



# HOW TO MASTER MAINTENANCE

Strategies and Methods  
to Maximise the Efficiency  
of Your Compressed  
Air System



## The Importance of Maintenance According to Mattei



Maintenance is a very important factor in the overall cost of a system; failure to perform in a correct and controlled manner, will lead to considerable increases in such costs. Correct maintenance is the simplest way to ensure your compressor has an effective and **efficient life cycle**, avoiding any anomalies such as wasted energy! It will guarantee a long and useful life of the system, making the components more durable, while reducing waste and keeping your **plant operational indefinitely**.

Maintenance is a key consideration which is taken into account during the design, manufacture and installation phases of the compressor's construction, to ensure the compressor can be easily and quickly viewed in service with the minimum of effort. This ensures any Maintenance operations can be performed with the least amount of effort, when "fine adjustments" are performed during the commissioning stage prior to initial start-up.

Regular care of the system is essential, in maintaining equipment and machines **to ensure system reliability is achieved at all times**. Improper maintenance can lead to dangerous situations being created, like accidents and health issues. Added to this, poor execution can also have an effect on occupational health and safety.

**Correct maintenance of a system is fundamental in guaranteeing continuity in production, the manufacture of high-quality components, while maintaining the company's competitiveness at all times.**

Maintenance also helps keep the system healthy and efficient, by **reducing unnecessary energy consumption**, which can contribute to emission of greenhouse gases, thus responding to the emergence of global warming. The manufacturing sector, accounts for more than 50% of the worlds electrical consumption, for which up to 20% is absorbed by the production and supply of compressed air.

When maintenance is disregarded, the system could significantly lose productivity and become more exposed to the risks of faults, with unnecessary consequential costs for restoring the system back to its form condition/operation. Maintenance costs are always cheaper than the consequences of a lack of maintenance, since unforeseen faults can produce high energy expenses, unplanned downtime together with non-compliance.

## Types of Maintenance and Their Applications

There are several types of maintenance, depending on whether the purpose is to avoid faults with precautionary measures, intervene in case of need or improve the system after a malfunction.



### PREVENTIVE MAINTENANCE

Preventive maintenance is a maintenance policy whose goal is to take overhaul, replacement or repair actions on a **fixed schedule**, so as to reduce the probabilities of system faults or degraded service and the downtime after a certain number of operating hours.

Devoting time, resources and spare parts, to replace components that are not completely worn, is deemed more profitable than passively waiting for fault conditions to occur, which may cause incalculable damage or significant production losses. The inspection required for this maintenance should identify with greater precision, the parts that need to be repaired or replaced and recognise the warning signs of a possible deterioration or reduction in the characteristics of the system or machine. Measuring and recording technical parameters (temperature, energy consumption, pressure, air flow, levels, etc.) is a fundamental part of preventive maintenance, allowing to constantly monitor the performance and features of the system or machine.



### CORRECTIVE MAINTENANCE

This maintenance includes all those tasks required to restore the original operation of the system after a fault. As a consequence, maintenance is only performed **when the fault occurs**. Intervention is aimed at removing any problems that prevent the system from working or reduces its performance, causing downtime and high repair costs, if the faulty component damages other components within the system.



### PERFECTIVE MAINTENANCE

Perfective maintenance is the combination of actions aimed at **improving the performance** that was expected when a system or unit was first designed. Such activities can increase the value of the system and/or extend its useful life. Perfective maintenance is performed by scheduling a temporary shutdown to replace components, parts or entire groups of machine or systems which have lost their original performance, when an **enhancement** of their characteristics is deemed necessary to finally remove fault and the causes of downtime. This kind of maintenance allows you to plan for perfective intervention, only when it is indispensable and after careful evaluation of the cost benefits.

**Mattei firmly believes in the importance of maintenance as a strategic factor, in achieving the optimum levels of performance from your systems. Correct maintenance ensures the most efficient and cost effective management of your system at all times.**

## Six Reasons to Value Maintenance

Optimising maintenance will keep the system efficient and functional while provide you with the following benefits:



### ENERGY SAVING

Regular inspection will prevent energy waste, air leaks and excessive pressure drops. Maintenance is the best way to achieve an efficient and cost-effective system with measurable results.



### REDUCTION OF OPERATING COSTS

Any malfunction and/or downtime of the system due to unforeseen faults will increase operating costs. Maintenance costs are significantly cheaper than the consequences of a lack of maintenance, such as high energy consumption, unplanned downtime, safety and non-compliance issues.



