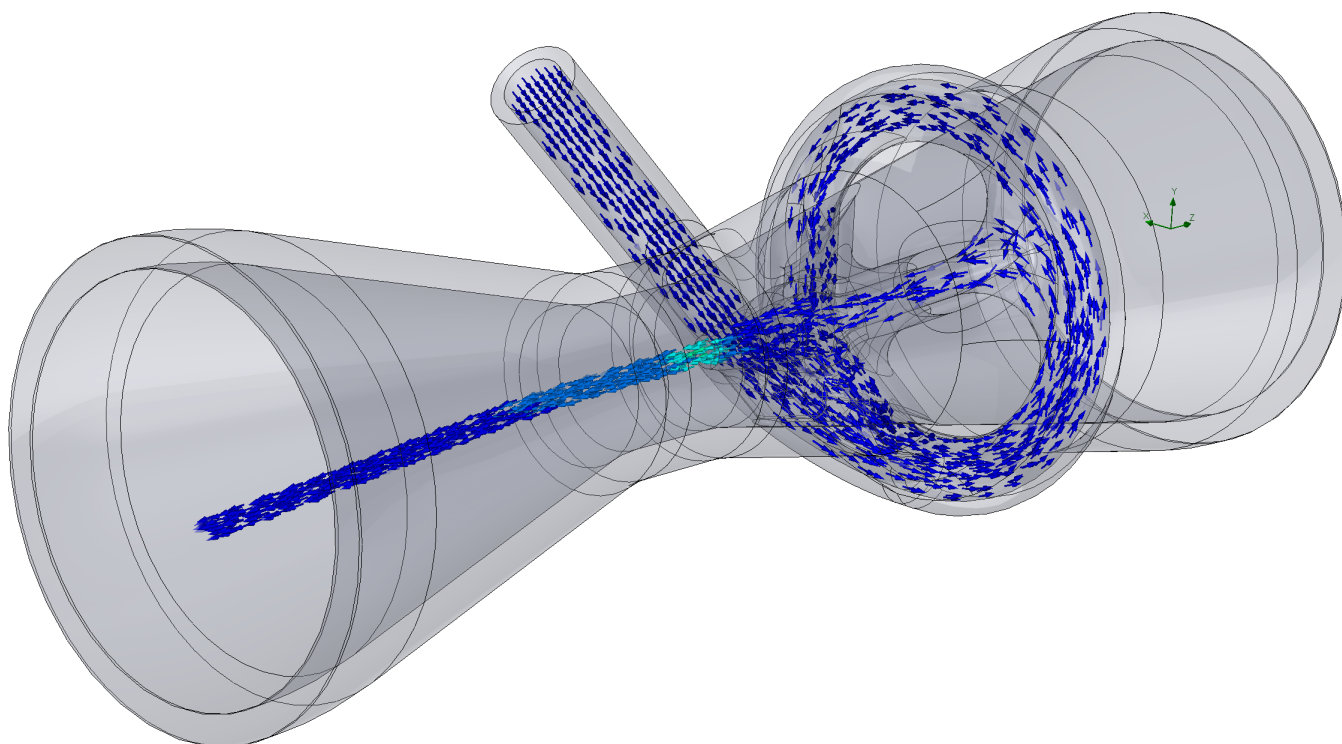


# Respirator-free reanimation Venturi's valve (rev. 4)

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## Disclaimer

Valve has not been tested and certified for medical use, however it has been designed to be safe. Author takes no responsibility for failure of the device. Be aware, that homemade production with a use of 3D printer is charged with imperfections and can't be validated. Please be aware, that oxygen is a flammable gas and may explode if leak will occur. This is subsonic device, however it may generate acoustic effect, that will damage hearing. Use ear-protection.

## Introduction

Valve uses Venturi effect to generate underpressure in a tube consisting of three parts - a convergent section (nozzle), followed by constant section (throat), ending in a gradual expansion (diffuser). Due to the oxygen flow underpressure is generated in the nozzle and air is being sucked into valve.

Valve is powered with a stream of pure oxygen with the flow rate **10 lpm**. Two streams are mixing in diffuser: oxygen (100% O<sub>2</sub>) + air (21% O<sub>2</sub>) resulting in high flow, high oxygen stream at the outlet.

