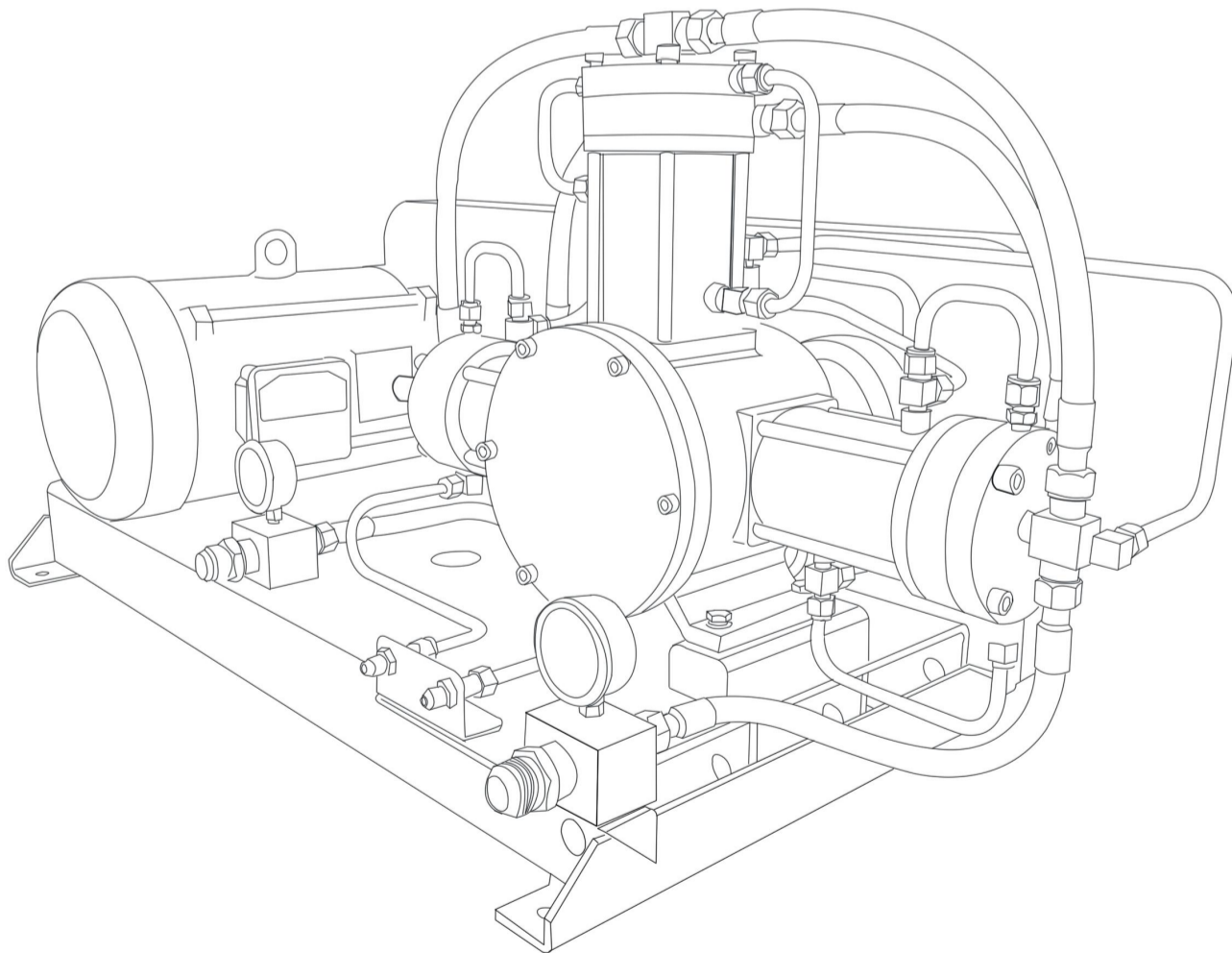


Operation And Maintenance Manual

CMEP-710 Pro Gas Compressor

For professional use only









Content

Warning.....	1
General Safety Instruction.....	2
Equipment Introduction.....	3
Technical Data.....	4
Installation.....	5
Leakage Test.....	6
Operation.....	7
Routine Maintenance And Inspection.....	8
Trouble-Shooting.....	9
Warranty.....	10
Warranty card.....	11

PLEASE READ THIS OPERATION MANUAL BEFORE USING THIS EQUIPMENT !

