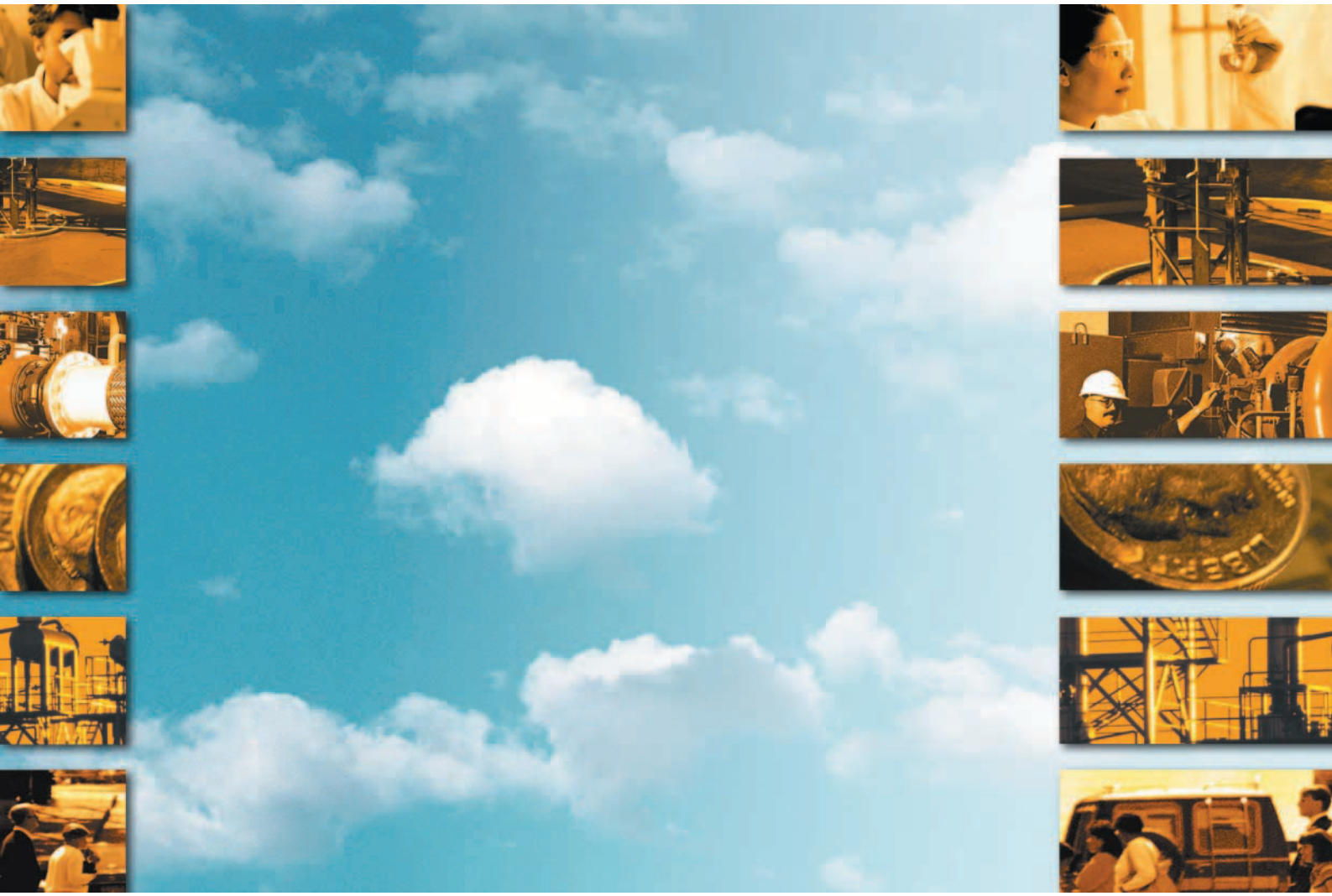
Atlas Copco Oil-free Air

A matter of common sense



OIL-FREE AIR
BEST SERVES
THE INDUSTRY

Atlas Copco

Allow me to introduce myself. I am a decision maker. Just like you.

My decisions are based on a cocktail of knowledge, experience, advice, creativity and yes … intuition. I guess it's no different with you.

