

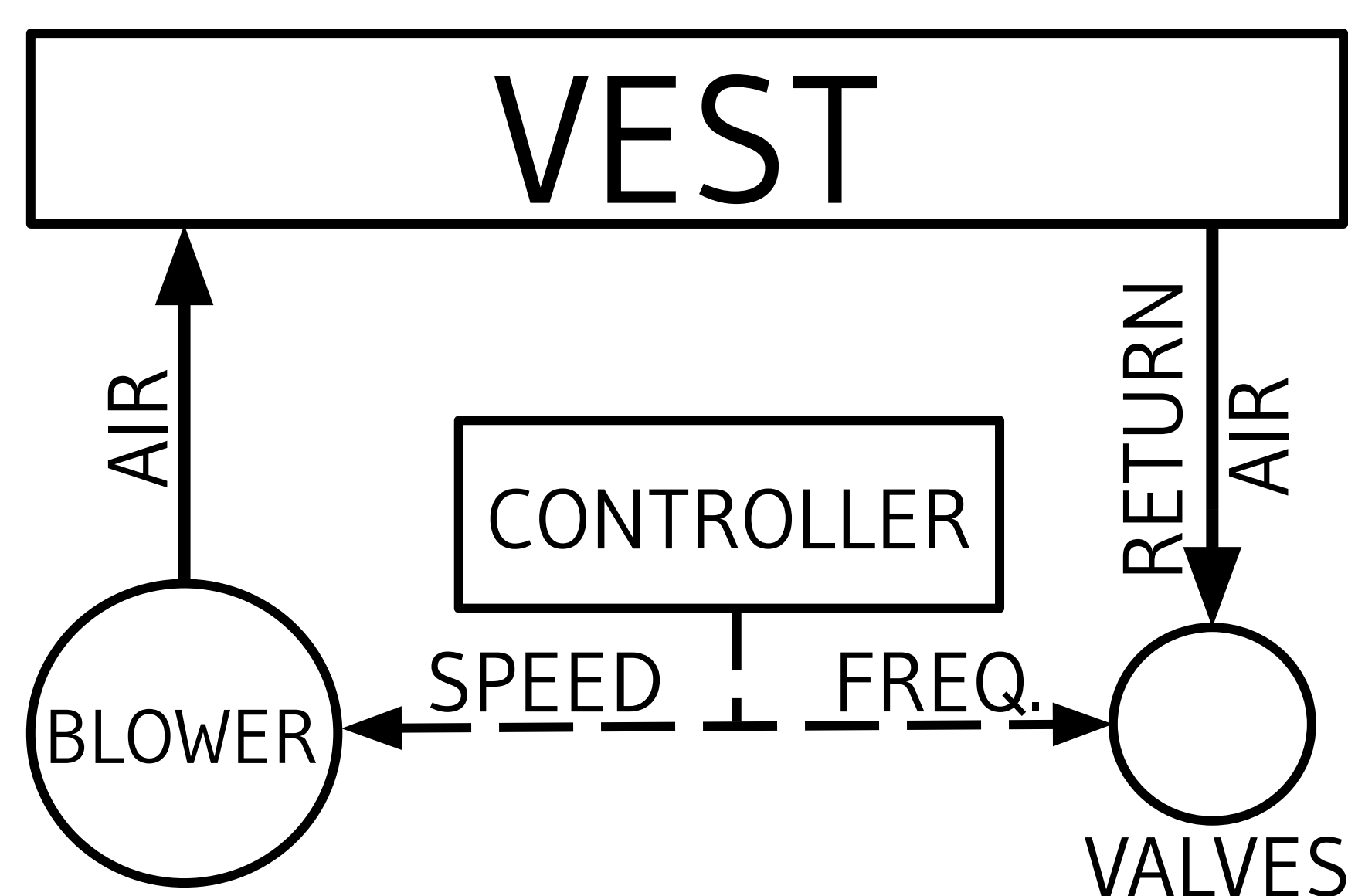
Background

Over 100,000 people in the developing world have cystic fibrosis, which causes thick mucus to build up in the lungs and obstruct breathing.

Our partner, CF Vests Worldwide, donates air powered oscillating vests to people in need. Currently they rely on used vests which are often near the end of their useful life, along with sizing and other issues. The VitaLung Vest is purpose-built to be affordable, adjustable, and life-saving.