Warning

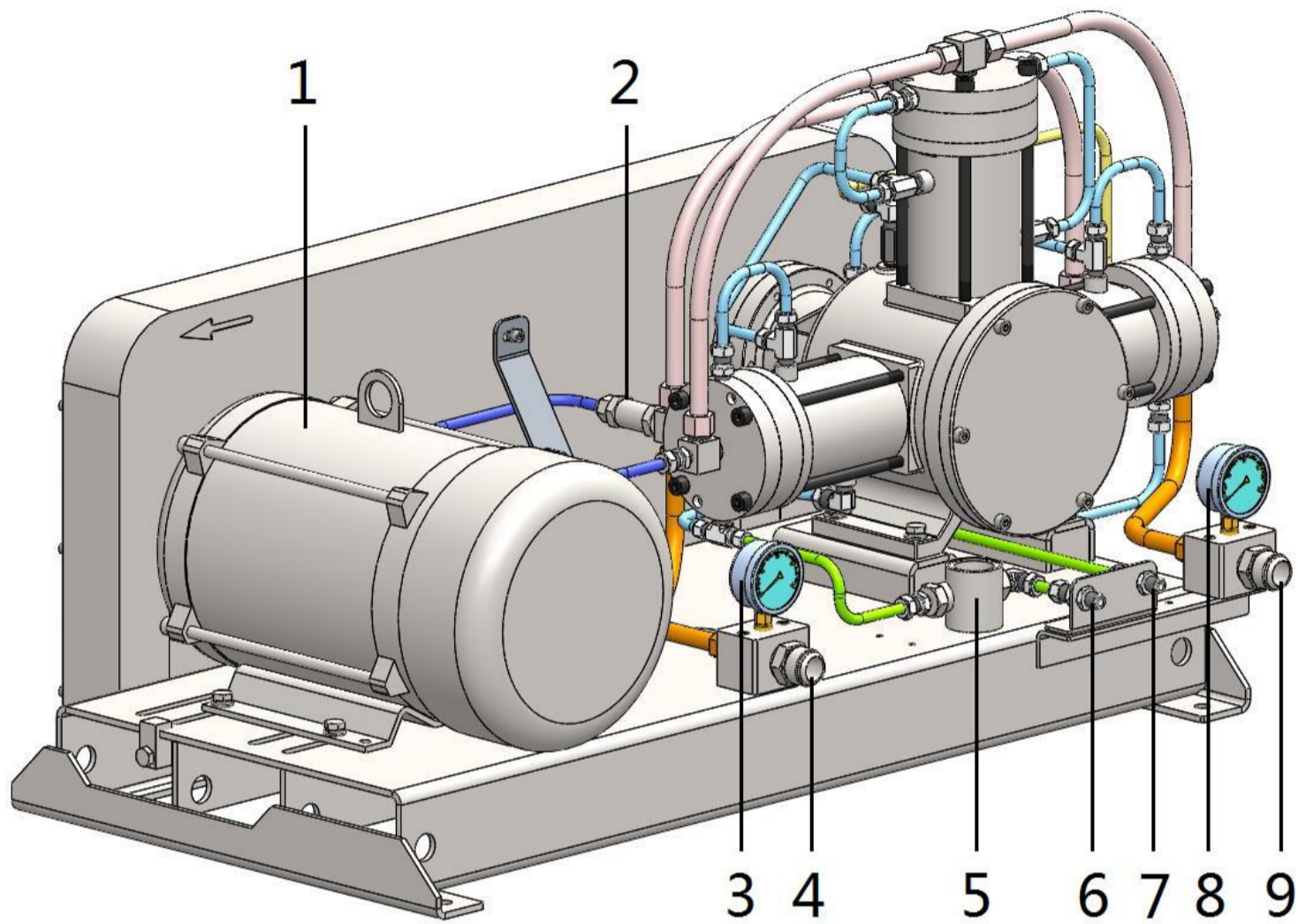
	<p>ONLY VAPOR,NO LIQUID -the compressor is designed for butane propane including mixture gas,it's forbidden to recovery ethanol or any other medium</p>
	<p>This equipment must always be operated by a qualified technician who is familiar with refrigerant and pressurized components</p>
	<p>DO NOT run the compressor without cooling water. The compressor require soft water for cooling down cylinder head.water flow rate must more than 400gal/h,water temperature more than 5°C (41°F) and less than 32°C (89.6°F) .</p>
	<p>Check water flow indicator confirm whether it works before operate the machine,see water flow indicator picture:</p>
	
