

Atlas Copco PSA Nitrogen Generators



NG Series 7-81



Atlas Copco

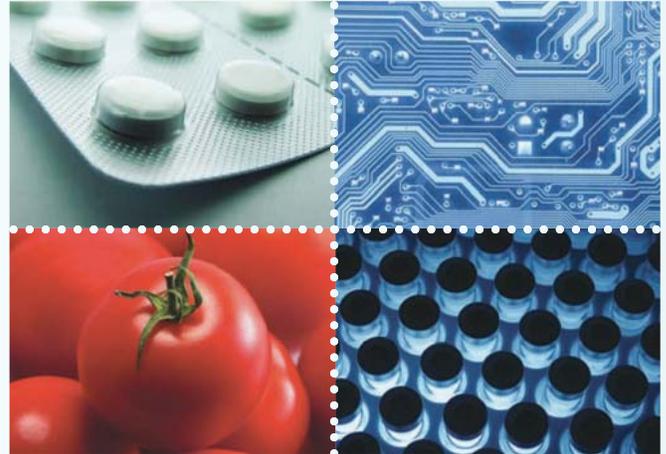
Easy & cost-efficient nitrogen supply

Whether your company is specialized in chemical manufacturing, electronics, laser cutting or food processing and packaging, a dependable supply of nitrogen is crucial. Many companies even regard nitrogen as 4th utility after gas, electricity and water.

At Atlas Copco we focus on your need for a cost-effective, reliable and secure supply of nitrogen. With the advanced NG nitrogen generators we provide you with the ultimate solution: flexible on-site nitrogen generation at the lowest possible cost.

NG HIGHLIGHTS

- Proven technology, **simple, reliable** and **durable**.
- Your own independent **on-site supply** of nitrogen.
- Continuous **availability**.
- The exact nitrogen **purity** your application demands.
- Low operating costs for extra **cost-efficiency**.
- Elimination of **safety** hazards such as handling high pressure cylinders.
- Customized engineering and **modularity** to meet your requirements.
- World-class expertise in a **unique market offer** from compressor to nitrogen gas.



NG APPLICATIONS

- Food & beverage (storage & packaging).
- Pharmaceutical applications.
- Plastic injection molding.
- Electronics.
- Laser cutting.
- Semiconductor manufacturing.
- Chemical applications.
- Metal heat treatment.
- Cable & optical fiber industry.
- Glass industry.

N₂



MEETING ANY NEED

Atlas Copco's NG nitrogen generators offer a cost-effective means for on-site gas generation. Including nitrogen models sized for a wide range of flow rates and product purities, the NG series stands for exceptional versatility and efficiency.

*Flow from 1.3 to 130 Nm³/h
Purity from 97% to 99.999%*

Reliable & proven technology

Based on Pressure Swing Adsorption (PSA) technology, Atlas Copco's NG series provide a continuous flow of nitrogen at desired purity. By using carbon molecular sieve (CMS),

oxygen is selectively separated while continuous N₂ production is ensured.