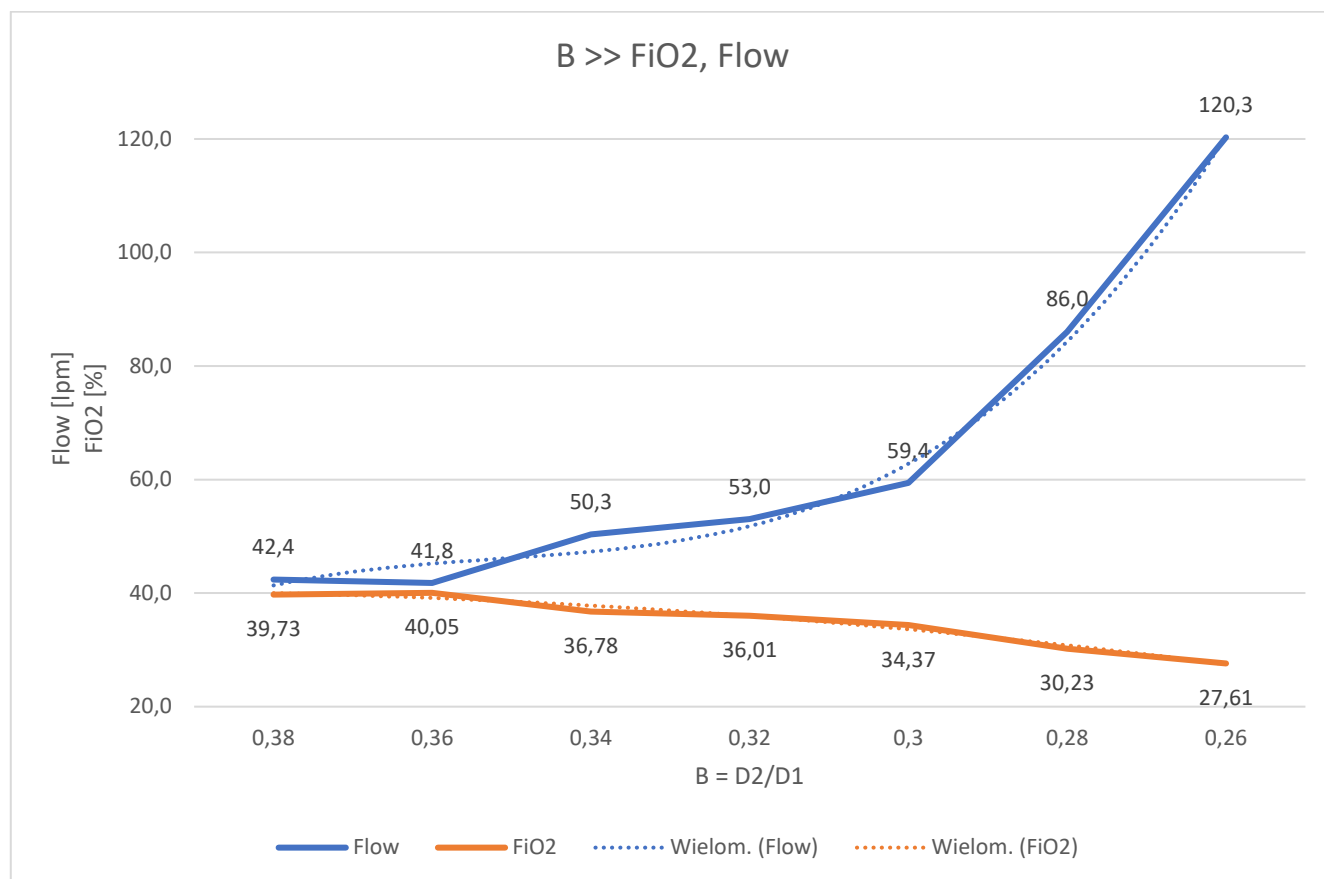
## Production

Valve is designed to be printed with 3D printer vertically and horizontally to cover whole range of SLA, SLS, CJP, FDM, DLP etc. Printing devices. There is no material guide but please double check, that material You are using is oxygen-proof.

## Technical data

4th revision contains set of Valves described with their FiO<sub>2</sub> rate when powered with 10 lpm of oxygen.

FiO <sub>2</sub> [%]	40	37	34	30	28
Flow [lpm]	42	50	59	86	120



Each valve consists of two parts and is equipped with designation tables with revision number, FiO<sub>2</sub> [%] and flow [lpm].

## Assembly

Valve needs to be assembled from two parts. Assembly process needs no additional adhesives like tape or glue. Parts are shape-connected.

## Connections

Valve is meant to be connected with mask via 25mm hose. Oxygen should be delivered with 5-6 hose.