

# MARK



ROTARY SCREW COMPRESSOR WITH AIR / NITROGEN  
DOUBLE OUTLET

MSM **N<sub>2</sub>** 4 - 7,5 kW

TECHNOLOGY YOU CAN TRUST

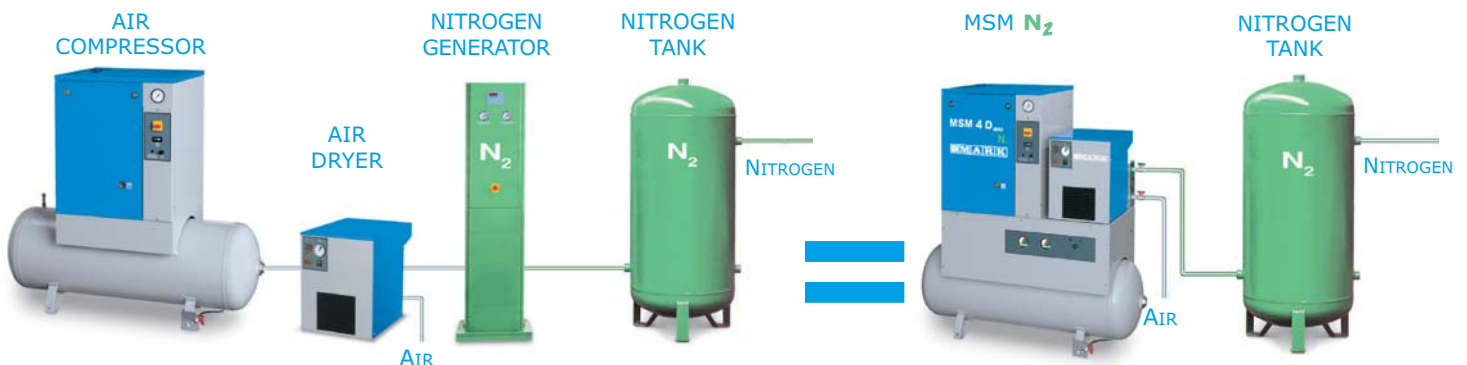
# A complete unit ... in a very small space

Nitrogen available WHERE, HOW and WHEN YOU NEED IT with the MSM  $N_2$

The MSM  $N_2$  marks the development of the MSM MINI-MAXI range for applications to always keep up-to-date with new developments



With only one unit, you can have Nitrogen and Air and optimise space without any need for a separate Nitrogen supply.

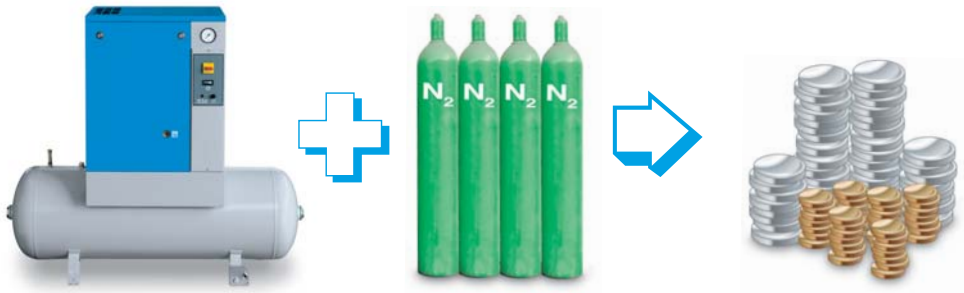


Complex installation:  
- greater space required  
- high installation costs  
- more complex maintenance

A complete solution, ready to use:  
- saves space  
- low installation costs  
- easy maintenance, just one unit

# MSM $N_2$ Air + Nitrogen

## Air + Nitrogen in cylinders



Nitrogen cylinders: burdensome and expensive management of cylinders because of the space they occupy, the fact they have to be moved and because of the safety issues involved.

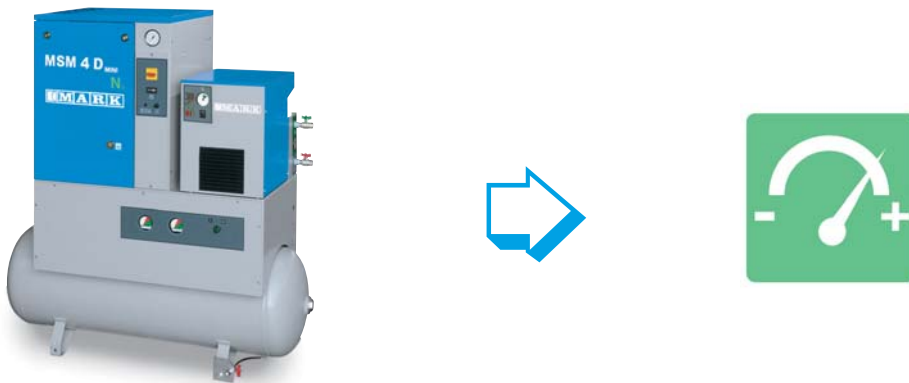
Why purchase nitrogen if you can produce it yourselves?

