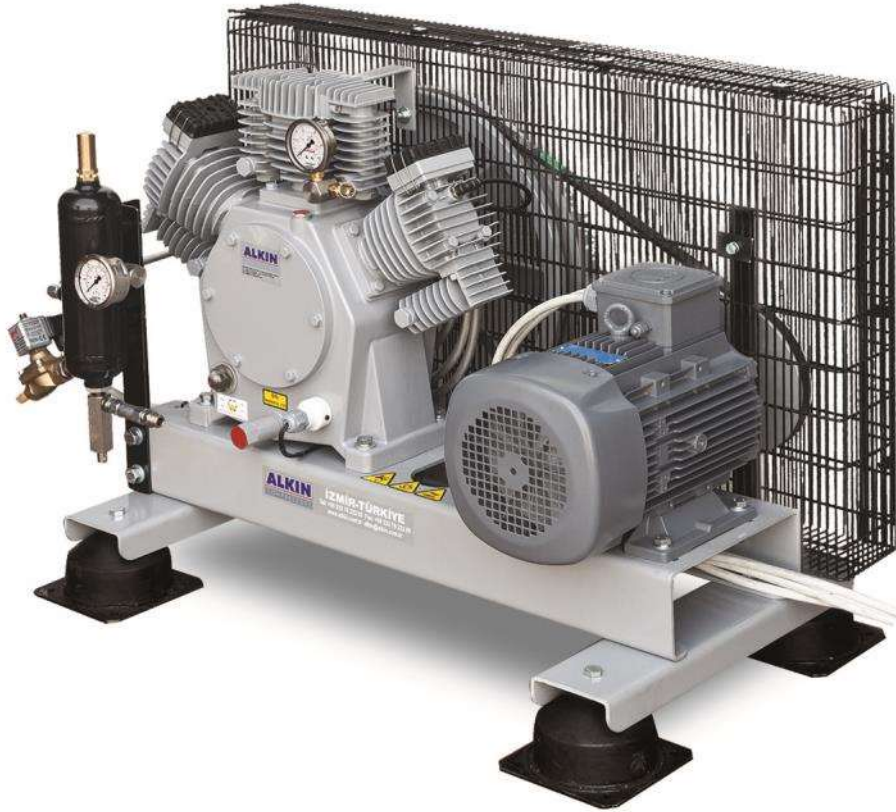




MEDIUM PRESSURE AIR COMPRESSORS



*500-700-702 SERIES
OPERATOR MANUAL*

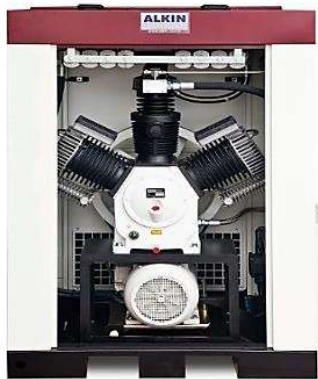
500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSOR MODELS



- 700 CHASSIS -



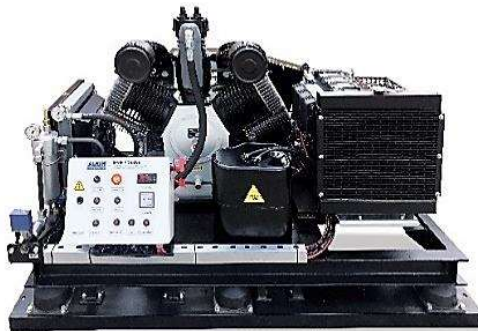
- 702 CHASSIS -



- 500 SERIES -



- 702 VERTICAL -



- 527 DIESEL -

Quality Assurance is not an action but a habit for us....

Bureau Veritas Certification

ALKIN KOMPRESÖR SAN. VE TİC. LTD. ŞTİ.

ÇENEYREY MAH. TABAĞ YOLU KOMER EVLERİ A101 MÜDRES. ZARIF, TÜRKİYE

ISO 9001:2015

ALINAK ORTA -YÜKSEK BASINÇLI HAVA VE GAZ KOMPRESÖRLERİ, SOĞUK HAVASI KOMPRESÖRLERİ, KOMPRESÖR VERİŞİ PARÇALARI, FİLTRELER, FİLTRE TAHAZİRLERİ, ÜCRETİ, SATIŞ, SERVİS VE BAKIM

İzmir

TÜRK STANDARLARI ENSTİTÜSÜ
TÜRK STANDARLARINA UYGUNLUK BELGESİ
TURKISH STANDARDS INSTITUTION
CERTIFICATE OF CONFORMITY TO TURKISH STANDARDS

SELOJE NUMARASI: 019977-TSE-0101
SELOJİN İLKE VESELİK TARİHİ: 08.04.2017
SELOJİN SON DEĞERLENDİRME TARİHİ: 08.04.2020

ALKIN KOMPRESÖR SAN.VE TİC. LTD.ŞTİ.
ÇENEYREY MAH. TABAĞ YOLU A101 NO. 101
MÜDRES. ZARIF, TÜRKİYE

SELOJE SAĞLIK KURULUŞU ADI: ALKIN KOMPRESÖR SAN.VE TİC. LTD.ŞTİ.
SELOJE SAĞLIK KURULUŞU ADRESİ: ÇENEYREY MAH. TABAĞ YOLU A101 NO. 101 MÜDRES. ZARIF, TÜRKİYE

SELOJE SAĞLIK KURULUŞU ADRESİ: ÇENEYREY MAH. TABAĞ YOLU A101 NO. 101 MÜDRES. ZARIF, TÜRKİYE

SELOJE SAĞLIK KURULUŞU ADRESİ: ÇENEYREY MAH. TABAĞ YOLU A101 NO. 101 MÜDRES. ZARIF, TÜRKİYE

SELOJE SAĞLIK KURULUŞU ADRESİ: ÇENEYREY MAH. TABAĞ YOLU A101 NO. 101 MÜDRES. ZARIF, TÜRKİYE

ISO 9001
ISO 45001

BUREAU VERITAS
Certification



IEP ENERGY PETROLEUM INSTITUTE

EU-Unit Verification Certificate

(1) Equipment or Protective Systems Intended for use in Potentially Explosive Atmosphere

(2) Equipment Verification Certificate Number: IEP-AT-ATEX-0133

(3) Unit Verification Certificate Number: IEP-AT-ATEX-0133

(4) Product name / Model - Serial number: W32 Type Compressor / W32-5-240-P48 - 090754

(5) Firm Name: Alkin Kompresör San ve Tic. Ltd. Şti.

(6) Firm Address: Çenevre Mah. Tabag Yolu K101 No. 101 Müdres. Zarif - Turkey

(7) This product may of acceptable variation therein is specified in the schedule to the certificate and the documents therein referred to.

(8) The IEP (Institution Energy Petrol) Institute, Notifikeson on Turkish Ministry of Energy, TSK, Ltd. Şti., notified body number 2288 is accredited with Article 17 of the Directive 2014/34/EU of European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmosphere, given in Annex I(IX) to the Directive. The assessment and test results are recorded in our Certificate Report No: IEP-AT-ATEX-0133 dated 08.05.2019.

(9) Compliance with Essential Health and safety requirements has been assessed by compliance with:

EN 60770-1: 2013, EN ISO 9001:2015

(10) If the sign "CE" is placed after the certificate number, it indicates that the product is subject to specified conditions of safe use specified for the products in this certificate.

(11) This EU-Unit Verification Certificate relates only to the design and construction of the specified product in accordance to the directive 2014/34/EU. Further requirements of the directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the equipment or protective system shall include the following:

II 2G Ex IC 14 Gb
II 2G Ex IC 13C Gb

Responsible Person: Nispettin Demirel, Head of Certification Body

Date of Issue: 09.10.2019

TÜRK LOYDU

TYPE APPROVAL CERTIFICATE

This Certificate consists of 2 pages.

This is to certify that the:

MEDIUM & HIGH PRESSURE BREATHING AIR COMPRESSOR

With type designations:

W31 - 700 - 702

Manufactured by:

ALKIN KOMPRESÖR SAN. VE TİC. LTD. ŞTİ.

Is found to comply with:

Türk Loydu Rules for Classification of Ships and ISO 1217 - IS 7765 Displacement compressors - Acceptance tests

Application: High pressure breathing air compressor (W31), Medium pressure air compressor (700/702), Max. working pressure: 700 Bar and 40 Bar, Operation media: Air

Design: See left page

Address of Manufacturer: Çenevre Mah. Tabag Yolu K101 No. 101 Müdres. Zarif - Turkey

Place and date: İSTANBUL / 06.05.2019

Subject to the conditions referred to in the following pages, this certificate is valid as

Kemal SÖĞÜTÇE, New Building Division Manager

T.C. TÜRK PATENT ENSTİTÜSÜ

MARKA TESCİL BELGESİ

Marka No: 2012 01585 - Ticaret - Hizmet

ALKIN

Marka Sahibi: ALKIN KOMPRESÖR SANAYİ VE TİCARET LİMİTED ŞİRKETİ
TÜRKİYE ÇENEYREY MAH. TABAĞ YOLU A101 NO. 101 MÜDRES. ZARIF, TÜRKİYE

Markaların Korunması Hakkında 555 Sayılı Kanun Hükmünde Kararnameye göre 09/07/2012 tarihinde itibaren ON YIL 07/03/2014 tarihinde tescil edilmiştir.

TÜRK PATENT ENSTİTÜSÜ

T.C. TÜRK STANDARLARI ENSTİTÜSÜ

HİZMET YETİRLİLİK BELGESİ

Belge No: 2019YD-0101
Başlangıç Tarihi: 06.05.2019
Son Değerlendirme Tarihi: 06.05.2020

Belge Sahibi: ALKIN KOMPRESÖR SANAYİ VE TİCARET LİMİTED ŞİRKETİ
ÇENEYREY MAH. TABAĞ YOLU A101 NO. 101 MÜDRES. ZARIF, TÜRKİYE

Belge No: 2019YD-0101

Belge Sahibi: ALKIN KOMPRESÖR SANAYİ VE TİCARET LİMİTED ŞİRKETİ

Belge No: 2019YD-0101

Belge Sahibi: ALKIN KOMPRESÖR SANAYİ VE TİCARET LİMİTED ŞİRKETİ

Belge No: 2019YD-0101

Belge Sahibi: ALKIN KOMPRESÖR SANAYİ VE TİCARET LİMİTED ŞİRKETİ

ALKIN COMPRESSORS

Medium Pressure Air Compressors

Operator Manual

© This manual or any parts thereof cannot be copied by any means or used for any other purposes other than servicing ALKIN medium pressure series compressors unless specific written permission of ALKIN® is received.