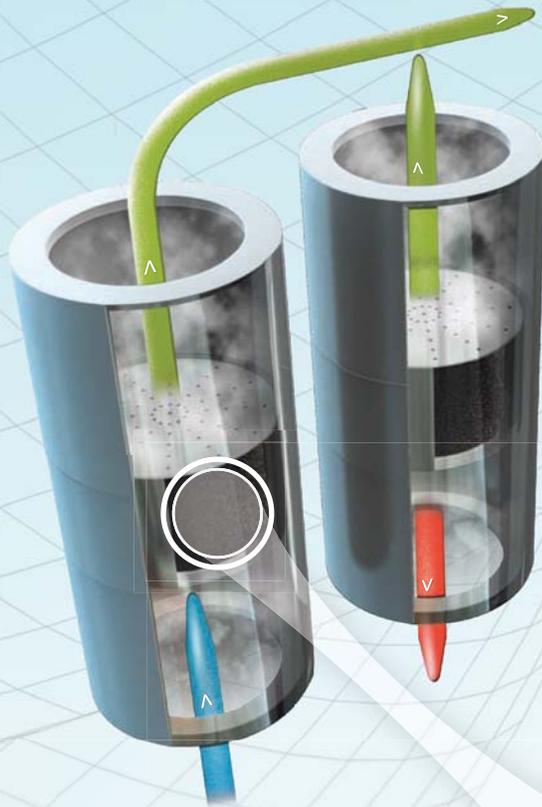
Straightforward two-phase process

ADSORPTION

High-pressure air flows through the columns filled with carbon molecular sieve (CMS). By pressurizing the vessel as such, oxygen molecules are adsorbed preferentially by the CMS while nitrogen molecules pass on thanks to their different molecular size. The sieve continues to adsorb oxygen until a saturation point is reached.

REGENERATION (DESORPTION)

The entering air stream is cut off and the oxygen is able to leave the vessel at low pressure. Two connected vessels work together to produce a near-continuous flow of nitrogen gas.



-  Clean and dry compressed air (pressurized)
-  Nitrogen gas
-  Oxygen exhaust (depressurized)
-  Carbon Molecular Sieve (CMS)

EFFICIENT SEPARATION

While ordinary activated carbons are unable to separate nitrogen from the air, carbon molecular sieve is a substance with discrete pore structures which can separate the molecules on the basis of their size. Through this high adsorption selectivity, carbon molecular sieve allows efficient nitrogen separation. The small oxygen molecules will penetrate the pores while the large nitrogen molecules will by-pass the carbon molecular sieve.

-  Carbon Molecular Sieve (CMS).
-  Small oxygen molecules trapped in the CMS.
-  Larger nitrogen molecules passing through.



A unique market offer

On-site nitrogen generation requires the most reliable and efficient compressed air solution. Who better than Atlas Copco to offer you a total solution set-up? Drawing on vast experience and continuous technological innovations, Atlas Copco has been leading the industry in compressed air technology for decades.

From advanced compressors and quality air solutions over a complete range of nitrogen generators to Aftermarket and Financing services, Atlas Copco brings you its world-class expertise in a unique offer.

OIL-FREE COMPRESSORS

Over the past decades, Atlas Copco has pioneered the development of oil-free air technology, resulting in a full range of compressors delivering 100% oil-free, clean air. Setting the standard for air purity through ISO 8573-1 **CLASS 0** certification, Atlas Copco meets your precise needs for pure oil-free air while offering improved energy efficiency.



OIL-INJECTED COMPRESSORS

Integrated onto the production floor, Atlas Copco's oil-injected compressors provide a dependable flow of compressed air directly to the point of use. Built to perform in harsh environments with the highest efficiency, Atlas Copco compressors keep your production running smoothly and reliably.



QUALITY AIR SOLUTIONS

Over the years, Atlas Copco has innovatively developed and improved air compression and drying techniques. Whatever your installation, application or quality requirements, Atlas Copco can offer the right air treatment solution:

DRYERS:

- desiccant
- fridge
- membrane



FILTERS:

- coalescing
- particle
- active carbon





WORLDWIDE PRESENCE

As solution provider, Atlas Copco is fully committed to you. Anywhere in the world you can count on us to guarantee the quality of your compressed air solution. Our aftermarket presence is designed to add maximum value by ensuring the optimum availability and reliability of your compressed air equipment with the lowest possible operating costs. We deliver this complete service guarantee through our extensive Aftermarket organization, maintaining our position as the leader in compressed air.

COMPRESSED AIR PIPING SYSTEM

Delivering quality air exactly where you need it, at the right pressure and at the lowest possible cost, Atlas Copco's innovative AIRnet™ compressed air piping system complements your compressed air projects. It consists of high quality elements only and distinguishes itself through flexibility and ease of installation, meeting all of your design and production requirements.



CUSTOMER FINANCING SOLUTION

Offering a simple one-stop solution, Atlas Copco Customer Finance delivers financial products that make it easier for you to complete your investment in Atlas Copco equipment and services. We provide:

- Competitive rates and quick response time.
- Superior combined industry, equipment and financing knowledge.
- The possibility to choose from flexible and individually structured solutions to suit your needs.

For further information, please contact your local customer center.



