

Chillventa Specialist Forums 2022

Chillventa Fachforen 2022

**CONNECTING
EXPERTS.**



Agenda

- ▶ HRS Company profile
- ▶ Process
- ▶ Compressors failure analysis
- ▶ Benefits



Management
System
ISO 9001:2015

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HRS Company profile

- ▶ **50** years experience
- ▶ **6 000** sqm facility
- ▶ **20** people staff
- ▶ Over **40 000** compressors remanufactured



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HRS Company profile

- ▶ **Independent** company
- ▶ All **brands** of compressors
- ▶ All **reciprocating** and **screws** compressors



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A seven steps Process

- ▶ **1** Reception
- ▶ **2** disassembly and cleaning
- ▶ **3** Preparation and machining
- ▶ **4** Motor rewinding
- ▶ **5** Reassembly
- ▶ **6** Testing and running-in
- ▶ **7** Finishing



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A seven steps Process



► 1 Reception

- The compressor and its accessories are identified and given a number
- The compressor is stored or send to the workshop



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A seven steps Process

- ▶ **2 disassembly and cleaning**
- ▶ The compressor is completely dismantled and cleaned
- ▶ All defects are recorded



HRS

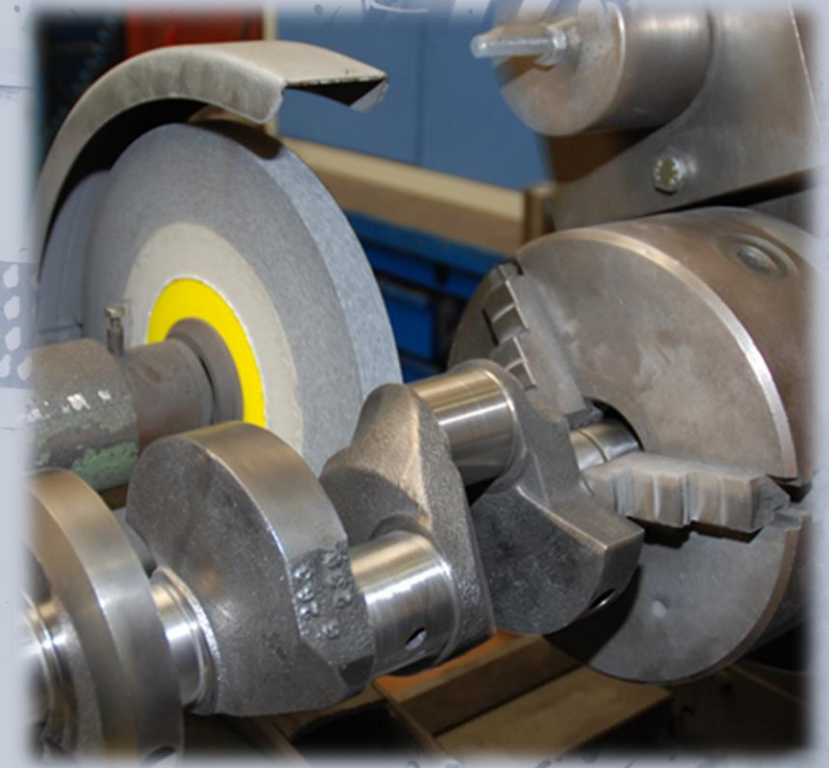


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A seven steps Process

- ▶ **3 Preparation and machining**
- ▶ removal of damaged parts and replacement
- ▶ machining of carcass, crankshaft, rotor...



