

Product Catalog

*Advancing Operating Room
Safety Through Innovation!*



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VisiClear®

Surgical Smoke Plume Evacuator

VisiClear® is our most advanced acute care offering for surgical smoke plume evacuation. Combining Safeport Technology™, an occlusion warning, filter life tracking, and one-touch programmable procedure modes for open tubing, electrosurgical pencil, and laparoscopic procedures, VisiClear effectively captures and filters surgical plume, removes odors, particulates and other potentially hazardous by-products.



Product Features & Benefits

Procedure Operating Modes

One of three operating modes (Laparoscopic, Open Tubing, and Electrosurgical Pencil Mode) can easily be selected, automatically customizing filter life based on surgical procedure.

Advanced Sound Control Design

Whisper Technology™ ensures ultra-quiet operation with unprecedented sound quality.

Sleek Shelf Design

Ergonomically designed to accommodate stacking.

Occlusion Warning

Safety feature that alerts medical personnel when an occlusion has occurred.

Intuitive Color Touch Screen

Easy to use, requires minimal training, and can be operated with gloved hand.

Unique Sliding Port Closure

SafePort Technology™ ensures reduced risk of staff coming in contact with a contaminated port.

Technical Information

Flow Rates* 30 cfm (839 lpm) using 7/8 in (22 mm) tubing

Dimensions (H x W x D) 7.1 in x 13.9 in x 16.1 in
(18.0 cm x 35.4 cm x 40.9 cm)

Noise Levels* @ maximum power < 55 dBA

Weight With filter installed: 17.5 lbs (7.9 kg)
Without filter installed: 14.5 lbs (6.6 kg)

Warranty Three (3) Year Full Warranty

Made in USA

Product Ordering Information Catalog Number

100/120 Volt Systems	VC120
220/240 Volt Systems	VC220
(includes one filter and one footswitch)	

100/120 Volt Systems	VC120NF
220/240 Volt Systems	VC220NF
(includes one footswitch)	

Filter Ordering Information Catalog Number

ViroSafe® VisiClear® Filter	VS135 Series
Filter Life	18, 21, 35 hours (depending on the mode)

*Nominal values



Pneumatic Footswitch
(included)



EZLink (sold separately;
part: EZLINK01)



ViroSafe® Fluid Trap (sold
separately; part: VSFT10)

ViroVac®

Surgical Smoke Plume Evacuator

ViroVac® surgical smoke plume evacuator provides ideal flow for physician offices and outpatient surgery centers. It combines customizable (variable) filter life, a compact shelf design, 3-port filter with filter life tracking technology, while exceeding expectations for value and efficacy.



Pneumatic Footswitch
(included)

Product Features & Benefits

Compact Design

Allows for easy placement on shelf or counter and accommodates stackability.

Patented 3-Port Filter Design

Versatile 3-port filter design features covered, hidden male ports and accommodates a variety of tubing sizes providing versatility in procedure and accessory setup.

Variable Filter Life (up to 35 hours)

Delivers unsurpassed value and reduces per procedure costs.

Simple LED Display

Two button design (motor speed and on/standby) makes this system extremely easy to operate.

Covered Filter Ports

Filter ports are covered for additional safety.

Quiet Operation

Addresses noise concerns.

Technical Information

Flow Rates* 25 cfm (708 lpm) using 7/8 in (22 mm) tubing

Dimensions (H x W x D) 6 in x 11 in x 15.5 in
(15.2 cm x 27.9 cm x 39.4 cm)

Noise Levels* @ maximum power < 55dBa

Weight With filter installed: 12.0 lbs (5.0 kg)
Without filter installed: 9.5 lbs (4.0 kg)

Warranty One (1) Year Full Warranty

Made in USA

Product Ordering Information Catalog Number

100/120 Volt Systems VV120
220/240 Volt Systems VV220
(includes one filter and one footswitch)

100/120 Volt Systems VV120NF
220/240 Volt Systems VV220NF
(includes one footswitch)

Filter Ordering Information Catalog Number

ViroSafe® ViroVac® Filter VS353 Series
Filter Life 18, 24, 35 hours
(depending on flow rate)

*Nominal values



EZLink (sold separately;
part: EZLINK01)



ViroSafe® Fluid Trap (sold
separately; part: VSFT10)

PlumeSafe® Turbo

Surgical Smoke Plume Evacuator

PlumeSafe® Turbo is a powerful portable surgical smoke plume evacuator designed with sufficient flow for the aesthetic market. It features turbo suction power, an interactive LCD display and filter tracking technology. It can easily be placed on a counter, shelf, floor or other location convenient to the operative area.

Product Features & Benefits

Turbo Mode

Significantly increases the airflow to quickly remove plume from the surgical site.

Interactive LCD Display

Our interactive display puts information at your fingertips. Multiple languages are included, adding to the unit's versatility.

Adjustable Flow Control

Suction setting can easily be adjusted in 10% increments.

Filter Tracking Technology

Automatically tracks and records filter life through a patented technology.

Quiet Operation

Addresses noise concerns.

Technical Information

Flow Rates*	68 cfm (1923 lpm) using 1-1/4 in (32 mm) tubing
	44 cfm (1257 lpm) using 7/8 in (22 mm) tubing
Dimensions (H x W x D)	13.5 in x 8 in x 17 in (34 cm x 20 cm x 43 cm)
Noise Levels*	@ maximum power < 58 dBA
Weight	With filter installed: 16.9 lbs (7.0 kg) Without filter installed: 14.0 lbs (6.0 kg)
Warranty	Three (3) Year Full Warranty

Made in USA

Product Ordering Information	Catalog Number
100/120 Volt 50/60 Hz	PSWTURBO AS
220/240 Volt 50/60 Hz	PSWTURBO AS/220
(includes one footswitch; filter sold separately)	
Filter Ordering Information	Catalog Number
PlumeSafe® Turbo Replacement Filters	VS06, VSXLL, VSXLLT, VSEY, VSOH, and VSVET Series
Filter Life	6–24 hours depending on model

*Nominal values



Pneumatic Footswitch
(included)



EZLink (sold separately;
part: EZLINK01)



ViroSafe® Fluid Trap (sold
separately; part: VSFT10)

Porta PlumeSafe® 604

Surgical Smoke Plume Evacuator

Porta PlumeSafe® 604 is an ideal surgical smoke plume evacuator for veterinarian and non-acute care settings where moderate flow is needed. The unit is portable, easy to use, and features patented technology to track filter life.



Pneumatic Footswitch
(included)

Product Features & Benefits

Lightweight & Portable

Allows for easy transport or tabletop use.

LED Display

Indicates filter life and suction power.

Adjustable Flow Control

Suction setting can easily be adjusted in 10% increments.

Filter Tracking Technology

Automatically tracks and records filter life through a patented technology.

Quiet Operation

Addresses noise concerns.

Technical Information

Flow Rates*	48 cfm (1358 lpm) using 1-1/4 in (32 mm) tubing
	36 cfm (1019 lpm) using 7/8 in (22 mm) tubing
Dimensions (H x W x D)	10 in x 6.5 in x 18 in (25 cm x 17 cm x 46 cm)
Noise Levels*	@ maximum power < 59 dBA
Weight	With filter installed: 22.0 lbs (9.0 kg) Without filter installed: 18.6 lbs (8.0 kg)
Warranty	One (1) Year Full Warranty

Made in USA

Product Ordering Information	Catalog Number
100/120 Volt 50/60 Hz (includes one footswitch; filter sold separately)	PPS604
Filter Ordering Information	Catalog Number
Porta PlumeSafe® 604 Replacement Filters	VS06, VSXLL, VSXLLT, VSEY, VSOH, and VSVET Series
Filter Life	6–24 hours depending on model

*Nominal values




EZLink (sold separately;
part: EZLINK01)





ViroSafe® Fluid Trap (sold
separately; part: VSFT10)


Filters

For Buffalo Filter Evacuators

Filter Name	Designed to Fit	Description	Catalog Number	Quantity
ViroSafe® 6 Filter				
	PlumeSafe® Turbo; Porta PlumeSafe® 604.	Lasts for 6 hours of plume evacuation time and captures 0.1 to 0.2 micron particles at 99.999% efficiency. Dual male ports — 7/8 in (22 mm) and 1-1/4 in (32 mm).	VS06001	1/Case
			VS06002	2/Case
			VS06004	4/Case
			VS06012	12/Case





ViroSafe® 6 Twin Port Filter				
	PlumeSafe Turbo; Porta PlumeSafe 604.	Lasts for 6 hours of plume evacuation time. Twin male ports — 7/8 in (22 mm).	VS06T04	4/Case

ViroSafe® Extra Long Life Filter				
	PlumeSafe Turbo; Porta PlumeSafe 604.	Lasts for 18 hours of plume evacuation time. Dual male ports — 7/8 in (22 mm) and 1-1/4 in (32 mm).	VSXLL02	2/Case
			VSXLL04	4/Case

ViroSafe® Extra Long Life Twin Port Filter				
	PlumeSafe Turbo; Porta PlumeSafe 604.	Lasts for 18 hours of plume evacuation time. Twin male ports — 7/8 in (22 mm).	SING-VSXLLT	1/Case
			VSXLLT02	2/Case
			VSXLLT04	4/Case






