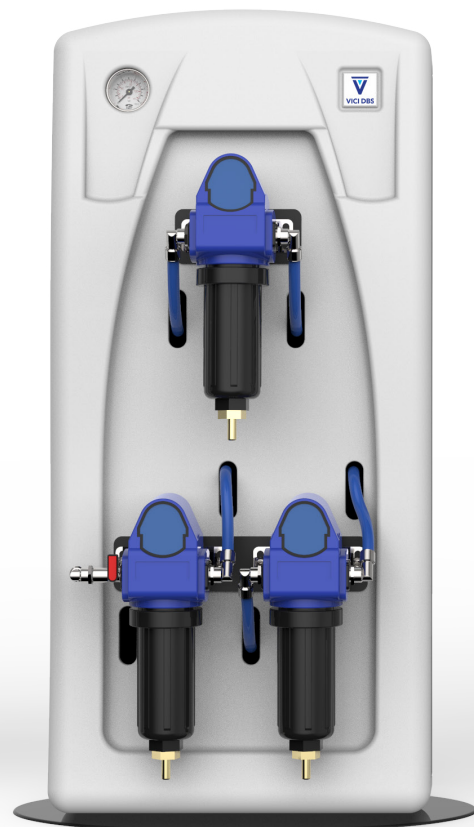


WHISPER-0 HYBRID NITROGEN + AIR GENERATOR

 **VICI
DBS**
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DESCRIPTION

The VICI DBS® Whisper-0 Hybrid Nitrogen + Air can produce up to 120 L/min of high purity LC/MS grade nitrogen at pressures up to 8 barg (116 psig). These generators are engineered to transform standard compressed air into a safe regulated nitrogen and high purity air supply with minimal operator attention and maintenance. Nitrogen is produced by utilizing a combination of filtration and membrane separation technologies. A standard supply of compressed air is filtered by high efficiency coalescing filters to remove all contaminants down to 0.1 micron. A unique proprietary membrane then separates the air into a concentrated nitrogen stream. Air is purified using a unique air purification membrane removing contamination and water.

Membrane technology offers some unique performance benefits for LC/MS users including phthalate free nitrogen, silent operation, no moving parts and no electrical requirements. The generator can be installed directly in the laboratory either floor or walled mounted and requires minimal operator attention or maintenance. The generators are designed to run continuously providing a clean, dry high purity nitrogen supply.



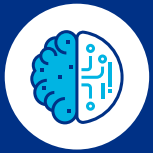
INCREASE EFFICIENCY

The relatively high gas volumes required by LC/MS instruments make cylinder supply inappropriate and liquid nitrogen expensive. A constant, uninterrupted gas supply eliminates interruptions of analyses to change cylinders.



IMPROVE SAFETY

Nitrogen produced at low pressure and ambient temperature removes the hazards associated with high pressure cylinders and liquid Dewars.



SUPERIOR TECHNOLOGY

The VICI DBS membrane nitrogen generators require no electricity, have no moving parts and minimal noise.



ENHANCE PERFORMANCE

Production of a constant flow and pressure of nitrogen improves the consistency of the LC/MS analysis, results and reproducibility.