## Air + Nitrogen with generator



Unit with separate Nitrogen generator: to produce nitrogen you need a compressor capable of meeting the extra quantity of compressed air required. The variable compressed air consumption can compromise the purity and the capacity of Nitrogen.

## Air + Nitrogen with MSM $N_2$



The MSM  $N_2$  compressor allows you to produce Nitrogen and Air, or both at the same time. The integrated system, including membranes, guarantees the purity and a constant flow of Nitrogen, regardless of how much compressed air is required.

## Advantages of using the MSM $N_2$ :

### By eliminating gas cylinders:

- remove the storage risk and handling errors of Nitrogen cylinders;
- you don't need an agreement with a cylinder supplier and so it is simpler to manage plus you save both time and money;
- you don't waste time handling or replacing gas cylinders;
- you don't have to worry about the supply of gas cylinders;
- you save space.

### By eliminating the additional generator:

- you can produce quality Nitrogen constantly regardless of air consumption.

## Uses of Nitrogen

Atmospheric air is 78% nitrogen, which thanks to its peculiar characteristics, is better than compressed air for a variety of production processes, such as:

- tyre inflation;
- food packaging;
- bottling liquids;
- laser cutting;
- production of electronic components.

# MSM N<sub>2</sub> – Why use Nitrogen?

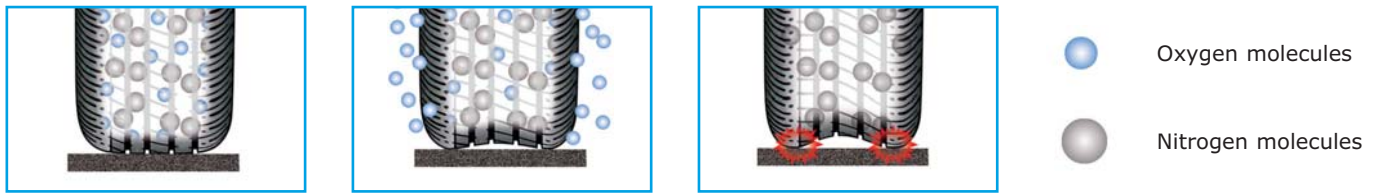
## Application with Air

It is normal for tyre pressure to decrease when there is a variation in temperature and/or a leakage from the valves.

And another little known phenomenon we mustn't forget to mention is the fact that Oxygen molecules escape from tyres

This phenomenon takes place because Oxygen molecules, which are smaller than Nitrogen molecules, can escape through the pores in the rubber of the tyre, while Nitrogen molecules, because they are larger, cannot.

This loss of pressure, quantified on average as 0.08 bar/month, increases fuel consumption, reduces the life of the tyre and increase the probability of skidding.



## Advantages of Nitrogen for tyre inflation

### Reduces fuel consumption

Pressure loss modifies the external profile of the tyre, increasing resistance to the rotation of the tyre.

The increase in resistance causes an increase in fuel consumption.



### Increases the life of the tyre

Compressed air contains oxygen which can oxidize the rim and wear away the rubber of the tyre.

By using Nitrogen, which is an inert gas, the life of the tyre is prolonged and the need for maintenance reduced.

### It increases the safety and the comfort of a journey

With compressed air, there is a variation in the internal pressure of the tyre corresponding to the variation in the temperature of the tyre.

By using Nitrogen, given that it is an inert gas, the tyre pressure remains constant throughout normal use (even when the tyre is hot).

By keeping the initial characteristics unchanged, you substantially reduce the risk of skidding, losing control or having a puncture due to overheating.



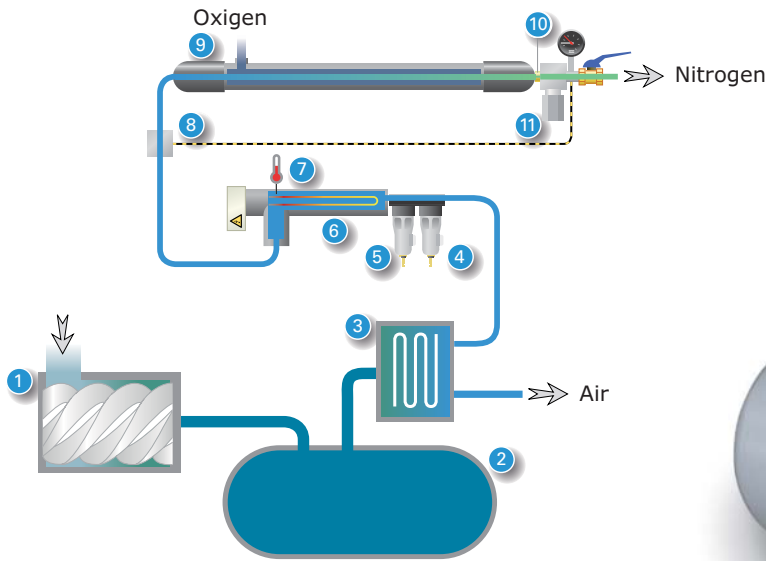
### Ecological note

By using nitrogen, you can keep tyres in a better condition which, at the end of their life cycle, can then be reconditioned in greater numbers. This leads to a substantial reduction in the production of this kind of waste product.