Filters

For Buffalo Filter Evacuators

Filter Name	Designed to Fit	Description	Catalog Number	Quantity
ViroSafe® Veterinary Filter				
	PlumeSafe® Turbo; Porta PlumeSafe 604.	Lasts for 24 hours of plume evacuation time and captures 0.1 to 0.2 micron particles at 99.999% efficiency. Dual male ports — 7/8 in (22 mm) and 1-1/4 in (32 mm) Most economical choice for animal hospitals and clinics.	VSVET01	1/Case
ViroSafe® Erbium: YAG Pre-filter				
	ViroSafe Erbium: YAG main filter.	Specifically designed for use with Erbium: Yag laser applications. Designed to be used for 1-3 procedures, depending on application.	BFEY04PF	4/Case
ViroSafe® Erbium: YAG Filter				
	PlumeSafe Turbo; Porta PlumeSafe 604.	Specifically designed for use with the Erbium: Yag laser applications. Lasts for 12 hours of plume evacuation time when used with pre-filters BFEY04PF and captures particles 0.1 to 0.2 micron particles at 99.999% efficiency. Dual male ports — 7/8 in (22 mm) and 1-1/4 in (32 mm).	SING VSEY	1/Case
ViroSafe® Erbium: YAG Kit				
	Erbium: Yag laser applications. Using Erbium: YAG pre-filters helps to protect the efficacy of the ViroSafe Erbium: YAG main filter (ensuring that it lasts for 12 hours of plume evacuation time).	The pre-filter has a 1-3/8 in (35 mm) male port at each end—one to attach to the 1-1/4 in (32 mm) opening on the Main Erbium: YAG filter and another to attach to a 1-3/8 in (35 mm) tubing set. <u>Efficiency</u> Main Filter: captures particles 0.1 to 0.2 micron particles at 99.999% efficiency Pre-filter: 0.3–0.5 micron filtration <u>Usage Time</u> Main Filter: 12 hours Pre-filter: 1–3 procedures	VSEY1-4	1 Main Filter 4 Pre-filters





Filters

For Buffalo Filter Evacuators

Filter Name	Designed to Fit	Description	Catalog Number	Quantity
ViroSafe® Odor/Hair Removal Filter				
	PlumeSafe® Turbo; Porta PlumeSafe® 604.	Ideal for procedures such as laser hair removal that create malodorous plume and gases.	VSOH001	1/Case
		Lasts for 24 hours of plume evacuation time and captures 0.1 to 0.2 micron particles at 99.999% efficiency.	VSOH002	2/Case
ViroSafe® Pre-Filter				
	ViroSafe main filter.	Single port pre-filter may be attached to a ViroSafe main filter to help capture small amounts of liquid and particulate to protect and maintain its efficacy. This pre-filter should be changed after every use.	BFPF7/8-10	10/Case
ViroSafe® 12 Filter				
	PlumeSafe 1202 (discontinued).	Lasts for 24 hours of plume evacuation time and captures 0.1 to 0.2 micron particles at 99.999% efficiency.	VS12D01	1/Case
		Dual ports — 7/8 in (22 mm) or 1-1/4 in (32 mm)	VS12D02	2/Case
ViroSafe® ViroVac® Filter				
	ViroVac.	4 layers of proven filtration gross particulate, ULPA media, activated carbon, and post filter	VS353	1/Case
		Last up to 35 hours of plume evacuation time and captures 0.1 to 0.2 micron particles at 99.999% efficiency.	VS35302	2/Case
		Hidden ports reduce the risk to caregivers of cross contamination.	VS35304	4/Case
ViroSafe® VisiClear® Filter				
	VisiClear.	Safeport Technology™ prevents the clinician from accidental touching an exposed port when not in use. Customized filter life for acute care applications.	VS135	1/Case
		Lasts for up to 35 hours of plume evacuation time and captures 0.1 to 0.2 micron particles at 99.999% efficiency.	VS1352	2/Case
		3-port filter — 1/4 in (6.4 mm), 3/8 in (9.5 mm) and 7/8 in (22 mm).	VS1354	4/Case

Filters

For Wall & Portable Suction Systems

Filter Name	Designed to Fit	Description	Catalog Number	Quantity
BILF150 Multi-Use In-Line Filter				
	Captures particulate before it enters wall suction systems. Ideal for connection to wall suction port.	Economical and easy to use. As recommended by AORN, surgical plume should be filtered before it reaches the wall to protect suction systems.	BILF150	10/Case
BILF200 Multi-Use In-Line Filter				
	Captures particulate before it enters wall suction systems. Ideal for connection to canister tree.	Economical and easy to use. Single 1/4 in (6.4 mm) to 3/8 in (9.5 mm) detached tube.	BILF200	10/Case
BILF100 Single Use In-Line Filter				
	Single use wall suction filter.	Twin 1/4 in (6.4 mm) barbed ports. 65% ASHRAE rated media, 0.3 to 0.5 micron. Granular activated carbon.	BILF100	10/Case
BILF101 Single Use In-Line Filter				
	Single use wall suction filter.	Twin 1/4 in (6.4 mm) barbed ports. ULPA rated media, 0.1 to 0.2 micron. Granular activated carbon.	BILF101	10/Case

PlumePen® Elite

Surgical Plume Evacuation Pencils & Pencil Adapters

Pushing the boundaries through design innovation, **PlumePen® Elite** features a compact, ultra slim, ergonomic design that is significantly smaller than competitive electrosurgical smoke pencils. PlumePen Elite offers the comfort and advanced feature set surgeons demand.

Product Features & Benefits

Powerfully Compact and Ultra Slim

Significantly smaller (up to 46%) than competitive electrosurgical smoke pencils and similar in size to standard electrosurgical pencils.

Up to 25% More Flow

Provides more flow than competitive electrosurgical smoke pencils.

Over-molded Button Design

One piece over-molded button design limits fluid ingress aiding in the prevention of sticking buttons.

Over-molded Cradle Design

Provides improved grip and comfort.

Adjustable Capture Port

Offers customized placement for effective smoke plume capture regardless of blade length.

Full Blade Reveal

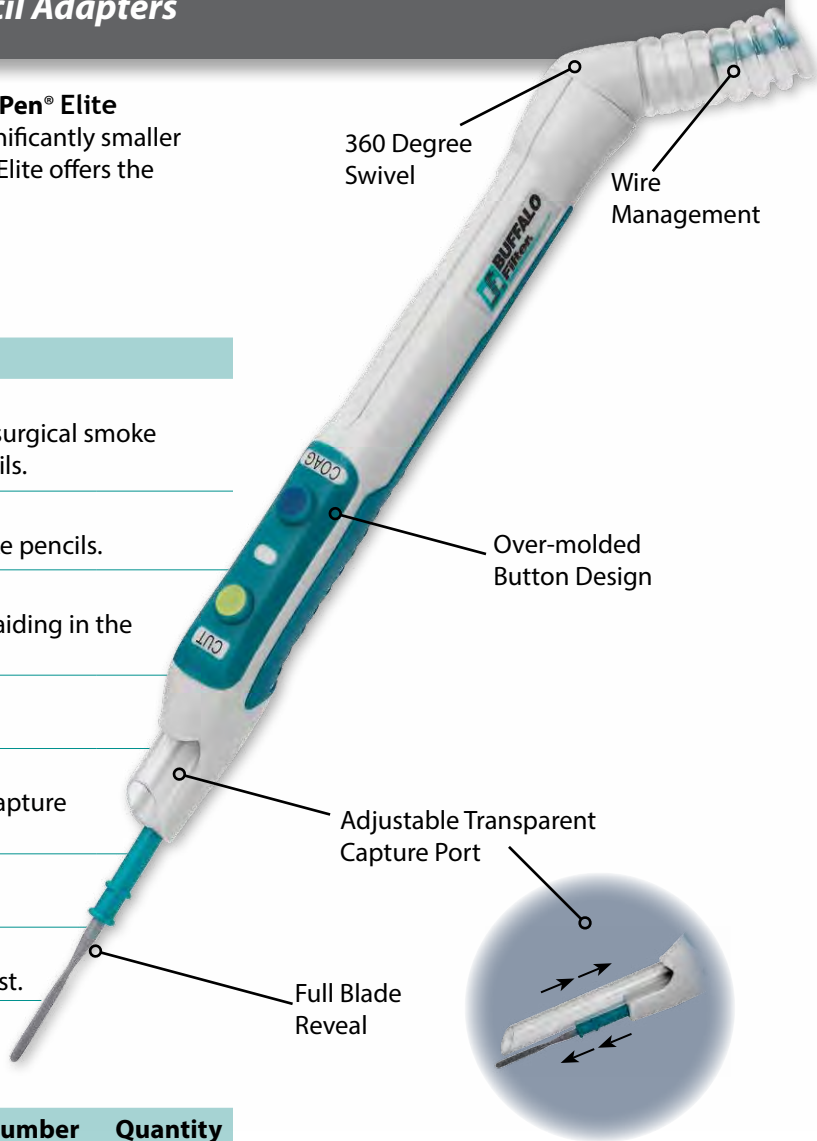
Offers exceptional visibility at the surgical site.

Light, Flexible Tubing

Aids in reducing pull, hand fatigue, and tension on the wrist.

360 Degree Swivel

Allows for fluid hand movement and free range of motion.



Product Ordering Information	Catalog Number	Quantity
PlumePen Elite (Stainless Steel ESU Blade)	PLP1005	5/Case
Includes 3/8 in (9.5 mm) x 10 ft (3 m) tubing with adapter to 7/8 in (22 mm) port.	PLP1020	20/Case
PlumePen Elite (Stainless Steel ESU Blade)	PLP1505	5/Case
Includes 3/8 in (9.5 mm) x 15 ft (4.6 m) tubing with adapter to 7/8 in (22 mm) port.	PLP1520	20/Case
PlumePen Elite (Non-Stick ESU Blade)	PLP2005	5/Case
Includes 3/8 in (9.5 mm) x 10 ft (3 m) tubing with adapter to 7/8 in (22 mm) port.	PLP2020	20/Case
PlumePen Elite (Non-Stick ESU Blade)	PLP2505	5/Case
Includes 3/8 in (9.5 mm) x 15 ft (4.6 m) tubing with adapter to 7/8 in (22 mm) port.	PLP2520	20/Case

PlumePen® Pro

Surgical Plume Evacuation Pencils & Pencil Adapters

PlumePen® Pro is as a cost effective solution combining precision surgical smoke management and electrosurgery without compromising quality or features. Pro is a perfect solution for surgeries where a pencil adapter is less optimal.