<p>When ambient temperature less than 0 and compressor is not working, evacuating cooling water to prevent it freeze up caused any damage to compressor</p>	
	<p>Do Not touch equipment.equipment surface and pipeline can become very hot while it's working</p>
	<p>This equipment must be grounded to reduce risk of sparking and electric shock</p>
	<p>Always use equipment in well-ventilated area and stay away from fire and spark,the ventilation flow rate must be more than 1000 m³/h (600 CFM)</p>
	<p>Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns.</p>

General Safety Instruction

1. Electrical components selection and installation & maintenance must be strictly in accordance with the hazardous area and explosion-proof standard
2. Before operate the equipment, please make sure all components are in good working condition.
3. The compressor inlet pressure must be $\leq 0.5\text{Mpa}$ (70 psi), outlet pressure must be $\leq 1.2\text{Mpa}$ (175 psi). do not operate the machine if inlet and outlet pressure over high .
4. Before operating the machine, tighten all pipeline and fasteners to prevent refrigerant leakage.
5. For regular replacement of general wearing parts, please contact the manufacturer's authorized distributor or service center to maintain your equipment and only use manufacturer's parts
6. When maintain the equipment, disconnect hoses with caution! Pipeline may contain high pressure refrigerant. Contact with refrigerant may cause injury. Always wear safety goggles and exposure suit.
7. Do not expose children to this equipment.
8. The compressor requires extra condensing coil to condense solvent, the manufacturer recommend heat exchange rate must be more than 39674BTU. if a chiller unit is required (depends on closed loop extractor), the cooling capacity must be more than 39674BTU
9. Install a filter drier on equipment inlet is necessary to remove moisture and oil from your solvent
10. Do not clean the interior of the compressor with ethanol
11. Leakage test pressure should be less than 0.5Mpa (70Psi), compressor outlet pressure should be less than 1.4 Mpa (203 psi) to avoid the damage to the pressure relief and magnetic fluid shaft seal
12. The pump is heavy. To prevent damage from dropping, always use a lift to move the pump. Do not use the manifolds to lift the pump. Use at least two strap

Equipment Introduction



CMEP-710Pro gas compressor is specially designed for oil extraction industry, it's built for speed providing the best solvent recovery speeds in all conditions with long life, clean materials and easy to service.



System Components:

1. Motor
2. Pressure relief valve
3. Outlet pressure gauge
4. Compressor outlet
5. Water flow indicator
6. Cooling water inlet
7. Cooling Water outlet
8. Inlet pressure gauge
9. Compressor inlet

