
SALVTECH
MACHINERY AND SERVICES

# Comprehensive Fan Servicing During Plant Outages

Ensuring optimal performance, reliability, and safety for industrial operations.

SALVTECH
MACHINERY AND SERVICES
01244 638900 | www.salvtech.com | enquiries@salvtech.com

# Index





# Introduction

This guide, by Salvtech, is designed to support technical teams responsible for managing Plant outages and fan maintenance. We understand the challenges of ensuring seamless operations while addressing the complexities of industrial fan servicing.

Whether you are planning a routine inspection or managing critical repairs, this guide provides clear, practical information to help you make informed decisions.

The aim is to offer a concise reference for the key maintenance processes, explaining what's required and why it's essential. From diagnostics to repairs and futureproofing, this guide will help you maximise reliability and efficiency during every stage of your fan maintenance.

# Welcome to Salvtech

Salvtech specialises in expert fan servicing, maintenance, and repairs for industrial operations. With decades of experience, we ensure reliability, minimise downtime, and improve long-term system performance, supporting your operational excellence.

**Timely Expertise You Can Trust**

We deliver efficient, high-quality service during scheduled outages, minimising delays and keeping your operations running smoothly. Using advanced tools, our team ensures precise repairs that optimise performance and maximise reliability.

**Commitment to Safety and Compliance**

Our highest priority on site is ensuring everyone is kept safe. Safety is central to our work and embedded in our Culture and Values. We strictly adhere to regulatory standards, mitigating risks and protecting people and equipment as well as ensuring your systems operate safely and efficiently when we leave.

# Process Testing, Installation, Commissioning, and Start-Up

Process testing and installation, commissioning, and start-up are distinct yet critical steps in fan maintenance. Process testing verifies system performance, while installation, commissioning, and start-up ensure new systems operate reliably and meet operational demands from the very start.

**Process Testing**

Process testing evaluates fan performance by measuring critical parameters such as airflow, pressure, and energy efficiency. These tests confirm the system meets operational specifications and identifies any adjustments needed for optimal functionality. Comprehensive testing ensures compliance with industry standards and provides valuable data to prevent future issues.

**Installation, Commissioning, and Start-Up**

Successful system integration requires precise installation, commissioning, and start-up procedures. This involves checking and aligning components before first run, verifying connections, and optimising settings to ensure seamless operation. These steps confirm that the system is fully operational and ready to meet performance demands, minimising risks of inefficiencies or start-up failures. This activity also allows baselines for performance to be ascertained, which can be used later for comparison.



# Outage Support

Outages provide a critical opportunity to ensure your fan systems are operating at peak efficiency. Proper planning and execution during this time can prevent future failures, extend equipment lifespan, and optimise overall performance for your operations.

**Pre-Outage Inspections**

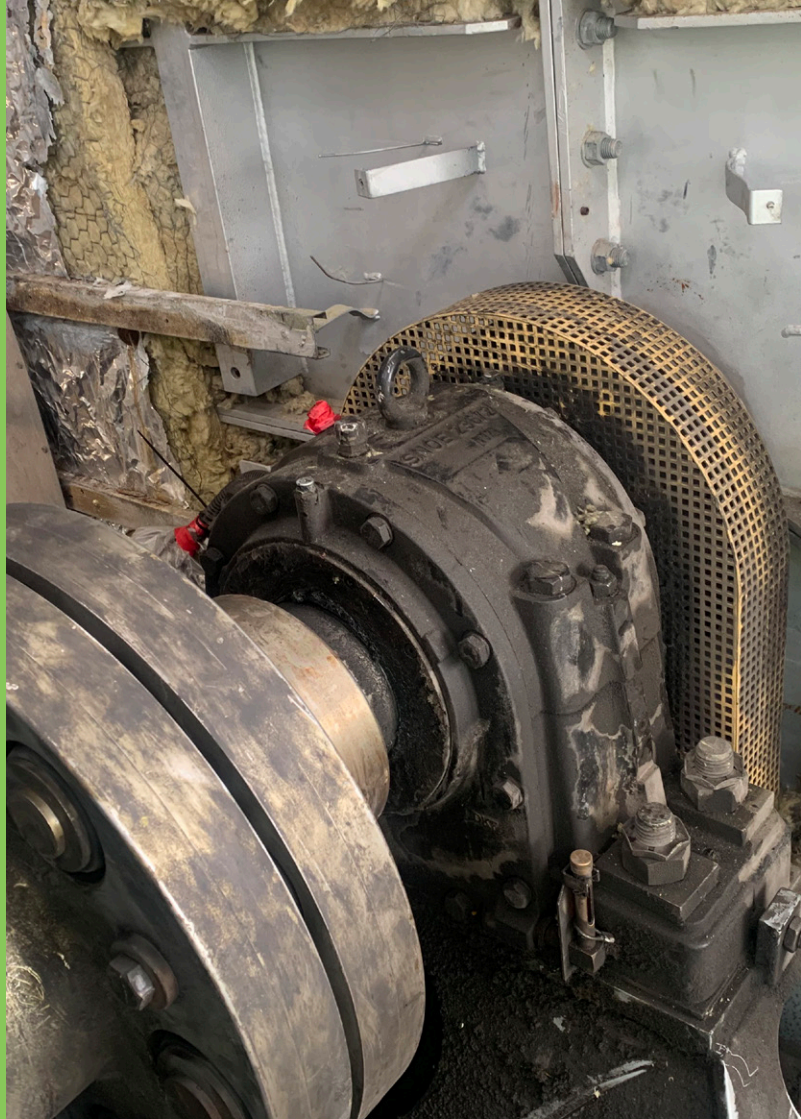
Pre-outage inspections, conducted while fans are running, can help identify issues like vibration, wear, and inefficiencies that may not be evident when fans are off. These checks ensure accurate diagnostics and optimal preparation for maintenance.