360 Degree Swivel

Wire Management

Product Features & Benefits

Sleek, Textured Profile

Similar in size to standard electrosurgical pencils with raised texturing to improve surgeon's grip.

360 Degree Swivel

Rotating connection allows for fluid hand movement and free range of motion.

Transparent Capture Port

Provides a clear view of the blade.

Wire Management

Seamless integration of ESU wire and tubing provides organized cord management.

Light, Flexible Tubing

Aids in hand fatigue and tension on the wrist.

Simple Connectivity

Easily connects to most surgical plume evacuators and ESU generators.

Textured Grip

Transparent Capture Port

Product Ordering Information

PlumePen Pro (Non-Stick ESU Blade)

Includes 3/8 in (9.5 mm) x 10 ft (3 m) tubing with adapter to 7/8 in (22 mm) port.

Catalog Number

PLPRO4020

Quantity

20/Case

PlumePen Pro (Non-Stick ESU Blade)

Includes 3/8 in (9.5 mm) x 15 ft (4.6 m) tubing with adapter to 7/8 in (22 mm) port.

PLPRO4520

20/Case

7/8 in (22 mm) Cuff



PenAdapt®

Surgical Plume Evacuation Pencils & Pencil Adapters

PenAdapt® is an ergonomically designed pencil adapter that captures surgical plume at the point of creation. Expertly engineered to position the capture inlet as close to the point of surgical plume creation as possible, PenAdapt was designed to minimize any change to the feel of the pencil or the surgeon's line of vision. PenAdapt accommodates most electrosurgical pencils.

Product Features & Benefits

Universal Design

Pliable silicone material allows for proper fit to most electrosurgical pencil brands.

Angled Back End Clasp

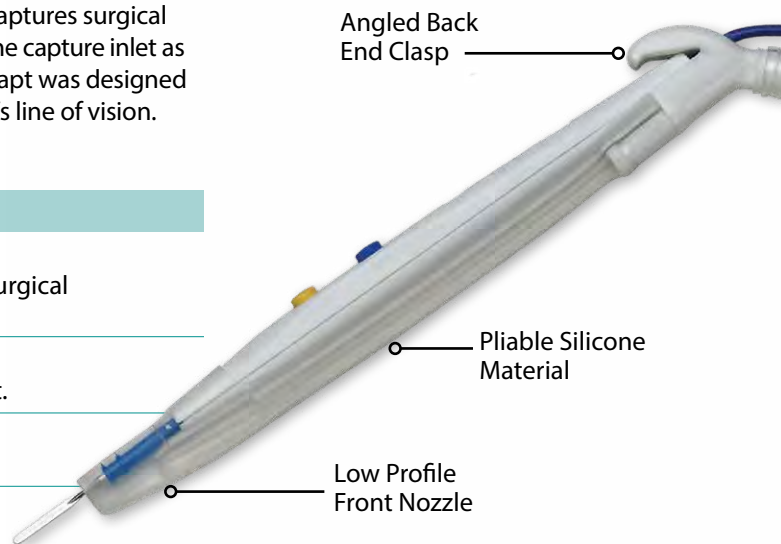
Reduces tension placed on surgeon's wrist providing comfort.

Convenience

Eliminates need for OR personnel to hold tubing.

Low Profile Front Nozzle

Improves visibility of the surgical site.



Product Ordering Information	Catalog Number	Quantity
PenAdapt <i>Ideal for wall suction applications.</i> Includes 3/8 in (9.5 mm) x 1 ft (30.5 cm) tubing with an adapter to 3/8 in (9.5 mm) tube.	PA1025	25/Case
PenAdapt (Cut-back) <i>Ideal for wall suction applications.</i> Cut-back adapter provides increased visibility. Includes 3/8 in (9.5 mm) x 1 ft (30.5 cm) tubing with an adapter to 3/8 in (9.5 mm) tube.	PA1025CB	25/Case
PenAdapt <i>Ideal for surgical smoke plume evacuator applications.</i> Includes 3/8 in (9.5 mm) x 4 ft (1.22 m) tubing with an adapter to 7/8 in (22 mm) x 6 ft (1.8 m) tube.	PA2010	10/Case
PenAdapt (Cut-back) <i>Ideal for surgical smoke plume evacuator applications.</i> Cut-back adapter provides increased visibility. Includes 3/8 in (9.5 mm) x 4 ft (1.22 m) tubing with an adapter to 7/8 in (22 mm) x 6 ft (1.8 m) tube.	PA2010CB	10/Case
PenAdapt <i>Ideal for attachment to reusable electrosurgical pencil applications.</i> Includes 3/8 in (9.5 mm) x 4 ft (1.22 m) tubing with an adapter to 7/8 in (22 mm) x 6 ft (1.8 m) tube.	PA2010B	10/Case

*Electrosurgical pencil not included





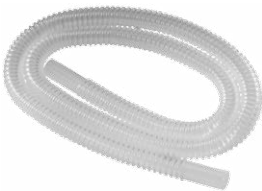



PA1025, PA1025CB,
PA1020, PA1020CB



PA2010B







Tubing – Standard & Specialty

Surgical Plume Evacuation Tubing & Accessories

Description	Catalog Number	Quantity
1/4 in (6.4 mm) Plume Evacuation Tubing		
 NON-STERILE Excellent for use with filtered wall suction and for situations where space is limited. 1/4 in (6.4 mm) x 2 ft. (.6 m).	ST10105	5/Case
3/8 in (9.5 mm) Plume Evacuation Tubing		
 STERILE Excellent for use in an office setting and in small pockets where space is limited. 3/8 in (9.5 mm) x 10 ft (3.1 m).	VT38S1010	10/Case
7/8 in (22 mm) Plume Evacuation Tubing		
 The most common and versatile size of tubing, combining a compact size and increased airflow.		
STERILE		
7/8 in (22 mm) x 6 ft (1.8 m).	VT10424	24/Case
7/8 in (22 mm) x 10 ft (3.1 m).	VT10624	24/Case
NON-STERILE		
7/8 in (22 mm) x 6 ft (1.8 m) with (12) 7/8 in tubing-to-tubing connectors (extension tubing).	VT10324	24/Case
7/8 in (22 mm) x 10 ft (3.1 m).	VT10524-10	10/Case
7/8 in (22 mm) x 10 ft (3.1 m).	VT10524	24/Case
7/8 in (22 mm) x 6 ft (1.8 m).	VT78-6	6/Case
7/8 in (22 mm) x 2.5 ft (.7 m) (Replaces suction canister connecting tube).	VT10610	10/Case
1-1/4 in (32 mm) Plume Evacuation Tubing		
 A wide diameter tubing, ideal for cases producing large amounts of plume and odors such as aesthetic procedures and Trans-urethral Resection of the Prostate (TURP) procedures.		
STERILE		
1-1/4 in (32 mm) x 6 ft (1.8 m).	VT10206	6/Case
NON-STERILE		
1-1/4 in (32 mm) x 6 ft (1.8 m).	VT10106	6/Case
1-1/4 in (32 mm) x 10 ft (3.1 m).	VT10306	6/Case
1-1/4 in (32mm) x 2 ft (.6 m).	VT10510	10/Case
1-3/8 in (35 mm) Erbium: Yag Tubing Kit		
 NON-STERILE 1-3/8 in (35 mm) x 6 ft (1.8 m) tube (replace as needed) and six 2 ft (.6 m) length tubes with integral wand & sponge guard to be replaced each procedure.	VTEYKIT	1/Kit
Speculum Tubing		
 STERILE Ideal for connection to surgical speculum, laryngoscope, or small area applications. 7/8 in (22 mm) x 6 ft (1.8 m) with 7/8 in (22 mm) to 1/4 in (6.4 mm) reducer to 1/4 in (6.4 mm) x 2 ft (.6 m) tubing.		
NON-STERILE		
Ideal for connection to surgical speculum or small area applications.	PSFTS05	5/Case
7/8 in (22mm) x 6 ft (1.8 m) with 7/8 in (22 mm) to 1/4 in (6.4 mm) reducer to 1/4 in (6.4 cm) x 2 ft (.6 m) tubing.		







