

COMPRESSORS: IMR IN PRACTICE

INSPECT, MAINTAIN, REPLACE

OVERVIEW

This episode examines the compressor as a key component in refrigeration systems and how the IMR strategy supports reliability, performance, and planning.



WHY COMPRESSORS MATTER

The compressor drives refrigerant flow and enables heat rejection. It is one of the most critical and highest-value pieces of equipment in the system.

Without consistent oversight:

- Performance declines due to internal wear
- Failures can disrupt operations
- Inefficiencies increase operating costs

Compressors can be maintained over time, but only with a structured approach.

RECIPROCATING VS SCREW COMPRESSORS

Most systems use either reciprocating or screw compressors. Each requires a slightly different approach to IMR.

Reciprocating	Screw
• Piston-based, staged operation • Common in ice rinks and smaller systems • More frequent, component-based maintenance • Gradual wear in valves, rings, and pistons	• Rotary, continuous operation • Common in industrial systems • Longer service intervals, more specialized work • Performance tied to oil management and internal tolerances

INSPECTION: ESTABLISHING A BASELINE

Consistent inspection helps identify early issues and track performance trends.

Key checks:

- Record pressures and run hours
- Monitor temperatures where available
- Inspect for oil leaks and component wear
- Observe sound, vibration, and operating changes

Regular inspection improves visibility and supports faster troubleshooting.

MAINTENANCE: PLANNED, NOT REACTIVE

Maintenance should be based on run hours, operating conditions, and manufacturer guidance.

Best practices:

- Plan service around low-demand periods
- Use inspection data to guide decisions
- Align work with seasonal or operational cycles

This approach reduces emergency work and improves planning.

Service Quality Matters	Parts and Consistency	Replacement Planning
• Compressor maintenance requires specific expertise. • Confirm experience with the compressor type and brand • Use trained technicians with overhaul experience • Ensure access to OEM parts • Improper service can shorten equipment life and reduce reliability.	• Component quality directly affects performance. • Use OEM parts for internal components • Keep lubricants consistent • Avoid mixing incompatible materials • Small variations can lead to increased wear.	Although compressors can last for decades, replacement should be planned. • Typical lifecycle is 20 to 25 years • Well-maintained units may last longer • Consider surrounding components during replacement Proactive planning reduces risk and improves budgeting.

APPLYING THE IMR STRATEGY

- **Inspect** to identify issues early
- **Maintain** based on condition and usage
- **Replace** based on lifecycle and risk