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A seven steps Process



- ▶ **4 Motor rewinding**
- ▶ Extracted during dismantling the motor is rewinds
- ▶ Special test is performed



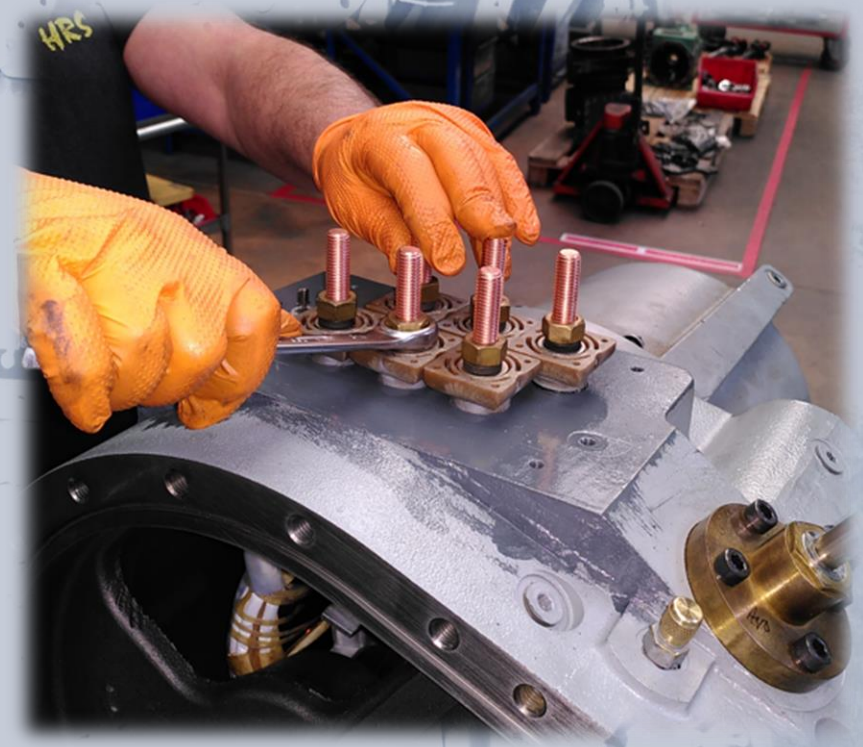
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A seven steps Process

► 5 Reassembly

- the mechanic assembles all the components
- Measurements are recorded



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A seven steps Process

- ▶ **6 Testing and running-in**
- ▶ mechanical test and running-in
- ▶ Performance test
- ▶ Checking and measuring
- ▶ leakage test
- ▶ dehydration and inerting
- ▶ Data are recorded



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A seven steps Process

- ▶ **7 Finishing**
- ▶ Painting
- ▶ identification plate
- ▶ Fitting of accessories
- ▶ Final checks



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Compressors failure analysis



- ▶ HRS is also recognized as expert by insurance company
- ▶ Our expertise allows us to identify failure roots causes



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Compressors failure analysis

HRS

- ▶ **Contamination of the circuit**
- ▶ By foreign particles, water, water vapour, air, soldering waste, oxides, chips, joint compound, etc.
- ▶ Water is the number one enemy of the refrigeration circuit.
- ▶ This leads to direct contamination by sludge and oxide



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Compressors failure analysis

- ▶ **Compressor overheating**
- ▶ The main cause is low mass flow at the compressor suction
- ▶ Lack of refrigeration gas
- ▶ Long running with power reduction of more than 50%.
- ▶ Or abnormal suction overheating



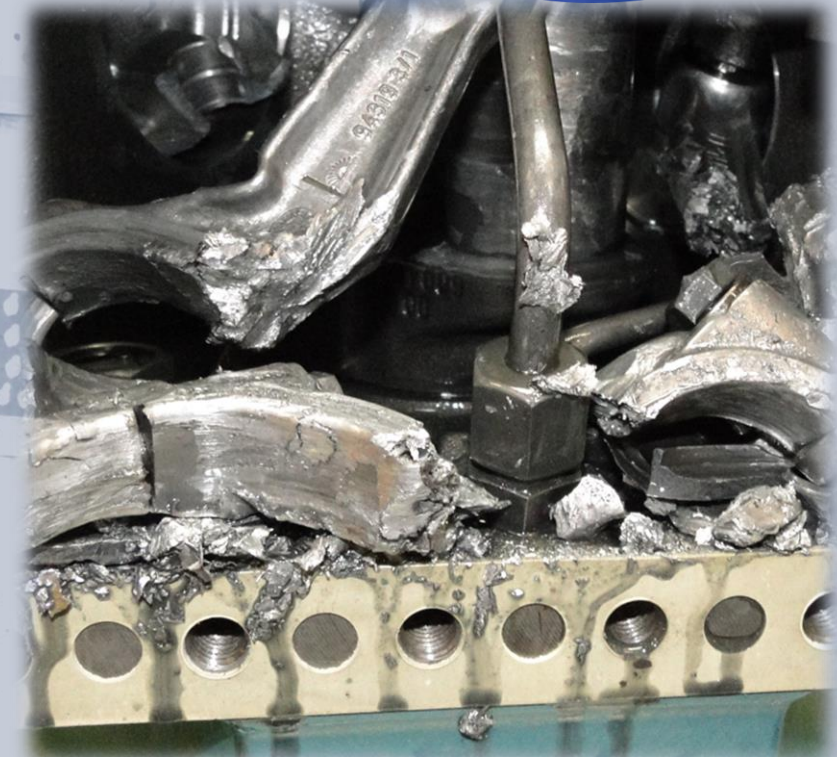
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Compressors failure analysis