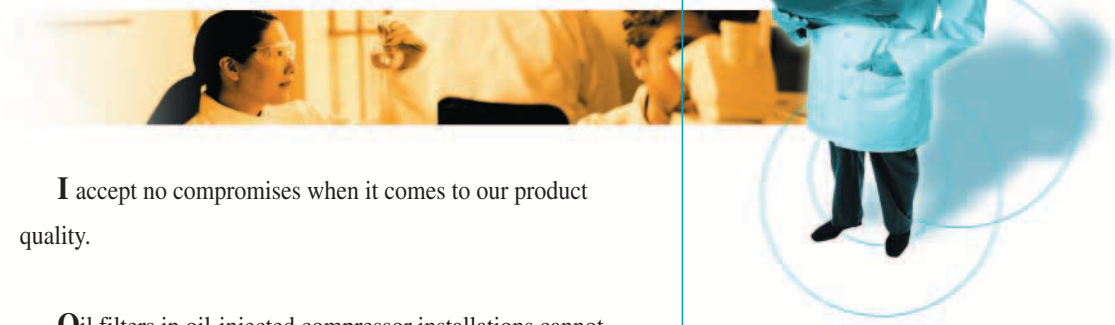
Because I am more of a generalist than a specialist, I rely on professional assistance. I talk to managers, engineers and buyers.

When it comes to compressors, I apply the same strategy. The choice of a supplier, the selection of a technology, the long term vision … it is not a decision I take lightly. So I listen and learn.

Join me in assessing the viewpoints of these professionals. And decide for yourself.

Sincerely,

The Quality Control Manager



I accept no compromises when it comes to our product quality.

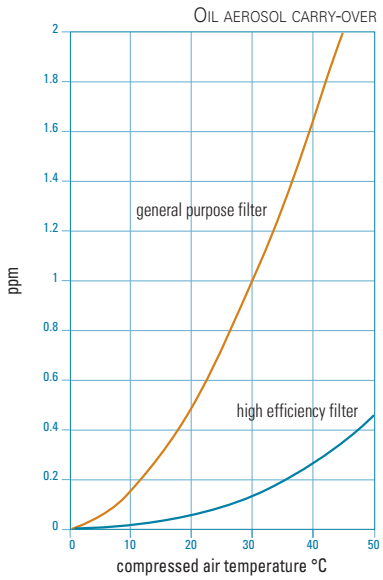
Oil filters in oil-injected compressor installations cannot be made 100% safe. A total guarantee that no oil droplets or vapour will find their way through is simply an illusion. An operational error, clogged up filters or untimely replacement could lead to product degradation.

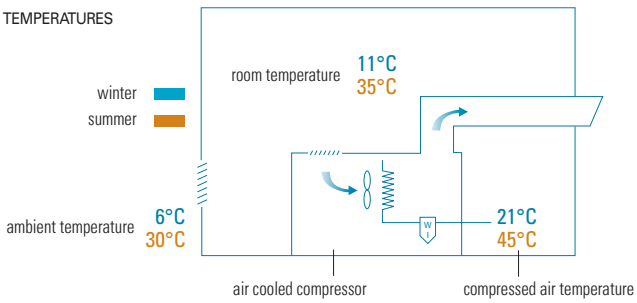
Even fluctuations in air temperature give rise to variations in air quality, because of the increase in oil carry-over and the shortened lifetime of active carbon filters.

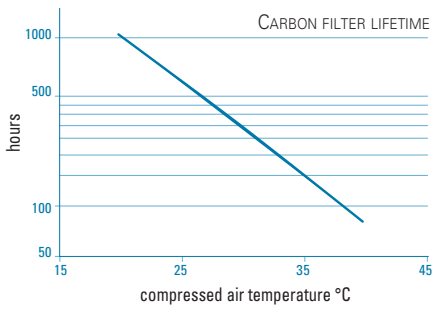
So to me, oil-free air compression is the only process that truly deserves the "quality" label.

- filters are never 100% safe
- oil carry-over in liquids and fumes
- risk of filter clogging
- temperature induced variations in air quality