RETURN ON INVESTMENT

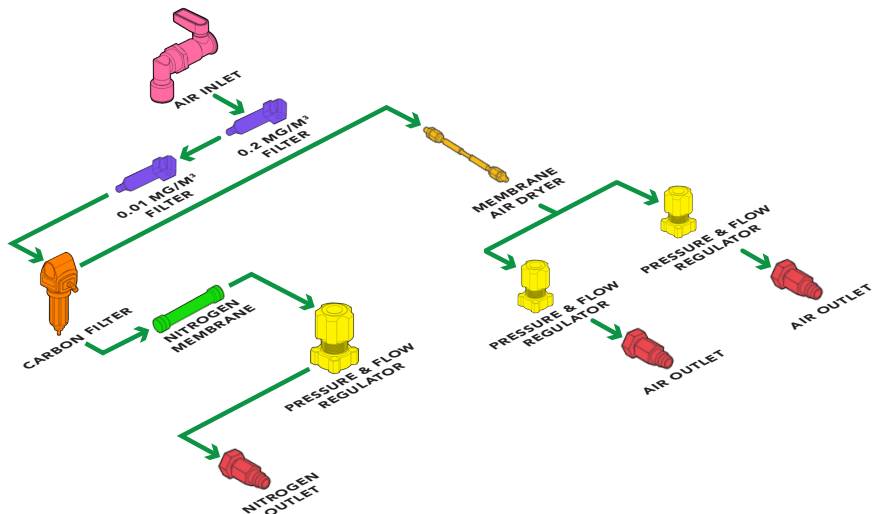
Payback period can be as short as 12 to 18 months.

WHISPER OPERATING DIAGRAM

Membrane separation technique:

Compressed air is forced through a hollow fiber membrane, with selective permeation of the different components – nitrogen, oxygen, CO₂, water vapor and traces of rare gases – depending on the rate of diffusion.

A quantity of incoming air, after a 3-step filtering procedure, is dried through a fiber membrane column. The customer has also a source of dried filtered air in case of analysis that requires it.





FEATURES

Produces a continuous supply of high purity nitrogen and air for Sciex, Shimadzu and Perkin Elmer LC/MS | On-demand supply 24/7 | Flow rate at 8 barg (116 psig): 8 to 120 L/min | Purity: LC/MS grade | Integrated economy mode as standard | Proprietary membrane technology | 2-year complete product warranty | No noise, no moving parts and no electricity



BENEFITS

Eliminates dangerous high pressure cylinders helping to keep your employees safer | Removes the logistics, inconvenience, downtime and costs of a cylinder system | Flow capacity to match your specific instrument demands | Ideal for all LC/MS applications | Reduces compressed air consumption and cost | Superior air purification with regenerative membrane | Peace of mind | Install directly in the laboratory



APPLICATIONS

LC/MS INSTRUMENTS

- Sciex
- Shimadzu
- Perkin Elmer
- Shield gas
- Sheath gas
- Electrospray gas
- Nebulizing gas

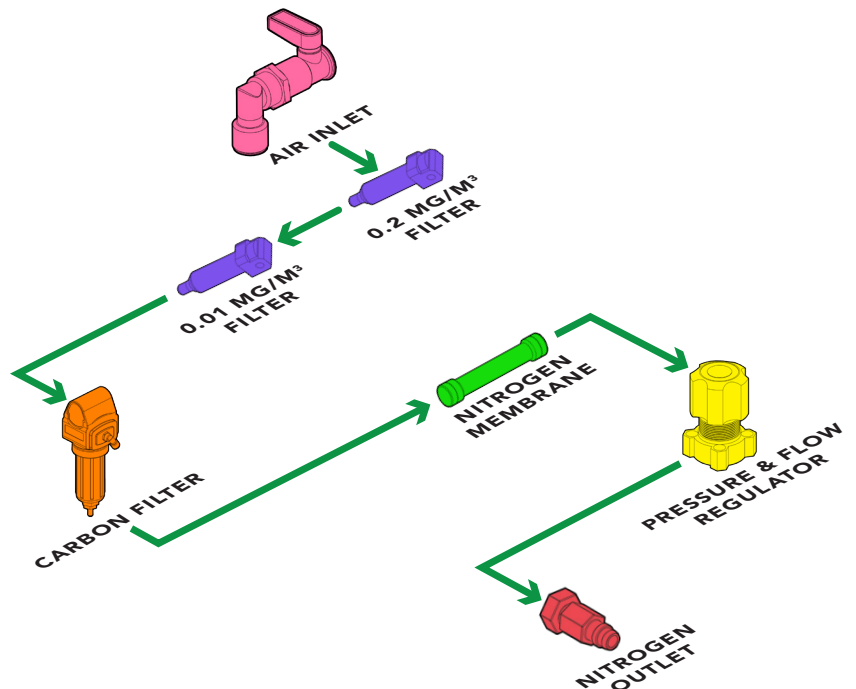


MINI WHISPER OPERATING DIAGRAM

Membrane separation technique:

Compressed air is forced through a hollow fiber membrane, with selective permeation of the different components - nitrogen, oxygen, carbon dioxide, water vapor and traces of rare gases - depending on the rate of diffusion.

