

# Intersurgical

## Carbon Dioxide Absorbents

The complete choice

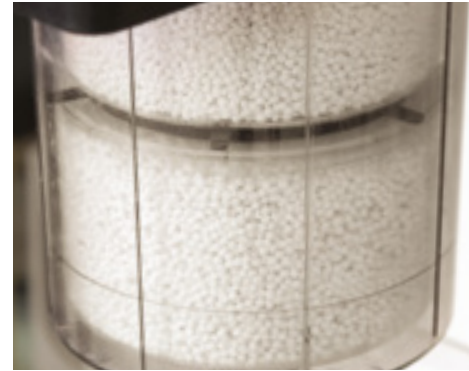


SmartCan™

The Pyramid™



The Drum™



IS Can™



AbCan™



Edition 9



Quality, innovation and trust

Interact with us



[www.intersurgicalinc.com](http://www.intersurgicalinc.com)

## The Intersurgical absorbents range

### The highest quality, the widest choice

Intersurgical offers a choice of medical grade absorbents and standard soda lime to suit most of your clinical requirements.

LoFloSorb™, Spherasorb™ and Intersorb Plus™ have been developed to the highest standard to ensure that you receive a product that delivers consistent performance.

Our range of absorbents is different from some other brands because it has been developed in-house. Our state-of-the-art manufacturing facility allows us to control all aspects, from design and formulation right through to manufacturing. Technical expertise is on-site to ensure you receive a safe, high quality product every time.

## Safety first

### Why is the choice of absorbent important?

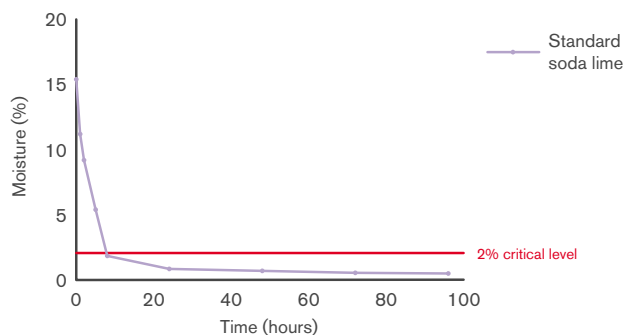
Conventional 'standard' soda lime absorbents have been used for many decades within anesthetic re-breathing systems and have a good safety record. However, there are some safety considerations that have been raised.

There is a very low, but real risk of the absorbent drying out. If this happens, it creates the potential for unwanted interactions between the dry absorbent and the volatile anesthetic leading to generation of chemical breakdown products and heat.

Spherasorb and LoFloSorb have been developed specifically to address such concerns and offer additional safety benefits compared with standard soda lime formulation.

### Prolonged flows of dry oxygen at a number of liters per minute can excessively dry absorbents.

Drying curve. 400g of absorbent. 8 L/min oxygen flow (0% RH).  
Standard soda lime.

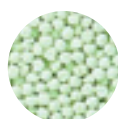


### The following points should be noted:

- These incidents are very rare
- Reactions only occur when the absorbent is excessively dry. It is the Alkali Hydroxides (Potassium Hydroxide and Sodium Hydroxide) contained within the absorbent that reacts with the volatile anesthetic.
- Normal use during anesthesia does not cause excessive drying out. Various studies highlight that during normal anesthesia use, there have been very few reported incidents over the years.
- Research and evidence from everyday use strongly suggest that only prolonged flows of dry oxygen/air at a number of L/min during periods of non-use cause excessive drying.
- The chemical formulation of the absorbent has an influence on the potential for reaction with the volatile anesthetic, but only if excessive drying has already occurred.
- Rare cases have occurred in which thermal runaway has caused an exponential rise in temperature to hundreds of degrees centigrade. Reactions at this temperature result in generation and ignition of hydrogen gas. These rare cases of thermal runaway are known to occur only with Potassium Hydroxide containing absorbents which are no longer widely available. Alternatively, there does not seem to be the 'thermal runaway' with dry Sodium Hydroxide containing absorbents.
- Standard 3% Sodium Hydroxide absorbents, when excessively dry, can also react with volatile anesthetics. However, a greater level of dryness is required and less heat and breakdown products are generated.

