

# BIOPAK 240



## A Breakthrough in Technology

Biomarine engineers have taken the closed-circuit principle to its most advanced state with the BioPak 240 four hour positive-pressure self-contained breathing apparatus. The benefits of increased duration, low usage and maintenance cost, and greater protection create an unbeatable combination for mine rescue teams, hazardous materials teams and industrial workers who have to be in potentially dangerous atmospheres for extended periods of time.



## BioPak 240 Development

Biomarine's resources were applied toward developing a product that addressed some of the shortcomings of other extended-duration SCBA. Mine rescue teams were canvassed for suggestions, and the result was a unit that meets the needs of the user.



# BIOMARINE

*Leaders in Closed Circuit Breathing Apparatus*



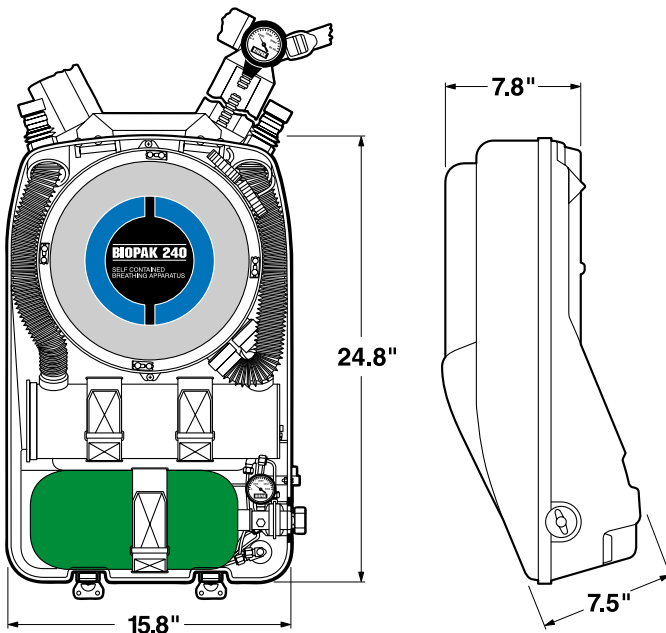
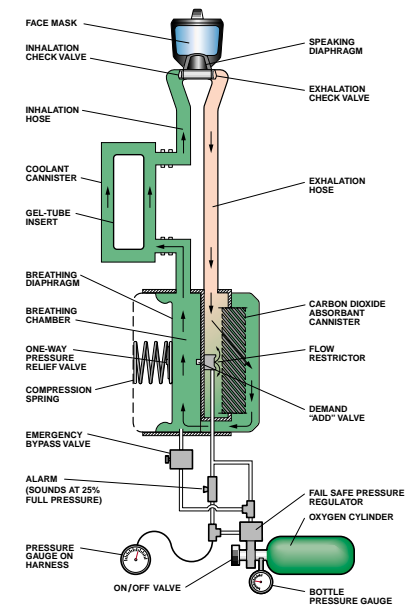
## Principle of Operation

The BioPak 240 is an American made closed-circuit self-contained breathing apparatus. It recirculates the major portion of the user's exhaled gas. A small oxygen cylinder provides make-up gas to a breathing chamber. The user inhales the gas into a silicone facepiece. The user's exhaled breath passes through a carbon dioxide absorbent and back into the breathing chamber, where fresh oxygen is added. The replenished gas is now available for the next inhalation.

A spring-loaded diaphragm in the breathing chamber maintains positive pressure in the system. If the user's inhalation fully depletes the breathing chamber, the demand, free-flow valve automatically supplies the additional oxygen required. If the user's exhalation causes the diaphragm to fully expand, excess gas is vented out of the relief valve.

A loud, high-pitched, pressure activated whistle alarm sounds when approximately 20-25% of the service life remains. A manual bypass is provided to override the supply system in an emergency.

In the BioPak 240, a "blue ice" coolant canister is added to the inhalation side of the breathing circuit to cool the breathing gas on the way to the mask.



## BIOPAK 240 SPECIFICATIONS

Weight:	35 lbs. (15.75 kg)
O <sub>2</sub> Cylinder:	21 ft. <sup>3</sup> @ 3000 psig
Duration:	4 hours (240 minutes)
Constant Flow Rate:	1.78 ± .13 l/min.
Materials:	High-impact fire-retarding NORYL® shell Neoprene hoses Anti-oxidant silicone rubber facepiece Optional fire-resistant KEVLAR® harness and straps
Packaging:	Molded carrying case
Approval:	NIOSH/MSHA Certification TC-13F-185 and TC-13F-206 for use in temperatures as low as +15° F.

## Why Choose the BioPak 240?

### Long Duration

Regardless of the user's size or physical activity, the BioPak 240 delivers at least four hours duration.

### Ease of Use and Comfort

The BioPak 240 is simple to use. All controls and displays are easily accessible. The fully padded harness with multiple adjustments makes the unit extremely comfortable for any size user. The weight is carried on the hips not the shoulders. The well-fitting silicone facepiece with built-in speaking diaphragm provides a durable, effective seal. The over-the-shoulder hose design, along with low breathing resistance, reduces wearer fatigue.

### Cooling System

All closed-circuit SCBA generate or retain heat. The BioPak 240 incorporates a built-in "blue-ice" insert to keep breathing gas temperature at a comfortable level. Other than normal cleaning, the insert does not require maintenance, just refreeze for next use.

### Low Usage Cost

The LimePak CO<sub>2</sub> absorbent is provided in bulk, reducing the per-use cost of the BioPak 240 to almost one-eighth the cost of other extended-duration units.

### Clear Vision

The BioPak 240 incorporates a lens insert for clear, fog-free vision. Just apply the anti-fog cloth to the insert, and forget about fogging for four hours. Also available with wiper option.

### Ease of Maintenance

Unlike other extended-duration SCBA, the BioPak 240 requires *minimum preparation* and set-up time. All testing can be done in the field, with a minimum of training.

# BIOMARINE

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