PSA NITROGEN GENERATORS

With a full range of nitrogen generators to choose from, Atlas Copco brings you the right supply of nitrogen to meet your specific needs and optimize your production process at the same time.

- Flow from 1.3 to 130 Nm³/h
- Purity from 97% to 99.999%

The right supply solution

Compared to using other nitrogen gas sources such as gas cylinders or liquid nitrogen, Atlas Copco's NG nitrogen generators offer a truly cost-saving alternative. With a wealth

of benefits ranging from exceptional convenience and purity to flexibility and cost-effectiveness, the NG series meets your every need with regards to the right nitrogen supply.



THE COST-EFFICIENT CHOICE

Focusing on the purchase price of nitrogen, many companies still resort to gas cylinders or liquid nitrogen as nitrogen gas source. However, rather than a one-time acquisition cost, these sources constitute an on-going array of expenses. Consider the costs associated with order processing, cylinder rental and handling, delivery and safety and you will soon realize these hidden expenses are the main culprits for escalating overall cost and lower profit margins. Opt for Atlas Copco's nitrogen generators and you not only eliminate these extra costs but obtain a reliable and safe nitrogen supply at the same time!



THE EXACT SUPPLY

At Atlas Copco we understand the crucial role nitrogen plays in the creation of your end product and the efficiency of your production process. With the NG series you can instantly and cost-effectively generate the precise supply of nitrogen you need, at the purity you demand.

A variety of benefits

COST SAVINGS

- Low operating expenses.
- No additional costs such as order processing, refills and delivery charges.
- Limited maintenance costs.

EXCEPTIONAL CONVENIENCE

- Continuous availability (24 hours a day, 7 days a week).
- Potential risk of production breakdown due to gas running out is eliminated.

DESIRED PURITY

- Nitrogen supply according to your need: from 3% to 0.001% oxygen content.
- Delivery of desired purity within the hour thanks to fast purity systems.

OPTIMUM FLEXIBILITY

- Modular design for adaptation to your exact application needs.



Engineered to meet your needs

At Atlas Copco we aim to provide you with solutions that fulfill and even exceed your expectations and demands. Building on Atlas Copco's know-how and years of experience in the industry,

NG nitrogen generators give you all of this experience and knowledge in a class leading package.



- 1 Oxygen analyzer
- 2 Pneumatic valves air inlet
- 3 Purge silencer
- 4 Non-return valve
- 5 Air inlet pressure regulator
- 6 Safety valve
- 7 Non-return valves
- 8 Silencers
- 9 Pneumatic vent valves



SUPERIOR CONTROL

You rely on your nitrogen generator to perform efficiently day in, day out. To guarantee maximum uptime, continuous surveillance is a must. By properly monitoring your system you cannot only decrease downtime but also save energy, reduce maintenance and increase production throughput. With the NG's electronic panel, those benefits are at your fingertips:

- Available on all NG generators.
- Can control up to 3 towers.
- Oxygen analyzer & alarm.
- Purity indicator.
- Output pressure & alarm.
- Automatic request for maintenance (*generator components & filter elements*).



OPTIMUM MODULARITY

Whether you work in a small packaging company or larger chemical plant, your needs with regards to nitrogen are diverse yet precise. At Atlas Copco, we simply build a customised system around your workflow to suit your demands. Thanks to their modular design, NG nitrogen generators can be used in parallel for the most cost-efficient solution. Should you require extra capacity at a certain point, modules can easily be added. You obtain the exact tools you require to reach your goals.

Technical specifications NG 7-81 (8.5 bar version)