## What is in our products?

	Sphasorb™	LoFloSorb™	Intersorb Plus™	Other conventional soda limes
Calcium Hydroxide	93.5%	92.5%	97%	97%
Sodium Hydroxide	1.5%	Nil	3%	3%
Silica Synthetic/amorphous	Nil	7.5%	Nil	Nil
Zeolite	5%	Nil	Nil	Nil
Indicator	0.03%	0.03%	0.03%	0.03%



**NOTE: These are the dry constituents. All absorbents contain 13-17% water**

It is always recommended that color change is used in conjunction with monitoring of Carbon Dioxide. The absorption of Carbon Dioxide is an exothermic reaction. All absorbents will generate heat, especially if exposed to higher than normal levels of Carbon Dioxide.

## Safety information

All Intersurgical Carbon Dioxide absorbents are now classified as an irritant under Regulation (EC) No. 1272/2008 [CLP]

They all contain less than 4% Sodium Hydroxide and are not subject to transport restrictions

They are exempt from both, (ADR) under special provision 62; and IATA under special provision A16

H315: Causes skin irritation

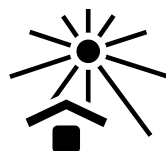
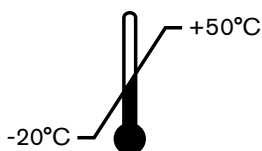
H318: Causes serious eye damage

P280: Wear protective gloves/protective clothing/eye protection/face protection

P302/P352: IF ON SKIN: Wash with plenty of soap and water

P305/351/338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do, continue rinsing

P332/313: IF SKIN IRRITATION OCCURS: Get medical advice/attention



## What is Spherasorb™?

### A unique medical grade soda lime designed specifically for clinical use

Spherasorb has a long history of use within anesthesia and meets all the requirements of the United States and British Pharmacopoeias. Spherasorb's chemical formulation has been developed specifically to address the potential problems of use within the medical environment, while maintaining the highest possible CO<sub>2</sub> capacity.

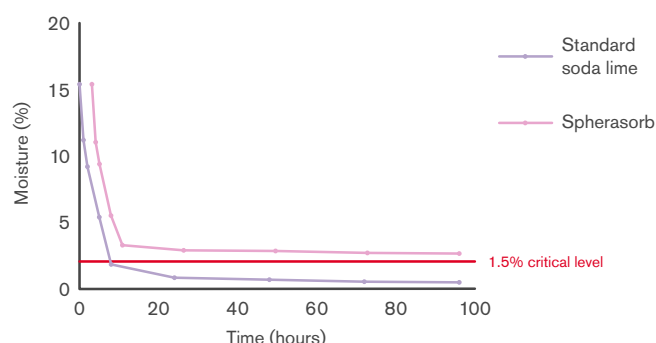


Features and benefits:

- Only 1.5% Sodium Hydroxide, less than standard soda lime
- Zeolite to reduce the risk of drying out, no other absorbent contains Zeolite.
- Spherasorb is made of 3-4 mm spheres processed to minimize potential dusting. Its uniform shape allows consistent bed packing, resulting in a more even flow of gases through the absorber and therefore, a very efficient absorption of CO<sub>2</sub>.

Independent tests have shown that Spherasorb's unique formulation significantly reduces the risk of drying out and reaction as well as heat generation with volatile anesthetic agents. Spherasorb exceeds the requirements of the United States Pharmacopeia (USP).

Drying curve. 400 g of absorbent. 8 L/min oxygen flow (0% RH).  
Spherasorb vs Standard soda lime.



## What is LoFloSorb™?

### A unique medical grade CO<sub>2</sub> absorbent that contains no Alkali Hydroxide

LoFloSorb has a long history of use within anesthesia and meets all the requirements of the United States and British Pharmacopoeias. LoFloSorb minimizes the risk of reactions with volatile anesthetics.