© ALKIN COMPRESSORS

Kazım Karabekir mah. Bekir Saydam cad. No : 94/1 35865

Torbalı, IZMIR

Phone : +90 232 782 22 90

Fax : +90 232 782 22 89

www.alkin.com.tr

www.alkin-compressors.com

- MP-2023-01-

CONTENTS

| | |
|-----------------------------------------------------------------|----------|
| GENERAL INFORMATIONS..... | 2 |
| 1. General | 2 |
| 1.1. General Safety Information | 2 |
| 1.2. Safety Tags | 3 |
| ABOUT COMPRESSOR..... | 8 |
| 2. General | 8 |
| 2.1. Compressor Unit..... | 11 |
| 2.2. Technical Data..... | 14 |
| 2.3. Process and Instrumentation Diagram (P&ID)..... | 17 |
| 2.4. Identification of the Compressors..... | 21 |
| 2.5. Principles of Operation..... | 22 |
| 2.6. Lubrication System..... | 22 |
| 2.7. Major Components | 22 |
| 2.7.1. Compressor unit | 22 |
| 2.7.2. System..... | 24 |
| 2.8. PLC (Programmable Logic Controller)..... | 26 |
| 2.9. User Interface | 27 |
| 2.8.2. Graphic Display (AirMaster Q2)..... | 28 |
| 2.8.3. Display (AirMaster FIT) | 34 |
| 2.8.4. Menu Mode Structure and Navigation (AirMaster FIT) | 35 |
| 2.8.5. User Menu (AirMaster FIT)..... | 36 |
| 2.8.6. Alarm Codes (AirMaster FIT) | 37 |
| 2.10. Description of Controls | 39 |
| 2.9.1. Operation control | 39 |
| 2.9.2. Drain control | 39 |
| 2.11. Handling and Installation | 40 |
| 2.10.1. Unpacking..... | 40 |
| 2.10.2. Handling | 40 |
| 2.10.3. Inspection..... | 40 |
| 2.10.4. Location..... | 40 |
| 2.10.5. Piping..... | 41 |
| 2.10.6. Electrical controls | 42 |
| 2.10.7. Wiring..... | 43 |
| 2.12. Storage..... | 43 |
| 2.13. Operation..... | 44 |
| 2.12.1. Initial start-up procedure..... | 44 |
| 2.12.2. Oil recommendation | 44 |

| | | |
|----------------------------------|--------------------------------------------------------------------|-----------|
| 2.12.3. | Extremely cold ambient temperatures | 46 |
| 2.12.4. | Motor lubrication | 46 |
| 2.14. | Adjustment | 46 |
| MAINTENANCE..... | | 48 |
| 3. | General | 48 |
| 3.1. | Maintenance Table | 50 |
| 3.1.1. | Check Table | 50 |
| 3.1.2. | Replacement Table..... | 51 |
| 3.2. | Torque Values | 53 |
| 3.3. | Maintenance Instructions..... | 53 |
| 3.3.1. | Oil level check | 53 |
| 3.3.2. | Leak check | 54 |
| 3.3.3. | Intake filter check..... | 54 |
| 3.3.4. | V-Belt alignment check..... | 54 |
| 3.3.5. | Components check | 54 |
| 3.3.6. | Serpentines, Intercoolers and aftercooler, flywheel cleaning | 55 |
| 3.3.7. | Current check | 55 |
| 3.3.8. | Safety valve check | 55 |
| 3.3.8.1. | Safety valve replacement | 55 |
| 3.3.9. | Check valve check | 56 |
| 3.3.9.1. | Check valve replacement | 56 |
| 3.3.10. | V-Belt replacement..... | 56 |
| 3.3.11. | Oil change..... | 57 |
| 3.3.12. | Intake filter replacement..... | 58 |
| TROUBLESHOOTING | | 59 |
| DECLARATION OF CONFORMITY | | |
| WARRANTY CERTIFICATE | | |

FOREWORD

Dear Customer,

ALKIN air compressors will provide you with the solid and reliable performance that you should expect from an industrial air compressor.

Please read this manual carefully before you operate your compressor. This will enable you to start up your compressor in the proper manner, as well as maintain it using the simple instructions in the maintenance section of this manual. This way your air compressor will always be in top operating condition, giving you trouble-free service.

Alkin Compressors has a service and sales team that can respond rapidly to your daily spare parts and service requirements. Service and parts supply anywhere in the world can be done by Alkin Compressors. For any questions, please feel free to call our Torbalı plant, in İzmir-Turkey.

Here are the contact details:

Pre-Sales Support Services
pazarlama@alkin.com.tr
+90 232 782 2290 (Ext: 206)

After Sales Support Services
teknikservis@alkin.com.tr
+90 232 782 2290 (Ext: 209)

In all correspondences, please provide serial number and a copy of the invoice.

ALKIN has the right to change information without any prior notice.

Users are expected to safely operate and maintain the compressor, observe the rules and instructions, as well as the local safety codes to minimize the risk of accidents and injuries.

**SECTION
1**

GENERAL INFORMATIONS

1. General

1.1. General Safety Information

All ALKIN air compressors are designed and manufactured with equipment and components that allow the safe operation of the compressors. However, it is the user's responsibility to safely operate and maintain the compressor, observe the rules and instructions, as well as the local safety codes to minimize the risk of accidents and injuries. The following safety precautions are offered only as a guideline, and it is recommended to follow them along with the local safety codes and regulations.

This compressor should only be operated by those who have been trained to do so, and who have read and understood the contents of this manual. Failure to do so will increase the risks of accidents and bodily injuries. Please also read the manual of the equipment (electric, etc.) delivered together with the compressor and perform the instructions.












Never start this compressor unless it is safe to do so. Do not operate it with known unsafe condition. Tag the compressor and render it inoperative by disconnecting the power supply, so that others who may not know of the unsafe condition will not attempt to operate it until the unsafe condition is corrected.

Install, use and operate this air compressor only in full compliance with all pertinent requirements and all relevant federal, state, and local codes and regulations.

Do not modify this compressor and do not use it beyond the specified limits (pressure, etc.) and speeds except with prior written approval of ALKIN.

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

1.2. Safety Tags

| Symbol | Explanation |
|-------------------------------------------------------------------------------------|-------------------------------------|
|  | READ INSTRUCTION MANUAL |
|  | USE HEADPHONES |
|  | HOT SURFACE – DO NOT TOUCH |
|  | EARTHING |
|  | ELECTRIC HAZARD |
|  | CAUTION: CAN START AUTOMATICALLY |
|  | CAUTION: MOVING PARTS |
|  | DIRECTION OF ROTATION |
|  | RECOMMENDED COMPRESSOR OIL |
|  | AIR INLET |
|  | AIR OUTLET |

500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSORS

Read Instruction Manual



This compressor should only be used by persons who are trained in the use of compressors, knowledgeable, and who have read this manual and understood the contents. Otherwise, it will increase the risk of accidents and the possibility of injury. Also, read the instruction manual of the equipment supplied with the compressor (such as an electric motor) and follow the instructions.

Use Headphones



The protective headphones are used to protect against continuous noise that exceeds the permissible sound level and thus can cause permanent hearing damage.

Hot Surfaces, Sharp Edges and Corners



Avoid physical contact with hot oil, hot surfaces, sharp edges and corners. Keep all parts of the body away from all points of air discharge and away from hot cylinder heads, discharge pipes and intercooler surface. Wear personal protective equipment, including gloves and protective hat when working on or around the compressor. Keep a first aid kit handy. Call for medical assistance promptly in case of injury. Do not ignore small cuts and burns as they may lead to infections.

Electrical Shock



Keep the compressor, hoses, tools and personnel at least 3 meters (10 ft.) away from power lines, panel and underground cables. Keep all parts of the body and any handheld tools or other conductive objects away from exposed live parts of the electrical system. Maintain dry footing, stand on insulating surfaces, and do not contact any other portion of the compressor when adjusting or repairs to exposed parts of the electrical system.

Earthing



This machine has an earth connection to the electrical leakage. Be sure to connect the ground wire and check your grounding line. No grounding or sufficient grounding; In case of failure of the machine and electric leakage, it gives the electric current to the outer body and if it is contacted with the machine, it may cause electric current and result in serious injuries and death.

Can Start Automatically



Automatic compressor control, unit may start-up without warning!
Before carrying out maintenance and repair work, switch off at the main switch or disconnect from the mains and ensure unit will not restart.

500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSORS

Moving Parts



Keep hands, arms, and other parts of the body and clothing away from the belts, pulleys, and other moving parts. Do not attempt to operate the compressor with the canopy cover removed at the flywheel side.

Wear snug-fitting clothing and confine long hair when working around the compressor, especially when exposed to hot and/or moving parts. Make sure all people are clear of the compressor before attempting to operate it.

Only make changes when the compressor is turned off. Make modifications as needed, then start the compressor to see if the adjustment is accurate. If incorrect, shut the compressor, blow down the air, re-adjust, then re-start to check the adjustment. Keep hands, feet, floors, controls, and walking surfaces clean and free from oil, water, anti-freeze, or other liquids to minimize the possibility of slips, falls, and shock hazards.

Pressure Release



Run the compressor to see if the safety valves are operating properly or not. See and ensure safety valves are discharging the pressure on their adjusted pressure values. Do not open the oil filling plug or any other connection, tube, hose, fitting, valve etc. when the compressor is running or when it is standing by (in only automatic start/stop compressors waiting for the pressure switch signal to re-start). Switch off the main electrical switch, shut off the discharge valve, and discharge all pressurized sections before attempting to dismantle such components. Keep all persons away from the discharge opening of hoses, tools, and accessories during discharge. Do not use air pressure above 7 Bars (101 Psi) for blow cleaning purposes, without the use of proper protective equipment. Do not let the hoses move free or do not play games with the filling hoses as they may cause accidents and injuries. Drain daily the condensate from the purifier, as it may accelerate the internal rusting and corrosion of the purifier.