**Planning and Execution**

Effective planning involves scheduling tasks, ordering spares in good time, allocating labour resources, and coordinating task durations across teams. A well-prepared approach maximises efficiency and ensures seamless execution during the outage period, avoiding the risks of costly outage over-runs. It is also key for communicating when documents such as permits to work are required.

This step is critical for health and safety planning and at this stage Risk Assessments, Method Statements and documents such as Lift Plans and Confined Space Rescue Plans are produced.

It is also important before the outage to ensure all costs, scope and durations are clear, confirmed and documented.



# Standards

**Understanding Standards in Fan Maintenance**

In fan maintenance, using the correct standards ensures optimal performance and longevity. While ISO standards provide broad guidelines, OEMs tailor these standards to their fans, making OEM standards the preferred reference during on-site servicing.

By setting appropriate standards and tolerances that can be met during site maintenance, OEMs help ensure that maintenance work is completed efficiently, saving both time and cost without sacrificing quality.

**Vibration and Alignment Standards**

Vibration and alignment standards are critical for maintaining fan systems. Vibration standards, such as ISO 10816 and ISO 14695, may be appropriate references for unbalance and assessing component wear. These standards help to plan maintenance to ensure smooth operation and reduce unnecessary stress on components.

OEM standards and recommendations in the O&M manuals will incorporate both general ISO guidelines and specific OEM component requirements and use the OEM's knowledge to interpret these into workable and practical machinery settings.

For example, a spring damped EfW process fan will typically have a vibration alarm setting between 5mm/s and 7.5mm/s although this may be considered too high or too low for other applications.