USING FILTERS, THE AIR QUALITY DEGRADES WITH HIGHER AIR TEMPERATURES







The influence of ambient air temperature

The Safety & Environment Manager

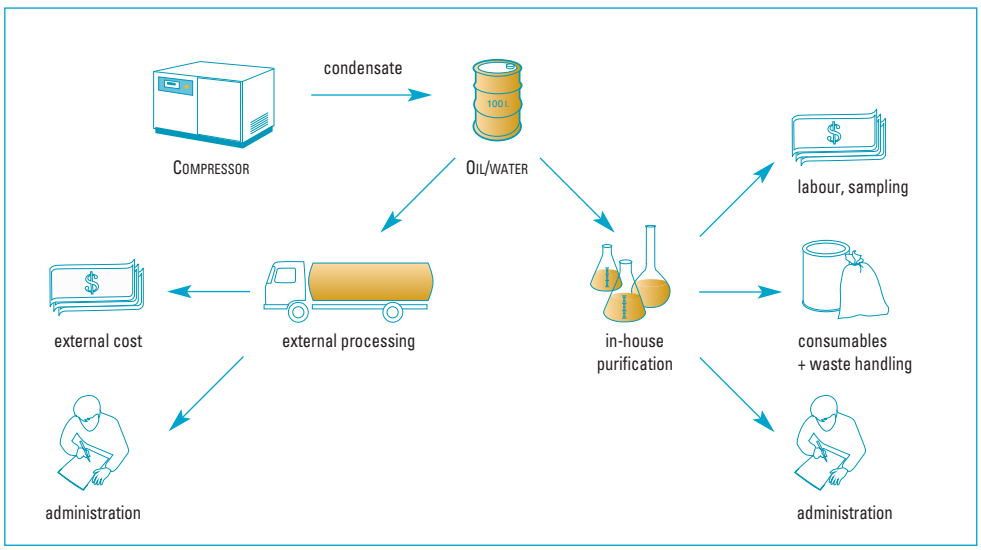
Breathing oil fumes is definitely not a good idea, so any compressed air system that releases oil vapour is on my blacklist. Not only could these oil fumes tamper with product integrity, but they are unhealthy for our work force and for the environment we are trying to protect.

Another by-product of an oil-injected compressor is oil-contaminated condensate. It can't just be discharged in the sewer system, it is unethical and increasingly becoming illegal.

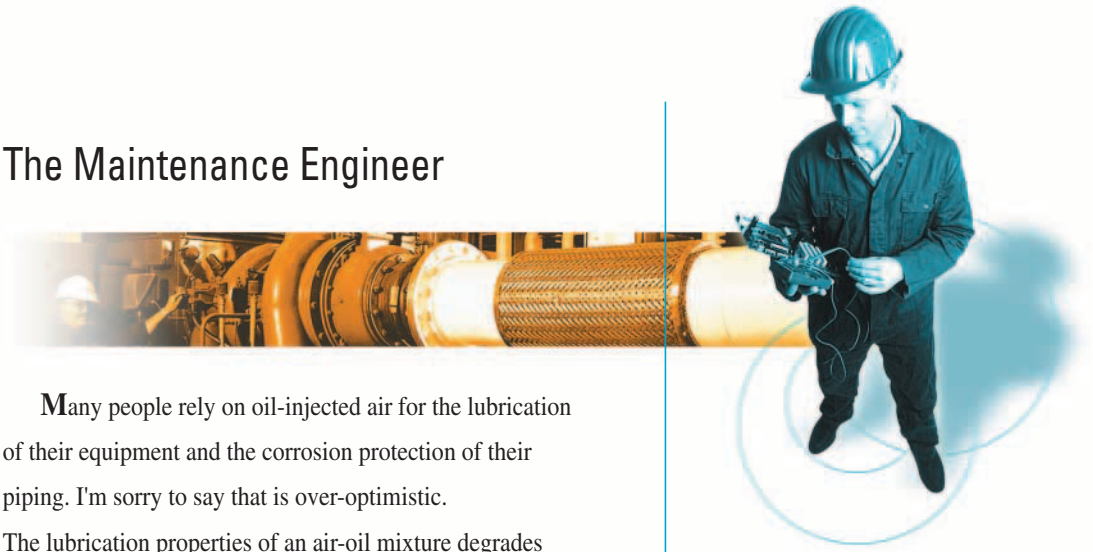
So why do it the hard way, when there is a smart way: oil-free compressed air.

- contaminated fumes & condensate
- product liability
- legislative constraints
- health risks

OIL-CONTAMINATED CONDENSATE PROCESSING



The Maintenance Engineer



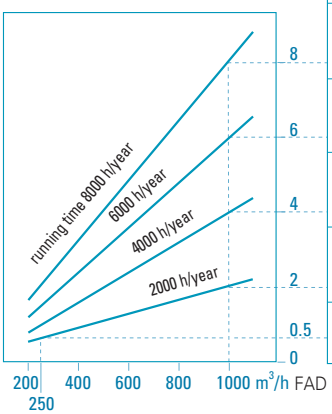
Many people rely on oil-injected air for the lubrication of their equipment and the corrosion protection of their piping. I'm sorry to say that is over-optimistic.
The lubrication properties of an air-oil mixture degrades when it is heated in the compression process. It can create deposits in the downstream installation. Even worse, rubber and plastic components can be severely affected.

