Purge Systems

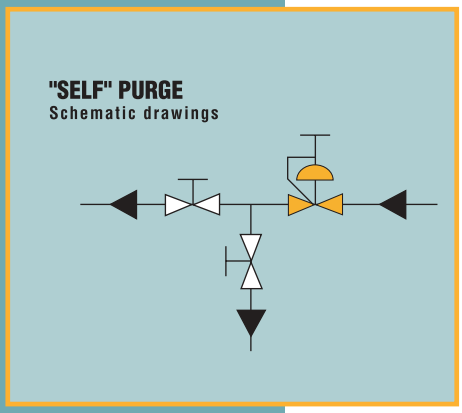
Purging with an inert gas is an extremely important factor when changing cylinders. It allows for eliminating air/moisture or any other impurity from the installation so that gas integrity is preserved up to the point of use.

To assist in the supply of high purity or hazardous gases and gas mixtures from the cylinder to the point of use, Air Products has designed a series of regulator and panel mounted purge systems: Self purge, T-purge and Cross-purge systems.

Self purge

The self purge system permits isolation of the installation during cylinder exchange. This is a simple, effective and economical method of purging through the regulator utilising the process gas itself.

The self purge consists of a tee piece and diaphragm valve connected together on the low pressure side of the regulator. It is ideally suited for use with inert high purity process gases and gas mixtures where the process gas purges through the regulator.



Specifications

Functions
- Allows for regulator depressurisation prior to cylinder exchange.
- Permits purging of the regulator after cylinder exchange to remove air/moisture by using the process gas itself.

Material
Available in brass, stainless steel and Monel®

Purge specifications
Maximum working pressure: 210 bar.g
Valve: diaphragm valve, series 004
Vent outlet connection: 1/4 inch NPT male (optional compression fitting)

Design leak rate
$<3 \times 10^{-8}$ mbar.l/sec.He equivalent

Various roles of the purge systems

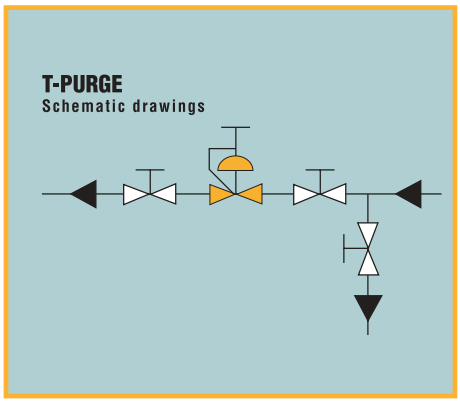
For high purity gases

Purging will remove air/moisture from the system before process gas is introduced in order to preserve the purity of the gas and to promote system reliability.

For toxic gases

Purging will remove process gas out of the system before the system is opened to atmosphere and will therefore minimise the risk of operator exposure.

T-purge



The T-purge system permits isolation of the regulator from the cylinder or from the section to be purged. Purging of the regulator is not required as the regulator cannot be contaminated by air or moisture. Purging is performed using the actual process gas.

The T-purge plus consists of a tee piece and two diaphragm valves connected together on the high pressure side of the regulator. The first valve permits isolation of the regulator from the section to be purged. The second valve permits purging using the process gas itself.

It is ideally suited for use with BIP® gases and mixtures where the process gas purges the cylinder connection and an isolation valve prevents air/moisture from entering the regulator.

Specifications

Functions
- Allows the regulator to be isolated prior to cylinder exchange
- Allows regulator depressurisation prior to cylinder exchange.
- Permits purging of the cylinder connection after cylinder exchange to remove air/moisture by using the process gas itself.

Material
Available in brass, stainless steel and Monel®

Purge specifications
Maximum working pressure: 210 bar.g
Valve: diaphragm valve, series 004
Vent outlet connection: 1/4 inch NPT male (optional compression fitting)

Design leak rate
$<3 \times 10^{-8}$ mbar.L/sec He equivalent

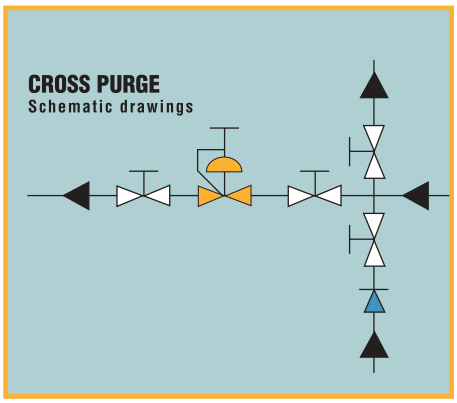
For corrosive gases

Purging will remove moisture from the system. Moisture can produce strong acids and potentially solid material which can cause system failure through corrosion and/or particulate contamination.

For flammable gases

Purging will eliminate the release of flammable gas during cylinder removal and prevent the ingress of air into the system when the new cylinder is connected.

Cross purge



The Cross-purge system permits isolation of the regulator from the cylinder or from the section to be purged. Purging of the regulator is no longer required as the regulator cannot be contaminated nor by air, nor by moisture. The purge is performed using inert gas supplied from an external cylinder or from the network.

The Cross-purge consists of three diaphragm valves connected on a cross piece on the regulator inlet. One valve acts as an isolation valve to prevent air/moisture contamination entering the regulator; the second valve is fitted to a non-return valve to control the purge gas inlet; the third valve permits venting of the process/purge gas mixture. The Cross purge is ideal when high standards of purity and safety are required.

Specifications

Functions
- Allows the regulator to be isolated before cylinder disconnection.
- Allows depressurisation of the cylinder connection prior to cylinder exchange
- Permits thorough purging of the cylinder connection after cylinder exchange to remove air/moisture contamination.

Materials
Available in brass, stainless steel and Monel®

Purge specifications
Maximum working pressure: 210 bar.g
Valve: diaphragm valve, series 004
Purge gas inlet connection: 1/4 inch NPT female (optional compression fitting)
Vent outlet connection: 1/4 inch NPT male (optional compression fitting)
Non-return valve: series 010

Design leak rate
$<3 \times 10^{-8}$ mbar.l/sec He equivalent

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