Fire and Explosion



Clean up oil spills immediately when it occurs. Shut off the air compressor and allow it to cool. Keep sparks, flame, and other sources of ignition away and do not allow smoking in the vicinity when checking and draining or adding oil. Do not permit liquids such as airline anti-icer system anti-freeze compound, or oil film or any other combustible substance to accumulate on any external or internal surfaces of the compressor. Wipe down with aqueous industrial cleaner or steam to clean as required. Do not use flammable solvents for cleaning purposes. Disconnect the power supply prior to attempting any repair or cleaning.

500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSORS

Tag the power supply to avoid an unexpected start by someone else. Keep electrical wiring, including terminals in good condition. Replace any wiring that has cracked, cut, abraded, or otherwise degraded insulation or terminals that are worn, discolored, and corroded. Keep all terminals clean and tight. Keep grounded conductive objects such as tools, away from exposed live electrical parts such as terminals, to avoid arcing, which might serve as a source of ignition. Keep a suitable BC or ABC fire extinguisher(s) nearby while servicing and operating the compressor. Keep oil rags, trash, leaves litter and other combustibles away from the compressor. Do not spray volatile materials into the compressor intake, as serious damage to the compressor and personal injury or death may result.

Toxic and Irritating Substances



Do not use air from this compressor for breathing unless it is equipped with proper purification equipment. Make sure that Purifier Cartridge is installed inside the Purifier Housing. Operate the compressor only in well-ventilated areas. Lubricants used in this compressor are typical synthetic oil. Accidental ingestion and skin contact should be avoided. Wash with soap and water after skin contact. If swallowed, call for medical treatment promptly.

Lifting and Carrying



If you must lift the compressor, lift in full compliance with codes and regulations. Make sure the entire lifting, rigging, and supporting structure has been inspected, is in good condition, and has a rated capacity of at least the net weight of the compressor. If you are unsure of the weight, check before lifting. The distance between the forklift's forks should be sufficient for lifting if the compressor will be carried and lifted with the forklift. Moreover, the forklift must have a rated capacity of at least the net weight of the compressor. The forks of the forklift should be positioned under the compressor just as shown in the figure below. The height of the compressor from the ground must be max. 10 cm during carriage.

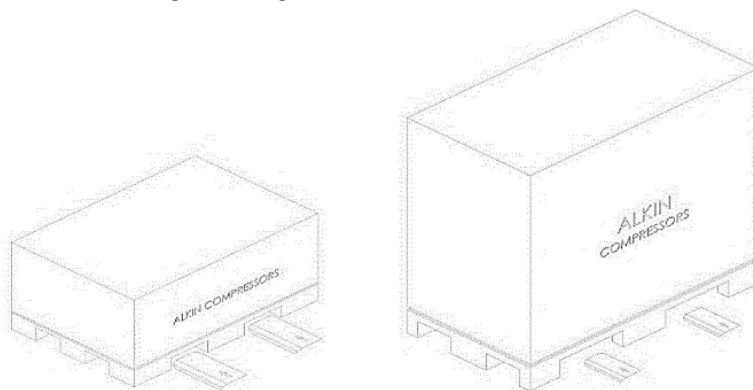


Figure 1 – Lifting and transporting by forklift

500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSORS

Do not distract the forklift operator during the carriage. Verify the lifting hook has a safety clamp and ensures a robust fastening with tough ropes or chain. Avoid the compressor swinging while suspended, by using guide ropes. Keep all people clear from under and away from the compressor when it is suspended. Lift the compressor not higher than necessary. Keep lift operator in constant attendance whenever the compressor is suspended. Set the compressor down on level surfaces, capable of carrying its full weight.

NOTE:

DO NOT RUN THE COMPRESSOR ON WOODEN PALLET WHERE THE UNIT IS MOUNTED FOR TRANSPORTATION PURPOSES.

Warranty and Liability

Alkin Compressors cannot be held responsible if your compressor is operated without observing the rules stated in the operator manual.

Your compressor will be out of warranty if:

- * Non-compliance with the rules specified in the operator manual,
- * Use of parts not produced / approved by Alkin Compressors,
- * Installation and operation of the compressor on surface conditions that are not on a flat and stable,
- * Installation and operation of the compressor in conditions that are not in compliance with national and local occupational safety rules,
- * Interference of compressor operating parameters by third parties without the approval of Alkin Compressors,
- * Failure to comply with compressor control and component replacement times,
- * Interventions that do not comply with Alkin Compressors maintenance / repair instructions,
- * Removal of compressor label,
- * Force majeure

ABOUT COMPRESSOR

2. General

500-700 and 702 series compressors are two or three stage, reciprocating type, air cooled and splash lubricated compressors. The working pressure of these compressors is 40 bar (580 psi) for the 700-702 series, and up to 80 bar (1160 psi) for the 500 series depending on valves and heads. Do not attempt to modify the compressor to operate at higher pressure without written approval of ALKIN. Failure to do so may result in heavy damage to equipment, injury, or death.

Medium pressure series compressors are built with oversized intercoolers and aftercooler to allow superior performance, longer life, and lower operating and discharge temperatures.

The 700, 702 series compressor units are designed as two-stage, three-cylinder, and 500-series compressors as two stage-three cylinders and three stage-three cylinders. The inlet and discharge ports of the 2nd stage cylinders are connected together through an inlet and a discharge manifold. The air is drawn at atmospheric pressure, through the inlet filter into the 1st stg. cylinder.

The cylinder configuration is of W shape. On the flywheel side, the discharge manifold takes place. The left and right cylinders are connected to the discharge manifold via aftercooler tubes which cool the discharge air with the air blast coming from the flywheel. The compressor is driven by an electric motor/petrol engine via V-belts. The motor sits on slides and belt tension adjustment is applied by tightening or loosening the bolts.

500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSORS

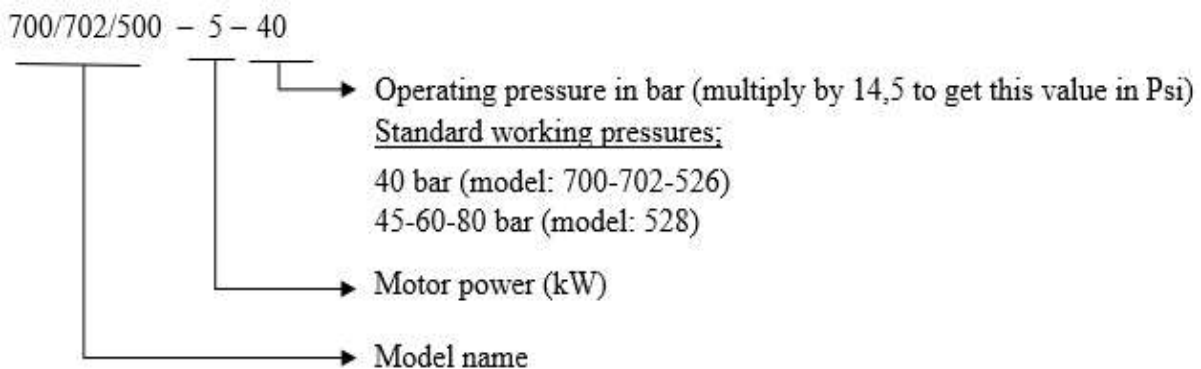
There is a Safety Valve at each stage to prevent an unwanted increase in pressure resulting from a problem in valves or any other parts. It must be periodically checked that these safety valves are working properly, and they keep their set pressure values. (Please see Maintenance Table)

Medium pressure series compressors are equipped with stainless valves at each stage that are designed to maintain airflow without any loss of pressure. They are easy to maintain and replace. The maintenance of valves is especially important as they are the main parts in proper and problem-free working of compressors. Lubricants not approved by ALKIN can prevent valves from working properly due to the accumulation of carbon on springs and washers. Valves not working properly will cause an increase in working temperature and the deterioration of lubricant, thus in return, will further break down the valves.

Max. working pressure is 40 bar for 700-702 series, and 80 bar for 500 series. It is dangerous and strictly prohibited to set a value higher than 40 bar. ALKIN will not be held liable for any problems resulting from acting otherwise.

NOTE:

Working temperature range of the compressor is 0 / +50 °C



**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

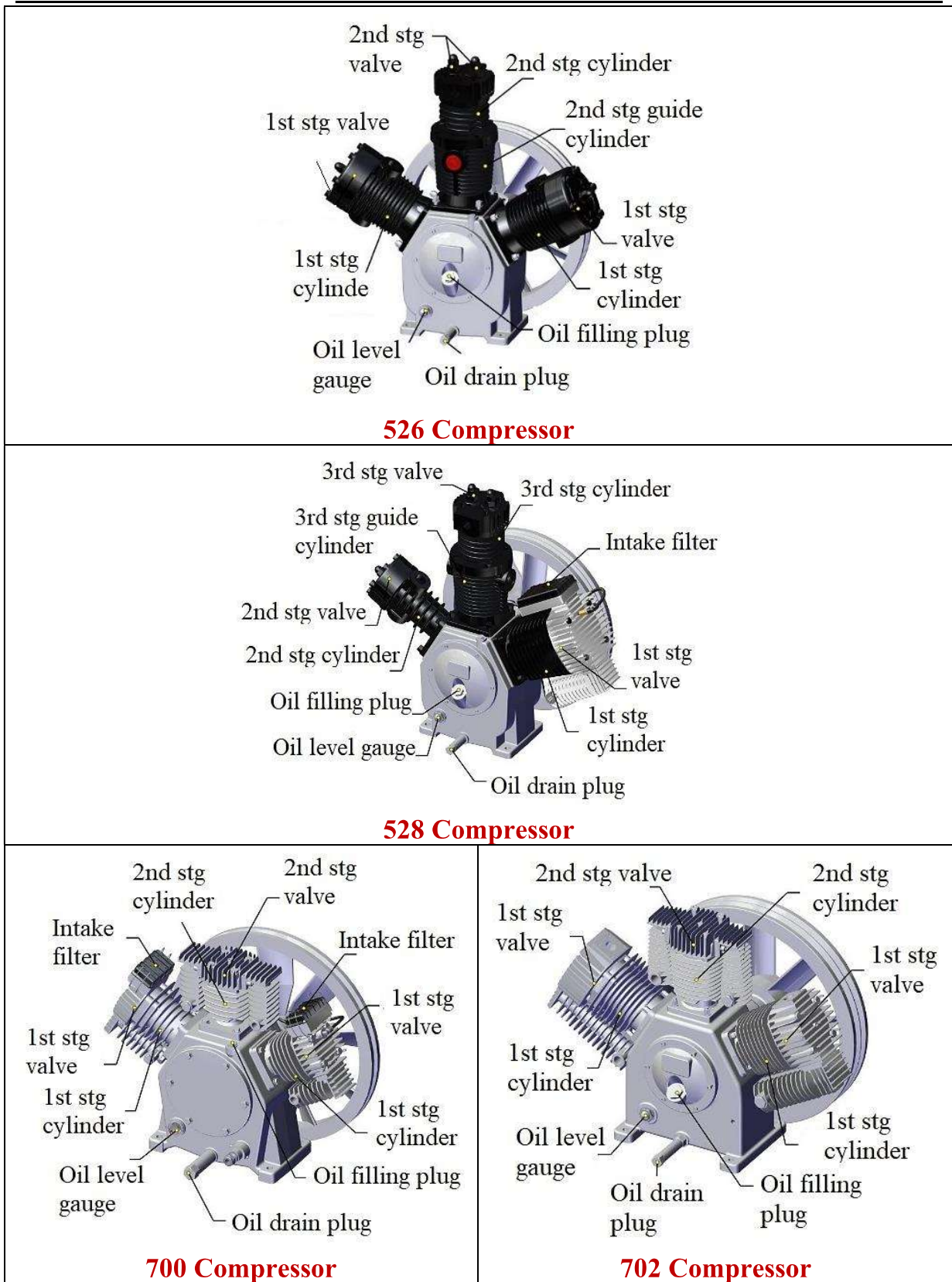


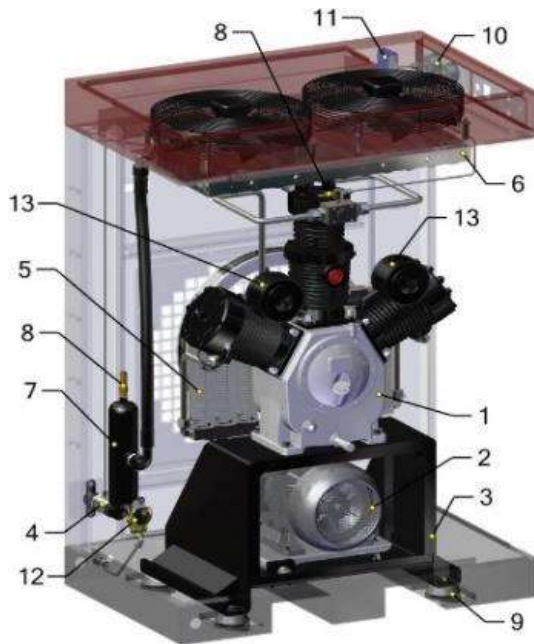
Figure 2 – 500-700-702 series compressors stages

500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSORS

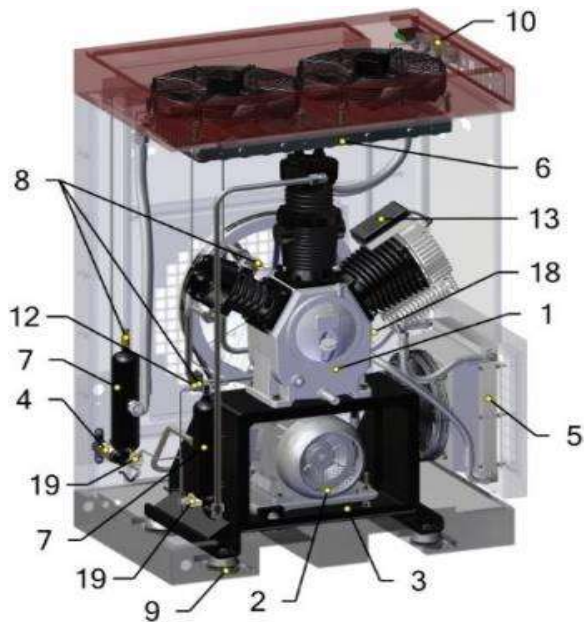
2.1. Compressor Unit

500 series (Canopy) compressor unit involves the main groups below;

1. Compressor unit
2. Electric motor
3. Subbase
4. Check valve
5. Intercooler
6. Aftercooler
7. Water separator
8. Safety valve
9. Shock mounts
10. Manometer
11. Pressure switch
12. Solenoid valve
13. Intake filter
14. Pressure sensor
15. Filter
16. Pre-filter
17. Silencer
18. Heat sensor
19. Pneumatic drain valve



526 Compressors



528 Compressors

Figure 3 – 500 series compressor general layout (canopy)

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

700 series CHASSIS compressor unit involves the main groups below;

- | | |
|---------------------------|---------------------------|
| 1. Compressor unit | 8. Shock mount |
| 2. Electric motor | 9. Monometer |
| 3. Subbase | 10. Solenoid valve |
| 4. Check valve | 11. Intake filter |
| 5. Aftercooler | 12. Silencer |
| 6. Water separator | 13. Heat sensor |
| 7. Safety valve | |

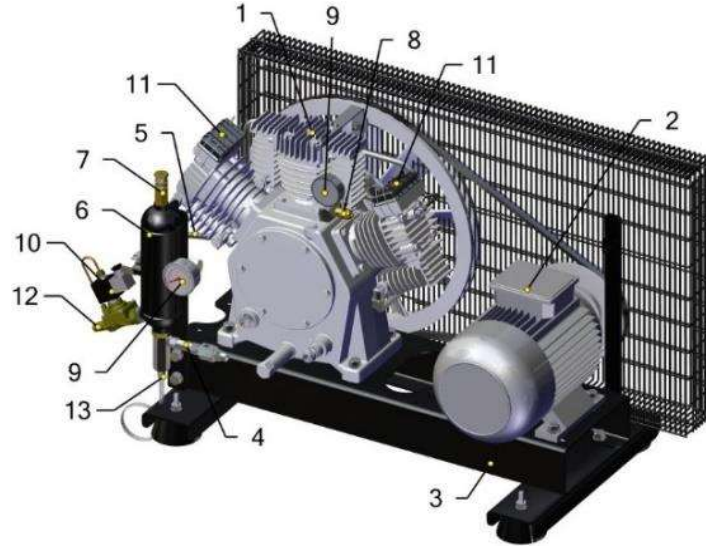


Figure 4 – 700 series compressor general layout

702 series CHASSIS compressor unit involves the main groups below;

- | | |
|---------------------------|---------------------------|
| 1. Compressor unit | 7. Water separator |
| 2. Electric motor | 8. Safety valve |
| 3. Subbase | 9. Shock mounts |
| 4. Check valve | 10. Monometer |
| 5. Intercooler | 11. Solenoid valve |
| 6. Aftercooler | 12. Intake filter |

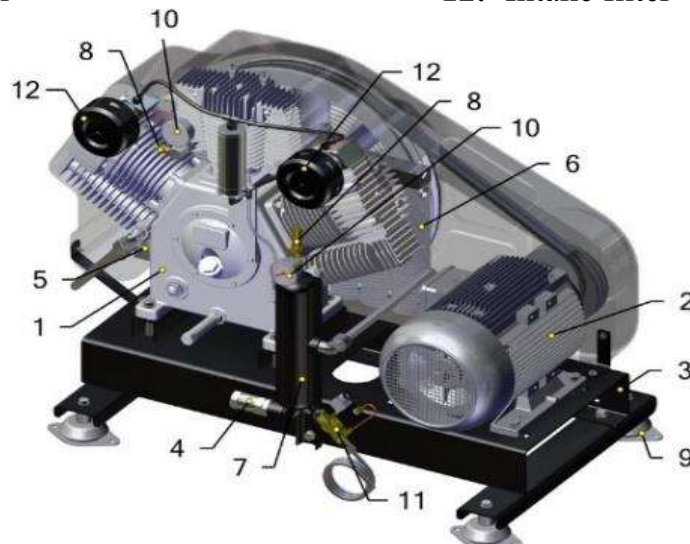


Figure 5–702 series compressor general layout

500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSORS

702 series VERTICAL compressor unit involves the main groups below;

- | | |
|--------------------|---------------------|
| 1. Compressor unit | 8. Safety valve |
| 2. Electric motor | 9. Shock mounts |
| 3. Subbase | 10. Pressure sensor |
| 4. Check valve | 11. Solenoid valve |
| 5. Intercooler | 12. Intake filter |
| 6. Aftercooler | 13. Heat sensor |
| 7. Water separator | 14. Oil retainer |

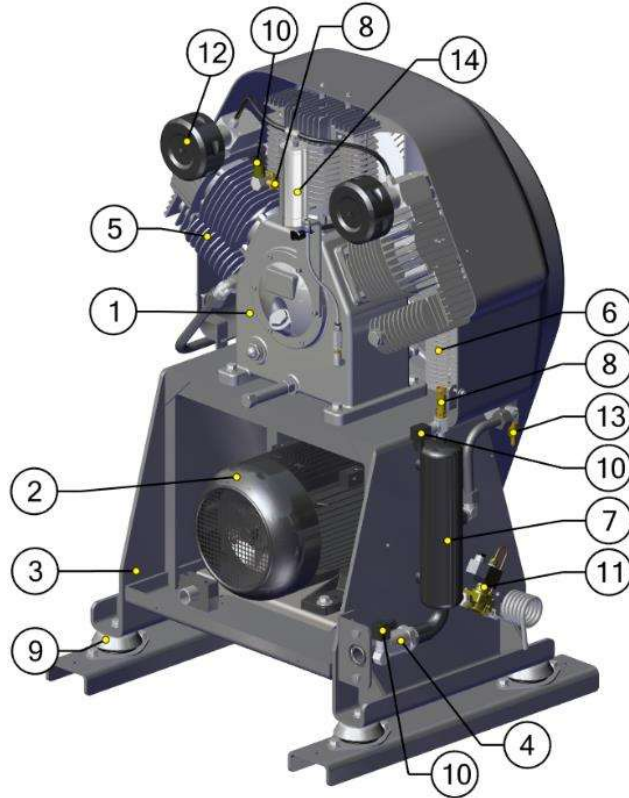


Figure 6 –702 series compressor general layout

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

2.2. Technical Data

The 500 series compressors' design are based on the below data;

| Compressor | 500 Series | |
|---------------------------------------|------------------------------------------------------|-----------------------------------------------------------|
| Sectors | Pet bottle blowing, Gas filling facilities, Military | |
| Intake pressure | Atmospheric | |
| Models | 526 | 528 |
| Operating pressure | 40 bar (580 psi) | 45 bar (650 psi) 60 bar (870 psi) 80 bar (1060 psi) |
| Free air delivery (FAD), l/min | 1715 2010 2615 | 1200 1360 1410 1460 |
| Motor power, kW | 15 18,5 22 | 15 20 20 25 |
| Compressor speed, rpm | 640 750 840 | 740 840 870 900 |
| Diameter of motor pulley | Ø 150 | Ø 170 |
| Belt dimension | 22x2150 | 22x2150 |
| Diameter of compressor pulley | Ø 600 | |
| Stroke | 101,6 mm | |
| Number of stage | 2 | 3 |
| Number of cylinder | 3 | 3 |
| Cylinder bore (1 st stage) | 127 mm | 139,7 mm |
| Cylinder bore (2 nd stage) | 69,8 mm | 76,2 mm |
| Cylinder bore (3 rd stage) | - | 50 mm |
| Oil capacity | 4 liters | |
| Operating temperature | 0/+50 °C | |
| Weight , kg | 630 640 670 | 650 660 660 670 |
| Dimensions, WxLxH , cm | 77x120x172 | 77x129x172 |