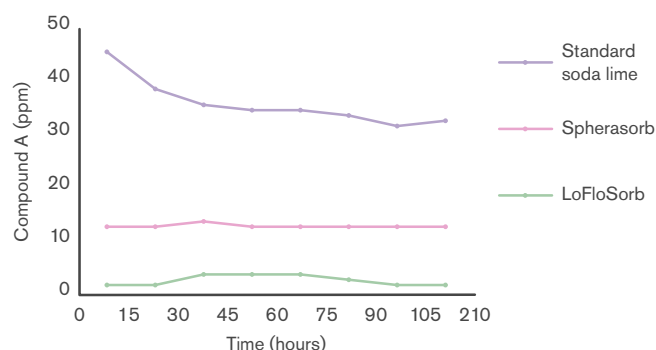
Features and benefits:

- LoFloSorb contains no Potassium Hydroxide or Sodium Hydroxide. Therefore, LoFloSorb contains no aggressive chemicals that can react with the volatile anesthetics
- LoFloSorb is made of 3-4 mm spheres processed to minimize potential dusting. Its uniform shape allows consistent bed packing, resulting in a more even flow of gases through the absorber.
- LoFloSorb offers a very stable green-to-violet color change. This eliminates the potential for exhausted product being mistaken for fresh.

Due to the absence of any Alkali Hydroxide, LoFloSorb does not last as long as standard soda limes or Spherasorb. LoFloSorb meets all the requirements of the United States Pharmacopeia (USP).

Compound A is a breakdown product of Sevoflurane with dry absorbents. Independent tests have demonstrated that LoFloSorb eliminates the risk of reaction with Sevoflurane and other volatile anesthetics.

LoFloSorb eliminates the risk of reaction with Sevoflurane



## What is Intersorb Plus™?

**Intersorb Plus is a conventional soda lime CO<sub>2</sub> absorbent comprised of short porous 3 mm diameter strands**

Intersorb Plus is suitable for use within anesthetic breathing systems. Exhaustion of Intersorb Plus is clearly indicated by the color change.



Features and benefits:

- Intersorb Plus is made of 3 mm strands. Its uniform shape allows for easy identification.
- Intersorb Plus features white-to-violet color change, which offers a clear indication as to when the product has become exhausted.

Intersorb Plus meets all the requirements of the United States Pharmacopeia (USP).

## CO<sub>2</sub> absorbents — the choice is yours

Our range of medical grade absorbents and standard soda lime are available in a number of configurations to suit your requirements. These include loose fill, pre-filled absorbent cartridges and disposable absorbers for specific equipment.

Now it's easy to choose your absorbent online: [www.intersurgicalinc.com/products/anesthesia/co2-absorbents](http://www.intersurgicalinc.com/products/anesthesia/co2-absorbents)

Visit our site and match your machine and model to one of our canisters or loose fill options.

Spherasorb™ is a unique medical grade soda lime designed specifically for clinical use. Spherasorb's chemical formulation has been developed specifically to address the potential problems of use within the medical environment.

LoFloSorb™ is a unique medical grade CO<sub>2</sub> absorbent that contains no Alkali Hydroxide. LoFloSorb minimizes the risk associated with reactions with volatile anesthetics.

Intersorb Plus is a conventional soda lime Carbon Dioxide absorbent comprised of short porous 3mm diameter strands. Intersorb Plus is only available in loose fill 5 liter jericans.



AbCan™

The Drum™

The Pyramid™

SmartCan™

IS Can™

Loose fill options

[Find out more](#)

## Loose fill options

Code	Description	Size	Qty.
2173000	<b>Spherasorb</b> bag, white-to-violet color change	1 kg	10
2175000	<b>Spherasorb</b> jericen, white-to-violet color change	5 L	2
2178000	<b>LoFloSorb</b> jericen, green-to-violet color change	5 L	2
2179000	<b>Intersorb Plus</b> jericen, white-to-violet color change	5 L	2

[Make an inquiry](#)

## The Drum™

### 1 kg pre-filled disposable absorbent cartridge

The Drum is Intersurgical's easy-to-use, pre-filled 1 kg absorbent cartridge that has been developed specifically for clinical use during anesthesia. The Drum can be used on numerous anesthetic machines with single or double absorbers that have been designed to take the conventional design of pre-filled cartridges.