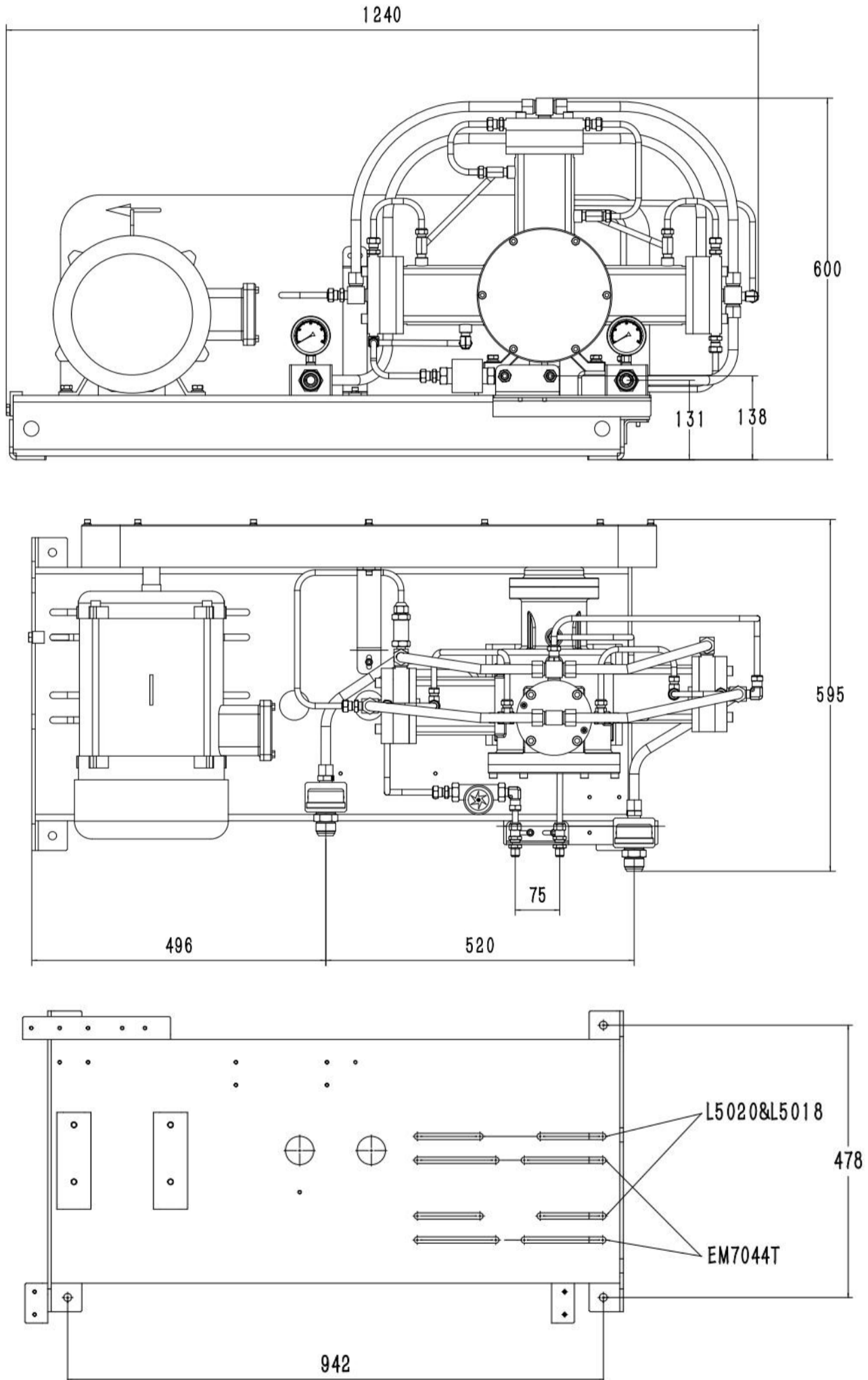
Technical Data

	US	Metric
Compressor Flow Rate	18.3 CFM	31m³/h
Butane Recovery Rate	2.5-4.7 lb/min	1.1-2.1 kg/min
Propane Recovery Rate	3-6.5 lb/min	1.4-2.9 kg/min
Maximum Pumping Outlet Pressure	175 psi	1.2 MPa,12bar
Maximum Inlet Pressure	70 psi	0.5 Mpa
Pressure Relief Valve	217.5psi(1/4"NPT)	1.5Mpa(1/4"NPT)
Maximum Pumping Inlet Vacuum Produced	-28 inHg	95 kPa,0.95bar
Equipment Withstand Pressure	406 psi	2.8 MPa,28bar
Process Inlet And Outlet Size	1" NPT male	
Cooling Water Inlet And Outlet Size	3/8" JIC male	
Explosion Proof Motor		
CMEP-710 Pro -1PH		
Horsepower	5HP	3.7 KW
Speed	1725 RPM	
Voltage	230V 60Hz 1PH	
Maximum Amperage Load	21 A	
Motor Approval		Class I Division I Group D T2C Class II Division II Group F&G T2C
CMEP-710 Pro -3PH		
Power	5HP	3.7KW
Speed	1765RPM	
Voltage	230V 60Hz 3PH	460V 60Hz 3PH
Maximum Amperage Load	13.3A	6.6A
Motor Approval		Class I Division I Group C&D T3C Class II Division I Group F&G T3C Class II Division I Group F&G T2B
Materials		
Compressor	Stainless Steel	
Pipeline&Valve	Stainless Steel	
Piston Ring	PTFE	

Installation

CMEP-710Pro compressor units should be installed in a clean, ventilated, relatively cool situation and leave enough space around the unit (if the side of the pulley faces the wall, at least 2.6 feet away from the wall). The space should be equipped with air exchange fan, the air volume requirement $>1000 \text{ m}^3 / \text{h}$.

The compressor unit can be fixed on a solid horizontal foundation with bolts, and keep the horizontal installation (after the foot is plugged with a gasket) to make the compressor work normally and reliably.