USING N<sub>2</sub> IS WORTH IT



# MSM N<sub>2</sub> – Flow chart



- ① Air Compressor
- ② Air Receiver
- ③ Refrigeration Dryer
- ④ FMO Filter
- ⑤ FMM Filter
- ⑥ Electrical Heater
- ⑦ Temperature Safety Switch
- ⑧ Inlet Valve
- ⑨ Nitrogen Separation Membrane
- ⑩ Nozzle
- ⑪ Back Pressure Valve

- Wet Compressed Air
- Dry Compressed Air
- Nitrogen

## Compressor circuit

- ① Rotary screw compressor:
  - maximum output and maximum efficiency under any working condition;
  - low noise levels;
  - extremely reliable.
- ② Tank:
  - constructed in sheet steel and tested according to current EEC rules and painted in accordance with our own standards.
- ③ Dryer:
  - to eliminate the condensate present in the air in the form of vapour;
  - elimination of condensate allows you to obtain purer Nitrogen.



## Nitrogen circuit

- ④ - ⑤ Filters:
  - a combined system of filters (FMO+FMM) removes any solid impurities and traces of oil from the compressed air which could potentially damage the membranes;
  - this means the membranes last longer and also guarantees high-quality Nitrogen;
  - the filters are fitted with differential pressure gauges complete with an electrical contact to protect the efficiency of the membrane.
- ⑥ Electrical resistance:
  - heats the compressed air at the membrane inlet to improve the process of separating oxygen and the relative humidity of Nitrogen.
- ⑨ Nitrogen membranes:
  - a system of hollow fibres separates oxygen from the compressed air, allowing dry nitrogen to exit from the membrane outlet.
- ⑩ Nozzle:
  - the system is fitted with a purity regulator, which guarantees constant nitrogen production with a standard purity level of 97%;
  - different levels of purity are available on request: 92%, 95%, 99%.
- ⑫ Control Panel:
  - Nitrogen unit switch (on/off).

**TECHNICAL DATA** (ACCORDING TO ISO 1217 AND CAGI PNEUROP)

Type	Compressed air only							Nitrogen purity : 97 %				Nitrogen purity : 95 %				
	④		dB(A)	V/Hz/Ph	litres	FAD ①		FAD ②		FND ③		FAD ②		FND ③		
	bar	HP				kW	l/1'	m³/1'	l/1'	m³/1'	l/1'	m³/1'	l/1'	m³/1'	l/1'	m³/1'
<b>MSM 4 D NITRO.1</b>	10	5,5	4	62	400/50/3	200	470	28,2	408	24,5	24	1,4	384	23,0	42	2,5
<b>MSM 4 D NITRO.2</b>	10	5,5	4	62	400/50/3	200	470	28,2	360	21,6	48	2,9	324	19,4	72	4,3
<b>MSM 4 D NITRO.3</b>	10	5,5	4	62	400/50/3	200	470	28,2	300	18,0	78	4,7	234	14,0	114	6,8
<b>MSM 4 DX NITRO.1</b>	10	5,5	4	62	400/50/3	200	470	28,2	408	24,5	24	1,4	384	23,0	42	2,5
<b>MSM 4 DX NITRO.2</b>	10	5,5	4	62	400/50/3	200	470	28,2	360	21,6	48	2,9	324	19,4	72	4,3
<b>MSM 4 DX NITRO.3</b>	10	5,5	4	62	400/50/3	200	470	28,2	300	18,0	78	4,7	234	14,0	114	6,8
<b>MSM 7,5 DX NITRO.1</b>	13	10	7,5	66	400/50/3	500	732	43,9	522	31,3	84	5,0	504	30,2	114	6,8
<b>MSM 7,5 DX NITRO.2</b>	13	10	7,5	66	400/50/3	500	732	43,9	324	19,4	162	9,7	276	16,6	228	13,7
<b>MSM 7,5 DX NITRO.3</b>	13	10	7,5	66	400/50/3	500	732	43,9	138	8,3	234	14,0	66	4,0	342	20,5

X = Star triangle

D = Dry with dryer

Notes:

- Direct or star-delta starter for 5,5 HP
- IP55 electric motor
- Initial oil fill
- 230/50/3 voltage also available
- Air end 1/2" F and Nitrogen end 1/2" F connections
- MSM 4 : max weight 219 kg
- MSM 7,5: max weight 396 kg

- ① FAD: air capacity available when not producing Nitrogen
- ② FAD: air capacity available when producing Nitrogen
- ③ FND: free Nitrogen capacity
- ④ MSM 4 : 8 bar Nitrogen pressure  
MSM 7,5: 10 bar Nitrogen pressure

Optional:

- Kit for varying the purity of the Nitrogen
- Nitrogen purity level indicator



The company reserves the right to make any changes from the point of view of continuous product improvement.



According to