Before using the Drum it is essential to do the following:

- Become familiar with and follow the Instructions for Use of the anesthetic workstation concerned
- Refer to the Instructions for Use supplied with each box of Intersurgical Drum canisters



### Quick and convenient exchange of absorbent

The Drum eliminates the time consuming task of pouring loose granules into the absorber and removing when exhausted



### Intersurgical absorbents

The Drum is available filled with Spherasorb™ or LoFloSorb™

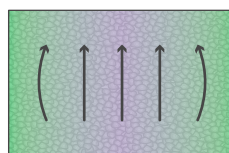
### Unique design with central baffle and dispersion channels

### Reduced channeling and coring

With the Drum optimum flow and dispersion is achieved resulting in a better utilization of the soda lime granules and a more visible color change from the outside.

### Standard cartridge

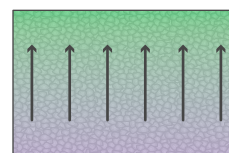
Coring



↑ ↑ ↑  
Gas flow

### The Drum

Improved gas flow



↑ ↑ ↑  
Gas flow

Code	Description	Size	Qty.
2186000	The Drum, <b>Spherasorb</b> ™ CO <sub>2</sub> absorbent cartridge, white-to-violet color change	1 kg	10
2188000	The Drum, <b>LoFloSorb</b> ™ CO <sub>2</sub> absorbent cartridge, green-to-violet color change	1 kg	10

[Make an inquiry](#)



## The IS Can™

### 1 kg pre-filled disposable carbon dioxide absorber

The IS Can offers ease of exchange with minimal handling and provides a further option for customers who have made the choice to use pre-fills. The IS Can is compatible with GE Healthcare® anesthetic machines; Aisys®, Aespire® and Avance® and also the GE® ADU™ machine.

Before using the IS Can it is essential to do the following:

- Become familiar with and follow the Instructions for Use of the anesthetic workstation concerned
- Refer to the Instructions for Use supplied with each box of Intersurgical IS Can canisters

### Fast and easy exchange

The IS Can enables fast exchange of absorbent without the need for time consuming pouring of loose granules, or the risk of contamination

### No dust emission

Foam filters ensure that any fine particles or dust are retained within the IS Can and not allowed to escape into the breathing system or into the atmosphere during handling

### Efficient CO<sub>2</sub> absorption

A gas dispersion chamber at the base of the IS Can allows for optimum flow up through the absorbent



Code	Description	Size	Qty.
2196000	IS Can, <b>Spherasorb™</b> disposable CO <sub>2</sub> absorber, white-to-violet color change	1 kg	6
2198000	IS Can, <b>LoFloSorb™</b> disposable CO <sub>2</sub> absorber, green-to-violet color change	1 kg	6

[Make an inquiry](#)

[Watch the video](#)

GE Healthcare and GE are registered trademarks of General Electric Company. • Aisys, Aespire and Avance are registered trademarks of Datex-Ohmeda, Inc. ADU is a trademark of Datex-Ohmeda, Inc. Datex-Ohmeda, Inc. is a General Electric company.

## The Pyramid™

### 1 kg pre-filled disposable carbon dioxide absorber

The Pyramid is an easy-to-use disposable absorber specifically developed for clinical use during anesthesia to absorb Carbon Dioxide within an anesthetic breathing system. The Pyramid is compatible with the following Dräger® anesthetic workstations providing it is used in conjunction with the CLIC™ adaptor: Fabius®, Julian®, Primus®, Zeus®, Perseus®, Atlan®, Cicero EM®, Cato edition®, Apollo® and Spacelabs ARKON™.

