



24 Month Warranty

Suggestive Guidelines for Preventive Maintenance

All HANBELL screw compressors are put through strict quality and performance testing prior to shipping from the factory.

Provided that terms of payment are observed, a **two year (24-month) warranty** is offered from the date of installation or 27 months from date of shipment.

It is an unconditional two-year warranty on the compressor until the first occurrence. The validity of the second year of the warranty is subject to the maintenance of the compressor unit during the first year. Customers should send a maintenance report to validate this service.

All given inspection and replacement intervals can only be guidelines.

Hanbell compressors sold by MCS, which are controlled by an MCS micro controller with software and configuration written and tested by MCS, shall be covered under a three-year (36 months) warranty agreement on the compressor only.

Warranty Start-up/Status Report Form(s) for each compressor(s) must be completed at time of startup and returned within 4 weeks from shipment date of compressor(s) before the warranty will be granted.

MCS may at its option, repair or replace defective products that are under warranty.

Compressor Warranty is based on having an Over/Under Voltage Phase Protection Device installed on the equipment.

1.1. Warranty Maintenance

The technicians should be familiar with the Hanbell compressor before attempting any maintenance on the unit. Periodical check and regular maintenance are very important for the long and trouble-free compressor life and for maintaining the warranty. The content here is to help the operator and service people to know how the regular maintenance can be done and when the suitable time is for each item. Operators and service people should follow the instructions on these pages when working on the maintenance.

Besides the regular maintenance, Technicians should check the system's working status by noting down its working parameters on a set schedule. Most of the time abnormal system conditions can be found via comparing its working parameters with its daily operating data.

- Compressor unit should be stopped before doing the maintenance job.
- Disconnect power from unit before doing the maintenance job.
- Close all the isolation valves before doing the maintenance job.
- Wear safety equipment when doing the maintenance job.
- Ensure adequate ventilation before doing the maintenance job.
- Take safety precautions for the refrigerant used and work with care.

1.2. Short Term Maintenance

During commissioning period or after a few hundred hours of compressor running, the following checks and replacement shall be done in order to protect the compressor and understand the compressor's working status.

1.2.1 Suction Strainer

The Suction strainer plays a very important role to long compressor life. In the initial commissioning, debris

and welding slag might find its way to compressor's suction side. With the help of the suction strainer, debris will be gathered inside the strainer to protect the compressor from rotor damage. Technicians should check the suction strainer at the **end of commissioning and after 200 hours of initial running**. Any dirt and unwanted material should be removed during the checking. Wash the strainer basket in solvent and blow clean with air.

1.2.2 Oil Analysis

At the **end of commission or after 200 hours of initial running**, oil analysis is recommended to be executed at jobsite. The purpose of doing oil analysis is to understand the compressor's working environment and ensure the oil quality. If moisture contamination exists in the system, this will lead to changing of oil quality and cause poor lubrication for internal moving parts which can cause severe damage to the compressor in the future. Technicians should replace the oil immediately to protect the internal moving parts with good lubrication and recheck the oil **again after 200 hours operation**. If the oil analysis shows the oil is in good condition, **recheck the oil every 6months** to ensure the condition remains safe.

In the case of being unable to do the oil analysis periodically, consult Hanbell oil change schedule because the interval of oil change varies by the oil type and compressor operating condition.

Check the oil acidity periodically and change the oil if the oil acidity value measures lower than pH6.

1.3. Long Term Maintenance

The information below is focusing on standard long term maintenance. Technicians should understand that these items are not assumed to take over all the necessary routine checks. Daily check for operation conditions is also very important to have a stable operating system.

Please refer to the recommended maintenance schedule found on the following pages. This schedule is only for the technician's reference and should be considered as the minimum guideline to maintain the system's normal operation. Technicians still can do any examination by their own that will ensure a stable system operation. In case of any irregular situation or abnormal condition that takes place on the compressor system, Technicians should stop the compressor and contact the contractor who installed the unit.

1.3.1 Mechanical Seal

The Shaft seal leakage should be observed everyday and be inspected by removing the cover at least once per year when doing other regular maintenance. Special attention should be given to hardening and cracking of the O-ring, wear, scoring, material deposits, oil coke and copper plating. The purpose of checking the mechanical seal every year is to ensure the stable operation for the following year. Wearing parts of shaft seal are recommended to be changed with a new one.

1.3.2 Piston Sealing

The Piston is also recommended to be inspected every year to ensure the function of capacity control. If abnormal wearing is found, the corresponding part should be replaced by a new one. Prior to replacing, the technicians should do an inspection and determine what is causing the wearing problem.

1.3.3 Vibration Analysis

Vibration analysis can help to detect bearing wear and other mechanical failures. A certified Hanbell Technician should perform this check.