| NG GENERATOR TYPE | Nitrogen outlet flowrate* at indicated N ₂ purity | | | | | | | | | | | | | |
|-------------------|--------------------------------------------------------------|-------|--------------------|-------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|-------|
| | 99.999% | | 99.990% | | 99.900% | | 99.500% | | 99.000% | | 98% | | 97% | |
| | Nm ³ /h | scfh | Nm ³ /h | scfh | Nm ³ /h | scfh | Nm ³ /h | scfh | Nm ³ /h | scfh | Nm ³ /h | scfh | Nm ³ /h | scfh |
| NG 7 | 1.3 | 45.9 | 2.5 | 88.3 | 4.7 | 166.0 | 7.5 | 264.9 | 9.0 | 317.8 | 12.0 | 423.7 | 14.0 | 494.3 |
| NG 10 | 1.7 | 60.0 | 3.3 | 116.5 | 6.0 | 211.9 | 10.0 | 353.1 | 13.0 | 459.0 | 16.0 | 565.0 | 18.0 | 635.6 |
| NG 12 | 2.0 | 70.6 | 4.0 | 141.2 | 8.0 | 282.5 | 12.5 | 441.4 | 16.0 | 565.0 | 20.0 | 706.2 | 23.0 | 812.1 |
| NG 15 | 3.0 | 105.9 | 5.0 | 176.6 | 9.0 | 317.8 | 15.0 | 529.7 | 19.0 | 670.9 | 24.0 | 847.4 | 27.0 | 953.4 |
| NG 27 | 5.4 | 190.7 | 9.0 | 317.8 | 16.3 | 575.6 | 27.0 | 953.5 | 34.0 | 1200.5 | 43.2 | 1525.4 | -- | -- |
| NG 54 | 10.8 | 381.3 | 18.0 | 635.6 | 32.5 | 1147.6 | 54.0 | 1907.0 | 68.4 | 2415.2 | 86.0 | 3036.7 | -- | -- |
| NG 81 | 16.2 | 572.0 | 27.0 | 953.4 | 48.8 | 1723.1 | 81.0 | 2860.5 | 102.5 | 3619.0 | 129.6 | 4576.0 | -- | -- |

| NG GENERATOR TYPE | Noise level** | Noise level*** | Weight | Connections | | | | | | | |
|-------------------|---------------|----------------|----------|-------------|-----|------------------|-----|--------------------|--------------|-----------------|-----|
| | | | | Air inlet | | Nitrogen to tank | | Nitrogen from tank | | Nitrogen outlet | |
| | dB(A) | dB(A) | kg (net) | G | NPT | G | NPT | G | NPT | G | NPT |
| NG 7 | 72 | 55 | 230 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 |
| NG 10 | 72 | 55 | 270 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 |
| NG 12 | 72 | 55 | 310 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 |
| NG 15 | 72 | 55 | 350 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 |
| NG 27 | 85 | 60 | 750 | 1 | 1 | 1 | 1 | 4 mm PA pipe | 4 mm PA pipe | -- | -- |
| NG 54 | 85 | 60 | 1400 | 1 | 1 | 1 | 1 | 4 mm PA pipe | 4 mm PA pipe | -- | -- |
| NG 81 | 85 | 60 | 2050 | 1 | 1 | 1 | 1 | 4 mm PA pipe | 4 mm PA pipe | -- | -- |

* Ambient temperature 20°C (68°F), air inlet pressure 8.5 bar (123.25 psi).

** Peak at depressurization time, during 1 second every cycle (measured at 1 m distance from front panel).

*** Average during working cycle, out of depressurization time.

Reference conditions:

- Ambient temperature working range: 5-40°C (41-104°F)
- Minimum air inlet pressure: 6.5 bar(e) (94.3 psi)
- Maximum air inlet pressure: 13 bar(e) (188.5 psi)
- Inlet air quality (ISO 8573): 1-4-1
- Electrical power supply: 115/230 V, 50/60 Hz

