



Boost your SABROE compressor



3-Year warranty

Extended service intervals with long-life spare parts

Get more out of your reciprocating compressor



A philosophy of continuous improvement

The design and capabilities of SABROE SMC reciprocating compressors are subject to continuous improvement. It is a key part of the Johnson Controls' business philosophy that these improvements can always be incorporated into equipment that's already been installed, so existing customers can benefit from configuration tweaks, technical innovations and new technologies.

Focus on valve systems

In recent years, the valve system has been the focus of a particularly intensive Johnson Controls R&D effort. This is the most hard-worked system on the compressor, and thus has a big influence on overall efficiency and service intervals.

Upgrading the buffer springs, ring plates and seats in the valve system with special long-life components (all together, to provide the big service-interval benefits) are a key way to do this.

Extended service intervals

Existing service intervals

Service intervals with long-life upgrade set for fixed-speed compressors

Service intervals with long-life upgrade set for compressors fitted with variable-speed drive

-10/+35°C, SMC 1500 rpm, running ESCCR

10,000

12,500

15,000

Hours of operation

The long-life upgrade sets are available for **SMC**, **TSMC** and **HPC** reciprocating compressors (all refrigerants) already installed. Older **SMC Mk4** and **Mk3** compressors upgraded with the long-life set will benefit from the extended service intervals.

These extended service intervals ensure:

- Ever-lower service and maintenance costs for both fixed-speed and variable-speed drives (VSD)
- Much less downtime and disruption if and when work needs to be done.
- End-user customers with supremely reliable refrigeration capacity at lowest possible cost.

In some cases, the compressor will also benefit from higher running speed, boosting the capacity on VSD equipped machines.

Johnson Controls Parts Centre provides guidance about the long-life upgrade kits.

Details about the long-life improvements

Ring plates for suction and discharge valves

Finishing of edges and surfaces optimised to boost resistance to fatigue caused by impact during operation.



Buffer springs

Screw-type springs provide extra-effective protection against failure during any temporary overload conditions.

Seats

Surface hardening of the contact faces for the ring plate protects the surface of the seats from damage caused by contact with hard particles in the gas flow, thus increasing the service life.



Titanium nitride hardening protects the contact surfaces for the suction-side ring plates, and considerably improves resistance against abrasive wear caused by contact with the piston rings.

Moving parts that no longer need fixed service intervals – inspection only

Piston rings

Chrome plating of the outer surface of the piston rings results in a perfect tribology pairing with the nitrided cylinder wall. This in turn minimises abrasive wear of both surfaces as well as long, stable service life.



Bearings

Half-section bearings with a metal-polymer surface provide protection against damage from marginal lubrication, hard particles in the oil flow and general overload. This results in considerably longer service life compared to traditional white metal bearings.



A continuous cycle of upgrades and improvements

Reduce service costs, minimize production delays due to breakdowns and get peace of mind with our 3-year warranty on all upgrades.

Sabroe long-life boxes



Metal-polymer bearings

Optimised valves and surfaces of the cylinder and cylinder head

Customer benefits

- Lower service costs
- Fewer unforeseen glitches or breakdowns
- Extended Mean Time Between Service (MTBS)
- Increased compressor utilisation due to fewer standstill periods
- Return freight paid by Johnson Controls Parts Centre
- 3-year warranty on parts delivered for upgrading the compressor (when fitted with UniSAB III and registered on our EasyParts portal). For detailed warranty conditions see Parts Info 03-18.



Improved technologies last longer

Choosing a long-life upgrade set means your SABROE compressor gets a service in which it is upgraded with parts that feature more-advanced technologies compared to a standard service set C. Bearings made of metal-polymer composites have become the industry standard for more heavy-duty operations instead of the traditional white-metal bearings. The cylinder liner, head and valves all feature hardened surfaces. All together, this minimises the risk of unforeseen compressor breakdowns and increases the intervals between service.

Efficiency and savings

The long-life upgrade set also contains a software upgrade for the UniSAB III control unit. This ensures your SABROE compressor the full benefits of both variable and extended service intervals. Longer intervals between service result in maximum uptime as well as boosting the savings you can achieve on your compressor operating costs.

Responsible recycling

The new long-life upgrade sets are based on the Johnson Controls business philosophy of responsible recycling, with all the environmental benefits this brings. Replaced parts should therefore be returned to the Parts Centre for effective re-use and recycling.

Free return freight

Johnson Controls Parts Centre pays return freight for the parts replaced with the long-life upgrade set.

| Specifications | Standard service set C | Long-life upgrade Set |
|--|------------------------|----------------------------------|
| Long-Life suction ring plate valves including buffer springs | ■ | Complete cylinder liner assembly |
| Cylinder liner (hardened surface) | | |
| Long-life discharge ring plate valves including buffer springs | ■ | Complete cylinder head assembly |
| Cylinder head (hardened surface) | | |
| Piston rings | ■ | Complete piston assembly |
| Piston | | |
| Connecting rod | | |
| Connecting rod bearings | ■ | ■ |
| Main bearings | ■ | ■ |
| Shaft seal | ■ | ■ |
| Oil filter | ■ | ■ |
| Parts for unloading frame | ■ | ■ |
| Gaskets | ■ | ■ |
| UniSAB III software upgrade for variable service intervals | | ■ |



Valves and surfaces of the cylinder head



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