Before using the Pyramid it is essential to do the following:

- Become familiar with and follow the Instructions for Use of the anesthetic workstation concerned
- Refer to the Instructions for Use supplied with each box of Intersurgical Pyramid canisters

### An air-tight seal for storage

The Pyramid is fitted with an air-tight cap to protect the absorbent from moisture and Carbon Dioxide within the air

### Clip to indicate the correct location

For the MX50090 CLIC adaptor, see Instructions for Use

### Fast and easy exchange

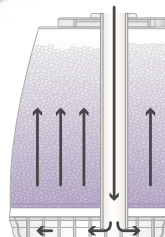
The Pyramid enables fast exchange of absorbent without the need for time consuming pouring of loose granules

### No dust emission

Foam filters ensure that any fine particles or dust are retained within the Pyramid and not allowed to escape into the breathing system or into the atmosphere during handling, providing a safe solution for the user

### Efficient CO<sub>2</sub> absorption

A gas dispersion chamber at the base of the Pyramid provides optimum flow and dispersion resulting in a better utilization of the soda lime granules and a more visible color change from the outside.



Code	Description	Size	Qty.
2191001	The Pyramid, <b>Spherasorb™</b> disposable CO <sub>2</sub> absorber, white-to-violet color change	1 kg	6
2193001	The Pyramid, <b>LoFloSorb™</b> disposable CO <sub>2</sub> absorber, green-to-violet color change	1 kg	6

[Make an inquiry](#)

[Watch the video](#)

Dräger is a registered trademark of Drägerwerk AG & Co. KGaA. • CLIC is a trademark of Dräger Medical GmbH.

Fabius, Julian, Primus, Zeus, Perseus, Cicero EM, Cato edition and Apollo are registered trademarks of Dräger Medical GmbH.

ARKON is a trademark of Spacelabs Medical Inc.



## The AbCan™

### 1.1 L pre-filled disposable carbon dioxide absorber

The AbCan is Intersurgical's easy to use disposable absorbent canister that has been developed specifically for clinical use during anesthesia to absorb carbon dioxide within an anesthetic breathing system. The AbCan is compatible only with the Getinge® (formerly Maquet®) Anesthesia Delivery Systems, Flow-i™ C20, C30, C40, Flow-c™ and Flow-e™.

It is essential that the user follows both the instructions for use of the Getinge® Flow-i™, Flow-c™ and Flow-e™ Anesthesia Delivery Systems and also the Instructions for Use supplied with each box of Intersurgical AbCan absorbers.

For full details of how to attach and use the AbCan, please refer to Instructions for Use.



#### Fast and easy exchange

The AbCan enables fast exchange of absorbent without the need for time consuming pouring of loose granules, or the risk of contamination

#### Air-tight seal for storage

#### No dust emission

Low resistance scrim membranes ensure that any fine particles or dust are retained within the AbCan and not allowed to escape into the breathing system or into the atmosphere during handling

#### Medical grade absorbents

For extra safety with volatile anesthetics

#### Efficient CO<sub>2</sub> absorption

A gas dispersion chamber at the base of the AbCan allows for optimum flow up through the absorbent



Code	Description	Size	Qty.
2199001	The AbCan, <b>Spherasorb™</b> disposable CO <sub>2</sub> absorber, white-to-violet color change	1.1 L	6
2199003	The AbCan, <b>LoFloSorb™</b> disposable CO <sub>2</sub> absorber, green-to-violet color change	1.1 L	6

[Make an inquiry](#)

[Watch the video](#)

Getinge, Getinge Group, Getinge Passion for Life, Maquet, and Atrium are trademarks or registered trademarks of Getinge AB

The SmartCan™

The SmartCan is Intersurgical's easy to use disposable absorber that has been developed specifically for clinical use during anesthesia to absorb carbon dioxide within an anesthetic breathing system.

The SmartCan is compatible with the GE Healthcare® anesthesia 600 series Carestation®; Carestation® 650™, Carestation® 620™, Carestation® 650c Pendant™ Carestation® 650c Wall Mount™ and Carestation 750™.

It is essential that the user follows both the Instructions For Use of the appropriate GE Carestation and also the Instructions For Use supplied with each box of Intersurgical SmartCan absorbers.

For full details of how to attach and use the SmartCan, please refer to Instructions For Use.