CORRECTION FACTORS

Compressed air inlet temperature in °C (°F)**

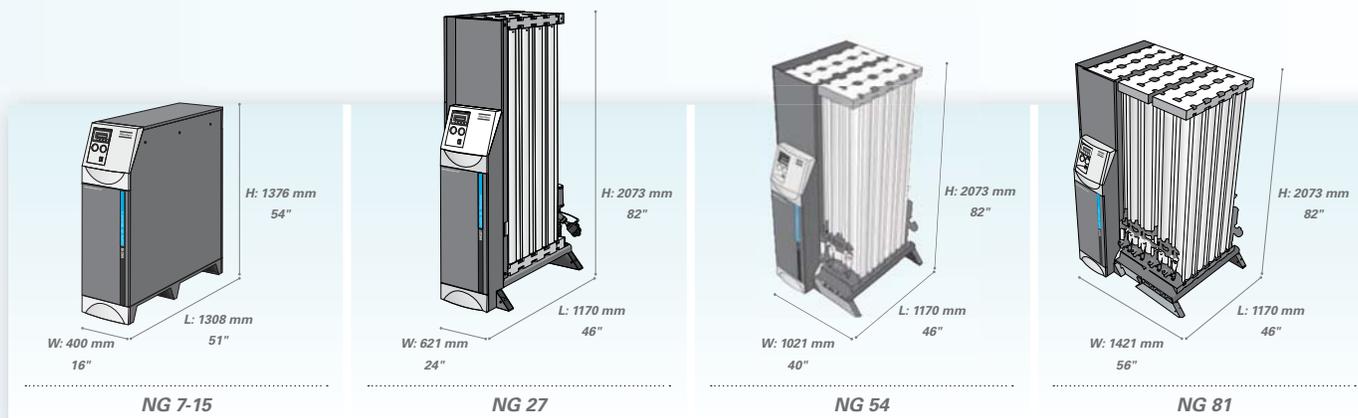
| 5 (41) | 10 (50) | 15 (59) | 20 (68) | 25 (77) | 30 (86) | 35 (95) | 40 (104) | 45 (113) | 50 (122) |
|--------|---------|---------|---------|---------|---------|---------|----------|----------|----------|
| 0.85 | 1.03 | 1.02 | 1 | 0.93 | 0.85 | 0.78 | 0.7 | 0.6 | 0.55 |

Pressure in bar (psi) for 8.5 bar inlet

| 6.5 (94.3) | 7.5 (108.8) | 8.5 (123.3) | 9.5 (137.8) | 10.5 (152.3) | 11.5 (166.8) | 12.5 (181.3) |
|------------|-------------|-------------|-------------|--------------|--------------|--------------|
| 0.74 | 0.87 | 1 | 1.11 | 1.21 | 1.3 | 1.39 |

* With a tolerance of 10%.

** Please contact Atlas Copco customer centers and/or representatives for advice.



Technical specifications NG 7-81 (11.5 bar version)

| NG GENERATOR TYPE | Nitrogen outlet flowrate* at indicated N ₂ purity | | | | | | | | | | | | | |
|-------------------|--------------------------------------------------------------|-------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|--------|--------------------|--------|
| | 99.999% | | 99.990% | | 99.900% | | 99.500% | | 99.000% | | 98% | | 97% | |
| | Nm ³ /h | scfh | Nm ³ /h | scfh | Nm ³ /h | scfh | Nm ³ /h | scfh | Nm ³ /h | scfh | Nm ³ /h | scfh | Nm ³ /h | scfh |
| NG 7 | 1.8 | 63.6 | 3.5 | 123.6 | 6.5 | 229.5 | 10.4 | 367.3 | 12.5 | 441.4 | 16.7 | 589.8 | 19.5 | 688.6 |
| NG 10 | 2.4 | 84.8 | 4.6 | 162.4 | 8.3 | 293.1 | 13.9 | 490.9 | 18.1 | 639.2 | 22.2 | 784.0 | 25.0 | 882.9 |
| NG 12 | 2.8 | 98.9 | 5.6 | 197.8 | 11.1 | 392.0 | 17.4 | 614.5 | 22.2 | 784.0 | 27.8 | 981.7 | 32.0 | 1130.1 |
| NG 15 | 4.2 | 148.3 | 7.0 | 247.2 | 12.5 | 441.4 | 20.9 | 738.1 | 26.4 | 932.3 | 33.4 | 1179.5 | 37.5 | 1324.3 |
| NG 27 | 7.5 | 264.9 | 12.5 | 441.4 | 22.7 | 801.6 | 37.5 | 1324.3 | 47.3 | 1670.4 | 60.0 | 2118.9 | | |
| NG 54 | 15.0 | 529.7 | 25.0 | 882.9 | 45.2 | 1596.2 | 75.1 | 2652.1 | 95.1 | 3358.4 | 119.5 | 4220.1 | | |
| NG 81 | 22.5 | 794.6 | 37.5 | 1324.3 | 67.8 | 2394.3 | 112.6 | 3976.4 | 142.5 | 5032.3 | 180.1 | 6360.2 | | |