The rate of diffusion of nitrogen through the membrane is slower than the other components, which thus flow outside of the fiber membrane. Just nitrogen remains inside which is then subsequently discharged, ready for use.



MODELS & SPECS

	Mini Whisper Hybrid	Whisper 0-10 Hybrid	Whisper 0-40 Hybrid	Whisper 0-40 Hybrid PE	Whisper 0-80 Hybrid	Whisper 0-120 Hybrid
Curtain gas flow rate L/min - nitrogen	12 @ 7 barg (100 psig)	12 @ 7 barg (100 psig)	40 @ 7 barg (100 psig)	15 @ 7 barg (100 psig)	80 @ 7 barg (100 psig)	120 @ 7 barg (100 psig)
Exhaust gas flow rate L/min - dry air	10 @ 4 barg (60 psig)	10 @ 4 barg (60 psig)	25 @ 4 barg (60 psig)	n/a	25 @ 4 barg (60 psig)	25 @ 4 barg (60 psig)
Source gas flow rate L/min - dry air	26 @ 7 barg (100 psig)	26 @ 7 barg (100 psig)	22 @ 7 barg (100 psig)	70 @ 7 barg (100 psig)	22 @ 7 barg (100 psig)	22 @ 7 barg (100 psig)
Nitrogen purity at max flow rate	99%	99%	97%	99%	97%	95%
Dew point °C (°F)	-40 (-40)					
Outlet pressure barg (psig)	7 (100)					
Inlet pressure barg (psig)	8.5 to 10 (123 to 160)					
Actual inlet compressed air requirement L/min	96	96	197	220	297	347
Recommended comp. air inlet requirement (L/min)	192	192	394	440	594	694
Pressure drop barg (psig)	1.5 (22)					
Inlet air quality	Clean dry compressed air ISO8573-1:2010 Class 1.2.1					
Technology	Membrane					
Warm up time (minutes)	None					
Electrical supply	None					
Noise level	None					
Product dimensions mm (in)	348W x 735H x 350D (13.7W x 29H x 13.8D)	480W x 1300H x 300D (18.9W x 51H x 11.8D)				
Product weight kg (lb)	8 (17.6)	15 (33)	25 (55)	25 (55)	30 (66)	30 (66)
Shipping dimensions mm (in)	890W x 445H x 3530D (35W x 17.5H x 20.8D)	1600W x 400H x 590D (63W x 15.7H x 23.2D)				
Shipping weight kg (lbs)	12 (27)	22 (49)	32 (71)	32 (71)	37 (82)	37 (82)
Operating temp °C (°F)	15 to 35 (59 to 95)					
Inlet connection	3/8" G					
Outlet connection	6 mm or 1/4" OD Compression					
Certification	CE					

ORDERING INFORMATION (for best service, please call to discuss your application before placing your order).

MINI WHISPER HYBRID

DB-MWN2-HY

WHISPER 0-10 HYBRID

DB-WN2-0-10-HY

WHISPER 0-40 HYBRID

DB-WN2-0-40-HY

WHISPER 0-40 HYBRID PE

SINGLE: DB-WN2-0-40-HY-P-E-S

DUAL: DB-WN2-0-40-HY-P-E-D

WHISPER 0-80 HYBRID

DB-WN2-0-80-HY

WHISPER 0-120 HYBRID

DB-WN2-0-120-HY