# Annual Inspections

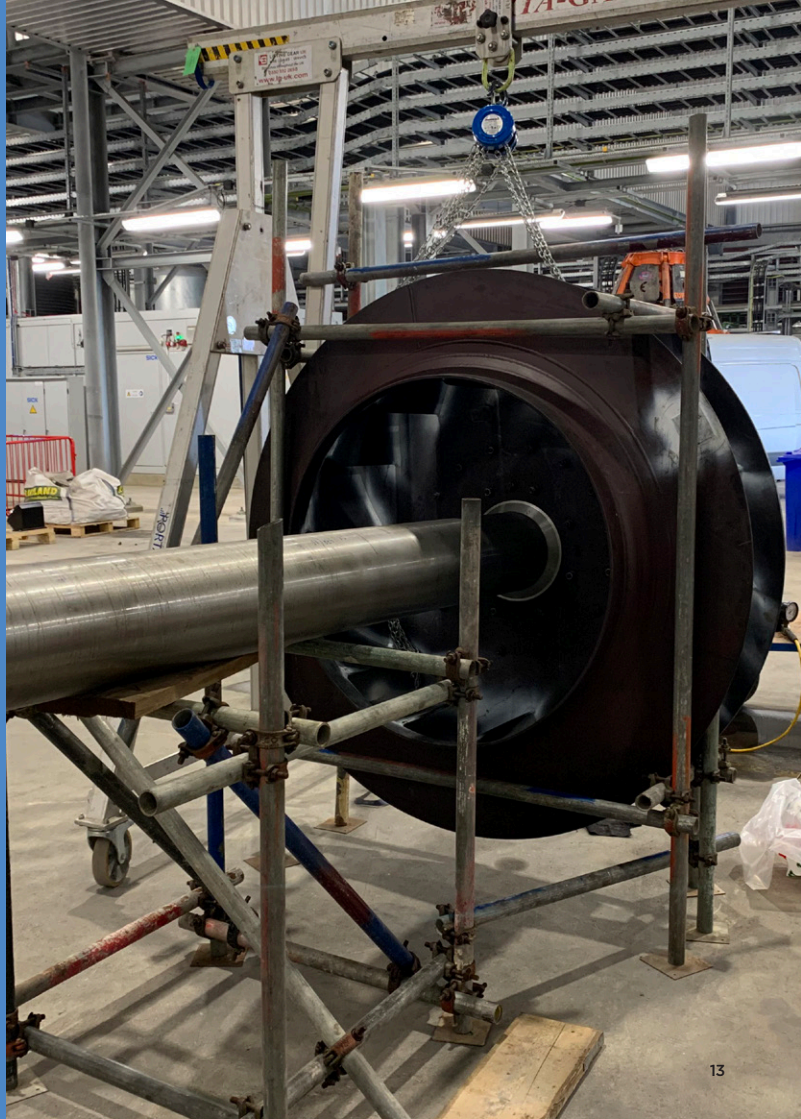
Annual inspections are vital for ensuring the reliability and efficiency of your fan systems. Regular checks identify wear, prevent unexpected failures, and support long-term operational performance through proactive maintenance and timely repairs.

**Key Areas of Focus**

Annual inspections evaluate critical components, including impellers, bearings, shafts, seals and motor alignment. Tracking failure rates helps predict maintenance needs, ensuring efficient planning, reduced downtime, and optimal performance throughout the system's lifespan.

**Data-Driven Maintenance**

Inspection results provide actionable insights for maintenance planning. Identifying wear and scheduling repairs in advance prevents emergencies, maximises reliability, and extends the lifespan of your fan systems through well-planned, data-informed maintenance strategies.



# Vibration Testing and Analysis

Vibration testing identifies unbalance and possible wear or failure indications in fan systems, providing crucial insights for preventive maintenance and improved reliability.

- **What's Needed:** Monitor and analyse vibrations to detect changes in the vibration levels or type, unbalance, and early signs of component wear.
- **Why It's Important:** Provides insights into potential failure rates and assists with planned maintenance to reduce downtime.
- **What to Do:** Use vibration analysers to identify irregular patterns and address machinery unbalance by balancing components as needed.
- **Dangers if Ignored:** Excessive vibrations be an indicator of component failure or unbalance and can themselves cause accelerated wear, cracks, and complete system failure, leading to costly downtime.



## In-Situ Balancing

In-situ balancing corrects unbalance in rotating components without removing them, reducing downtime and ensuring efficient fan operation. This proactive process enhances reliability and minimises stress on critical components, preventing costly damage and performance issues.

- **What's Needed:** Balance rotating components while still installed.
- **Why It's Important:** Improves efficiency and reduces vibration with the potential to damage machinery components.
- **What to Do:** Fully clean components and re-check any unbalance and if required, use balancing equipment and weights to adjust the unbalance in components such as impellers and couplings on-site.
- **Dangers if Ignored:** Machinery unbalance can shorten lifespan of bearings, seals, and other critical components



## Laser Alignment

Laser alignment ensures Motors and driven components are precisely aligned, minimising wear, reducing vibrations, improving energy efficiency, and preventing operational disruptions. This process enhances fan performance and reduces unnecessary stress on critical system components.

- **What's Needed:** Align shafts and components to one another, with laser precision.
- **Why It's Important:** Minimises wear and improves energy efficiency.
- **What to Do:** Use laser alignment tools to ensure components are aligned to the appropriate OEM standards. Use shims to adjust heights and angles and observe best practice for shimming. Lifting of Motors and components should be performed by suitably trained and competent engineers and performed to a lift plan. Recheck after adjustments.
- **Dangers if Ignored:** Misaligned systems increase friction, vibrations, energy costs, and component failure risks.

## Crack Detection

Crack detection identifies structural weaknesses or developing failures in components, preventing catastrophic failures. Early detection ensures operational safety, reduces downtime, and supports long-term system reliability by addressing potential issues before they escalate.