### OPERATIONAL CONTINUITY

A carefully prepared preventive maintenance plan, together with the installation of Original/ Genuine spare parts, performed by qualified personnel will reduce unforeseen issues and downtime.



### OCCUPATIONAL HEALTH AND SAFETY

Regular maintenance is key to maintaining equipment, machinery and safe workplaces. Incomplete or improper maintenance can cause dangerous situations to occur, namely; health issues and possible accidents.



### ENVIRONMENTAL PROTECTION

When a system is well maintained, there is less waste, energy consumption with no pollution created.



### LONGER USEFUL LIFE

Well prepared maintenance, enhances reliability and ensures the system performs better and for longer. This will allow you to exploit the full potential of any equipment you may purchase, to achieve higher profits and to maximise your operating possibilities.

## Guidelines in Keeping a System Efficient

Mattei design and manufacture extremely reliable compressors, which guarantee 100,000 operating hours without having to replace any blades or mechanical parts. However, this condition can only be achieved with a complete and comprehensive maintenance programme, while performing careful and regular maintenance inspection, which ensures the replacement of any worn components.



To begin with, the fitment of **Original/Genuine spare parts and lubricants** will maintain the same performance, reliability and safety levels for which the system was originally designed over the course of time. Mattei spare parts are manufactured to the highest standards in design and to a precise technical specification. The use of special maintenance kits minimises the maintenance downtime and allows for quicker installation by qualified personnel.

Effective maintenance requires a technician to have **excellent training** and a **thorough knowledge/appreciation** of the system and processes. Maintenance choices depend on the type and timing of the faults, together with an understanding of any economic consideration surrounding the system. Mattei **provides periodic training** to its maintenance personnel in the company's certified training centres, allowing you to avoid high maintenance costs, while minimising your downtime.

**Training of your internal** personnel is just as important and as crucial for preventive maintenance, which involves activities to be performed every week, month, year or based on the operating hours of the compressor. **Suitable training** ensures personnel are familiar with all requirements of **safety regulations** and are constantly up-to-date regarding any new changes and/or developments.

Thanks to the acquired skills gained, a technician will be able to **intervene promptly** on a system, to identify any possible problem and diagnose the condition and the best course of action in a timely manner.



Knowledge and motivation are key factors for the success of a company, with training a key and necessary investment.

In order to ensure the correct maintenance and to **keep your system in good health**, some important elements need to be considered: detection of any leaks in the distribution network (as this will cause significant pressure drop), constant monitoring of the system's operation, prompt notification of faults or leaks and strict compliance with all Mattei's instructions. The following is a list of the main tasks that have to be performed by a qualified person, according to the intervals defined in the use and maintenance manual supplied with the compressor.

**Remember: ALWAYS use Mattei Original/Genuine spare parts, providing you with guaranteed operation and *Peace of mind*.**



#### FINAL USER

Qualified personnel who are able to control the machine with its keyboard and perform routine maintenance tasks.

- Maintenance intervals
- Oil level in the compressor
- Oil level in the gearbox (if fitted)
- Oil and air radiator
- Air intake pre-filter
- Main's isolator operation
- Any line leaks
- If the line filters are clogged/blocked
- Clean the condensate solenoid valve filter
- Clean the air intake filter



#### MATTEI CERTIFIED SERVICE CENTRE

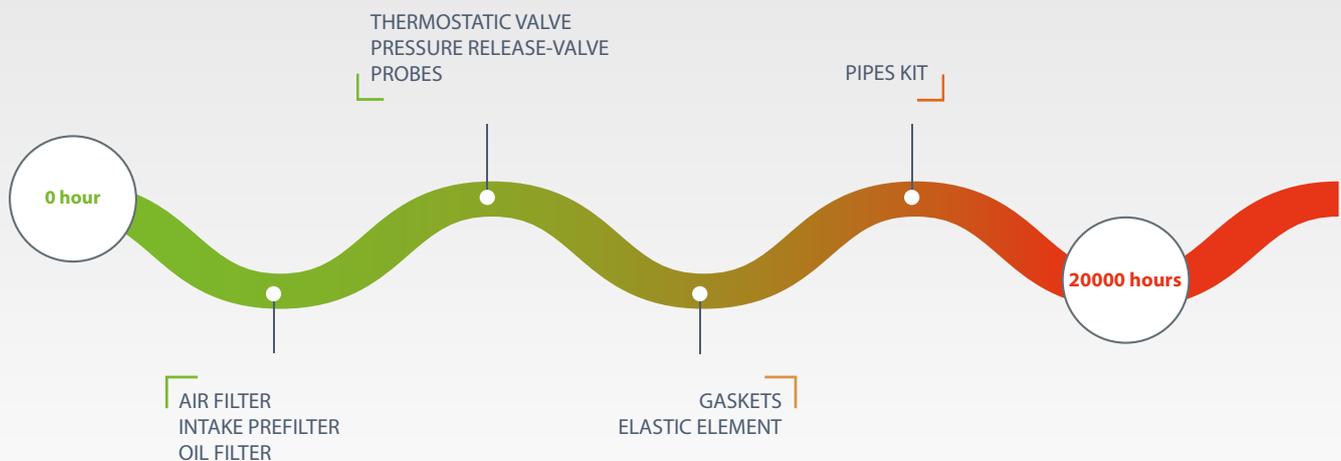
Qualified technical personnel, authorised by the manufacturer to perform electrical and mechanical maintenance.

