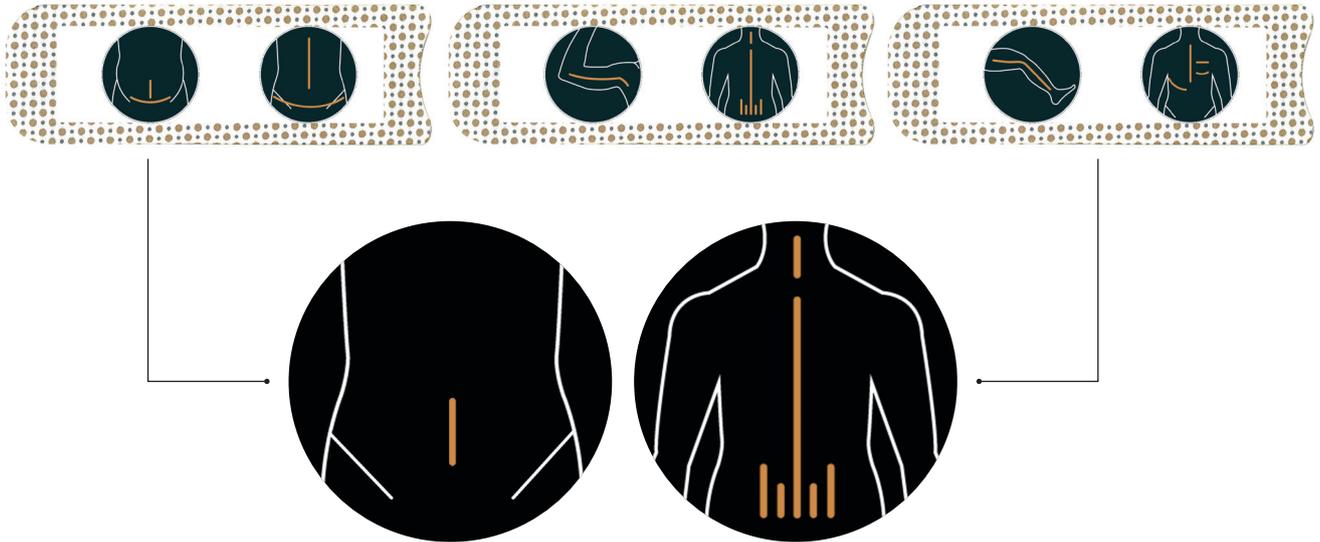
V·DOX™  
TECHNOLOGY

**JumpStart**  
ANTIMICROBIAL WOUND DRESSING

## JumpStart® FlexEFit™ Antibacterial Wound Dressing

### JumpStart FlexEFit Wound Dressing's Exclusive "Link and Build" Design

JumpStart FlexEFit antibacterial wound dressing employs a novel link and build design that enables it to be "built" during application to seamlessly cover incisions of virtually any length or curvature with just one product configuration.



Order a single product to meet postsurgical dressing needs.

## JumpStart® FlexEfit™ Antibacterial Wound Dressing (Cont.)

### Description

- JumpStart FlexEfit antibacterial wound dressing is designed with the flexibility to fit virtually any incision length or curvature
- The dressing is powered by patented V.Dox™ technology, the only nonantibiotic antibacterial technology inspired by the skin's natural electrical healing process
- Embedded microcell batteries in the dressing generate an electric field designed to mimic the skin's physiologic electric fields, which are essential for cell migration and healing

### Antibacterial Impact

- Demonstrated antibacterial impact against a broad spectrum of bacteria, including multidrug-resistant and biofilm-forming bacteria<sup>1-4</sup>
- Designed to minimize infection risk and support the body's natural healing process

### Features and Benefits

- Water resistant (may be left in place while showering)
- One-of-a-kind antimicrobial technology
- Link-and-build design
- 7-day wear time

Pad Dimensions	Adhesive Dimensions	Qty/Box	Item Number
1.5 in × 4.5 in	2.5 in × 6.3 in	5	ABS-4060-05
3.8 cm × 11.4 cm	6.3 cm × 16 cm	10	ABS-4060-10

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## Energel® Wound Hydrogel



Use Energel wound hydrogel to activate JumpStart® dressing's microcell batteries:

- Sterile, water-soluble gel formulated to maintain a moist wound environment and provide moisture to a dry wound
- Double-packaged sterile for use in the operating room
- Optimally sized for single use (7.5 g)
- Maintains conductivity of JumpStart dressing for up to 7 days

Product Description	Item Number
Energel Wound Hydrogel	AGL-L075-10



JumpStart FlexEFit dressing applications are not limited to the examples shown.