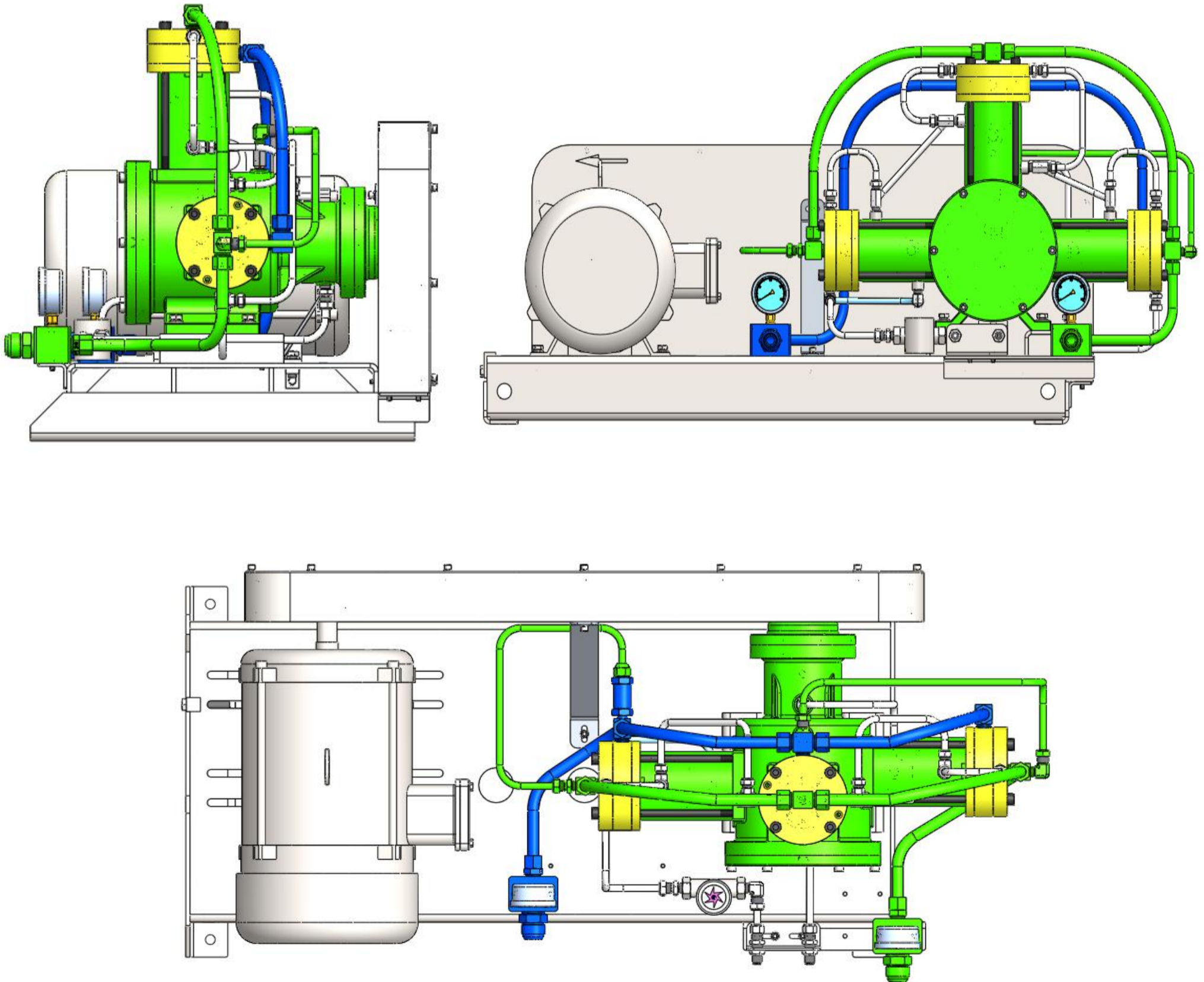
Leakage Test

Suction Pipeline

- 1.1 Install a ball valve on outlet&inlet and close outlet valve
- 1.2 Connect inlet valve with a air compressor and fill 30-45Psi dry air or nitrogen from inlet
- 1.3 Use foam water to check suction pipeline including connection and compressor cylinder head &cylinder(see below picture green and yellow part)

Discharge Pipeline

- 2.1 Disconnect air compressor with inlet valve and discharge dry air from outlet
- 2.2 Connect outlet with air compressor and fill 120-145PSI dry air or nitrogen,at this step,the inlet valve could be open or closed.
- 2.3 Use foam water to check discharge pipeline including connection and compressor cylinder head &cylinder(see below picture blue and yellow part)



Operation

Tighten Connections

Before each use, check all pipeline, fasteners and bolts to be sure all connections are tight and leak-free.

