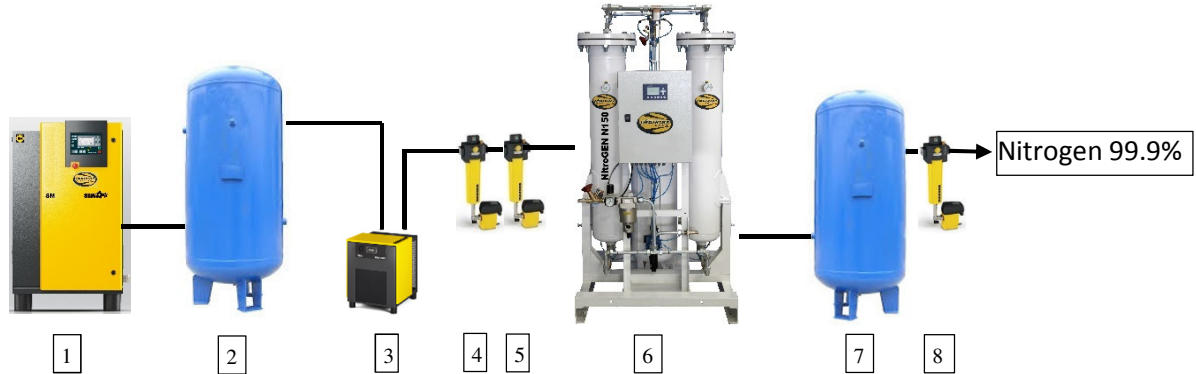




NITROGEN GENERATION - Solution Concept



Component Information:

1. Air compressor
2. Compressed air buffer tank
3. Refrigerant dryer
4. Fine coalescing filter
5. Activated carbon filter
6. Nitrogen Generator
7. Nitrogen storage tank
8. Fine filter

System Nominal Specifications:

- Nitrogen purity 99.9%
- Nitrogen pressure 5.5bar (nominal)
- Nitrogen flow 13.2Nm³/h (at 6.5bar inlet air pressure)
- Nitrogen dew point: approx. -40°C
- Compressed air flow: 0.67m³/min at 6.5bar (peak 0.77m³/min)
- Compressed air quality: ISO 8573-1 (2010): Class 1,4,1
- Nitrogen cost estimate: ~\$0.10-0.15/m³

Plummer System ADVANTAGES:

- ✓ Excellent AIR FACTOR – **more NITROGEN for LESS air**
- ✓ Reliable and robust solution
- ✓ Low maintenance
- ✓ Very long equipment lifespan
- ✓ Includes purity sensor
- ✓ Includes flowmeter
- ✓ Ethernet connectivity
- ✓ Off-spec vent valve

Items for further discussion:

- Minimum N₂ pressure
- Compressed air supply – datalogging required to check for sufficient spare capacity
- Communication requirements/alarms/analogue signals

26/6/19



NITROGEN GENERATOR

Mid-size Series: N30, N50, N90

1. Technical Overview

PSA (Pressure Swing Adsorption) Technology

Pressure Swing Adsorption can be used to produce N₂ from compressed air, which is fed to the unit that uses adsorption phenomena to remove the contaminants: O₂ when the desired pure gas is N₂. Also, H₂O and CO₂ are removed as well as other minor contaminants. The PSA unit contains two columns packed with a selective adsorbent that has an affinity towards the component to be removed; zeolites are used to produce N₂. Each column undergoes a cyclic sequence of high and low pressure steps that guarantees the production of a continuous flow of high purity gas. In the high-pressure step, the adsorbent retains the contaminants present in the compressed air and the desired gas (N₂) is obtained from the top of the columns. The regeneration is accomplished in the low-pressure step, with the release of contaminants retained by the adsorbent during depressurisation.

2. Construction

Twin tower mid-size series are fully assembled and include an integrated backfill tank all on the one skid. Sample images are shown below.



3. Technical Data

N ₂ pressure bar(g):	5.5 to 9.0 (determined by inlet compressed air pressure)
Electrical supply:	230VAC 50Hz (~100W)
N ₂ purity:	95% to 99.999%
Weight:	320-500kg
Dimensions (W x D x H):	~90x90x175cm
Inlet compressed air temperature:	5 – 50°C
Ambient temperature:	5 – 45°C
Inlet compressed air:	4 – 10bar(g)
Inlet compressed air quality:	ISO8573-1 Class 1,4,1
General:	Installation on level floor, well ventilated & sheltered from elements