

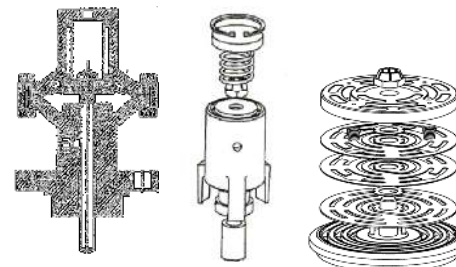
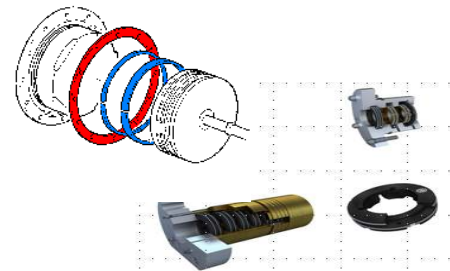
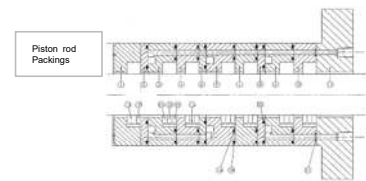
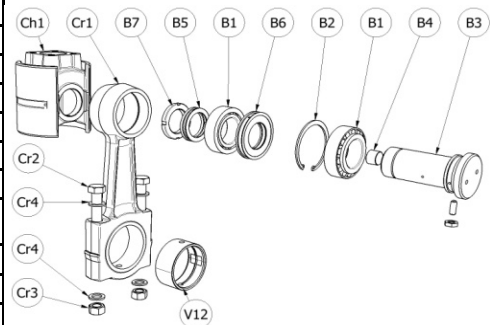
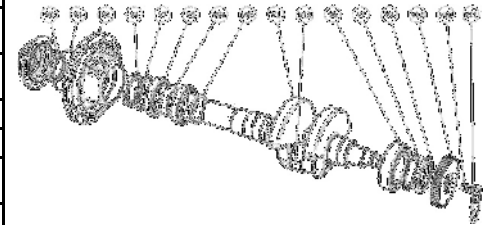
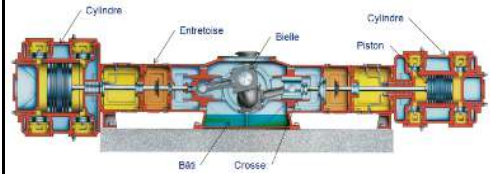


# Spare parts list

## Reciprocating Piston Compressors

Serial n° :

	Compressor Start-Up	Intermediate Inspection	Intermediate Inspection	Maintenance	Special Maintenance	Mechanical Maintenance	Check
		A	B	C	D	E	
<b>Crankcase parts</b>							
Bearing Flywheel Side + Washer x2 + SKF nuts + lock washers	set						●
Bearing opposite flywheel side + SKF nuts + lock washers	set						●
Big end bearing	set						●
Small end bush + Cr4	set						●
Crosshead pin (+circlips ext./int. + plugs + o'rings)	set						●
Oil Filter Cartridge	set	●		●	●	●	●
Oil Drain	Liter		●	●	●	●	●
Oil suction strainer	set				●	●	●
Oil level	piece						●
Door Gaskets	Set			●	●	●	●
Gaskets (Cord)	Set						●
Seal Blue Paste (tube)	piece						●
Shaft end gasket (Crankshaft)	piece						●
Oil pump	Set						●
Oil pump pinions + screws	Set						●
Rotating connector fitting + flexible st. steel + accessories	Set						●
All crankcase gaskets & o'rings	Set						●
<b>Cylinder parts</b>							
Piston seal ring	set			●	●	●	●
Piston rider ring	set				●	●	●
Cylinder gasket set							●
- Valve covers gaskets	set	●		●	●	●	●
- Cylinder bottom gasket							●
Cylinder liner o'ring	set						●
<b>Piston rod Sealing</b>							
Oil scrapper ring	set			●	●	●	●
Oil scraper ring wear element	set	●		●	●	●	●
Oil scraper ring gasket	set	●		●	●	●	●
Complete rod pre packing	piece				●	●	●
Piston rod pre packing element	set				●	●	●
Pre packing o'rings	set				●	●	●
Complete rod packing	piece				●	●	●
Piston rod Deflector	set						●
Packing wear element	set	●		●	●	●	●
Packing internal o'rings	set	●		●	●	●	●
<b>Valve parts</b>							
Suction valve assembly	set			●	●	●	●
Discharge valve assembly	set			●	●	●	●
Suct. & Disch. Check valve spring	Set	●					●
Suct. & Disch. Check valve disc	Set	●					●
Servo-Cylinder (complete)	Piece						●
Servo-Cylinder diaphragm	set	●		●	●	●	●
Servo-Cylinder ring	set			●	●	●	●
Unloader spring	set			●	●	●	●
Unloader	set			●	●	●	●
<b>Hydraulic circuit</b>							
VBO oil fitting gasket set (ref. VBJTN-KIT)	Set			●	●	●	●
<b>Package</b>							
V-belts	Set						●
Gas Filter Cartridge & O'rings	piece		●	●	●	●	●