- **What's Needed:** Appropriate inspections for cracks in impellers and other critical parts.
- **Why It's Important:** Prevents catastrophic failures.
- **What to Do:** Perform non-destructive testing such as dye penetrant or ultrasonic inspections.
- **Dangers if Ignored:** Undetected cracks can lead to sudden, dangerous equipment failure.



## Impeller Changes

Impeller are changed to replace damaged or worn impellers and shafts, ensuring efficient airflow and optimal fan performance. Impellers may also be changed when a process modification occurs such as increased air flow or pressure drop is required. Replacement of damaged impellers prevents efficiency losses and minimises the risk of secondary damage to surrounding components.

- **What's Needed:** Replace damaged or worn impellers or for upgrades.
- **Why It's Important:** Ensures efficient airflow and system performance.
- **What to Do:** Install new or refurbished impellers tailored to system requirements.
- **Dangers if Ignored:** Excessively worn or damaged impellers could reduce efficiency or cause a serious danger in the event of catastrophic failure.

## Bearing Changes

Bearing changes address wear and degradation, ensuring smooth, efficient fan operation. Replacing bearings proactively reduces vibration, overheating, and the risk of costly failures or unexpected downtime.

- **What's Needed:** Replace worn or damaged bearings.
- **Why It's Important:** Supports smooth, efficient operation.
- **What to Do:** Remove old bearings, clean or replace housings, and install replacements. Replace all seal components and ensure any items such as grease discs or oil flinger rings are in good condition or are replaced. Lubricate as required. Bolts should be torqued according to OEM standards.
- **Dangers if Ignored:** Worn bearings cause vibration, overheating, and system failure.

## Seal Changes

Seal changes prevent gas leaks and protect components such as bearings from heat and contamination. Replacing damaged seals improves system efficiency, minimises operational risks, and extends the lifespan of critical fan components.

- **What's Needed:** Replace damaged or degraded seals.
- **Why It's Important:** Prevents gas and or heat leaks and protects internal components.
- **What to Do:** Select appropriate seals and replace them during routine servicing.
- **Dangers if Ignored:** Seal failures can lead to contamination, loss of efficiency and premature bearing failure.



## In-Situ Cleaning and Coating

In-situ cleaning and coating enhance the durability and performance of impellers. These processes protect against corrosion, reduce wear, and improve overall system efficiency without the need to remove components. By applying special coatings, the risk of unbalance due to deposition of contaminants on the impeller can be reduced.

- **What's Needed:** Clean and coat impellers without removing them.
- **Why It's Important:** Enhances durability and performance.
- **What to Do:** Use specialised cleaning and coating tools to address surface wear and corrosion and correct unbalance due to contaminations on the impeller.
- **Dangers if Ignored:** Corrosion and debris can damage components, reduce efficiency and cause unbalance.

# Reporting

Well-structured reports should provide simple, user-friendly documentation with clear actions, timescales, and criticality. They will then help to ensure maintenance activities are prioritised effectively. Comprehensive reports help identify issues early, guide repairs, and support long-term system reliability and efficiency.

- **What's Needed:** Detailed documentation of inspections and maintenance activities.
- **Why It's Important:** Provides a record for future planning and compliance.
- **What to Do:** Create an easy to understand and comprehensive report with photos, check lists, standards applied and future maintenance recommendations.
- **Dangers if Ignored:** Lack of records can lead to missed maintenance and compliance risks.

# Why Choose Salvtech

Salvtech guarantees timely service to minimise downtime during outages. Our team ensures your systems are back online quickly, reducing operational disruption and delays.

**Commitment to Safety**
We never compromise when it comes to the safety and welfare of people.

**Precision and Reliability**
We deliver precision and quality, using advanced specialist fan maintenance tools and proven methods to maintain reliability.

**Experience and Knowledge**
Our expertise ensures repairs are effective and long-lasting, reducing the risk of recurring issues.

**Transparent and Proactive Communication**
Our transparent pricing includes clear quotes with no hidden costs. We prioritise communication, providing regular updates and actionable recommendations throughout every stage of the process.

**Proven Track Record**
With a proven track record of success, Salvtech is trusted by leading industries. Our client testimonials and project outcomes highlight our reliability and consistent results, ensuring peace of mind.



# Contact

Salvtech | Expert Fan Servicing and Repairs

T: 01244 638900

W: salvtech.com

E: enquiries@salvtech.com

Salvtech Ltd
Unit 12 Engineer Park
Babbage Road
Sandycroft
Flintshire
CH5 2QD