Overhaul Review

Overhaul review is recommended to be done at least **every 3 years**. It is the best time to review the internal parts and replace all wearing parts for the following long-term operation. A certified Hanbell Technician should perform this review.

HANDLING POE OILS

Please read as improper handling can cause compressor failure and void the compressor warranty.

POE oils are more hygroscopic than mineral oils, so exposing POE oils to air will result in their absorbing moisture quicker than mineral oils. When POE oils are exposed to moisture and heat, they may react, forming acid that is harmful to the system. If a POE system is open for the same amount of time service technicians are used to having mineral oil systems open, there is a much greater chance of moisture contamination of the oil and, consequently, downstream system concerns.

As a result, it is imperative that contractors keep containers of POE oils sealed, except when the oils are actually being dispensed. POE oils should also be stored properly in their original container because many plastics used to package oils are permeable to moisture. It is also important to keep compressors and systems closed, except when work is actually being done on the equipment, and to filter out undesirable contaminants. This can be achieved with proper installation and service techniques as well as the use of correct filters and driers.

Once moisture is in the oil it is extremely difficult to remove, even under a high vacuum it can take many hours to reduce the level of moisture. Several filter drier changes should be planned when replacing a compressor. Often an oil change and filter driers are required to correct the problem.

Oil should be sampled once a year and sent to an oil testing lab.

High moisture and acid levels will cause coppering in the slide chamber and will cause premature slide failure. In extreme cases copper will be deposited on the compressor screws and cause high noise levels and compressor failure. High acid levels will also cause compressor motor failure.

Any questions or concerns please contact MCS Controls.

239-694-0089

MCSCONROLS.COM



24 Month Maintenance Records

Suggestive Guidelines for Preventive Maintenance

Company _____

Technician _____ Phone _____

Site Information

Installation Site Name _____

Unit Information - USE A SEPARATE SHEET FOR EACH COMPRESSOR

	Model Number	Serial Number	Type Oil Used
Unit			

Check Points	Maintenance Schedule									
	24 hrs	200 hrs	1000 hrs	2500 hrs	5000 hrs	10000 hrs	15000 hrs	20000 hrs	25000 hrs	30000 hrs
Motor Insulation						○		○		○
Oil Filter Cartridge	○					☐		☐		☐
Suction Filter	○									☐
Piston Rings										▲
PTC Sensors					○	○	○	○	○	○
Bearings					○	○	○	○	○	○
Oil Level	○	○	○	○	○	○	○	○	○	○
Oil Change	Check every 2500 hrs			✓	✓	✓	✓	☐	✓	✓
Oil Analysis		☐	Perform Oil Analysis every 6 months of constant running							

- Check / Clean ⊗ Indicates checked or cleaned by Technicians
- ☐ Change - add X when completed
- ✓ Item should be checked every 2500 hrs for possible contamination.
- ▲ Item should be replaced as maintenance schedule shows on chart above.

All given inspection and replacement intervals are only guidelines

Chiller operators should document chiller performance daily with an accurate and detailed log, comparing this performance with design and start-up data to detect problems or inefficient control setpoints. This process allows the operator to assemble a history of operating conditions, which can be reviewed and analyzed to determine trends and provide advanced warning of potential problems.



Warranty Start Up / Status Report

Upon startup, please complete the form with as much detail as possible

**NOTE: DOWNLOAD FORM TO YOUR DESKTOP - FILL IN AND SAVE AS PDF
email to sales@mcscontrols.com or print and fax to 239-694-0031**

Date

Sales Order #

General Information

Company

Name

Email

Street, City, State, Zip

Phone

Mobile

Site Information

example: ABC Elementary School

Installation Site Name

Model Number

example: CVHE32, HWSC225D

What type of oil is being used?

Compressor(s) Information

	Model Number	Serial Number	Model Number	Serial Number
COMP 1				
COMP 2			COMP 4	
COMP 3			COMP 5	
			COMP 6	

	Temperature Readings														Volt / Pressure / Amp Readings																	
	Ambient Temp	Cond Approach Temp	Cond In Temp	Cond Out Temp	Evap In Temp	Evap Out Temp	Oil Sump Temp	Cond Sat Temp	Evap Sat Temp	Sub Cooling Temp	Suction Superheat Temp	Discharge Superheat Temp	Suction Temp	Discharge Temp	Liquid Line Temp	Motor Temp	Evaporator Approach Temp	Volts L1 to L2	Volts L2 to L3	Volts L3 to L1	Refrigerant Type	Run Hours	Oil Filter PSI	Suction / Oil PSI Differential	Discharge Pressure	Suction Pressure	Amps L1	Amps L2	Amps L3			
For Unit information please see description above																																
COMP 1																																
COMP 2																																
COMP 3																																
COMP 4																																
COMP 5																																
COMP 6																																

Remarks