Tubing – Standard & Specialty

Surgical Plume Evacuation Tubing & Accessories

Description	Catalog Number	Quantity
Pencil Adapter Tubing Set		
 STERILE 7/8 in (22 mm) x 6 ft (1.8 m) with 7/8 in (22 mm) to 3/8 in (9.5 mm) reducer and 3/8 in (9.5 mm) x 4 ft (1.2 m).	VTVIC10	10/Case
7/8 in (22 mm) Tubing with Wand, Tips, and Sponge Guard		
 STERILE 7/8 in (22 mm) x 6 ft (1.8 m) tubing with 8 in (20 cm) integral wand and sponge guard.	VTWT424	24/Case
7/8 in (22 mm) x 10 ft (3.1 m) tubing with 8 in (20 cm) integral wand and sponge guard.	VTWT624	
7/8 in (22 mm) x 14 ft (4.3 m) tubing with 8 in (20 cm) integral wand and sponge guard.	VTWT805	5/Case
7/8 in (22 mm) x 10 ft (3.1 m) tubing with 8 in (20 cm) integral wand and sponge guard with 7/8 in to 1-3/8 in (35 mm) adapter.	VTWTS10	10/Case
NON-STERILE 7/8 in (22 mm) x 6 ft (1.8 m) tubing with 8 in (20 cm) integral wand and sponge guard.	VTWT324	24/Case
7/8 in (22 mm) x 10 ft (3.1 m) tubing with 8 in (20 cm) integral wand and sponge guard.	VTWT524	24/Case
1-1/4 in (32 mm) Tubing with Wand and Sponge Guard		
 STERILE 1-1/4 in (32 mm) x 6 ft (1.8 m) tubing with 8 in (20 cm) integral wand and sponge guard.	VTWT206	6/Case
1-1/4 in (32 mm) x 10 ft (3.1 m) tubing with 8 in (20 cm) integral wand and sponge guard.	VTWT406	6/Case
1-3/8 in (35 mm) Tubing with Wand and Sponge Guard		
 STERILE 1-3/8 in (35 mm) x 6 ft (1.8 m) with wand and sponge guard.	VTWT505	5/Case
1-3/8 in (35 mm) x 10 ft (3.1 m) with wand and sponge guard.	VTWT515	5/Case
NON-STERILE 1-3/8 in (35 mm) x 6 ft (1.8 m) with wand and sponge guard.	VTWT506	6/Case
7/8 in (22 mm) Tubing with Reducer Fittings/Adapters		
 STERILE 7/8 in (22 mm) to 3/8 in (9.5 mm) reducer fitting with 7/8 in (22 mm) x 6 ft (1.8 m) tubing.	VT10405	5/Case
 STERILE 7/8 in (22 mm) to 1/4 in (6.4mm) reducer fitting with 2 ft (.6 m) x 1/4 in (6.4mm) tubing.	RF10210	10/Case
NON-STERILE 7/8 in (22 mm) to 1/4 in (6.4mm) reducer fitting with 2 ft (.6 m) x 1/4 in (6.4mm) tubing.	RF10110	10/Case

Tubing – Reducer Fittings/Adapters

Surgical Plume Evacuation Tubing & Accessories

Description	Catalog Number	Quantity
Reducer Fittings/Adapters		
 NON-STERILE 7/8 in. (22 mm) to 1/4 in (6.4 mm) reducer fitting with 2 in (5.1 cm) cuff.	RF12524	24/Case
 NON-STERILE 7/8 in. (22 mm) to 3/8 in (9.5 mm) reducer fitting with 2 in (5.1 cm) cuff.	RF783824	24/Case
 NON-STERILE 7/8 in (22 mm) to 3/8 in (9.5 mm) reducer fitting.	RF10512	12/Case
 NON-STERILE 1-3/8 in (35 mm) to 7/8 in (22 mm) reducer fitting.	RF10705	5/Case
 NON-STERILE 1-3/8 in (35 mm) to 1/4 in (6.4 mm) reducer fitting.	RF10905	5/Case
 NON-STERILE 1-3/8 in (35 mm) to 3/8 in (9.5 mm) reducer fitting.	RF13810	10/Case

Tubing – Wands & Sponge Guards

Surgical Plume Evacuation Tubing & Accessories

Description	Catalog Number	Quantity
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Laser Resistant Wands with Sponge Guard



STERILE

7/8 in (22 mm) x 8 in (20 cm).

WLRT410

10/Case

NON-STERILE

1-1/4 in (32 mm) x 8 in (20 cm).

WLRT003

3/Case

7/8 in (22 mm) x 8 in (20 cm).

WLRT303

3/Case

Sponge Guard



Sponge guard fits 7/8 in (22 mm) tubing.

WTIPS10

10/Case

Sponge guard fits 1-1/4 in (32 mm) to 1-3/8 in (35 mm) tubing.

WTIPL10

10/Case

PlumePort™ ActiV™

Laparoscopic Solutions

PlumePort™ ActiV™ is the first line of defense designed for safe, effective removal of surgical plume during laparoscopic procedures. ActiV™ easily attaches to standard trocars and utilizes readily available suction systems providing noiseless operation.



*Only available in the United States.

With a built-in fluid trap, moisture is effectively managed throughout the entire procedure to ensure uninhibited flow and prevent filter saturation without compromising the integrity of the filtration media.

ActiV provides up to 50% more flow capability than competitive passive laparoscopic filters while maintaining ULPA filtration and significantly outperforms competitive devices when exposed to high moisture environments. In addition to ULPA filtration, ActiV contains activated carbon known to adsorb gases.

Product Features & Benefits

Active Plume Removal

Controlled management of plume throughout the surgical procedure featuring flow control dial with one hand adjustability.

Noiseless Operation

Compact Housing Design

Contains built-in fluid trap, flow adjustment valve and filtration.

Moisture Management

Built-in fluid trap to manage moisture throughout entire procedure.

Integrated ULPA Filtration

Coupled with activated carbon to safely filter peritoneal plume.

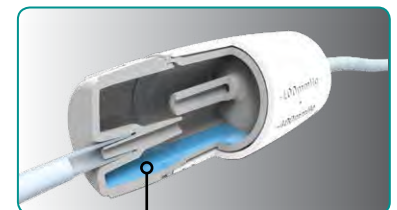
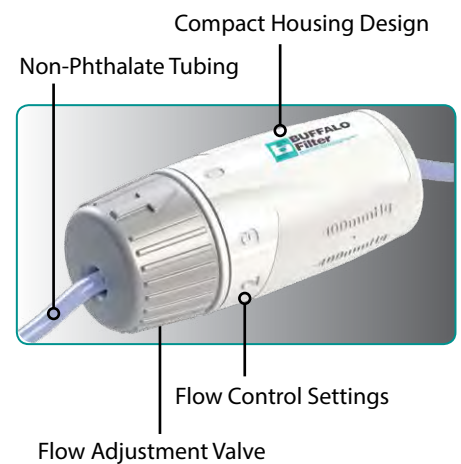
Universal Connectivity

Easily attaches to standard luer lock fittings and suction systems.

Up to 50% More Flow

Provides greater flow than passive laparoscopic devices.

Latex Free



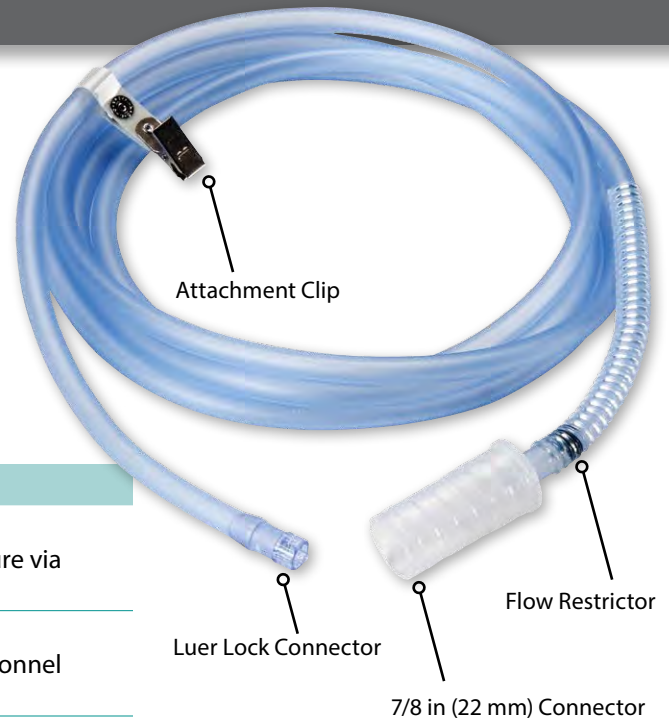
Product Ordering Information	Catalog Number	Quantity
PlumePort ActiV	PP010CS	10/Case

*Only available in the United States.

PlumePort™ SEO

Laparoscopic Solutions

PlumePort™ SEO easily connects from a standard trocar to a smoke plume evacuator for efficient and safe removal of surgical plume during laparoscopic procedures. Utilizing available surgical plume evacuators and coupling it with this flow controlled device, PlumePort SEO provides fast and safe plume management while maintaining peritoneal distention.



Product Features & Benefits

Active Plume Removal

Controlled management of plume throughout the surgical procedure via surgical smoke evacuator.

Maximum Flow Control

Built-in calibration maintains peritoneal distention without OR personnel interaction.

Adjustable Flow Rate

Allows flow adjustment via surgical plume evacuator.

Universal Connectivity

Standard luer lock fitting and connects to most surgical plume evacuators.

Up to 50% More Flow

Provides greater flow than passive laparoscopic devices.

Latex Free

Product Ordering Information	Catalog Number	Quantity
PlumePort SEO	PP012SEO	12/Case

PlumePort™ SEV & SE

Laparoscopic Solutions

PlumePort™ SEV is a sterile laparoscopic plume filtration device that connects from a standard surgical trocar to a smoke evacuator for efficient and safe removal of surgical plume during laparoscopic procedures. The surgical plume evacuation is controlled via the surgical plume removal valve.

Product Features & Benefits

Active Plume Removal

Controlled management of plume throughout the surgical procedure via surgical smoke removal valve.

Surgical Plume Removal Valve

Aids in reducing loss of insufflation gas while managing plume.