500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS

The 700 series compressors' design are based on the below data;

| Compressor | 700 Series | |
|---------------------------------------|----------------------------------------------------------------------|--------------------|
| Sectors | Pet bottle blowing, Gas filling facilities, Military applications | |
| Intake pressure | Atmospheric | |
| Operating pressure | 40 bar (580 psi) | |
| Free air delivery (FAD) , l/min | 355 l/min (12,5 Cfm) | 505 l/min (18 Cfm) |
| Motor power, kW | 4 kW (5,5 Hp) | 5,5 kW (7,5 Hp) |
| Compressor speed, rpm | 840 rpm | 1200 rpm |
| Diameter of motor pulley | Ø 180 | Ø 190 |
| Belt dimension | 17x1950 | |
| Diameter of compressor pulley | Ø 500 | |
| Stroke | 58,6 mm | |
| Number of stage | 2 | |
| Number of cylinder | 3 | |
| Cylinder bore (1 st stage) | 66,68 mm | |
| Cylinder bore (2 nd stage) | 38 mm | |
| Cylinder bore (2 nd stage) | 3 liters | |
| Operating temperature | 0/+50 °C | |
| Weight | 155 kg | 165 kg |
| Dimensions, WxLxH | 54x96x68 cm | |

500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS

The 702 series compressors' design are based on the below data;

| Compressor | 702 Series | |
|---------------------------------------|----------------------------------------------------------------------|-----------------------------|
| Sectors | Pet bottle blowing, Gas filling facilities, Military applications | |
| Intake pressure | Atmospheric | |
| Operating pressure | 40 bar (580 psi) | |
| Displacement Capacity , l/min | 1090 l/min (38,7 Cfm) | 1440 l/min (51 Cfm) |
| Motor power, kW | 11 kW (15 Hp) | 15 kW (20 Hp) |
| Compressor speed, rpm | 830 rpm | 1100 rpm |
| Diameter of motor pulley | Ø 180 | |
| Belt dimension | 17x2425 | |
| Diameter of compressor pulley | Ø 600 | |
| Stroke | 88 mm | |
| Number of stage | 2 | |
| Number of cylinder | 3 | |
| Cylinder bore (1 st stage) | 95,5 mm | |
| Cylinder bore (2 nd stage) | 60 mm | |
| Oil capacity | 3 liters | |
| Operating temperature | 0/+50 °C | |
| Weight | 325 kg 350 kg (Vertical) | 335 kg 350 kg (Vertical) |
| Dimensions, WxLxH | 76x130x86 cm 80x90x135 cm (Vertical) | |

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

2.3. Process and Instrumentation Diagram (P&ID)

The following process and instrumentation diagrams are prepared with the drawing of the physical components rather than pneumatic symbols in order to facilitate the understanding of the system by users who are not specifically trained to understand pneumatic symbols.

By looking at the P&I Diagram, you can see the general layout of the system and operational turns.

