

# Frequently Asked Questions



## RhinoChill™ IntraNasal Cooling System Technical Information

### *How much does the RhinoChill™ IntraNasal Cooling System weigh?*

Control unit:	4.8kg
Bottle of coolant:	1.7kg
Gas cylinder with regulator:	3.0kg (1.9-3.4)
Additional accessories (bags, gas hose, adaptor):	0.5 kg
Fully-loaded system:	9.9kg (7.3-8.8)

### *How is the RhinoChill System powered?*

Pressurized gas “powers” the cooling. An internal rechargeable battery powers the electronics. An external power supply is required to recharge the RhinoChill System battery. An external power source of 12 Volts DC, either from vehicle power or the supplied AC power adaptor, can also be used to run the RhinoChill System.

### *How long will the battery last?*

The battery will last 4 hours under nominal use conditions. The actual time depends upon the conditions in which the RhinoChill is used: the battery may last longer than 6 hours if used under temperate conditions, but it may be reduced to as low as 2 hours if the RhinoChill is operated in an environment below 15°C.

### *How long does it take to recharge the battery?*

The specification is that a ‘dead’ battery should be fully charged in less than 10 hours. However, this is likely to be 4 hours or less if the RhinoChill System is charged at room temperature. Note however, the RhinoChill System will always run – and recharge – when it is plugged into an external power source, even when the battery is completely discharged (similar to a laptop computer).

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***Can the RhinoChill™ IntraNasal Cooling System be connected to the vehicle power system for recharging in a manner similar to other devices?***

BeneChill offers a Docking Station for purchase that will allow the RhinoChill System to be docked in the vehicle and integrated with the vehicle electrical power.

***What kind of gas is required and at what pressure does the gas need to be supplied?***

The RhinoChill System will operate with either pure oxygen or air, or any enhanced oxygen-air mix. The gas should be supplied to the RhinoChill System at a regulated pressure ranging between 3.1-4.8bar.

***Is there a model that will run on a compressor (like the LUCAS 2)?***

Not at this time.

***How long will a cylinder of gas last?***

It depends on the gas flow and size of the tank.

Gas Volume	RhinoChill™ IntraNasal Cooling System Flow Setting		
	Low (20 L/min)	Med (40 L/min)	High (60 L/min)
900L (3L cylinder @ 300bar)	45 min	22 min	15 min
600L (2L cylinder @ 300bar)	30 min	15 min	10 min
400L (2L cylinder @ 200bar)	20 min	10 min	7 min
800L (2x 2L cylinder @ 200bar)	40 min	20 min	13 min

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## *What is the RhinoChill™ IntraNasal System Coolant?*

The coolant is a proprietary liquid chemical that is completely inert and evaporates very easily.

## *Does the RhinoChill System Coolant need to be kept cold?*

No.

## *How cold does the RhinoChill System Coolant get?*

Intranasal temperatures measured in a clinical study varied between  $-5$  to  $5^{\circ}\text{C}$  for sedated patients with spontaneous circulation. It is conceivable that colder temperatures are achieved in patients with no circulation (i.e., in cardiac arrest).

## *At what temperature does the RhinoChill System Coolant freeze?*

The pour point – or the lowest point at which the coolant will still flow as a liquid – is  $-90^{\circ}\text{C}$ . It will freeze at a temperature below this.

## *Does the RhinoChill System Coolant impact the environment in any way?*

No. The chemical in the coolant has been investigated by the US Environmental Protection Agency and is considered to have no impact. Moreover, the chemical is not a CFC and has no effect on the ozone layer.

## *In what sizes is the RhinoChill System Coolant bottle available?*

The RhinoChill System Coolant is available in 1 liter bottles.

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## *How long will a bottle of RhinoChill IntraNasal Cooling System Coolant last?*

The RhinoChill System delivers 0.8ml coolant with every 1L of gas. The flow setting also determines the duration the coolant will last:

Coolant Volume	RhinoChill™ IntraNasal Cooling System Flow Setting		
	Low (20 L/min)	Med (40L/min)	High (60L/min)
1 bottle - 1000 ml	60 min	30 min	20 min

## *At what pressure is the gas-coolant mixture being sprayed out of the nasal catheter?*

The spray pressure is also dependent on the flow setting:

	RhinoChill™ IntraNasal Cooling System Flow Setting		
	Low (20 L/min)	Med (40L/min)	High (60L/min)
Spray Pressure (bar)	0.14 – 0.48	0.48 – 0.83	0.83 – 1.4

## *How does the tubing set stay in place?*

The tubing set should be placed so that the nasal catheters are fully inserted. The nostril valves will hold the tubing set in place if the patient is not moved. The tubing set has a retention strap attached to the catheter hub that can be secured around the patient's head for moving them.

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## *What material(s) are used in the tubing set?*

The nasal catheters are made of a medical-grade of urethane. The delivery tubing is made of polyvinyl chloride (PVC) but is free of the component material (DEHP) that has been linked to safety hazards. The additional hard molded parts (catheter hub, control unit connector) are also PVC (free of DEHP). The tubing set is entirely latex-free.

## *Can the tubing set be re-used?*

No. Using the tubing set in more than one patient will introduce the risk for cross-contamination.

## *How is the RhinoChill™ IntraNasal Cooling System configured?*

The RhinoChill System can be configured for both pre-hospital and in-hospital use by choosing appropriate add-on kits and accessories. Pre-hospital kits/accessories include a gas cylinder holder, adapter, shoulder strap, and storage bags. In-hospital use should involve connecting the RhinoChill System directly to the hospital supply gas. It can be mounted to either an IV pole or hung on the bedside rail.

## *How is the RhinoChill System secured in the vehicle?*

The docking station provides a secure fixation in the ambulance. Each site will need to determine the best method of fixation in the emergency vehicle. The shoulder strap and bedrail hooks provide flexible options for mobile fixation, during the transport from the ambulance to the receiving hospital department. This is not an alternative for the fixation in the docking station during patient transport in the ambulance.

## *Can the RhinoChill System be used in a helicopter?*

The RhinoChill System will not be certified for helicopter use upon initial commercial distribution. Sites may submit the RhinoChill System to local testing for helicopter certification if desired. (Local certifications were obtained by some sites in the PRINCE Clinical study.)

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## *How often does the RhinoChill System need to be serviced?*

The RhinoChill System has a 5-year service life. Preventive maintenance should be performed on an annual basis to ensure optimal operation. BeneChill will provide this preventive maintenance service.