

CAPSULS™



The 2K10PIU-PN model is a transportable, versatile and economical patient isolation unit (PIU).

The system includes a flexible, pressurizable housing that can be pressurized to either positive or negative pressure. Positive pressure isolates and protects the patient (e.g. immunosuppressed) during transport operations, mitigating the risks of exposure to infectious agents and/or contaminants. Negative pressure isolates the contaminated patient minimizing the possibility of operator contamination during transport operations.



CAPSULS™ is patented (registered trademark of ISOVAC LLC) (containment and protection system using life support)

The 2K10PIU-PN model has a filtered, unidirectional air recirculation system for patient life support, as well as special features that allow it to work on the patient using medical equipment.

Main uses of the 2K10PIU-PN1 model

- Isolated transport of patients in helicopters, airplanes, ambulances, boats or any vehicle suitable for safe transport of the patient on standard stretchers.
- Temporary isolation in hospitals or other healthcare facilities, even during the diagnostic phase.



CHARACTERISTICS

- **POSITIVE PRESSURE PATIENT ISOLATION** - The Model 2K10PIU-PN isolates and protects the patient when the envelope is sealed and maintained at positive pressure (high pressure) with respect to the external environment through an end-positioned air vent.
- **NEGATIVE PRESSURE CONTAINMENT** - The Model 2K10PIU-PN contains and isolates the infected patient when the envelope is sealed and maintained at negative pressure (low pressure) with respect to the external environment through the use of an air vent tube placed inside the 'end'.
- **AIR FLOW** - Air flow enters from the end to the head of the PIU and exits through the feet. A battery powered fan with a frequency of 115 liters / minute, allows a frequency between 17 and 21 air exchanges / hour. The average battery life (type D alkaline batteries or NiMH rechargeable) is approximately 4 hours. Fan battery life (standard BA5800-U rechargeable batteries) varies from 7 to 10 hours.
- **PRIMARY FAN FILTRATION** - When the PIU is operating at positive pressure, the primary filters filter the incoming air, eliminating the possible presence of pathogens or contaminants providing the patient with purified air. When the PIU is operating at negative pressure, the filters remove contaminants (generated by the patient). The filters are NBCR-rated and offer high filtration standards (meet HE / P100 standard, 99.97%, @ 0.3μ)
- **REVERSE FILTRATION** - HE / P100 filters are mounted on all points of communication with the outside as well as on all "doors" not connected to the fan to avoid the so-called reverse flow of contaminants.
- **ANTI-PARTICLE BARRIER** - ISOVAC's Iso-Shell™ is composed of a specially designed plastic film. Together with the Iso-Weld™ welding system, it forms a solid barrier to biological and radiological particles. Redundancy of protection is achieved by negative pressurization of the housing.
- **Iso-Weld™ TECHNOLOGY** - ISOVAC has developed this technology by fusing different materials that have made it possible to create a 100% liquid and gas resistant enclosure.
- **CLOSURE TECHNOLOGY** - The (MORE) CAPSULS™ zipper closure provides gas and liquid isolation and passes 100% manufacturer's pressure tests. The zipper closure is secured to the housing by Iso-Weld™ technology.





- **STRETCHABLE TRANSPORTATION** - the CAPSULS™ system is equipped with 3 standard stretcher restraint belts that allow a stable platform for lifting and transporting the patient using standard stretchers on medical vehicles (ambulances, helicopters, airplanes or ships) making the system adaptable to existing means of transport avoiding any modification to the vehicle itself.
- **EASY ASSEMBLY** - Through the CAPSULS™ system, the patient can be rescued in less than 15 minutes by experienced and trained personnel (from the removal of its packaging and assembly, to the “containment” of the patient).
- **EASY PATIENT LOADING** - the “suitcase” opening method of the CAPSULS™ system allows easy access to the interior of the stretcher, allowing for easy patient loading and easy patient attachment to the PIU surface.
- **EASY PATIENT MONITORING** - the transparent casing allows visual monitoring of the patient and his surroundings.
- **PATIENT RESTRAINT SYSTEM:** The CAPSULS™ system incorporates a versatile patient restraint system within the enclosure. Multiple belts for the patient’s legs, wrist rests, waist and torso. The number and location of restraint belts can be changed according to patient anatomy and type of injury.
- **MEDICAL INTERVENTION:** In its standard configuration, the CAPSULS™ Model 2K10PIU-PN is equipped with 4 gloved doors per side that facilitate patient management and allow for advanced airway stabilization or infusion, as well as advanced resuscitation maneuvers. The CAPSULS™ allows, thanks to the presence of access doors (on the head side) for the passage of medical tubing or device cables in use.
- **DURABILITY Iso-Shell™** : the materials used offer durability and resistance to abrasion / puncture 10 times greater than that of standard PVC materials of the same thickness. The top of the casing is made of reinforced material to ensure the durability and protection of the CAPSULS™. It also provides the anchorage points for the restraint belts.



- **TEMPERATURE RANGE** - the CAPSULS™ system allows to operate in the whole temperature range (from -40°C to +60°C) compatible with life.
- **DECONTAMINATION** - the materials used for the realization of the CAPSULS™ (non-absorbent surfaces and without presence of pockets and / or depressions) avoid any possibility of nesting of contaminants or of the decontaminating agents themselves. Each known contaminant has a specific decontamination procedure approved by the local health authority.
- **PATIENT CONTROL (LIQUIDS, SOLIDS):** the primary control of patient secretions is through absorbent diapers or pads placed under the patient. The biocontainment unit ensures continuous isolation of the patient.
- **AUXILIARY PARTS** - Accessories include: user's manual, ventilator tubing/testing, waterproof patient identification card and carrying bag.
- **CARRYING BAG** - The CAPSULS™ is supplied with all its components in a bag for easy transport.



Operational Specifications (Subject to Change)

Envelope Size (flexible)	24" W x 78" L x 18"H (0.61m x 1.98m x 0.46m)
Weight	~30 lbs. (14 kg)
Operating Volume	~ 17 ft ³ (460 l) without patient
Air Flow / Exchange	4 cfm (115 lpm) provides 17 to 21 air exchanges per hour
Primary Air Filtration	CBRN with HE/P100 Particulate (99.97% @ 0.3μ)
Backflow Air Filtration	HE/P100 Particulate (99.97% @ 0.3μ)
Differential Pressure	Negative: 0.12 to 0.70 in. water column, typical 0.4 in.wc (0.10 kPa) Positive: 0.10 to 0.75 in. water column, typical 0.4 in.wc (0.10 kPa)
Battery Run-time	7 to 10 hours with a BA5800/U LiSO ₂ non-rechargeable battery 2 to 4 hours nominal with 4 alkaline "D" cell batteries 2 to 4 hours nominal with a rechargeable NiMH battery
Operating Temp. Isolator:	-40°F to +140°F (-40°C to +60°C)
Patient Weight Capacity:	400 lbs. (181 Kg)
Patient Height Capacity:	6' 2" (1.9 m) nominal / 6' 8" (2m) max.
Boxed Size	26" L x 20" W x 20"H, (66cm x 50cm x 50cm)
Shelf Life / Storage:	10 years in factory packaging
Containment	Test results available on request to qualified parties