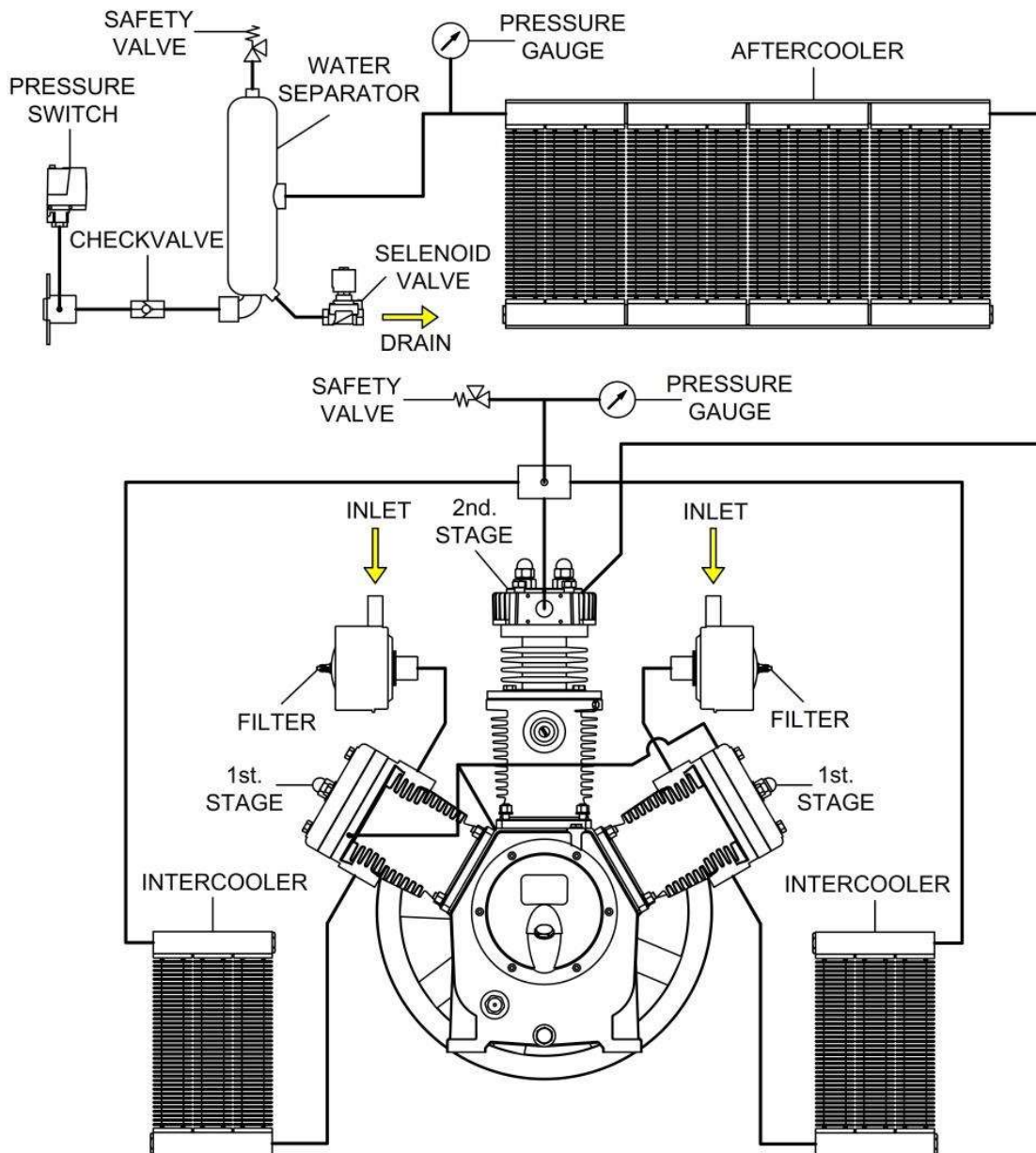


Figure 7 – 526 model canopy compressor P&ID

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

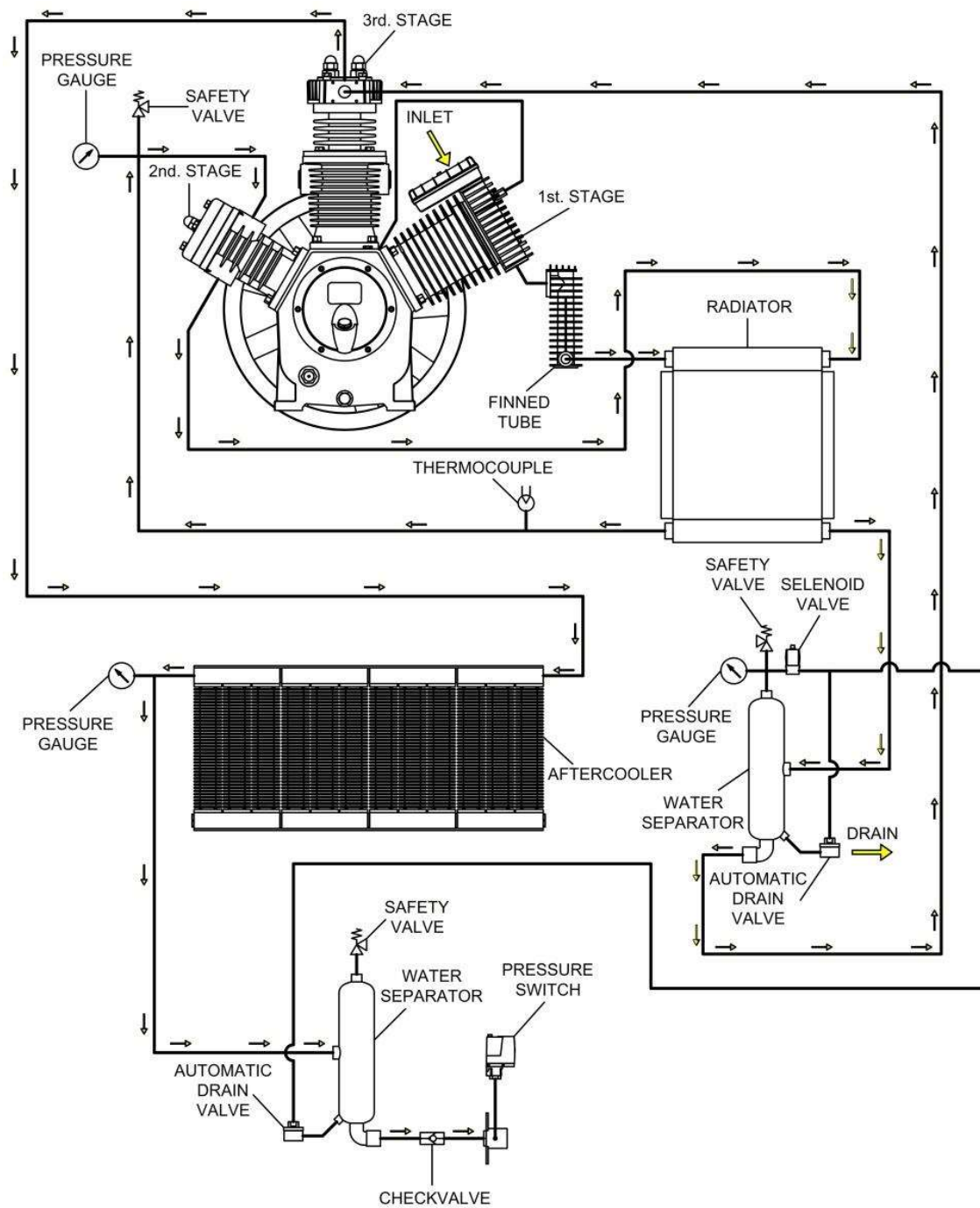


Figure 8 – 528 model canopy compressor P&ID

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

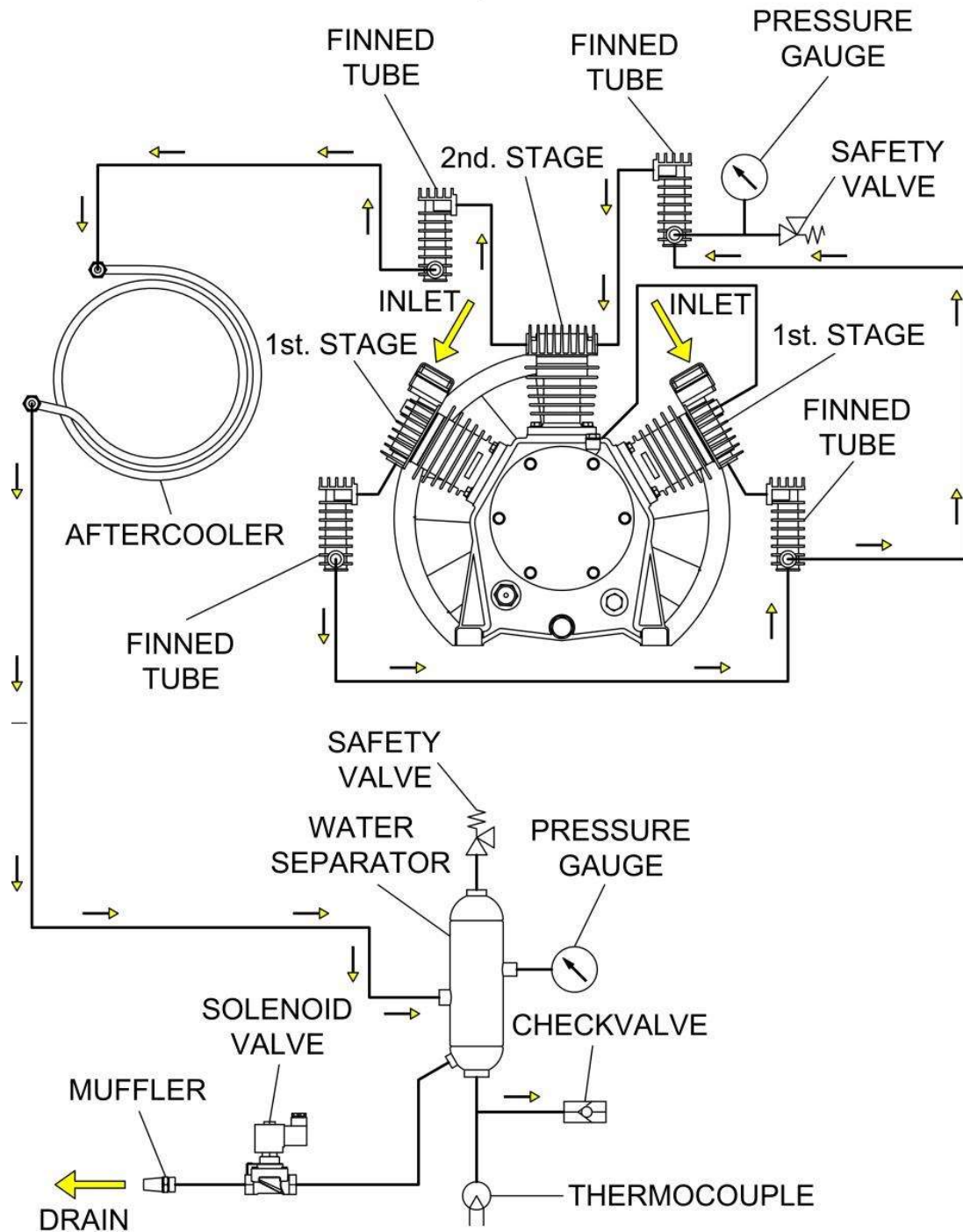


Figure 9 – 700 series chassis compressor P&ID

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

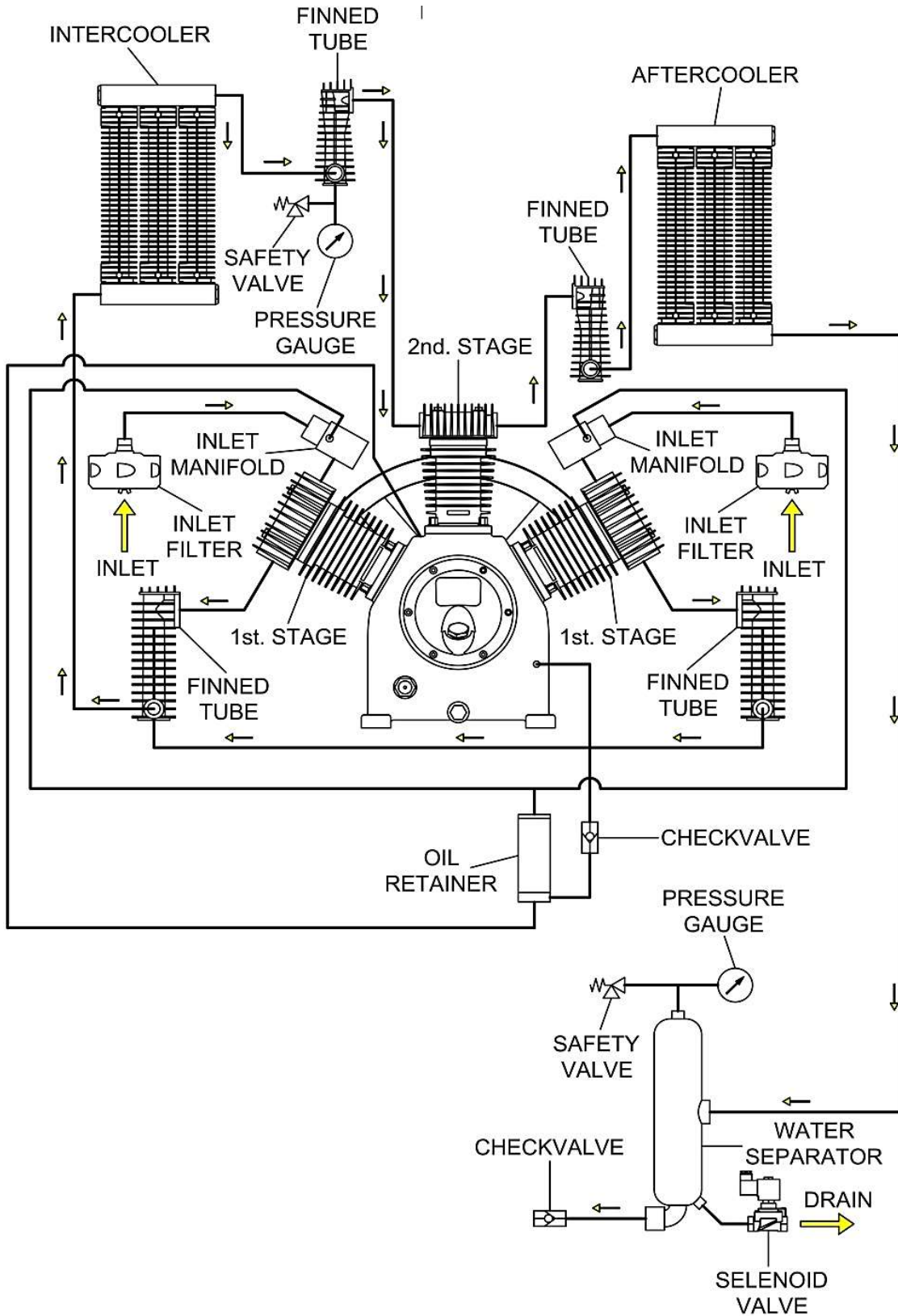


Figure 10 – 702 series chassis compressor P&ID

500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS

2.4. Identification of the Compressors

Each compressor has an identification label attached to its frame.

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
|  | |
| KAZIMKARABEKİR MAH. BEKİR SAYDAM CAD. NO:94 Torbalı Pancar-İZMİR / TÜRKİYE Tel: +90 232 78 222 90 Fax: +90 232 78 222 89 www.alkin.com.tr alkin@alkin.com.tr | |
| MEDIUM PRESSURE AIR COMPRESSOR ORTA BASINÇ HAVA KOMPRESÖRÜ | |
| MODEL | <input type="text"/> |
| SERIAL NR. SERİ NO. | <input type="text"/> |
| YEAR OF MANUFACTURE ÜRETİM YILI | <input type="text"/> |
| WORKING PRESSURE ÇALIŞMA BASINCI | <input type="text"/> |
| FREE AIR DELIVERY SERBEST HAVA DEBİSİ | <input type="text"/> |
| COMPRESSOR SPEED KOMPRESÖR DEVRİ | <input type="text"/> |
| WEIGHT AĞIRLIK | <input type="text"/> |
| MOTOR POWER MOTOR GÜCÜ | <input type="text"/> |
| MAINS SUPPLY ELEKTRİK VERİLERİ | <input type="text"/> |
|   ETK-10026 | |

2.5. Principles of Operation

Refer to the P&I (the Process & Instrument) diagram and try to familiarize yourself with the system layout. Air will be compressed in two stages from the intake pressure rated to the rated discharge pressure and exit the cylinders via aftercooler tubings, which are connected to the discharge manifold. The aftercooler tubes are cooled through forced ventilation provided by the compressor flywheel, the compressed air will leave the manifold through another tube and will connect to the discharge check valve. From here the air will be delivered to the system. The compressor unit is lubricated with the lubricant in its crankcase by splash lubrication. Splash lubrication means, lubricating the system with the splashing effect created by the stick extending from one of the connecting rods.



