

## Product Information

### ms-NoVent\* — A New Time Saving Accessory for GC/MS Systems



P000699

- **Improve MS Productivity**
- **Cut MS Down Time**

Enormous amounts of GC/MS operating time are often lost when chromatography columns need to be disconnected to be changed, or to carry out maintenance on the column or other components in the system. The ms-NoVent™ allows the mass spectrometer to be operational almost immediately, producing results in minutes, rather than many hours.

Normally, disconnecting a capillary column means first shutting down the ion source, cooling the mass spectrometer and venting it to air. This is necessary to avoid damaging the ion source through oxidation of the quadrupole and/or diffusion oil bumping into the ion source. After the chromatography column is reconnected, the system has to be pumped back down and the instrument allowed to stabilize for many hours before useful data can be obtained. This time can vary from 3-4 hours at best to overnight, depending on the mass spectrometer, how much water and other contamination has entered the system, and the level of sensitivity at which the instrument is to be operated.

If you attempt to quickly change a column with the system up, the ion source may potentially be damaged in the process.

The ms-NoVent allows immediate use of the MS after a change by virtue of two important design features:

1. Elimination of air from the MS through a specialized helium purge system.
2. Restriction of helium flow into the MS to a level which can be handled by the MS pumping system.

#### What is ms-NoVent?

The ms-NoVent consists of an external control module along with an interface which connects directly to the existing inlet to the mass spectrometer. A fused silica transfer line, which is specific in length for the instrument, fits inside the interface.

This transfer line is designed to restrict the gas flow that can be pulled into the ion source, allowing a low pressure to be maintained in the MS.

On the oven side of the fused silica restrictor is a "Flow Director Orifice" which is actually made from inert fused silica. A helium purge is provided on the MS side of the "Flow Director Orifice" ensuring that there is flow in only one direction, thus preventing air from being drawn into the system. As a result, only pure helium can enter the MS while the system is open. Installation takes about 30 minutes.

#### ms-NoVent Operation

With ms-NoVent, installing a new capillary column simply involves turning "ON" the Helium purge gas via the convenient control module which is provided as part of the ms-NoVent system, then disconnecting the column. There is no time limit to how long the MS system can be left open.

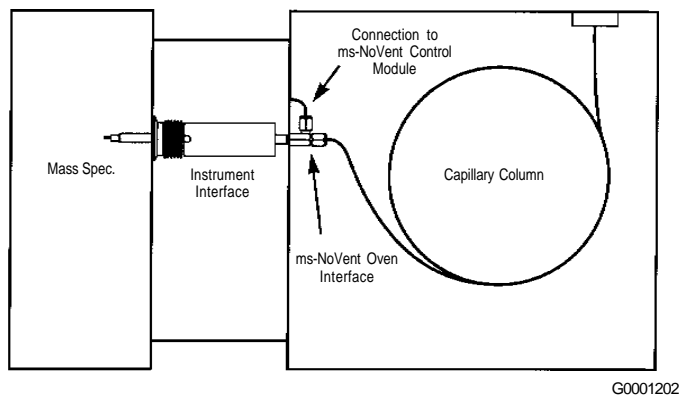
If you are not using a Supelco low bleed Meridian capillary column and you feel it is necessary to condition the column before connecting to the MS, simply leave the purge on until the column has been conditioned, and then cool the system down before connecting it to the MS. By the time the column is ready, the mass spectrometer will also be ready.

Table 1 shows that no "air" from the atmosphere enters the mass spectrometer while the column is disconnected and the purge gas is turned on. Units are in % of the height of the  $m/z=69$  tuning ion signal.