Wire Connections

Refer to specific motor manufacturer's manual, all electrical wiring must be done by a qualified electrician and comply with all local codes and regulations for C1D1 electrical connection

Running The Compressor

The operation of the compressor must follow below requirement:

1. Operation before start

A. Before operating equipment for the first use, check motor wire connection first, to prevent static electricity, equipment should be grounded. After confirmation, check compressor rotation whether in the direction of the arrow marked on the pulley cover.

B. Check all valves whether they are on the correct position.

C. Check all pipeline and fasteners whether they are tight

D. Check pressure gauge whether they are reading correct

2. Start

A. Start the compressor, observe the vibration and sound of the machine, if there is any abnormality, stop the equipment immediately, never run the compressor with failure

B. Check compressor inlet and exhaust pressure, exhaust temperature and confirm whether they are normal.

C. Check compressor cooling water system and confirm whether it's normal

D. Check the pipeline system confirm whether it's leaked

Routine Maintenance And Inspection

To improve compressor longevity, the compressor must be checked and repaired regularly. The maintenance cycle depends on compressor running time. Below maintenance cycle is manufacturer recommended:

Maintenance&Inspection Cycle	Project
Daily	Compressor running noise Compressor running temperature Pipeline and fasteners tightness Cooling water flow rate Compressor vibration
Per 250 hours or per month	Belt tightness
Every 1000 hours or half a year	Remove and check the wear of the piston ring and guide ring of the compressor
Per 2000 hours or per year	Check crankshaft, crank bearing, worn parts, sealing device and pressure gauge

Note:

The manufacturer recommends complete inspection every 4000-6000 hours or three years' running, the machine should be checked and replaced all crank bearing and worn parts. For ordering parts and further information, please contact with CM distributor or CM authorized service center.

Trouble-Shooting

Problem	Cause	Action
Exhaust temperature overhigh	The suction temperature overhigh	Reduce temperature
	Cylinder head valves damaged	Replace cylinder head valves
	piston ring worn or damaged	Replace piston ring
	Piston and cylinder get contacted	Replace piston O-ring&piston ring
	Cooling water flow rate isn't enough	Increase cooling water flow
	Cooling water pipeline block up	Dredging the pipeline
Compressor noise	Cylinder head valves damaged	Replace cylinder head valves
	Crank bearing damaged	Replace crank bearing
	Piston pin loose	Replace piston and piston pin
	Piston and cylinder get contacted	Replace piston O-ring
	Debris in cylinder	Clean cylinder
Motor does not start	Lacking phase	Replace fuses or wires and check wire connection
	Motor damage	Replace motor
	Control system failure	Maintenance

Warranty

CM guarantees all equipment referenced in this document which is manufactured by CM to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by CM, CM will, for a period of 12 months from the date of sale, repair or replace part of the equipment determined by CM to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with CM written recommendations.

This warranty does not cover, and CM shall not be liable for general wear and tear parts, it includes:

piston rings, bearings, seals, cylinder, cylinder head suction & exhaust valves, pulley belt

If equipment should fail during guarantee period it will be repaired or replaced (at our option) at no charge with follow limitation:

1. the original buyer who complete the warranty card registration and purchase the machine from CM authorized distributor.
2. The manufacturer shall not be responsible for any additional cost associated with equipment failure including, but not limited to, loss of work time, loss of refrigerant, and unauthorized shipping or labor charges.
3. All warranty service claims must be made within the specified warranty period. Proof-of-purchase date must be supplied to the manufacturer.

This limited warranty does not apply if:

- The equipment or part is broken by accident.
- The equipment is misused, tampered with or any accessories are not manufactured by CM but furnished with CM equipment
- The equipment is used for recovering unauthorized medium
- The equipment is not purchased from CM authorized distributor
- The equipment is not completed with warranty registration
- Equipment installed or operated incorrectly. like wrong motor electrical wire connection and electrical voltage, the machine was used Under overload pressure or ultra high ambient temperature

Warranty registration procedure:

1. Fill in the warranty card
2. Send the warranty card to info@cm-green.com

Warranty Card

Product Model: _____

Serial NO.: _____

Where Purchased: _____

Purchased Price: _____

Date Of Purchase: _____

Customer Name: _____

Customer Address: _____

Customer Email: _____

Customer phone: _____

CM Information:

CM Refrigeration

Nanjing Wonfulay Precision Machinery Co., Ltd.

Address :#27 Bofu Road, Zhongshan Industry Park, Liuhe District,Nanjing, China

Tel :+86 25-85622796

Email: info@cm-green.com

Website: www.cm-green.com