Servo Cylinder      Release Clutch      Valves

### How to use the document

Parts to be stored for routine maintenance operations

Refer to maintenance planning to adjust when yearly operating time is under 8000 hours.

Capital parts correspond to long delivery time components. To be stored to avoid long stops of site operations.

# Piston Compressors

## Complement to maintenance E

**Warning !** When maintenance planning drives to maintenance type E, your equipments age is from 6 years to 8-10 years old. **Complementary operation** may have to be considered. This is particularly necessary when site operating conditions are difficult. (Corrosive gases, and atmosphere, aggressive environmental conditions (Marine, desert environments), or heavy duty compression conditions. Below list give you indications about important controls that we recommend to check carefully.

Parts	Categories	Defect Description	Risk	Operations
		Cylinder liner, or cylinder bore wear.	Loss of efficiency due to gas passing through.	Bore re-machininig, or parts replacement in case of excessive wear. Up grade of designs if possible.
		Oil degradation.	Mechanical ruptures.	Oil sample analysis in laboratory.
<b>Mechanical assembly</b>		Inefficient cylinder cooling due to water jackets or water circuit clogging.	Heat in heads not evacuated properly Can affect gas quality. Temperatures not compatible with the Atex Zone.	Cylinder heads and water circuit cleaning.
		Improper mechanical torques or mechanical clearances.	Component failures. Gas or oil leakage.	Check of defects.
		Bolts deformation, fragilisation, and threads damaged.	Parts can get loose. This can generate a compressor breakdowns. Leak tightness is compromised by poor tightening on clamping areas.	Bolts check and torque controls.
		General check of Corrosion of polymer base components, Tightening parts ...	Prevent compressor and ancillary equipments from premature wear.	Check and rebuild.
		Piping corrosion.	Fluids Leak, pollution...	Check and rebuild.
<b>Process</b>		Pressure vessels corrosion.	Gas leaks, or gas pollution...	Inspection and rebuild.
		Piping & Filtration clogging.	Gas flow decrease and energy losses.	Cleaning & replacement.
		O'rings (Polymers ageing and degradation).	Fluids Leak, pollution...	Test, Repair, Replacement.
		Valves & regulating equipments.	Flow losses. Operation troubles.	Test, Repair, Replacement.
	<b>Package</b>	Equipment Support & Anchoring.	Vibrations & damage consequences in relation.	Inspection & Reconstruction.
<b>Instrumentation</b>		Instrumentation, Electricity and Logics.	Lack of signal or information is corrupted (Consequence on operations & safety).	Inspection & Reconstruction.
		Connections and wire (polymer base).	No signal or corrupted (Consequence on operations & safety).	Inspection & Reconstruction.
<b>Driver</b>		Motor.	Failure & safety.	Check and revision.
		Power Cabinet Check.	Failure & safety.	Follow constructor recommendations.
<b>Regulation</b>		Safety valve.	To be checked and review to be in conformity with applicable regulation.	Documentation & Revalidation.
		Pressure vessels.	To be checked and review to be in conformity with applicable regulation.	Documentation & Revalidation.
		EC regulation.	Site and operator safety.	Conformity check. Possible study for conformity compliance
<b>Up grade</b>		Wear components up grade for better performance, life time and reliability.(Valves, Piston rings, Packing and their surrounding equipments). Control and monitoring systems changes for the optimisation of the equipments management and protection.		

We recommend this compressor control to be conducted by Howden field engineers. Our specialists ensure a serious compressor check. They can also identify equipments improvements to better cover site expectations in terms of performance, safety and availability.