| NG GENERATOR TYPE | Noise level** | Noise level*** | Weight | Connections | | | | | | | |
|-------------------|---------------|----------------|----------|-------------|-----|------------------|-----|--------------------|--------------|-----------------|-----|
| | | | | Air inlet | | Nitrogen to tank | | Nitrogen from tank | | Nitrogen outlet | |
| | dB(A) | dB(A) | kg (net) | G | NPT | G | NPT | G | NPT | G | NPT |
| NG 7 | 72 | 55 | 230 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 |
| NG 10 | 72 | 55 | 270 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 |
| NG 12 | 72 | 55 | 310 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 |
| NG 15 | 72 | 55 | 350 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 |
| NG 27 | 85 | 60 | 750 | 1 | 1 | 1 | 1 | 4 mm PA pipe | 4 mm PA pipe | -- | -- |
| NG 54 | 85 | 60 | 1400 | 1 | 1 | 1 | 1 | 4 mm PA pipe | 4 mm PA pipe | -- | -- |
| NG 81 | 85 | 60 | 2050 | 1 | 1 | 1 | 1 | 4 mm PA pipe | 4 mm PA pipe | -- | -- |

* Ambient temperature 20°C (68°F), air inlet pressure 11.5 bar (166.8 psi).

** Peak at depressurization time, during 1 second every cycle (measured at 1 m distance from front panel).

*** Average during working cycle, out of depressurization time.

Reference conditions:

- Ambient temperature working range: 5-40°C (41-104°F)
- Minimum air inlet pressure: 6.5 bar(e) (94.3 psi)
- Maximum air inlet pressure: 13 bar(e) (188.5 psi)
- Inlet air quality (ISO 8573): 1-4-1
- Electrical power supply: 115/230 V, 50/60 Hz

CORRECTION FACTORS

Compressed air inlet temperature in °C (°F)**

| | | | | | | | | | |
|--------|---------|---------|---------|---------|---------|---------|----------|----------|----------|
| 5 (41) | 10 (50) | 15 (59) | 20 (68) | 25 (77) | 30 (86) | 35 (95) | 40 (104) | 45 (113) | 50 (122) |
| 0.85 | 1.03 | 1.02 | 1 | 0.93 | 0.85 | 0.78 | 0.7 | 0.6 | 0.55 |

Pressure in bar (psi) for 11.5 bar inlet

| | | | | | | |
|------------|-------------|-------------|-------------|--------------|--------------|--------------|
| 6.5 (94.3) | 7.5 (108.8) | 8.5 (123.3) | 9.5 (137.8) | 10.5 (152.3) | 11.5 (166.8) | 12.5 (181.3) |
| 0.35 | 0.48 | 0.61 | 0.74 | 0.87 | 1 | 1.06 |

* With a tolerance of 10%.

** Please contact Atlas Copco customer centers and/or representatives for advice.



Driven by innovation

With more than 135 years of innovation and experience, Atlas Copco will deliver the products and services to help maximize your company's efficiency and productivity. As an industry leader, we are dedicated to offering high air quality at the lowest possible cost of ownership. Through continuous innovation, we strive to safeguard your bottom line and bring you peace of mind.



Building on interaction

As part of our long-term relationship with our customers, we have accumulated extensive knowledge of a wide diversity of processes, needs and objectives. This gives us the flexibility to adapt and efficiently produce customized compressed air solutions that meet and exceed your expectations.



A committed business partner

Our commitment to you does not simply end when your Atlas Copco products have been delivered and installed. We have an extensive range of aftermarket services to offer you continued support, whenever you need it. With a presence in over 160 countries, we can deliver high-quality customer service anytime, anywhere. Our highly skilled technicians are available 24/7 to answer any queries you may have. And all of this is backed by an efficient logistics organization, ensuring fast delivery of genuine spare parts when you need them. With Atlas Copco you can rest assured that your superior productivity will always be our first concern!

www.atlascopco.us

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