Fast and easy exchange

The SmartCan enables fast exchange of absorbent without the need for time consuming pouring of loose granules, or the risk of contamination

Air-tight seal for storage

No dust emission

Low resistance scrim membranes ensure that any fine particles or dust are retained within the SmartCan and not allowed to escape into the breathing system or into the atmosphere during handling

Medical grade absorbents

For extra safety with volatile anesthetics

Efficient CO<sub>2</sub> absorption

A gas dispersion chamber at the base of the SmartCan allows for optimum flow up through the absorbent



Code	Description	Size	Qty.
2169001	The SmartCan <b>Spherasorb</b> ™ disposable CO <sub>2</sub> absorber, white to violet color change	1.6 L	6
2169003	The SmartCan <b>LoFloSorb</b> ™ disposable CO <sub>2</sub> absorber, green to violet color change	1.6 L	6

[Make an inquiry](#)

[Watch the video](#)

GE Healthcare is a registered trademark of General Electric Company  
Carestation is a registered trademark of Datex-Ohmeda, Inc. Datex-Ohmeda, Inc. is a General Electric Company  
620, 650, 650c Pendant and 650c Wall Mount are trademarks of General Electric Company

## Dräger® compatibility guide

Machine	Loose fill	The Drum™	The Pyramid™	IS Can™	AbCan™	SmartCan™
Atlan® with CLIC™ adaptor	–	–	✓	–	–	–
Atlan® with refillable absorber	✓	–	–	–	–	–
Perseus® with CLIC™ adaptor	–	–	✓	–	–	–
Perseus® with refillable absorber	✓	–	–	–	–	–
Zeus® with CLIC™ adaptor	–	–	✓	–	–	–
Zeus® with refillable absorber	✓	–	–	–	–	–
Zeus® Infinity Empowered	✓	–	–	–	–	–
Primus®/Apollo® with CLIC™ adaptor	–	–	✓	–	–	–
Primus®/Apollo® with refillable absorber	✓	–	–	–	–	–
Fabius Tiro® with CLIC™ adaptor	–	–	✓	–	–	–
Fabius Tiro® with refillable absorber	✓	–	–	–	–	–
Fabius® GS with CLIC™ adaptor	–	–	✓	–	–	–
Fabius® GS with refillable absorber	✓	–	–	–	–	–
Fabius® CE with CLIC™ adaptor	–	–	✓	–	–	–
Fabius® CE with refillable absorber	✓	–	–	–	–	–
Julian® with CLIC™ adaptor	–	–	✓	–	–	–
Julian® with refillable absorber	✓	–	–	–	–	–
Cicero™ with CLIC™ adaptor	–	–	✓	–	–	–
Cicero™ with refillable absorber	✓	–	–	–	–	–
Cato® with CLIC™ adaptor	–	–	✓	–	–	–
Cato® with refillable absorber	✓	–	–	–	–	–
Narkomed® 2B	✓	✓	–	–	–	–
Narkomed® 4	✓	✓	–	–	–	–
Narkomed® GS	✓	✓	–	–	–	–
Narkomed® Mobile	✓	✓	–	–	–	–
Other	✓	–	–	–	–	–

## Getinge® (formerly Maquet®) compatibility guide

Machine	Loose fill	The Drum™	The Pyramid™	IS Can™	AbCan™	SmartCan™
Flow-i, Flow-C, Flow-e	–	–	–	–	✓	–
Flow-i, Flow-C, Flow-e with refillable absorber	✓	–	–	–	–	–

Atlan, Perseus, Zeus, Primus, Apollo, Fabius Tiro, Fabius, Julian and Cato are registered trademarks of Dräger Medical GmbH. Narkomed is a registered trademark of Dräger Medical, Inc. Cicero and CLIC are trademarks of Dräger Medical GmbH. Dräger is a registered trademark of Drägerwerk AG & Co. KGaA. Maquet is a registered trademark of Maquet GmbH. Getinge is a registered trademark of Getinge AB. FLOW is a trademark of Maquet Critical Care AB.