**Table 1.**

Parameter	Column Connected	Disconnected (1 min.)	Disconnected (60 min.)
H <sub>2</sub> O	0.79	1.21	0.96
N <sub>2</sub>	3.57	3.54	3.75
O <sub>2</sub>	1.06	0.92	0.98
CO <sub>2</sub>	0.36	0.16	0.25

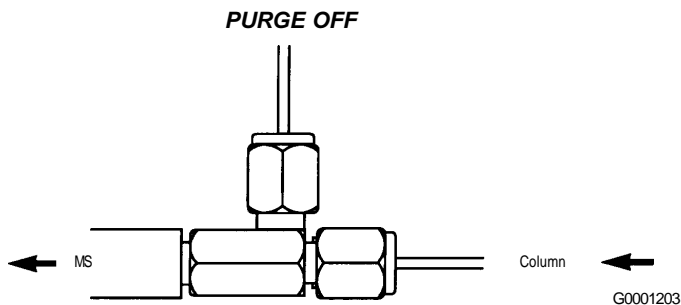
**Figure 1A. Typical Oven Layout**



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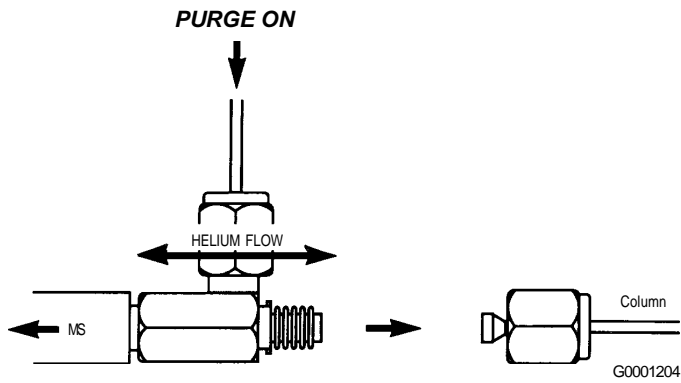
**Figure 1B** shows the ms-NoVent in the normal operating mode with the column connected and the gas turned off.

**Figure 1B. Normal Operation**

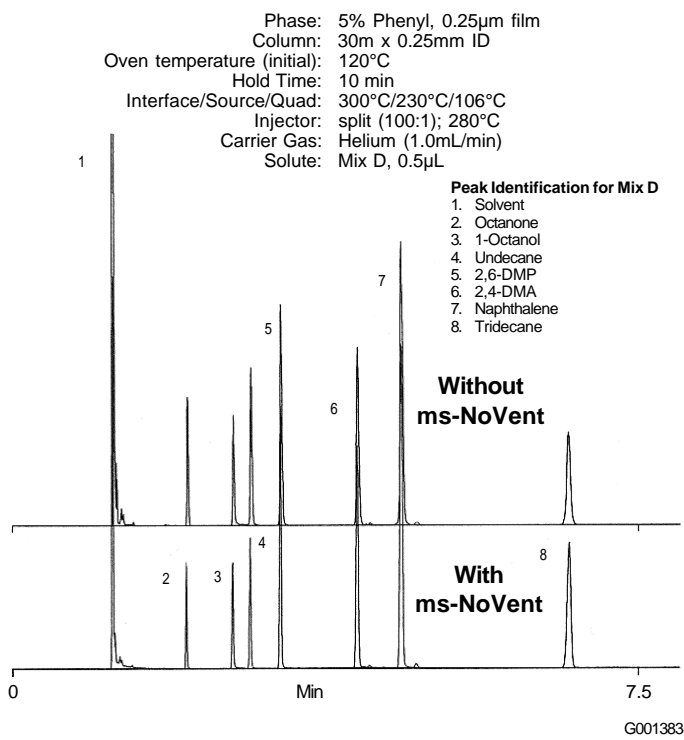


**Figure 1C** shows the ms-NoVent™ in the column changeover mode. A purge gas of 3psi is applied to the system with a purge leak rate to atmosphere of approximately 30mL/min.

**Figure 1C. Changing a Column**



**Figure 2. ms-NoVent Demonstrates no Change in Retention Characteristics at the Same Flow**



**Ordering Information:**

Description	Cat. No.
ms-NoVent System	26191-U
Restrictors for ms-NoVent System <sup>1</sup>	
Restrictor for HP5970	26192-U
Restrictor for HP5971/5972	26193-U
Restrictor for HP5973	26194-U
Restrictor for Varian Saturn	26195-U
Restrictor for Shimadzu 5000/5050	26196-U

<sup>1</sup> Restrictor not included with ms-NoVent System. Order separately according to the model of your GC/MS system. First time installation requires adaptor

\* Patent Pending

**Trademark**  
 ms-NoVent – SGE

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