Characteristic	Target Spec.	Actual Spec.
Frequency	5-20 Hz	1-5 Hz
Pressure	1 psi	1.1 psi
Operating Time	30 min	30 min
Cost	\$5,000	\$3,000
Wrap length	40±5 in	40±5 in

Block Diagram



The VitaLung Vest



The Vitalung Vest is comprised of both a wrap-around vest (left) and an air unit (right), connected by flexible hoses.

Key Components



Micronel Radial Blower

Rated at a maximum back-pressure of 1.9 psig, this blower allows for the buildup of pressure inside the vest.



Norgren Solenoid Valve

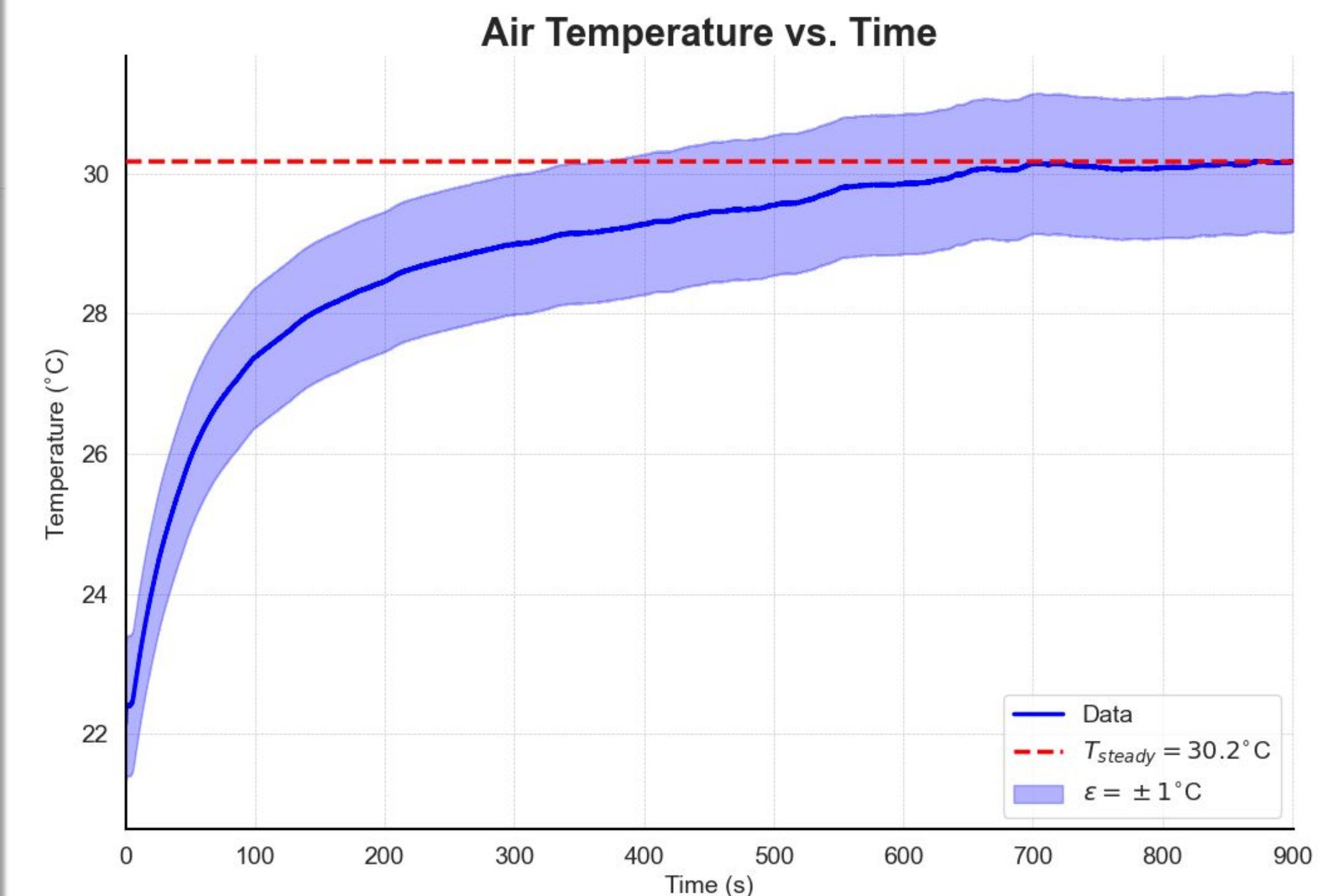
Having a flow coefficient of 1, this valve allows for the proper exhaust of air inside the vest to generate compressions.