Contrary to the belief, the oil consumption of oil-injected compressors is not exactly negligible either. The warehouse clerk knows that oil cans are one of the fast moving stock items. It seems like such a waste …

- less than ideal lubrication
- risk of deposits
- degradation of rubber and plastics
- direct cost of oil consumption and filters

OIL CARRY-OVER (LIQUID & VAPOUR) PER YEAR

reference conditions:
– 30°C compressed air temperature
– air outlet pressure 7 bar(e)
– oil density: 0.8 kg/l



oil-injected screw compressor without filtration	oil-injected screw compressor with DD pre-filter	oil-injected screw compressor PD high-efficiency filter	oil-free air compressor
3 mg oil / m³ air	1.1 mg oil / m³ air	0.26 mg oil / m³ air	0 mg oil / m³ air

5 L
1 L

Example: capacity x running time/year x % residual oil = oil carry-over/year

The Financial Manager

At first, I was charmed by the lower investment cost of oil-injected compressors. Then I looked at the broader picture.

The required filters introduce a pressure drop, which needs to be overcome at an increased energy cost. And that is no light matter, since energy forms over 70% of the total life cycle cost of a compressor.

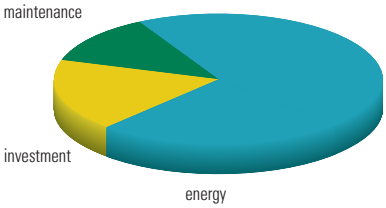
Filter cartridges need to be replaced periodically. Oil is consumed … at a cost, and oil residue must be disposed of … at an additional cost.

The inherent risk of product contamination is something I dare not to think about, as the incurred costs could be astronomical.

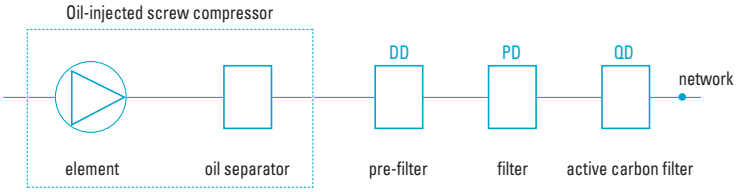
So all in all, the extra investment for an oil-free compressor pays for itself. And that's the bottom line.

- extra energy cost (7% for 1 bar pressure drop)
- risk of costly product degradation
- filter and oil replacement cost
- oil disposal cost

TOTAL COMPRESSOR LIFE CYCLE COST



FILTER INDUCED PRESSURE DROP



initial pressure drop / bar	0.2	0.1	0.1	0.1	
pressure drop at replacement / bar	1.0	0.5	0.5	0.1	
lifetime average pressure drop / bar	0.6	0.3	0.3	0.1	Total = 1.3 bar

The Application Engineer

A misconception I often hear is that oil-free air is the privilege of industries such as pharmaceuticals, food & beverages, cosmetics or electronics. I don't know why we shouldn't all benefit of the inherent qualities of oil-free air.

Given the choice, I assume we all prefer total product safety, lower operating and maintenance costs, and a healthier working and living environment.

The Man in the Street

I'm not a specialist. But I am practical. And I wonder about a machine where you put in oil at one end, and then go through the painstaking process to take it out at the other end. Why not keep out the oil in the first place? It's a matter of common sense, if you ask me.

The face of innovation

What sets Atlas Copco apart as a company is our conviction that we can only excel in what we do, if we provide the best possible know-how and technology to really help our customers produce, grow and succeed.

There is a unique way of achieving that - we simply call it the Atlas Copco way. It builds on **interaction**, on long-term relationships and involvement in the customers' process, needs and objectives. It means having the flexibility to adapt to the diverse demands of the people we cater for.

It's the **commitment** to our customers' business that drives our effort towards increasing their productivity through better solutions. It starts with fully supporting existing products and continuously doing things better, but it goes much further, creating advances in technology through **innovation**. Not for the sake of technology, but for the sake of our customer's bottom line and peace-of-mind.

That is how Atlas Copco will strive to remain the first choice, to succeed in attracting new business and to maintain our position as the industry leader.

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