HRS

- ▶ **Incompressible (liquid hammer)**
- ▶ Liquid sluggishness is mainly due to a malfunction of the expansion valve
- ▶ Oil sluggishness can be the result of a long operation in power reduction, low gas velocity, the oil remains trapped in the evaporator and returns suddenly.
- ▶ Crankcase resistor out of order, the fluid migrates into the crankcase



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Compressors failure analysis

- ▶ **Lubrication failure**
- ▶ Lack of oil, excessive oil temperature, dilution of oil with liquid fluid
- ▶ Operation with too low a speed control
- ▶ Very rarely, oil pump failure.



Management System
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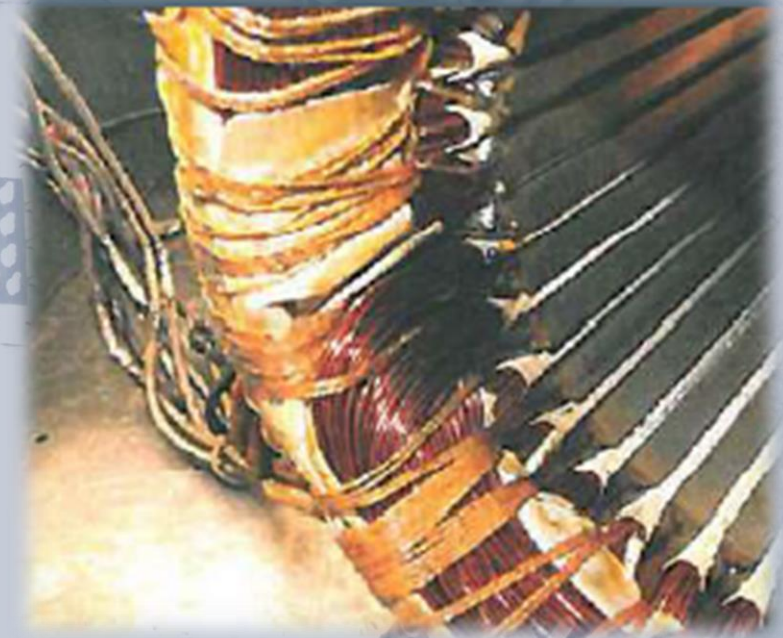
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Compressors failure analysis



▶ **Electrical failures**

- ▶ The stator rarely fails as a result of a defect.
- ▶ Examination of the stator allows the identify the origin of the damage
- ▶ Localized breakdown: Fragment of the valve attracted by the motor's magnetic field. Friction will cause the enamelled insulator to break down and cause a breakdown.
- ▶ Power supply failure: The lack of one phase on a three-phase motor will burn out 1/3 of the windings; the remaining 2/3 will heat up and eventually burn out.



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Benefits



Ökologisch
Eco Friendly

85 % recycelt
85 % recycling

Günstig
Cost Effective

Bis zu 50 % billiger als neue Verdichter
Up to 50% Cheaper

100 % sicher
100 % reliable

Gleiche Garantie
Same Guaranties

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Sitz in Frankreich keine Unteraufträge
Workshop in France



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Thank you!



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