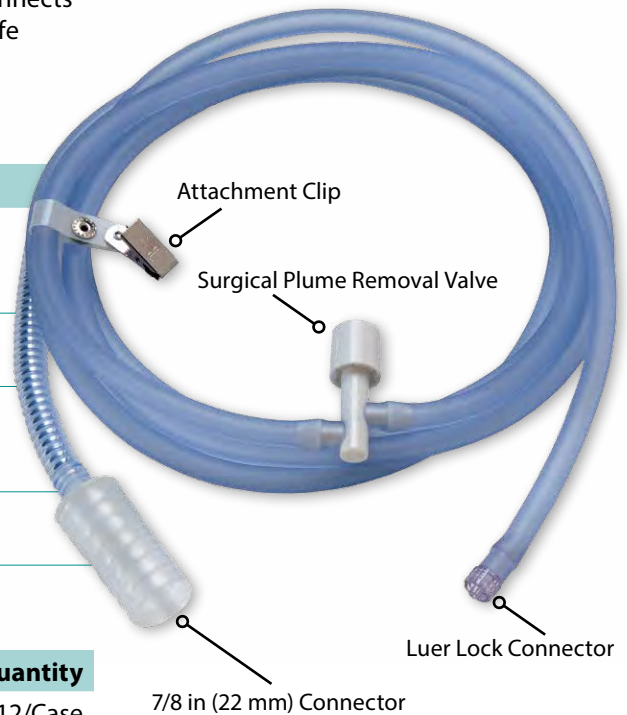
Universal Connectivity

Easily connects to standard surgical trocars and most surgical plume evacuators.

Attachment Clip

Conveniently attaches wherever needed.

Latex Free



Product Ordering Information	Catalog Number	Quantity
PlumePort SEV	BLAP100V	12/Case

PlumePort™ SE is sterile plume management tubing that connects from a standard surgical trocar to a smoke evacuator for efficient and safe removal of surgical plume during laparoscopic procedures.

Product Features & Benefits

Active Plume Removal

Controlled management of plume throughout the surgical procedure via surgical smoke evacuator.

Adjustable Flow Rate

Allows flow adjustment via surgical plume evacuator or trocar valve opening.

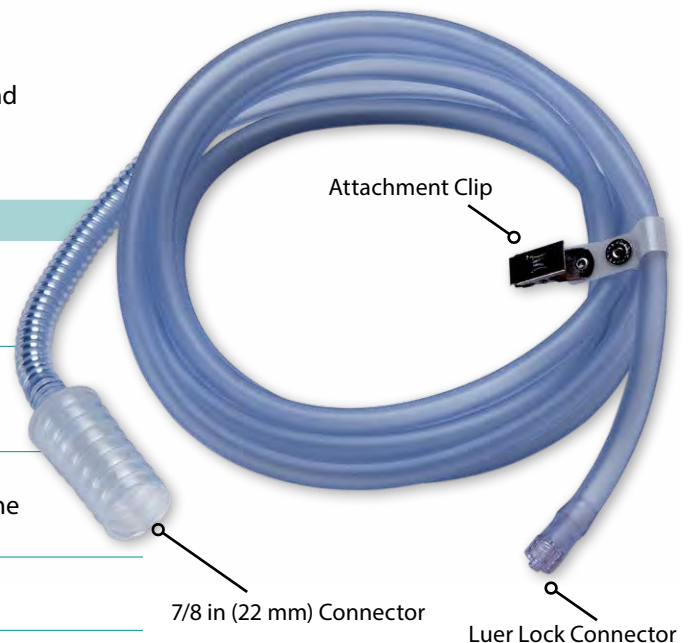
Universal Connectivity

Easily connects to standard surgical trocars and most surgical plume evacuators.

Attachment Clip

Conveniently attaches wherever needed.

Latex Free



Product Ordering Information	Catalog Number	Quantity
PlumePort SE	BLAP100	12/Case

PlumePort™

Laparoscopic Solutions

PlumePort™ is a passive laparoscopic plume filtration device with integrated ULPA filtration coupled with activated carbon to safely filter the aerosolized contents of peritoneal plume during laparoscopy. Containing more than two times the ULPA media as competitive passive devices, and a dual management moisture control process of a wicking agent and fluid trap, PlumePort offers essential media integrity for greater protection during longer cases.



*Only available outside of the United States.

Product Features & Benefits

Adjustable Flow Control

Lightweight design and integral control maintains peritoneal distention.

Moisture Management

With an integrated fluid trap and wicking material, moisture is effectively managed to ensure the integrity of the filtration media.

ULPA Filtration

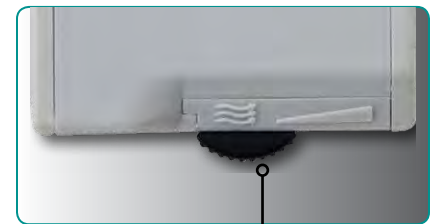
Contains more than two times ULPA filtration media than competitive devices providing enhanced protection and extending filter life.

Activated Carbon

Incorporates activated carbon known to adsorb gases.

Universal Connectivity

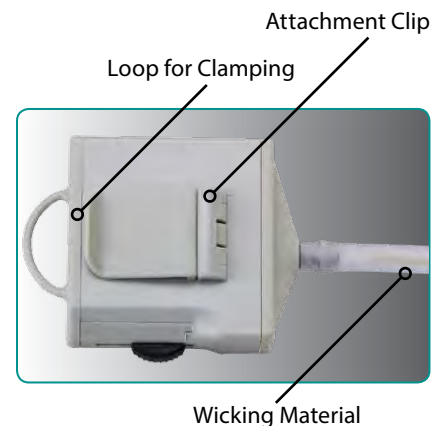
Easily connects to all standard luer lock fittings.



Adjustable Flow Control

Product Ordering Information	Catalog Number	Quantity
PlumePort*	PP010	10/Case

*Only available outside of the United States.



LaparoVue™ Visibility System

Laparoscopic Solutions

LaparoVue™ Visibility System

Understanding a surgeon's need to see clearly during laparoscopic surgery, LaparoVue is an all-in-one solution designed to take the complexity out of achieving optimal visualization. An easy to use, disposable multi-purpose device that warms, white balances, cleans and defogs, LaparoVue eliminates the necessity for multiple product purchases.



Product Features & Benefits

Warms & White Balances

Warms scope in 5 minutes to prevent fogging.
Unit warms up to 5 hours.
Allows for white balancing.

Cleans

Provides crisp, clear view in 5 seconds.
Radiopaque VueTip™ Trocar Swabs remove debris and excess liquid from trocar cannula.
X-ray detectable Microfiber Cloth designed to capture residue/particulates.

Defogs

Pre-filled warming solution helps prevent intra-operative scope fogging.

One Unit, Two Ports

Two ports: warming/white balancing and cleaning/defogging.
Allows for second scope to be warmed and ready during surgery.
Fits 3mm – 12mm scopes without a port size converter.

Detached Scope Cradle

Safely and securely supports scope.
Reduces tension on lens and potential for damage.

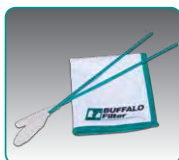
Ergonomic Design

Stable base prevents tipping.
Contoured, easy grip profile.
Engineered with soft silicone material.

Built-in LED lights

Product Ordering Information

Product Ordering Information	Catalog Number	Quantity
LaparoVue™ Visibility System	LAPVUE10	10/Case



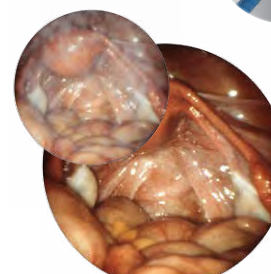
VueTip™ Trocar Swab Accessory Kit
(also sold separately; part: VUETIP10)



warms &
white balances








cleans








defogs*

* Photographs are representative of a fogged and clear / defogged lens but do not reflect actual product use.







Accessories

Description	Catalog Number	Quantity
VueTip™ Trocar Swab Accessory Kit		
 <p>Kit contains both a radiopaque Microfiber Cloth (non-abrasive) that can be used to clean the scope lens and two VueTip Trocar Swabs for 3-7 mm and 7-12mm trocar cannulas.</p>	VUETIP10	10/Each
EZLink™		
 <p>EZLink™ automatic activation device can be used to remotely turn all current Buffalo Filter surgical smoke plume evacuators on and off in conjunction with ESU activation, saving filter life and reducing noise.</p> <p>Adjustable delay can be set from 0 to 10 seconds, allowing for capture of residual plume that may be present after deactivation of electrosurgery devices.</p> <p>Multiple cautery pencils can be accommodated with one EZLink device providing savings and convenience to the facility.</p> <p>Easy set-up; requires no programming.</p>	EZLINK01	1/Case
Pneumatic Footswitch		
 <p>Designed to work with all current Buffalo Filter surgical smoke plume evacuators.</p> <p>Features 10 ft cord (3.1 m).</p>	FS10004	1/Case
Virosafe® Fluid Trap		
 <p>Designed to capture fluids to help maintain the integrity of the filtration system and assist with maintaining filter life.</p> <p>Translucent, spill resistant design.</p> <p>Simple to read measurement increments (holds up to 100 cc fluid capacity).</p> <p>Easy to attach and remove.</p> <p>7/8 in (22 mm) and 1/4 in (6.4 mm) connection ports.</p> <p>Also connects to 3/8 in (9.5 mm) tubing.</p> <p>Caps holder posts for storage convenience during use.</p> <p>Fits 7/8 in (22 mm) port of Buffalo Filter ViroSafe Filters (except for ViroSafe 12 Filter).</p>	VSFT10	10/Case
Y Adapter		
 <p>7/8 in (22 mm) Y Adapter with connectors.</p>	ADP22X22Y	1/Each