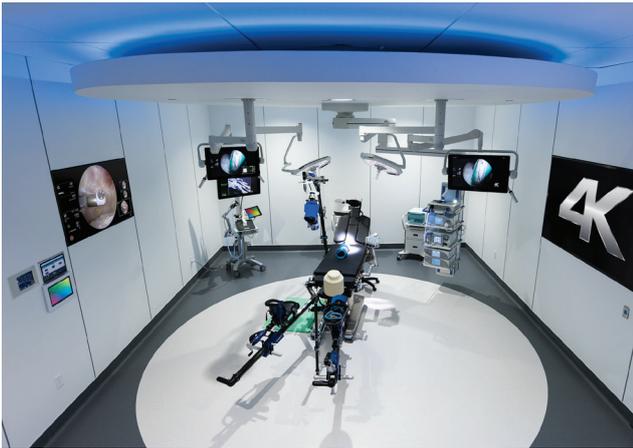
SKYTRON GS70H SALUS



# Service and Support

Service and Support .....	134
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## Service and Support



### Service You Can Rely On

We understand that patients rely on you every day—and that you rely on your equipment. You have purchased the most innovative world-class imaging devices available, and you always expect them to be ready. As your strategic partner, you can rely on Arthrex to provide quality products and service to help surgeons treat their patients better.

### Arthrex Armour Technology Protection Plans

Arthrex Armour offers customizable service plan levels to meet all your product and service needs.

#### Arthrex Armour Core Protection

- Arthrex Armour Core Protection provides our baseline service level support billed as per-incident and is available on all serviceable Arthrex products. Prepaid per-incidents are also available for all scope product lines, Synergy<sup>UHD4™</sup> consoles and camera heads, and Synergy<sup>ID™</sup> consoles and camera heads. With prepaid per-incidents, you can better forecast your operational budget through a bulk purchase.

#### Arthrex Armour Premium Protection

- This level of Arthrex Armour provides total protection against product issues and incidental damage. Multiple payment options make an Arthrex Armour Premium Protection plan a budget-friendly solution that guarantees peak equipment performance and helps ensure maximum uptime.

#### Arthrex Armour Titanium Protection

- To resolve any possible technical challenges, Arthrex Armour Titanium Protection offers our most comprehensive service. Along with expert 24-hour remote technical support provided by our Technical Assistance Center, this tier features a trained Arthrex agency representative residing on location to provide immediate technical support. Layer this protection plan with Arthrex Armour Premium Protection to ensure the best service experience possible.

#### With Arthrex Armour Technology Protection you will

- Save money and insure against costly, unbudgeted repairs
- Reduce downtime with advance replacement products
- Guarantee in-house Arthrex-certified replacement parts
- Choose from flexible agreement and payment terms

#### Why Arthrex?

As the designer for the Arthrex family of products, we use high-quality, Arthrex-certified components to provide the highest standard of service designed to keep your equipment in excellent working condition over time. For maximum uptime and the highest quality performance, we are the logical choice for service replacements and after-sale care.

#### Contact Information

Please contact us at [ServiceAgreements@arthrex.com](mailto:ServiceAgreements@arthrex.com) for any questions or requests regarding our service offerings.

#### Warranty Policy

For all warranty information, including disclaimers, exclusions, terms, conditions, and related provisions, refer to the Arthrex U.S. Product Warranty section of the Arthrex, Inc., website found at [www.arthrex.com/corporate/arthrex-us-product-warranty](http://www.arthrex.com/corporate/arthrex-us-product-warranty).





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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US patent information

