

Gas Mixing System

CAPABILITY SHEET · SET THE FLOWS; PROVE THE MIX · EACH GAS THROUGH ITS OWN CONTROLLER, AND AN ANALYSER

THE ONE IDEA

PRINCIPLE	Set the flows; prove the mix.
WHY IT MATTERS	A mixture is a ratio of flows, so it is only as true as the flows. Each controller has to be set for its own gas, the pressure has to be held steady, and an analyser has to prove the composition.

THE SYSTEM

GAS INLETS	A regulator, a filter and a shut-off for every gas, with the gas named at its connection.
CONTROLLERS	A mass-flow controller for each gas, calibrated on that gas or given its correction factor, and sized to run in the comfortable part of its range.
MANIFOLD AND VESSEL	Clean stainless tubing and a manifold with no dead legs, keeping incompatible gases apart, and a mixing vessel that gives the blend time to become even.
OUTLET AND PROOF	A back-pressure arrangement and a sample port at the outlet, and a sample line to an analyser with reference mixtures to check it against.
SAFETY AND CONTROL	Gas detection, a shut-off on every gas, interlocks and a purge sequence, and software that runs recipes and writes a record for every blend.

THE METHOD

ORDER	Specify, size, build, calibrate, run and prove. Showing that the flows settle and that the analyser reads the recipe are the two a quick order skips.
LIMITS	Flows, pressures, fractions, times and ratios come from the method the customer names and from the gases, and are not printed here.

CONFIGURATIONS

BLENDING PANEL	A controller and a regulator for each gas on one panel, joined at a manifold and a mixing vessel, for a mixture of a few gases at comparable fractions.
DILUTION SYSTEM	A stock mixture and a pure diluent, each through a controller in the comfortable part of its range, so that a very small fraction is made in two steps.
HAZARDOUS-GAS CABINET	The blending panel in a ventilated cabinet, with leak detection, a shut-off on every gas, a purge and an interlock that stops all of it when one gas is lost.

STANDARDS & SCOPE

STANDARDS	Public reference: ISO 6145-7 for preparing calibration gas mixtures continuously with thermal mass-flow controllers.
SCOPE BOUNDARY	It is the gas mixing system: not a hypoxic gas generator, not a gas distribution system and not a special gas boosting system.
STATUS	Neometrix engineers gas mixing systems to order, and no delivered gas mixing system is claimed.

DEFENCE PROGRAMMES DESK

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