Accessories

Description	Catalog Number	Quantity
Canister, Fluid Suction Collection		
 <p>This 1200 cc rigid canister with 7/8 in (22 mm) adapter is specifically designed for in-line plume evacuation applications.</p> <p>Features the Aerostat® bacterial filter and a mechanical shutoff valve that protects against contamination and overflow.</p> <p>Made of high-impact polystyrene and durable polyethylene.</p> <p>Large, easy to read graduations.</p> <p>Self-sealing lid provides leak-free seal.</p> <p>Multiple ports for versatility.</p> <p>Frosted panel provides writing area when needed.</p>	SCC1001	6/Case
Wall Plate for Suction Canister Ring		
 <p>Adheres to the side of the surgical plume evacuator to hold ring and fluid suction canister.</p> <p>4-1/2 in (11 cm) x 4-1/2 in (11 cm).</p>	WALLPLATE	1/Case
Ring Holder for Suction Canister		
 <p>Attaches to the wallplate to hold fluid suction canister.</p> <p>2-3/4 in (7.0 cm) x 2-5/16 in (7.5 cm) x 9-11/16 in (25 cm).</p> <p>Ring Diameter: 5 in (14 cm).</p>	SCR1001	1/Case
Surgical Laser Masks		
 <p>High efficiency 0.1 micron filtration media surgical masks.</p>	SMLOF50	50/Case
	SMLOF300	300/Case
LaseAdapt SC Contour TRL Erbium Scanner		
 <p>Designed for the Sciton® Contour TRL™ Erbium Scanner Laser Systems.</p> <p>The LaseAdapt SC series of laser attachments effectively capture laser generated airborne contaminants (LGAC's) near the point of creation. By attaching directly to the hand piece, the need for an available hand or additional staff member to hold the surgical plume evacuation tube is eliminated.</p> <p>Additionally, correct positioning of the plume capture device is ensured by attaching directly to the laser hand piece.</p> <p>7/8 in (22 mm) connector.</p>	LA3010EY10	10/Case

Accessories

Description		Catalog Number	Quantity
LaseAdapt ProFractional Therapy			
	Designed for the Sciton® ProFractional Therapy™ Hand Piece. LaseAdapt ProFractional Therapy™ hand piece with 7/8 in (22 mm) connector.	LA3010PF10	10/Case
LaseAdapt Reusable Clips			
	LaseAdapt Reuseable Tubing Clips. Designed for the Sciton® Contour TRL™ Erbium Scanner and ProFractional Therapy™ Laser Systems.	LA3010CL4	4/Case
Armstand			
	Great for office applications. Provides hands-free positioning of the plume evacuation tubing. Velcro tubing fasteners included.	ARMSTAND	1/Each
EvacuCart™			
	Lightweight, transport cart with locking wheels for Buffalo Filter branded surgical smoke plume evacuators.	ETC01	1/Each
Turbo Cart			
	Portable cart for PlumeSafe® Turbo (all models).	TURBO CART	1/Each
ViroVac® Wall Mount Kit			
	Wall mount kit designed for ViroVac surgical smoke plume evacuator. Includes base and wall mount plates, screws, and tri-wall anchors to properly mount unit.	VVWM01	1/Each

Filters

For Competitive Replacement

Buffalo Filter offers an expansive array of filters for OEM and Competitive manufacturer's of surgical plume evacuators. We have replacement filters for the following manufacturers:

Berchtold: A series of replacement filters designed for the Berchtold Phoenix and TeleVac.

ConMed: Replacement filters for the CMIS, ConMed Aspen Vac and Hyfre-VAC filters

Cooper Surgical: Replacement pre-filters and filters for Cooper Surgical System 6080

EDGE: Replacement Pre-filters and filters for EDGE S.A.F.E. System

QuantaVac: Replacement filters for QuantaVac System

Stryker: Replacement filters for StrykeVac, StrykeVac 3 and Neptune 2 Ultra

Stackhouse: Replacement pre-filters and filters for Stackhouse ES-2000, LFA-100, MiniVac, AirSafe VersaVac and Point OneSystem




Surgimedics: Replacement pre-filters and filters for Surgimedics

TRUMPF: Replacement filters for TRUMPF EasyVac

Valleylab: Replacement pre-filters and filters for Valleylab Optimumm, Airforce, ValleyVac



Please cross-reference the manufacturer's filter model number below to the equivalent Buffalo Filter replacement filter for that system.

Description			Catalog Number	Quantity
Berchtold TeleVac & TeleVac LT				
	<i>Replaces:</i> <ul style="list-style-type: none"> • Berchtold TELEVAC LT • Surgimedics 901428 	Lasts for 8 hours of plume evacuation time. 7/8 in (22 mm) port.	BTLD004	4/Case
Berchtold Phoenix XS or X3 Filter				
	<i>Replaces:</i> <ul style="list-style-type: none"> • Berchtold TELEVAC XS/X3 	Lasts for 8 hours of plume evacuation time. 7/8 in (22 mm) port.	BTLDXS04	4/Case
ConMed Integrated Systems (CMIS) Filter				
	<i>Designed to Fit:</i> <ul style="list-style-type: none"> • ConMed Integrated System (CMIS) smoke plume evacuator 	Lasts for 8 hours of plume evacuation time. 3-port filter — 1/4 in (6.4 mm), 3/8 in (9.5 mm) and 7/8 in (22 mm).	VSCMIS8	1/Case

Filters

For Competitive Replacement

Description	Catalog Number	Quantity
Cooper Surgical System 6080		
	<i>Replaces:</i> <ul style="list-style-type: none"> • Coastal Life 1101300, 901300-000 • Cooper 6082 • Intermed IG-6082 • Surgimedics 901300, 901009 • Valleylab E3515 	Multi-fit pre-filter replacement with 7/8 in (22 mm) male port. BSUCF03 3/Case BSUCF03V 3/Case (with gasket) Pre-filter replacement for: BSPF7-8-30 30/Case BSPF030 30/Case • Cooper 52560, 6081 • Surgimedics 901202 • Valleylab E3510, E3630
Edge S.A.F.E. System Filters & Pre-filters		
	<i>Replaces:</i> <ul style="list-style-type: none"> • EDGE 20004 pre-filter 	Pre-filter with a 7/8 in (22 mm) female and 1-1/4 in (32 mm) male port. BFE20004 5/Case
	<i>Replaces:</i> <ul style="list-style-type: none"> • EDGE 20009 Big Boy main filter 	Main filter for EDGE S.A.F.E. System. BFE20009 1/Case
	<i>Replaces:</i> <ul style="list-style-type: none"> • EDGE S.A.F.E. System main filter and pre-filters 	Kit replaces both the main filter and pre-filter with a 7/8 in (22 mm) female and 1-1/4 in (32 mm) male port. BFE Kit Main Filter 1/Case Pre-Filter 5/Case
		

Filters

For Competitive Replacement

Description		Catalog Number	Quantity
Stackhouse ES-2000 System Filters & Pre-filters			
 <p><i>Replaces:</i></p> <ul style="list-style-type: none"> • Lumenis 80000-002 • Stackhouse ES-2000PF/12, 24204 • Surgimedics 901405, 901406 	<p>Must be used with Buffalo Filter main filter BES2000ULC.</p> <p>Single use.</p>	BES2000PF	12/Case
 <p><i>Replaces:</i></p> <ul style="list-style-type: none"> • Stackhouse ES-2000PFC/12, 24205 • Surgimedics 901406, 901407 	<p>Must be used with Buffalo Filter main filter BES2000ULC.</p> <p>Single use.</p>	BES2000PFC	12/Case
 <p><i>Replaces:</i></p> <ul style="list-style-type: none"> • Stackhouse ES-IWT-110/S, 24152 • Surgimedics 901414 	<p>Must be used with Buffalo Filter main filter BES2000ULC.</p> <p>STERILE 7/8 in (22 mm) x 10 ft (3.1 m) tubing.</p>	BESIWT110	12/Case
 <p><i>Replaces:</i></p> <ul style="list-style-type: none"> • Stackhouse ES2000/ULC, 24211 • Surgimedics 901407 	<p>Must be used with Buffalo Filter pre-filter:</p> <ul style="list-style-type: none"> • BES2000PF • BES2000PFC • BESIWT110 <p>Lasts up to 25 hours of plume evacuation time, depending on use.</p>	BES2000ULC	1/Case
Stackhouse LFA-100 & Point One System Filters			
 <p><i>Replaces:</i></p> <ul style="list-style-type: none"> • Stackhouse LFS-103/3, 24001 • Stackhouse LFS-103/12, 24033 • Surgimedics 901410 		BLFS103 BLFS101	3/Case 12/Case
 <p><i>ULPA Filter Replaces:</i></p> <ul style="list-style-type: none"> • Stackhouse PTU-100, 24000 • Surgimedics 901411 		BPTU100	1/Case

