

# LC/MS

## Market Application Publication



### Background:

Trends in the analytical instrumentation industry indicate that instruments are becoming smaller, less expensive, and have increasingly higher levels of sensitivity. As instruments become more affordable, the accessibility and availability of technology becomes more widespread to end users. Just over a decade ago, scientific instrumentation emerged, which combined liquid chromatography and mass spectrometry together. Today, this is commonly known as LC/MS, which is used in pharmaceutical, bio-pharmaceutical, genomics, and proteomic sciences.



### Contact Information:

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### Features and benefits:

- Flow capacity to 30 LPM
- Less expensive and more convenient than nitrogen cylinders and dewars
- Ideal for all derivatives of ESI and APCi modes
- Includes state-of-the-art, oil-less compressors
- Special sound insulation design ensures quiet operation
- Unlike PSA and Hosmer technologies, membrane will not suppress corona needle discharge

## Application:

The installation of a Parker Balston Membrane Nitrogen Generator system for LC/MS applications will completely eliminate high pressure nitrogen cylinders or large liquid nitrogen dewars (LN2) commonly used as shield/sheath or nebulizing gas at the instrument. Using Parker Balston Membrane Nitrogen Generators will ensure the instrument of a continuous or on demand supply of nitrogen without the high cost of tanks or problems associated with tanks becoming empty during instrument operation. Customers using an LC/MS with a nitrogen generator enjoy maximized uptime, higher instrument sensitivity, and have a safer laboratory.

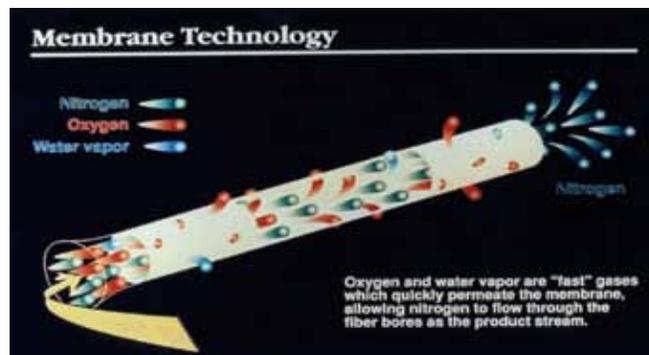
## Case Study:

Most customers understand that LC/MS instruments require pure nitrogen gas for operation. Typical customers will use high pressure nitrogen gas cylinders or nitrogen gas boil-off vapor from liquid nitrogen dewars. In routine operation, a single LC/MS instrument will consume a nitrogen gas cylinder (daily) and will consume a nitrogen dewar in just over a week's time.

When customers are using nitrogen gas cylinders, the annual volume of cylinders consumed can make an LC/MS instrument expensive to operate - as well as problematic by running out of gaseous nitrogen during testing. Alternatively, when customers are using nitrogen vapor output from liquid dewars, customers need to be more concerned about using precious laboratory space to inventory the larger

dewar tanks as well as preventing liquid nitrogen burns as well as tank icing / condensation in the lab.

Parker Balston offers the NitroFlow Lab LC/MS nitrogen generator or the N2-14 (compressor-less version) nitrogen generator that is specifically designed to eliminate all tank sources of nitrogen to a single LC/MS instrument. Pfizer Pharmaceutical's (drug metabolism lab), located in Groton, Connecticut, USA is prime example of a user enjoying the benefits of nitrogen generation. Prior to installing Parker Balston nitrogen generators, the drug metabolism department used to consume 30 cylinders of nitrogen each day which kept one person busy for the entire day. Today, those cylinders are gone and \$750,000 has been saved each year for Pfizer by Parker Balston LC/MS nitrogen gas generators.



### Principal Specifications

Model	NitroFlow Lab	Model	Description
Nitrogen	Phthalate free with flow to 30 lpm	NitroFlow Lab	Self contained LCMS Nitrogen Generator
Maximum Outlet Pressure	116 psig (8 barg)	NitroFlow-PM	Annual Preventative Maintenance Program or PMPlus
Hydrocarbon Content	< 2ppm (excluding methane)	159.002284A	Replacement Oxygen Sensor
Atmospheric Dewpoint	-58°F (-50°C)	159.004270	Replacement PC Board Battery
Outlet Port	Female 1/4" NPT	159.003367	Replacement High Pressure Compressor
Min/Max Ambient Temperature	50°F/95°F (10°C/35°C)	159.003368	Replacement Low Pressure Compressor
Electrical Requirements	120Vac/60Hz/20Amp	159.003754	Replacement Intake Carbon Filter
Dimensions	27.6" h x 12.2" w x 35.4" d (70.1cm x 31cm x 90cm)		
Shipping Weight	204 lbs. (92.5 kg)		

### Ordering Information