Vest Bladder

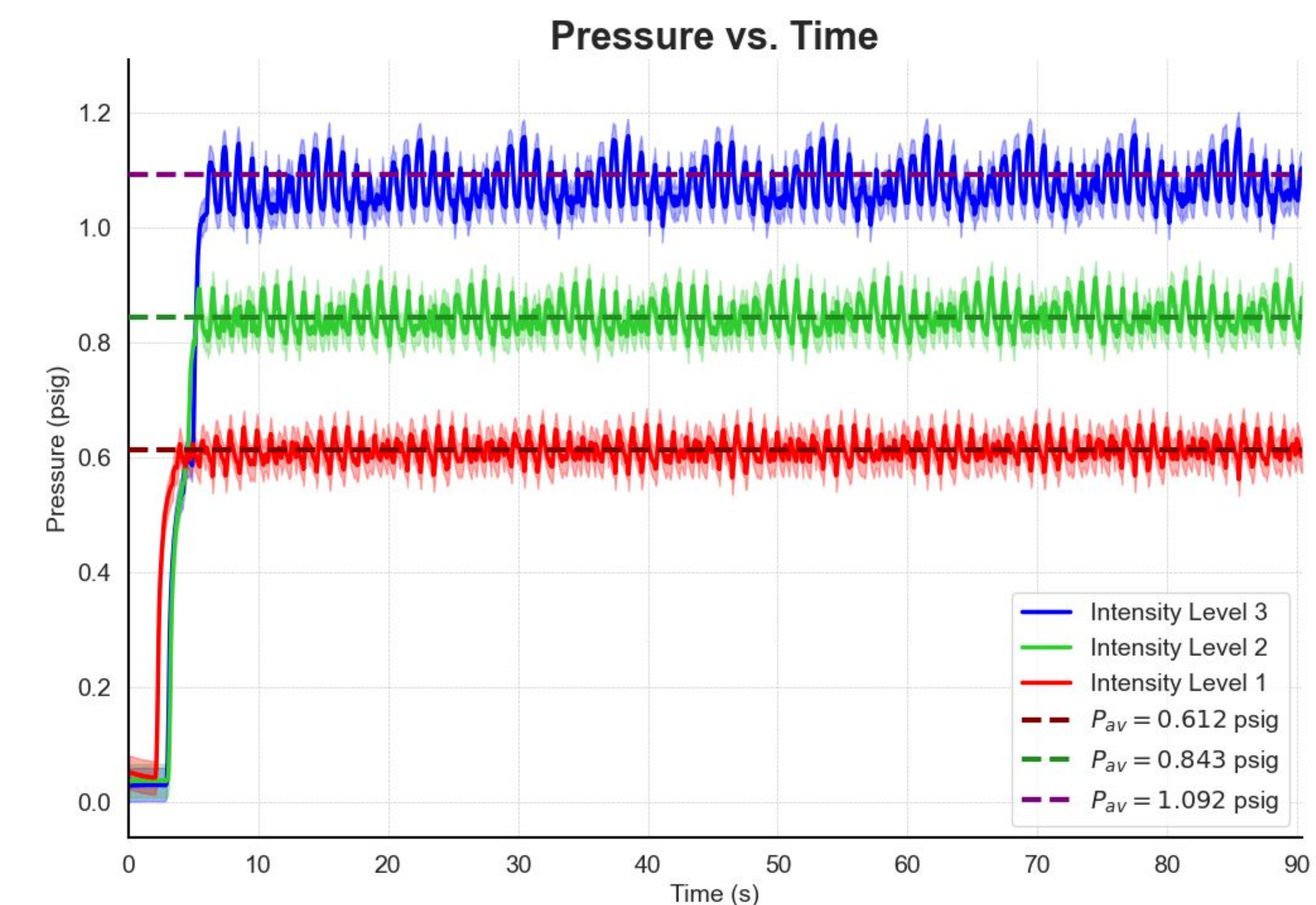
Our 360-degree mylar vest partition design allows for compressions all around the patient's body, increasing squeezing force.

Vest Temperature Testing



Temperature of the air, with an increase of 8°C between standby and operation mode.

Vest Performance Testing



Characterizes the exact vest pressure for three levels of treatment intensity.