Filters

For Competitive Replacement

Description			Catalog Number	Quantity
Stackhouse AirSafe VersaVac I & II Filter				
	Replaces:		BST370ULC	3/Case
	<ul style="list-style-type: none">• Edge 20012-03• Stackhouse ST-370-FRESH/3, 24300;• Surgimedics 901408			
Stackhouse MiniVac ST-1250				
	Replaces:	Male port filter	BSTM300	3/Case
	<ul style="list-style-type: none">• Conmed 60-5902-001• Cooper 395-703• Stackhouse STM-300, 24139-01• Surgimedics 901409• Valleylab E1091			
StrykeVac III ViroSafe® Filter				
	Designed to Fit:	Lasts up to 24 hours of plume evacuation time.	VSSV505	1/Case
	<ul style="list-style-type: none">• Integrated StrykeVac Smoke Evacuation System	4-port filter — 1/4 in (6.4 mm), 3/8 in (9.5 mm), 7/8 in (22 mm) and 1-1/4 in (32 mm).	VSSV50502	2/Case
StrykeVac III ViroSafe® Replacement Filter				
	Designed to Fit:	Lasts up to 24 hours of plume evacuation time.	VSSV301	1/Case
	<ul style="list-style-type: none">• StrykeVac III Smoke Evacuation System	3-port filter — 1/4 in (6.4 mm), 3/8 in (9.5 mm) and 7/8 in (22 mm).	VSSV302	2/Case
			VSSV304	4/Case
Surgimedics 7/8 in (22 mm) Pre-filter				
	Replaces:	7/8 in (22 mm) port.	BSPF 7-8-30	30/Case
	<ul style="list-style-type: none">• Cooper 52560, 6081• Surgimedics 901202 pre-filter			
Surgimedics 1-3/8 in (32 mm) Pre-filter				
	Replaces:		BSPF030	30/Case
	<ul style="list-style-type: none">• Coastal Life 1101202, 901202-000• Cooper 6081; Intermed 2081, 6081• Surgimedics 901202 pre-filter			

Filters

For Competitive Replacement

Description			Catalog Number	Quantity
QuantaVac System Main Filter				
	Designed to Fit:	Lasts for 8 hours of plume evacuation time.	MSF8D-1	1/Case
	• QuantaVac System			
TRUMPF ViroSafe® Filter (EasyVac Filter for TRUMPF EasyVac)				
	Designed to Fit:	Lasts for 8 hours of plume evacuation time.	VSTR08	1/Case
	• TRUMPF EasyVac	3-port filter — 1/4 in (6.4 mm), 3/8 in (9.5 mm) and 7/8 in (22 mm).	VSTR0804	4/Case
ULPA Smoke Plume Evacuator Filter for Stryker® Neptune® 2 Ultra				
	Designed to Fit:	3-port filter — 1/4 in (6.4 mm), 3/8 in (9.5 mm) and 7/8 in (22 mm).	VSNEP01	1/Case
	• Stryker® Neptune® 2 Ultra		VSNEP04	4/Case
Valleylab Optimumm System Filters & Pre-filters				
	Replaces:	1–3/8 in (35 mm) port pre-filter.	BFE3630	25/Case
	• Surgimedics 901202 • Valleylab E3630 • Valleylab Optimumm pre-filter		BSPF030	30/Case
	Replaces:	ULPA filter for Optimumm smoke evacuator.	BFE3625	3/Case
	• Surgimedics 901412 • Valleylab Optimumm E3625 main filter			

Ordering & Contact Information

Terms and Conditions

All Buffalo Filter products are manufactured and produced in compliance with FDA QMS regulations, ISO 9001, and ISO 13485.

All prices are quoted in US Dollars or EUROS and are subject to change without notice. All product is shipped FOB Buffalo, New York or Ex Works Dublin, Ireland.

Buffalo Filter warrants the surgical smoke plume evacuators manufactured by Buffalo Filter to be free from defects in material and workmanship.

Products are warranted only to the extent that Buffalo Filter will replace without charge any surgical plume evacuation systems proved to have defects within the following time guidelines, (from date of delivery), provided Buffalo Filter has been given the opportunity to inspect the system:

Surgical Smoke Evacuator	Warranty
Porta PlumeSafe® 604	1 year
ViroVac®	1 year
PlumeSafe® Turbo	3 years
VisiClear®	3 years

No warranty is included for incidental or consequential damages of any nature arising from any defect.

Return Policy

Returned merchandise must have a pre-authorized Return Material Authorization (RMA) number from Buffalo Filter and be marked with this number prior to returning. Transportation costs must be prepaid by the shipper and all risks of loss and damage of goods are the responsibility of the shipper. Unauthorized returns will be refused. Include a copy of return instructions form, the packing papers, and/or invoice with the return. Exchange will be of an equivalent dollar value of returned merchandise less a restocking and handling fee on new, unused, unopened equipment or disposables. Buffalo Filter cannot accept any returns of sterile products.

Quality Policy

The Quality Management System is committed to meeting all regulatory requirements while maintaining an organizational culture that fosters continuous improvement and strives to provide quality products that meet or exceed customer expectations.

Placing an Order

Please contact customer service for information or to place an order.

Customer Service (U.S. Only)

800-343-2324 toll-free
716-835-7000 local
716-835-3414 fax

Customer Service (International)

+1 716-835-7000 phone
+1 716-835-3414 fax
www.buffalofilter.com

Contact by Email:

Orders and Order Inquiries:
orders@buffalofilter.com (U.S. Only)
sales@buffalofilterintl.com (Outside U.S.)

Equipment Service and Repair:

techsupport@buffalofilter.com

Service and Repair Center

If you need technical assistance please contact Technical Support at 1-800-343-2324 (U.S. Only). International customers please call +1 716-835-7000.

Education & Training

Surgical Smoke Plume

What is Surgical Smoke Plume?

Surgical smoke plume is a dangerous by-product generated from the use of lasers, electro-surgical pencils, ultrasonic devices, and other surgical energy based devices. As these instruments cauterize vessels and destroy (vaporize) tissue, fluid, and blood, a gaseous material known as surgical smoke plume is created. It is estimated that approximately 95% of all surgical procedures produce some degree of surgical plume.

Why is Surgical Smoke Plume so Hazardous?

The composition of surgical plume is generally 95% water and 5% other matter. It is the other matter that is hazardous to surgical personnel and patients. The hazards of surgical smoke plume can be broken down into chemical, biological and physical components.



Chemical

The *chemical* component of surgical smoke plume contains over 80 different toxic chemicals and by-products; some which have documented harmful health effects. The carbon monoxide generated during electrocautery can cause headaches and nausea, and be undetected by pulse oximetry. Surgical smoke and aerosols irritate the lungs and have similar mutagenicity of cigarette smoke.¹ A recent study done to quantify exposure found that on average the surgical plume produced daily in the operating room was equivalent to 27-30 cigarettes.² These compounds pose a health risk to exposed OR staff and patients.

Biological

The *biological* matter is the particulate matter of the plume that contains blood, and potentially infectious viruses and bacteria. Since surgical smoke is comprised of approximately 95% water vapor it creates a viable carrier for bacteria and virus which can transfer infectious diseases. There is documented evidence of virus being transferred airborne with plume. One report from a surgeon indicates he contracted the same DNA viral type of HPV in his larynx as a patient he had recently treated for anogenital condylomas.³ Evidence has also been found of HIV-1 in plume caused by powered surgical instruments.⁴

Physical

The *physical* components consist of particulate from surgical smoke plume that ranges from <0.01 microns to >200 microns with a majority between .3 to .5. These ultra-fine particles are significantly elevated in the operating theatre and create a very fine dust similar to coal dust when electrocautery devices are used. Particles smaller than .3 microns can bypass the lungs normal filtration mechanisms, the mucus secretions and cilia, and deposit in the alveoli, where the exchange of blood/gas takes place. In addition, surgical plume is consistent with cigarette smoke in that it can paralyze the cilia. It has been shown that surgical smoke can induce acute and chronic inflammatory changes including congestion, pneumonia, bronchiolitis and emphysematous changes in the respiratory tract.⁵

Chemicals Identified in Smoke Plume

PERCHLOROETHYLENE:

main component in dry cleaning fluid

HYDROGEN CYANIDE:

neurotoxin used in chemical warfare

TOLUENE:

similar to paint thinner; known carcinogen

FORMALDEHYDE:

used to preserve surgical specimens and embalming fluid

ETHYLBENZENE:

used in the manufacture of Styrofoam

BENZENE:

known carcinogen

Education & Training

Surgical Smoke Plume



How can Buffalo Filter help you Promote a Surgical Smoke Free Environment?

Buffalo Filter is a recognized world leader in surgical smoke plume evacuation solutions. We are dedicated to helping facilities provide a smoke free work environment. Our commitment and passion for ridding operating rooms and theatres of the hazards associated with the inhalation of surgical plume has led to the development of Buffalo Filter's Education and Training programs. Below are just a few ways we can help assist:

Clear the Air Program

- **Clear the Air Program** – Buffalo Filter has developed a comprehensive program to help guide your facility through the tools and solutions that are available to ensure that your campus is truly “smoke free”. We offer on-site visits that provide:
 - Education of Key Stakeholders - Buffalo Filter's program starts by educating key stakeholders to the hazards inherent with surgical smoke plume and compliance risks by offering free continuing education activities for both nurses and physicians.
 - Process and OR Protocol Development - Our clinical staff will guide your facility through the process of how to effectively implement a program to manage these hazards while controlling costs.
 - Selection of Solutions – Our staff will guide your facility through trial and selection of solutions to ensure that your campus is truly “smoke free”.

Article Library

- **Article Library** – Buffalo Filter's website is host to a resourceful library of research articles, studies, and editorial work discussing the hazards of surgical smoke. Learn the facts by checking us out at <http://www.buffalofilter.com/education-articles/article-library/all-articles/>

Call **1.800.343-2324** to schedule time with our clinical staff for assistance in policy development, educational offerings, on-site clinical needs, equipment recommendations, and support with implementation of your surgical smoke free policy.

Why Evacuate It?

Besides mitigating the risks associated with the physical, chemical, and biological components of surgical smoke plume, there are several reasons to evacuate it including:

Reasons to Evacuate

Surgical smoke creates visibility difficulty during minimally invasive procedures and procedures where there is a lot of tissue ablation slowing down surgical time and potentially increasing the risk for complications.

Removal of aerosols in the peritoneal cavity have shown to help reduce build up on camera lenses.

