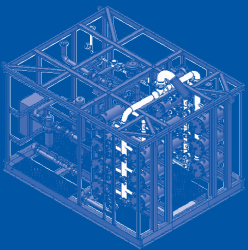
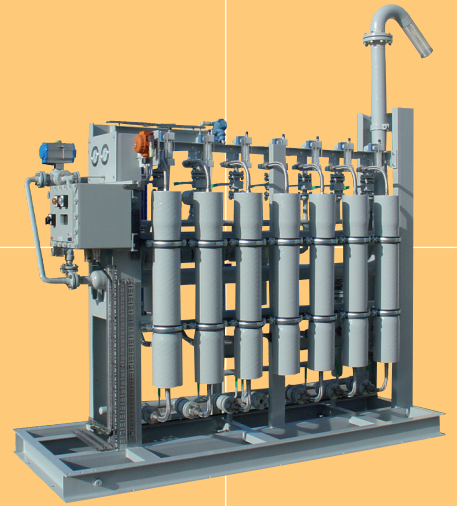
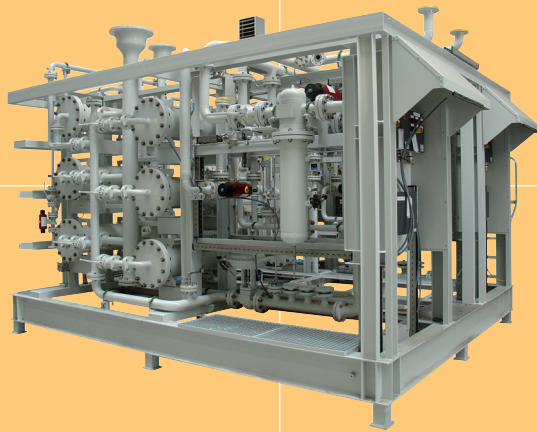


nitrogen generators



nitrogen generators

NITROGEN GENERATORS

The nitrogen generator packages are complete skid-mounted units with chillers (if applicable). All types of filters are in single or twin configuration, control panels, PLCs, instruments, valves etc. All these components can be applied in all materials, types and makes available on the market.

Nitrogen generators separate compressed air into a product stream of nitrogen and a (waste) stream of enriched air. The waste stream of air will be vented into the atmosphere, while the nitrogen is directed into the system.

Nitrogen is most often used as a safety gas to avoid hazardous situations, e.g. fire or explosion, and is often applied in a gas environment.

Applications are purging, blanketing, inverting or preservation.

AIRPACK NEDERLAND B.V. can offer you the simple nitrogen generator with hollow fibre membranes.



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Worldwide air and gas package manufacturer



NITROGEN GENERATORS

The membrane type is most often applied because of the following advantages:

The membrane system is operating instantaneous, 15 seconds after start-up, and can supply 97% instead of 99,9% nitrogen against a cost reduction of 80% against liquid nitrogen.

For start-up of a liquid nitrogen system, you need at least one day and for a PSA system several weeks, depending on the purity. Therefore, large stocking facilities are required, which make similar installations at least four times more expensive than membrane systems.

Second important advantage of membrane is the power consumption, which is 50% lower.

Liquid and PSA nitrogen systems normally supplies nitrogen with 200 ppmv oxygen. This purity is only required for some chemical processes, not required for applications in the oil and gas industry.

Purities above 99% are applied in pharmaceuticals and fine chemistry.

Purities of 97% to 99% are applied in food and beverage industry and photo laboratories.

Purities of 92% to 97% are applied for blanketing, purging and fire prevention.

Purities of 95% to 97% are preferred in the oil and gas industry however if required the membrane system can supply nitrogen of 92% up to 99,5% purity.

Membrane nitrogen generators:

Model	Nitrogen capacity @ 95% N ₂ purity [Nm ³ /hr]	Nitrogen purity range [%]	Pressure range [bar]	Temperature range [°C]
NIV-4	4	90 – 99.5	5 – 13	5 – 50
NIV-7	7	90 – 99.5	5 – 13	5 – 50
NIV-11	11	90 – 99.5	5 – 13	5 – 50
NIV-15	15	90 – 99.5	5 – 13	5 – 50
NIV-25	25	90 – 99.5	5 – 13	5 – 50
NIV-37	37	90 – 99.5	5 – 13	5 – 50
NIV-60	60	90 – 99.5	5 – 13	5 – 50
NIV-100	100	90 – 99.5	5 – 13	5 – 50
NIV-150	150	90 – 99.5	5 – 13	5 – 50
NIV-250	250	90 – 99	5 – 13	5 – 50
NIV-500	500	90 – 99	5 – 13	5 – 50
NIV-750	750	90 – 98	5 – 13	5 – 50
NIV-1500	1500	90 – 98	5 – 13	5 – 50
NIV-2000	2000	90 – 98	5 – 13	5 – 50

Special constructions can be offered on request.

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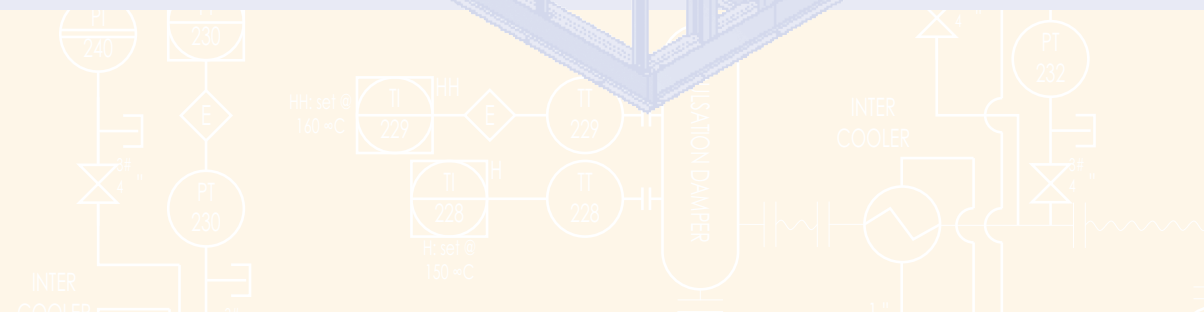
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NITROGEN GENERATORS

Comparison membrane – PSA:

	Membrane system	Pressure Swing Adsorption (PSA)
Moving parts	No	Frequently change over of valves
Maintenance	No maintenance	Regular maintenance required
Receivers required	No	Surge air receiver and nitrogen mixing vessel required
Control	Simple	Complicated
Aging	3% per year	17 % per year
Inlet temperature	Max. 50°C	Between 35°C and 40°C
Chiller required	No	Chiller required above 40°C inlet temperature
Pressure drop	0,5 bar	2,0 bar
Compressor power	100%	More than 100% to compensate pressure drop
Compressor capacity	100%	120% to fulfill peak demand during filling/switch over of PSA towers
Footprint	100%	250%
Cost	100%	200% considering maintenance
Start-up time	Short	Difficult and long start-up time
Purity achievement	Immediately	One week before achieving purity



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