The level of oil can be monitored at the gage provided in the right bottom side of the crankcase. An oil level switch is provided on the left side of the compressor to protect the compressor from lack of oil in its sump. When the oil level drops, the switch cuts off (opens its contacts), thus cutting the control circuit of the motor starter, and stops the electric motor. A signal lamp is provided to indicate that the motor stopped as a result of low oil level.

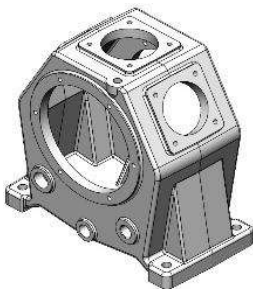
2.6. Lubrication System

A splash lubrication system is used for lubrication. The bottom of the connecting rod has a stick that travels in oil, and the connecting rod lubricates the stages by carrying the oil upstream with the crankcase oil. Due to maintenance table periods, replace the compressor's oil. This is critical for the compressor's long-term performance.

2.7. Major Components

2.7.1. Compressor unit

Crankcase:



This is the frame that holds everything (crankcase, connecting rod, etc.) on it. It also holds the lubricating oil for the system. The cylinders are mounted on it. The crankshaft is placed in the bearing housings, which are a part of the crankcase. This part does not require any maintenance or repairs; however, it must be cleaned inside when the oil is changed. It should be replaced if there is visible damage.

500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSORS

CONSULT ALKIN COMPRESSORS FOR REPLACEMENT OR MAINTENANCE



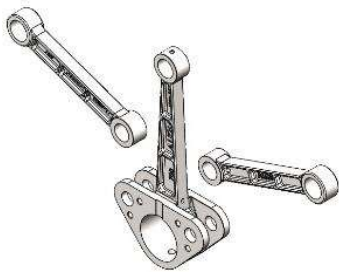
Crankshaft:

It's an overhung type, which means the bearings are on one side and the crankpin (which houses the connecting rods) is on the other. This feature allows usage of single piece connecting rods which are far more accurate and safer than split con rods.

Crankshafts with large bearings and low speeds have a very long life. Replace this part when the life of the bearings is over.

CONSULT ALKIN COMPRESSORS FOR REPLACEMENT OR MAINTENANCE

Connecting Rods:



In 500-700-702 series compressors, there are three connecting rods, two of which are the same and the third one is with a stick at the bottom part serves as the lubricating stick. Connecting rods move with the rotation of crankshaft and the stick at the bottom of the connecting rod lubricates the system by moving up &

down in the oil. Connecting Rods have high quality copper-bronze alloy bushings. When these bushings are abraded, you should replace the connecting rods.

CONSULT ALKIN COMPRESSORS FOR REPLACEMENT OR MAINTENANCE

Cylinders:

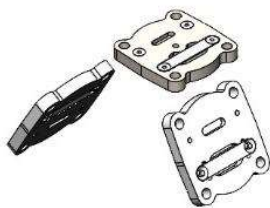


They are made of high-grade casting materials, machined, and honed to fine tolerances for long service life, and cast separately. The compression cylinders on the 3rd stg are mounted on the guide cylinder to guide the guide piston. However, have the cylinders tested with proper testing equipment in general overhaul periods and replace them if

exceeding the tolerance limits mentioned in the parts list or having a visible fault.

CONSULT ALKIN COMPRESSORS FOR REPLACEMENT OR MAINTENANCE

Valve Complete:



The entire valve is positioned on top of the cylinders and contains valves as well as up and down coverings. These complete valves should be maintained periodically and replaced if required. The valves must be replaced in every general overhaul period. The valves can be replaced by

either ALKIN Service personnel or a trained client.

500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSORS

CONSULT ALKIN COMPRESSORS FOR REPLACEMENT OR MAINTENANCE

Breather:

Every piston-type machine has some compression leakage into the crankcase through the rings. There is a breather system to prevent the pressure built up in the crankcase. The crankcase is connected to the inlet of the air compressor by a copper line, which allows for breathing.

CONSULT ALKIN COMPRESSORS FOR REPLACEMENT OR MAINTENANCE

Pistons:



Connecting rods connect the stage pistons to the crankshaft. With the crankshaft's action, pistons move up and down, compressing the air inside the cylinders. Have the pistons tested with proper testing equipment in general overhaul periods and replace them if exceeding the tolerance limits mentioned in the parts list or having a visible fault.

CONSULT ALKIN COMPRESSORS FOR REPLACEMENT OR MAINTENANCE

Safety Valves:



At the end of each stage of the compressor unit, there are safety valves. Working and leakage tests are performed on all safety valves, and working pressure is set accordingly. As a result, the safety valves prevent danger in the event of a compressor pressure rise. Safety valves are set and sealed by the manufacturer. Do not attempt to break the seal and change the settings of the safety valves. Otherwise, you may cause serious injuries or accidents may result in death. Using foam water, check the safety valves for leaks during every general overhaul and replace if necessary.

Intake Filter:

Inlet filter is used to filter the air particles in the first stage. In the maintenance intervals listed in the Maintenance Table, replace the inlet filter element

2.7.2. System

Subbase:

This is the part carrying the motor and compressor and has been supported with 4 shock mounts. The compressor and motor system work with a belt-pulley system.

Control Board:

500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSORS

The control panel is located on the upper part of the electric motor on the left side when viewed from the crankcase for frame type compressors 700 and 702. The 500 series canopy compressor is located on the right side of the electric motor when viewed from the crankcase side. All electrical equipment that starts the motor and controls the system is located here.

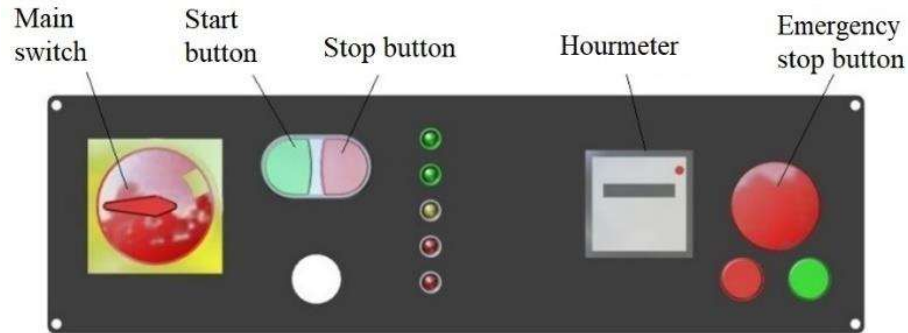


Figure 12– 500 series compressors control board

Pressure Switch:



It is located at the front view / right section of the compressor. This switch both indicates the purifier pressure, and the set pressures on its dial, while serving as a double circuit pressure switch. It controls the start-stop operation of the compressor. The pressure-sensing end of the pressure switch is connected to a port on the purifier; when the pressure inside the purifier reaches the set pressure, it cuts off the control circuit, and stops the electric motor.

Auto Drain Valves:

The automatic drain incorporates a small piston with high pressure in the bottom and low pressure on top; the surface where low-pressure acts is larger than the surface where the high pressure effectively acts on the piston. Therefore, the force on the top is larger and causes the piston to sit and seal the high-pressure vent port. The drain valves are controlled by a solenoid mounted on the pilot valve fitting. It receives compressed air from the 2nd stage air inlet and sends it over the 2 drain valves forcing them to close. When the solenoid is de-energized, it removes the control air over the top of the drain valve pistons, allowing the high pressure acting from the bottom of the pistons, to open and perform drain operation.

Motor:



Medium series mariner compressors can be driven by electric motor, petrol or diesel engine. Medium series canopy compressors can be driven by electric motor. They are belt-driven.

IMPORTANT:

Please look at the “Petrol/Diesel Engine User Manual” attached to the compressor instruction manual for maintenance periods and actions to be taken.

Intercoolers and Aftercooler:

These are the cooling tubes/serpantines that cool down the air getting warmed after compression in stages, which are located in interstages and at the discharge of the final stage of the compressor.

INTERCOOLERS AND AFTERCOOLER ARE NOT NECESSARILY REPLACED UNLESS A WEARING, CRACKING OR BREAKING OCCURS.

Water Separator:

They remove the water condensate from the compressed air occurred in stages under pressure. There is one water separator on 500-700-702 series.

Check Valve:

It does not let the compressed air inside the purifier goes back to the stages and protects the compressor to run under back pressure.






















2.8. PLC (Programmable Logic Controller)

Medium series compressors can be equipped with programmable logical controllers (PLC) to ensure uninterrupted production. AirMaster Q2 and FIT model PLCs are used in our compressors that comply with the European Machinery EMC Directive, EMC 2014/30/EU and LVD2014/35/EU.

NOTE: Enter the “ **3535** ” as a password in the User menu (P9.04) to set the high pressure operation and purifier maintenance time for AirMaster Q2 PLC.