Medical staff have reported a number of symptoms associated with exposure to surgical plumes including nausea, headaches, sneezing, lightheadedness, dizziness, and eye/nose/throat irritation.⁶

Surgical smoke plume has shown the potential to have adverse negative effects on the patient when plume is not properly evacuated during laparoscopic/endoscopic procedures.⁷ During laparoscopic surgery toxic compounds present in surgical smoke are absorbed into the body.⁸

Regulations & Recommendations

Surgical Smoke Plume

United States

Occupational Safety & Health Administration (OSHA)

OSHA is the only U.S. regulatory body to date that has legal authority in the United States granted by Congress. They estimate that 500,000 healthcare workers are exposed to surgical smoke and bio-aerosols each year. On a number of occasions OSHA has reiterated that the management of surgical plume is a healthcare worker safety issue.

They have also indicated that plume hazards fall under the scope of the following:

- General Duty Clause which states "Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."
- Personal Protective Equipment (PPE).

National Institute of Occupational Safety and Health (NIOSH)

National Institute of Occupational Safety and Health (NIOSH) is part of the CDC (Centers for Disease Control and prevention) within the Department of Health and Human Services. NIOSH investigates potential occupational health risks and makes recommendations to OSHA for the prevention of work-related illness and injury.

HC 11 - Control of Smoke from Laser/Electric Surgical Procedures

- Recommended ventilation techniques include a combination of general room and local exhaust ventilation (LEV). General room ventilation is not by itself sufficient to capture contaminants generated at the source.

The Joint Commission

The Joint Commission is an independent, not-for-profit organization. The Joint Commission accredits and certifies more than 20,500 health care organizations and programs in the United States.

Environment of Care EC02.02.01

- Healthcare facilities manage their risks related to hazardous materials and waste.
- The hospital minimizes risks associated with selecting, handling, storing, transporting, using, and disposing hazardous gases and vapors.
- Hazardous gases and vapors include, but are not limited to, glutaraldehyde, ethylene oxide, vapors generated while using cauterizing equipment and lasers, and gases such as nitrous oxide.

Association of periOperative Registered Nurses (AORN)

AORN is a professional association based in Denver, Colorado that represents the interests of more than 160,000 perioperative nurses. AORN has published recommended practices for many areas of perioperative care including electrosurgery and Laser surgery.

Recommended Practices for Electrosurgery: Recommendation 10

- Surgical smoke should be removed by use of a smoke evacuation system in both open and minimally invasive procedures to prevent occupational exposure to airborne contaminants generated by electrosurgery.
- The National Institute of Occupational Safety and Health (NIOSH) recommends that smoke evacuation systems be used as the primary control to reduce potential acute and chronic health risks to health care personnel and patients.
- Local exhaust ventilation (LEV) is the primary means to protect health care personnel from occupational exposure to airborne contaminant generated by electrosurgery. Potential health and liability risks may be reduced by the evacuation of surgical smoke.
- When surgical smoke is generated, an individual smoke evacuation unit with a 0.1 micron filter (eg, ultra-low particulate air [ULPA] or high efficiency particulate air [HEPA]) should be used to remove surgical smoke.

Recommended Practices for Laser Safety in Perioperative Practice Settings: Recommendation 5

- Surgical smoke should be removed by use of a smoke evacuation system in both open and minimally invasive procedures to prevent occupational exposure to laser-generated airborne contaminants.
- Local exhaust ventilation (LEV) is the primary means to protect health care personnel from occupational exposure to laser-generated airborne contaminants. Potential health and liability risks may be reduced by the evacuation of surgical smoke.
- When surgical smoke is generated, an individual smoke evacuation unit with a 0.1 micron filter (eg, ultra-low particulate air [ULPA] or high efficiency particulate air [HEPA]) should be used to remove surgical smoke.⁹

Regulations & Recommendations

Surgical Smoke Plume

Canada

Canadian Standards Association (CSA)

Canadian Standards Association (CSA) developed and released one of the furthest reaching standards relating to the management of surgical plume.

CSA Z305.13-13 Plume Scavenging In Surgical, Diagnostic, Therapeutic, and Aesthetic Settings

Adopted as law in some provinces within Canada, this standard details a comprehensive approach to managing plume and extends its mandates to all surgical settings based on risk assessment.

General requirements include:

- Facility policies and procedures shall be written in accordance with (IAW) this standard.
- Plume shall be evacuated IAW this standard.
- If a facility employs techniques that create plume, they shall have policies that address the potential hazards.

Australia

Ministry of Health, New South Wales, (NSW)

Work Health and Safety - Controlling Exposure to Surgical Plume

Document Number GL2015_002; Publication date 19-Jan-2015

Purpose:

- To provide guidance to NSW Health Organisations in meeting their duty of care under the Work Health and Safety Act 2011 (WHS Act) and Work Health and Safety Regulation 2011 (WHS Regulation) in eliminating risk, and if not reasonably practicable, to minimise risk associated with surgical plume.
- This guideline applies to all NSW Health Organisations and all other bodies and organisations under the control and direction of the Minister for Health or the Secretary of the NSW Ministry of Health where facilities under their control create surgical plume, such as in: operating theatres; dental clinics; morgues during autopsy; laboratories/research and testing facilities.

Australian College of Operating Room Nurses (ACORN)

Australian College of Operating Room Nurses (ACORN) is a professional organization that develops standards and recommendations to promote excellence in perioperative care.

Standard S20 states that personnel shall utilize appropriate equipment and procedures to prevent exposure to surgical plume

- Exposure to surgical plume shall be minimized during the surgical procedure.
- Surgical smoke capture devices shall be available for use during procedures in which surgical smoke is generated (ACORN 2006).

Denmark

Danish Working Environment Authority

Danish Working Environment Authority is an agency under the auspices of the Ministry of Employment. The Danish Working Environment Authority is the authority which contributes to the creation of safe and sound working conditions at Danish workplaces. The agency is responsible for administering the Working Environment Act in Denmark, and guides companies on health and safety rules at the workplace.

AT-Instructions 4/2007 and 11/2008

- It is mandatory to implement a measurable setup for local evacuation of harmful substances, such as surgical smoke.
- Such a setup must be equipped with a monitoring feature to indicate if the evacuation system's suction is inadequate.
- Surgical smoke should be removed with local evacuation and as close to the source as possible.
- The filtered air must lead out into the open (read: outside the OR).

Regulations & Recommendations

Surgical Smoke Plume

Great Britain

Health and Safety Executive (HSE)

Health and Safety Executive (HSE) is the enforcement authority in Great Britain.

The Control of Substances Hazardous to Health Regulations (COSHH - 2002) requires that exposure to substances hazardous to health are adequately controlled to prevent occurrence of ill-health.

The COSHH covers substances that are hazardous to health. Substances can take many forms and include: chemicals, products containing chemicals, fumes, dusts, vapors, mists, nanotechnology, gases and asphyxiating gases and, biological agents (germs).

Medicines and Healthcare Products Regulatory Agency (MHRA)

Medicines and Healthcare Products Regulatory Agency (MHRA) is responsible for regulating all medicines and medical devices in the UK by ensuring they work and are acceptably safe.

MHRA DB2008(03) April 2008 device bulletin recommends that smoke evacuation systems are to be used during laser surgery. In addition, it is specified that masks and operating room laminar flow systems are not suitable for protection from surgical smoke.

Association for Perioperative Practice (AfPP)

Association for Perioperative Practice (AfPP) works to encourage the exchange of professional information between members and co-operation with other professional bodies. They are not a regulatory agency but a recommending agency.

Standard 2.6 Lasers - Standards and Recommendations for Safe Perioperative Practice

The standard states that 'Dedicated smoke evacuation machines must be used to remove the smoke...' (AfPP 2007).

¹ Barret WL, Garber SM Surgical Smoke a review of the literature. Business Briefing. Global Surgery. 2004; 1-7.

² Hill DS, O'Neill JK, Powell RJ, Oliver DW. Surgical smoke—a health hazard in the operating theatre: a study to quantify exposure and a survey of the use of smoke extractor systems in UK plastic surgery units. J Plast Reconstr Aesthet Surg. 2012; 65(7):911-916.

³ Hallmo P, Naess O. Laryngeal papillomatosis with human papillomavirus DNA contracted by a laser surgeon. Eur Arch Otorhinolaryngol. 1991;248(7):425-427.

⁴ G. K. Johnson & W. S. Robinson. Journal of Medical Virology, Jan. 1991 Human immunodeficiency virus-1 (HIV-1) in the vapors of surgical power instruments.

⁵ Baggish, M.S., Polesz, B.J., Joret, D., Williamsson, P. and Refai, A. (1991), Presence of human immunodeficiency virus DNA in las smoke. Lasers Surg. Med., 11:197-203, doi:10.1002/lsm.1900110302.

⁶ SCHUCO International. Surgical smoke. In: Have You Considered the Danger of Surgical Smoke Plume? Available at: http://www.myelectrosurgery.co.uk/resources/Dangers_of_Smoke_Plume_final.pdf. Accessed February 1, 2011.

⁷ Ott DE. Safety concerns in endoscopy. Presented at International Society of Lasers in Medicine and Surgery November 5, 1991. Plume facts 2 1991; (Fourth Quarter): 3-4.

⁸ Dobrogowski M, Wesołowski W, Kucharska M, Sapota A, Pomorski LS (2014) Chemical composition of surgical smoke formed in the abdominal cavity during laparoscopic cholecystectomy - Assessment of the risk to the patient. Int J Occup Med Environ Health 2014 Apr 9. Epub 2014 Apr 9.

⁹ Perioperative Standards and Recommended Practices, 2014 Edition Copyright © 2014 AORN, Inc.

Notes

This image shows a single sheet of white paper with horizontal blue lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



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