- Maintenance (use of dedicated kits)
- Oil change
- Electrical checks
- Check:**
- Gearbox (if fitted)
- Efficiency of the cooling system (oil)
- Elasticity of rubber hoses
- Controller setting (thermal sensors)
- Electrical consumption
- Vibration-damping condition
- Dryer operation (if fitted)
- Condition of flexible elements
- Correct tensioning of belts (if fitted)
- Nut and screw fastenings for the cables inside the electrical control panel and in the terminal block of the electrical motor
- Grease the bearings of the electric motor (using greasing points present)
- Clean oil return valves

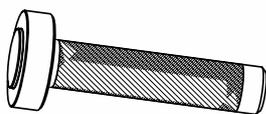
## The Mattei Maintenance Plan

With a view to extending the useful life of the compressor and to maximise its efficiency, Mattei has developed a maintenance plan for its customer base, offering a range of convenient and accessible kits which will reduce your maintenance costs.

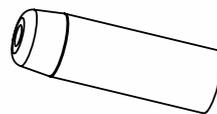
The diagram below shows the components which must be replaced at the defined intervals by the manufacturer. The table identifying the maintenance intervals is included in the use and maintenance manual for the compressor and may vary according to the type of machine and its operating conditions.



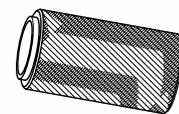
For a trouble free operating system, Mattei recommend specific tools which will make interaction with the compressor easier and less time consuming, for example:



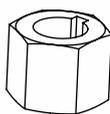
Seal ring press tool



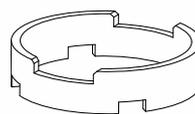
Seal ring sleeve



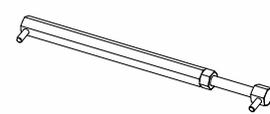
Bearing press tool



Ring nut mounting hexagon



Cover extractor



Pulley tightening tool



ITALY - ING. ENEA MATTEI SpA  
Strada Padana Superiore, 307  
20090 VIMODRONE (MI)  
Tel + 39 02253051 - Fax +39 0225305243  
E-mail: info@mattei.it

[www.matteigroup.com](http://www.matteigroup.com)



FRANCE  
MATTEI COMPRESSEURS  
Phone +33 535 542 205 - Fax +33 972 316 833  
E-MAIL: infos@mattei.fr - www.mattei.fr

GERMANY  
MATTEI KOMPRESSOREN DEUTSCHLAND GmbH  
Phone +49 7151 5002560 - Fax +49 7151 5002565  
E-MAIL: info@mattei-kompressoren.de - www.mattei-kompressoren.de

GREAT BRITAIN  
MATTEI COMPRESSORS Ltd  
Phone +44 (0)1789 450577 - Fax +44 (0)1789 450698  
E-MAIL: info@mattei.co.uk - www.mattei.co.uk

U.S.A.  
MATTEI COMPRESSORS Inc  
Phone +1 410 5217020 - Fax +1 410 5217024  
E-MAIL: info@matteicomp.com - www.matteicomp.com

RUSSIAN FEDERATION  
ING. ENEA MATTEI SpA  
Phone +7 499 1124877  
E-MAIL: mattei-rus@mail.ru

SPAIN  
ING. ENEA MATTEI SpA  
Phone +34 93 435 03 94 - Fax +34 93 455 26 76  
E-MAIL: info@mattei.it

PEOPLE'S REPUBLIC OF CHINA  
Mattei (SuZhou) Air Compressors Manufacturing Co., Ltd  
WFOE by Ing. Enea Mattei SpA - Italy  
Tel: +86 512 66679986 Fax: +86 512 66679989  
E-MAIL: info@matteisuzhou.cn - www.matteisuzhou.com

UNI EN ISO 9001:2015

