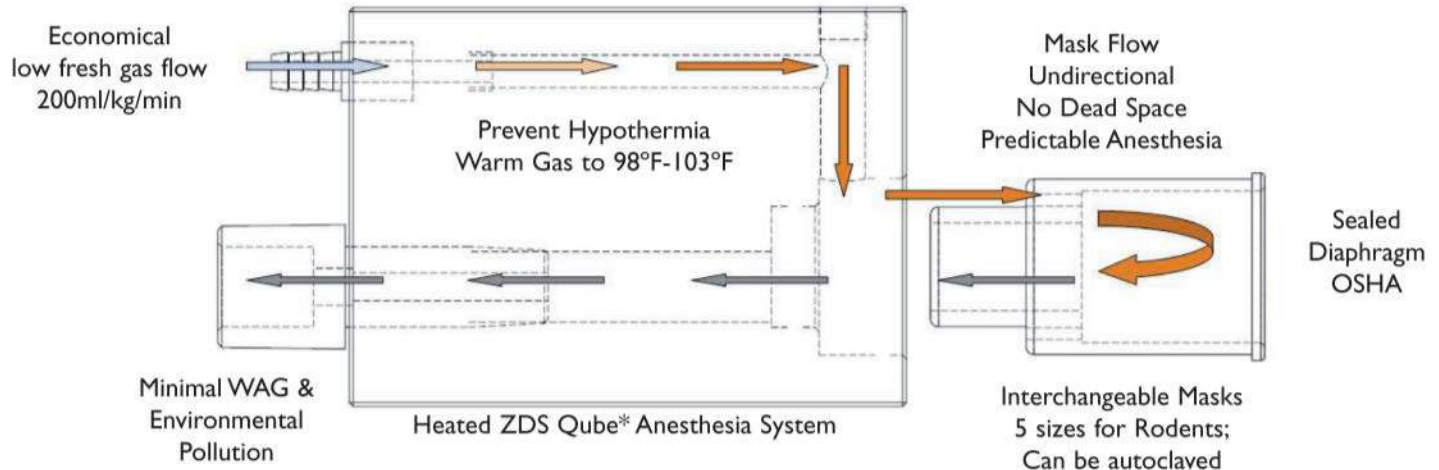


# DARVALL Zero Dead Space "ZDS" Face Masks\*

## A Totally NEW Solution for Rodent Anesthesia

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**Figure 3 - Darvall's ZDS Qube system\* with unidirectional gas flow and interchangeable, sealed face masks delivers low flow, rapid response predictable anesthesia to rodents from a stable aluminum block. Optional HEATED ZDS Qubes warms inspired gas up to 41.5°C to reduce heat loss during anesthesia.**

\*International Patents Granted Applied For

The patented Darvall ZDS face mask system\* for rodents developed from over 10 years of research, overcomes all of the problems of the older rodent anesthesia mask systems. ZDS masks use innovative uni-directional gas flow which eliminates the mask dead space so prevents rebreathing of CO<sub>2</sub> and provides very predictable delivery of anesthetic gas to the animal's nose (see Figure 3). Fresh gas flows as low as 200 ml/kg/min deliver stable anesthesia with rapid response to changes in vaporizer settings (typically in 2 to 3 breaths). The ZDS Qube has interchangeable masks using soft diaphragms that seal on the nose of mice and rats of all sizes proven to eliminate occupational waste gas (WAG) pollution to the working environment (OSHA). Because the mask system is sealed, active removal (by high flow suction or entrainment of room air) of WAG is not required. The low fresh anesthetic and oxygen gas flow (200 ml/kg/min) flushes the expired gas into the WAG system.

### Additional ZDS Qube Features:

- The stable ZDS Qube block is aluminium or acetyl so the rodent is not "dragged out of position" by inadvertent breathing system movement
- The ZDS Qube rotates in 4 planes to vary mask height for optimal height positioning of rodents of all sizes
- Biosecurity assurance between animals because a new "plug & play" mask can be used for each animal & components are autoclavable
- High security rooms are no problem because the ZDS Qube is remotely connected to the anesthetic machine by 15' of silicon tubing
- Darvall's Innovative Heated ZDS Qube provides a totally new solution to hypothermia, warming inspired gas to 103°F (see Brochure: Darvall Heated ZDS Qube). This system incorporates NOVEL RODENT TEMPERATURE MONITORING with closed loop feedback & data acquisition.