Factsheet

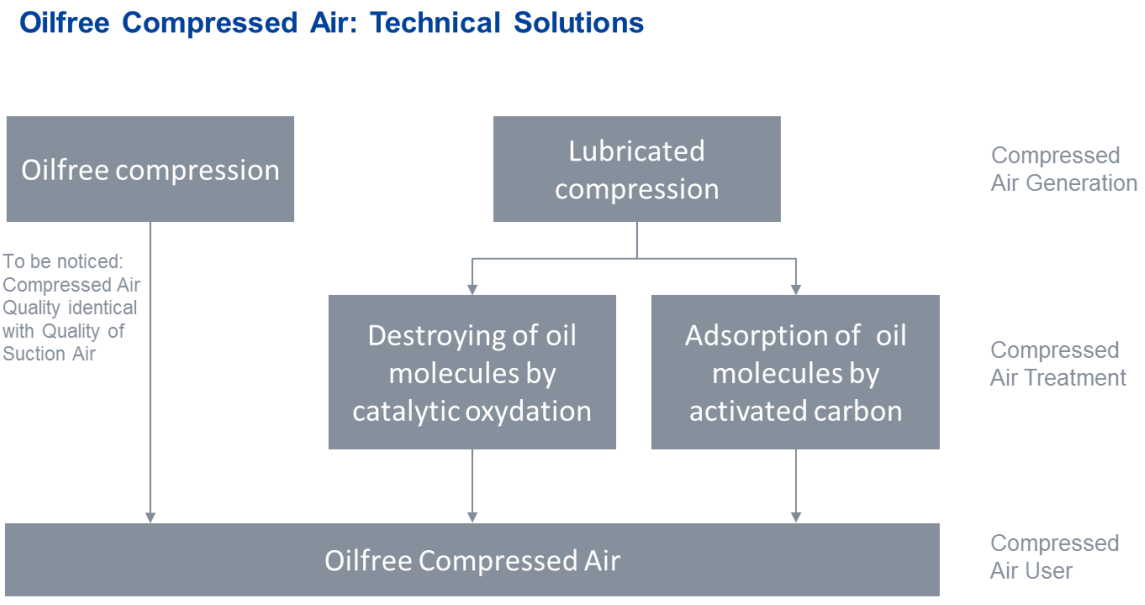
Production of oil-free compressed air

The ISO 8573 standard was drawn up to provide an international standard for the quality of compressed air. Part 1 of the standard specifies purity classes of compressed air.

One important aspect here is contamination with oil, which includes all hydrocarbons with 6 or more carbons in the chain. To meet the requirements for quality class 1, the oil content must be ≤ 0.01 mg of oil per cubic metre of expanded compressed air. This oil content includes hydrocarbons in liquid, aerosol or vapour form.

Compressed air purity classes for total oil	
reference conditions: air temperature 20°C, absolute air pressure 1 bar,a and relative water vapour pressure 0 bar	
class	**total oil** (liquid, aerosol and vapour)
0	as specified by the equipment user or supplier and more stringent than class 1
1	**≤ 0,01 mg/m³**
2	≤ 0,1 mg/m³
3	≤ 1 mg/m³
4	≤ 5 mg/m³
X	>5 mg/m³

To produce oil-free compressed air, operators have essentially three options: oil-free compression, compressed air purification by means of activated carbon or treatment in a catalytic converter.



When opting for oil-free compression, one needs to keep in mind that oil-free compressors work with ambient air that already tends to be contaminated. As a result, the compressed air might contain substances from the exhaust air of combustion in cars or heating systems in an even higher concentration than originally found in the ambient air. This often leads to an oil content of ≥ 0.01 mg per cubic meter (corresponding to class 2 or an ever poorer rating). Where higher purity levels are required, oil-free compression alone is not the solution, as the compressed air still needs to be treated.