## GE Healthcare® compatibility guide

Machine	Loose fill	The Drum™	The Pyramid™	IS Can™	AbCan™	SmartCan™
Aisys® using the pre-filled Multiabsorber	–	–	–	✓	–	–
Aisys® using the refillable Multiabsorber	✓	–	–	✓	–	–
Avance® using the pre-filled Multiabsorber	–	–	–	✓	–	–
Avance® using the refillable Multiabsorber	✓	–	–	✓	–	–
Aespire® reusing the pre-filled Multiabsorber	–	–	–	✓	–	–
Aespire® using the refillable Multiabsorber	✓	–	–	✓	–	–
ADU using the pre-filled Compact absorber	–	–	–	✓	–	–
ADU using the refillable Compact absorber	✓	–	–	✓	–	–
Aestiva®	✓	✓	–	–	–	–
Excel®	✓	✓	–	–	–	–
Modulus™	✓	✓	–	–	–	–
GE® 620 Carestation	–	–	–	–	–	✓
GE® 620 Carestation with refill	✓	–	–	–	–	–
GE® 650 Carestation	–	–	–	–	–	✓
GE® 650 Carestation with refill	✓	–	–	–	–	–
GE® 650c Pendant	–	–	–	–	–	✓
GE® 650c Pendant with refill	✓	–	–	–	–	–
GE® 650c Wall Mount	–	–	–	–	–	✓
GE® 650c Wall Mount with refill	✓	–	–	–	–	–
GE® 750c	–	–	–	–	–	✓
GE® 750c with refill	✓	–	–	–	–	–
Other	✓	D.o.M.	–	–	–	–

Aisys, Avance, Aespire, Aestiva and Excel are registered trademarks of Datex-Ohmeda, Inc. Modulus is a trademark of Datex-Ohmeda, Inc. Datex-Ohmeda, Inc. is a General Electric company. GE Healthcare is a registered trademark of General Electric Company.

D.o.M.: Depends on Machine.

**Mindray®**

Machine	Loose fill	The Drum	The Pyramid	IS Can	AbCan	SmartCan
A4	✓	✓	–	–	–	–
A5	✓	✓	–	–	–	–
A7	✓	✓	–	–	–	–
A9	✓	✓	–	–	–	–

**Spacelabs® compatibility guide**

Machine	Loose fill	The Drum	The Pyramid	IS Can	AbCan	SmartCan
ARKON®	D.o.M.	–	✓	–	–	–
Focus™	✓	✓	–	–	–	–
Frontline™	✓	✓	–	–	–	–
Sirius™	✓	✓	–	–	–	–
Other	✓	D.o.M.	–	–	–	–

**Penlon® compatibility guide**

Machine	Loose fill	The Drum	The Pyramid	IS Can	AbCan	SmartCan
A100™	✓	✓	–	–	–	–
SP100™	✓	✓	–	–	–	–
SP200™	✓	✓	–	–	–	–
Other	✓	D.o.M.	–	–	–	–
Other manufacturers	D.o.M.	D.o.M.	D.o.M.	D.o.M.	–	–

**Other manufacturers compatibility guide**

Machine	Loose fill	The Drum	The Pyramid	IS Can	AbCan	SmartCan
Other manufacturers machine	D.o.M.	D.o.M.	D.o.M.	D.o.M.	–	–

Mindray is a registered trademark of Shenzhen Mindray Bio-Medical Electronics Co., Ltd. Spacelabs and ARKON are registered trademarks of Spacelabs Healthcare, LLC. Focus, Frontline and Sirius are trademarks of Spacelabs Healthcare, LLC. Penlon is a registered trademark of Penlon Limited. A100, SP100 and SP200 are trademarks of Penlon Limited.

D.o.M.: Depends on Machine.



[illegible]

[illegible]

**Intersurgical Inc**

2055 Executive Drive,  
Indianapolis, IN 46241

T: 800-828-9633

F: 315-451-3696

[support@intersurgicalinc.com](mailto:support@intersurgicalinc.com)

[www.intersurgicalinc.com](http://www.intersurgicalinc.com)