2.9. User Interface

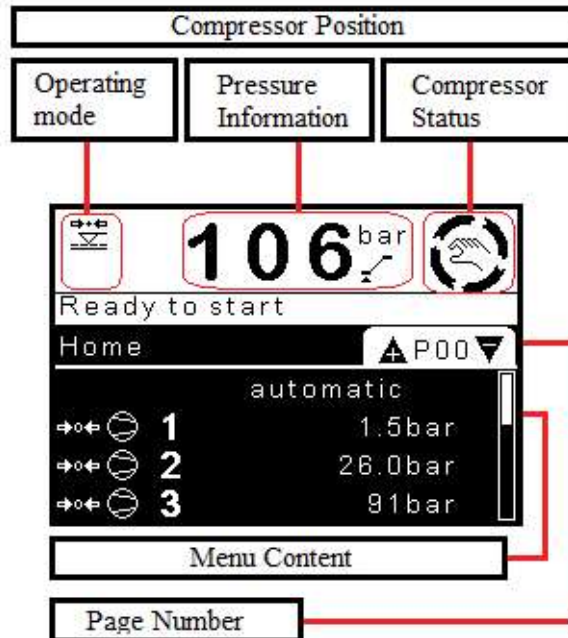
| Q2 | FIT | Fonksiyon |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------|
|  |  | Start |
|  |  | Stop |
|  | | Reset |
|  |  | Enter |
|  |  | Up |
|  |  | Down |
|  |  | Escape |
|  | | Advanced Power Monitoring |
|  | | Metacentre™ Compatible |
|  | | SD Card Option |
|  | | Airbus485™ Compatible |
|  | | MODBUS Compatible |
|  | | Advanced Control Algorithms |
|  | | Internal System Control |
|  | | Ethernet Card option |

The UP, CANCEL, ENTER and DOWN buttons may have alternative associated functions dependent on-screen view or menu. The current function of each button,

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

if different from default, is shown on the lower 'Navigation' toolbar. The START and STOP buttons always have the same function regardless of screen view or menu.

2.8.2. Graphic Display (AirMaster Q2)



After a period of non-use the graphic display light level will reduce until a key is pressed.

P00 is the default view page after power up and where the display will return after a period of no keypad use. Where applicable, the menu item highlighted will toggle between the default menu display and additional menu information.

For example: P00.02



1: Control mode

2: Load / off load

Menu Navigation (AirMaster Q2)

Menu tabs are arranged sequentially and in a continuous loop.

The graphical interface inverts to identify the 'on screen' navigation location and the navigation location is indicated on the vertical scroll bar.

Additionally the menu tab extends to identify the navigation location. For example:

| Item | Description |
|------|-------------|
|------|-------------|

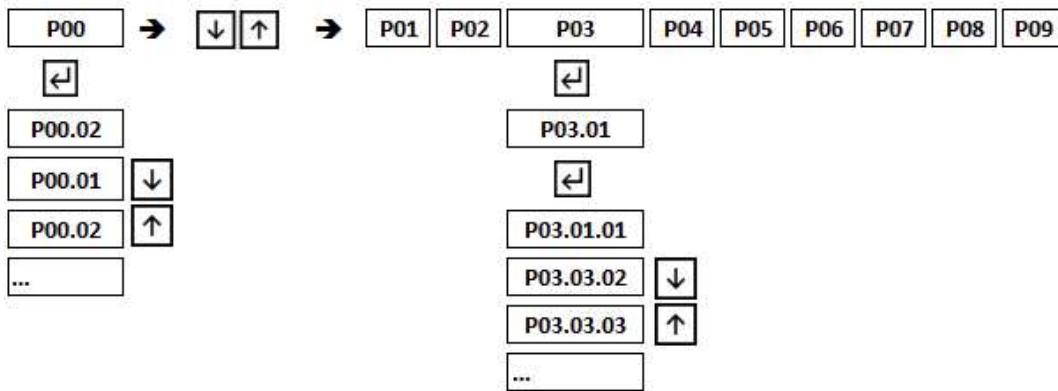
**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

P02 Menu: Utilization
 P02.10 VSD average RPM
 P02.10.01 AVG RPM 1 – 25%

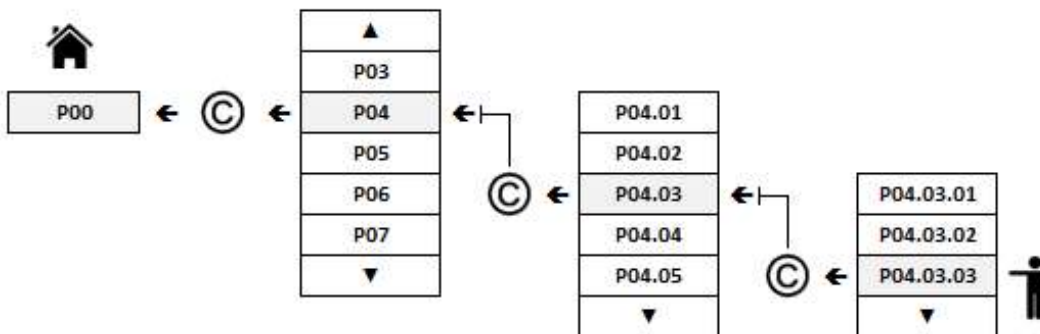
Note: Menu content items are only visible when the Airmaster™ is appropriately configured.

Menu items are indexed sequentially and without omission. If a menu item is not present its most likely due to configuration.

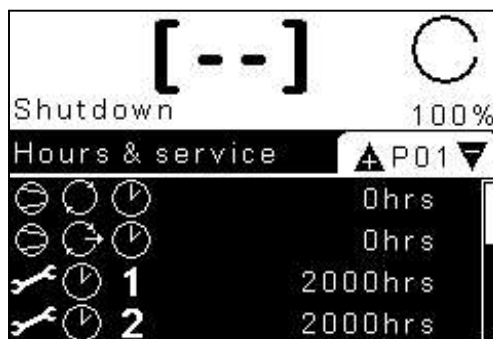
Progress in Menu



Back to previous Menu



PAGE NO (P00) is on the top right of the screen. P00 is the main screen.



**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

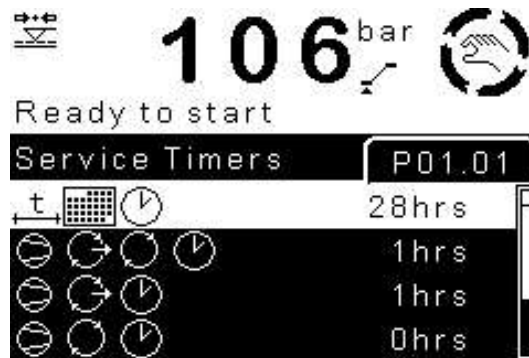
Use the ENTER key and ESCAPE key to navigate between menu page navigation and menu content navigation.



With the menu page item highlighted, use UP and DOWN keys to access the page number. (P01, P02 .. P09) . Menu content items are vertically listed and in a continuous loop.



When the “ENTER” button is pressed, the page remains fixed; and the second page of that page appears (P01.01).



Menu P00: Main Page

- P00.01:** Active Alarm / Error
- P00.02:** Operation mode
- P00.06:** 1st stage pressure
- P00.07:** 2nd stage pressure
- P00.08:** 3rd stage pressure
- P00.13:** Hour
- P00.14:** Date

500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSORS

P00.15: Daylight difference

P00.19: 4th stage pressure

P00.20: Purifier pressure

P00.21: Oil pressure

P00.22: Inlet temperature

P00.23: Outlet temperature

P00.24: Inlet pressure

[*]The parameters between *P00.01 and P00.XX.24* can vary according to the machine.

Menu P01: Service and Machine Hours

P01.01: Output time of compressor from production

P01.02: Load / Idle time (total)

P01.03: Working time on load

P01.04: Idle time

P01.05: Stop time

P01.06: Time to change the Purifier filter

P01.07: Time left for oil change

P01.08: Time remaining for valve and segment change

Menu P02: Machine Usage Information

P02.01: Machine operation mode

P02.02: Load / Idle time

P02.03: Number of START in the last 1 hour of the engine

P02.04: Number of START engines in the last 24 hours

P02.05: Number of idle load switching of main motor

P02.06: % of the Main Engine's last 1 hour 'load'

P02.07: Percentage of Main Engine in last 24 hours' load

P02.08: Time in 'load' in the last 1 hour period [DD]

P02.09: Time in 'load' in the last 24-hour period [HH: DD]

Menu P03: Alarm and Error Logs

P03.01 – P03.50 The last 50 alarm and fault records of the machine.

[Chronologically listed]

[*] *.01 is the last alarm or error record of the compressor, .50 is the last the last alarm or error.*

Each record is detailed in itself. If the related alarm or error record is entered; related alarm and error,

P03.XX.01: Alarm or fault record number

P03.XX.02: Error code and description

P03.XX.03: When the alarm or fault occurred: Time

P03.XX.04: When the alarm or fault occurred: Date

P03.XX.05: When alarm or malfunction occurs: Machine Status

P03.XX.09: When the alarm or fault occurs: Main motor current

P03.XX.10: When alarm or fault occurs: Fan motor current

500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS

P03.XX.11: When alarm or fault occurs: Load / idle time

P03.XX.12: When the alarm or fault occurs: 1st stage pressure

P03.XX.13: When the alarm or fault occurs: Step 2 pressure

P03.XX.14: When the alarm or fault occurs: Step 3

P03.XX.15: When the alarm or malfunction occurs: Step 4 and purifier pressure

[*] Parameters P03.XX.11 to P03.XX.15 may vary by machine.

Menu P04: Event records

P04.01 - P04.200 The last 50 processes in the machine.

[Chronologically listed.] Each record is detailed in itself. In case of entry to the relevant event record; related event,

P04.XX.01: Event log number

P04.XX.02: What is the event log?

P04.XX.03: Event log: Time

P04.XX.04: Event record: Date

Menu P05: OEM Informations

P05.01: OEM: Name

P05.02: OEM: Name (continue)

P05.03: OEM: Address

P05.04: OEM: Address (continue)

P05.05: OEM: City

P05.06: OEM: District

P05.07: OEM: Post code

P05.08: OEM: Country

P05.09: OEM: Phone

P05.10: OEM: Fax

P05.11: OEM: E-mail

P05.12: OEM: Web

Menu P06: Controller Information

P06.01: AirMaster Q2: Part code

P06.02: AirMaster Q2: Serial number

P06.03: AirMaster Q2: Software ID

P06.04: AirMaster Q2: Software version

P06.05: AirMaster Q2: Software hour

P06.06: AirMaster Q2: Software date

P06.07: AirMaster Q2: Config file

P06.08: AirMaster Q2: Producer

Menu P07: Machine Information

P07.01: Machine producer

P07.02: Machine model

P07.03: Model serial number

500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS

P07.04: Model nominal pressure information

P07.05: Model nominal outlet

P07.06: Model production year

P07.07: Compressor serial number

P07.08: Compressor production year

P07.09: Motor serial number

P07.10: Motor production year

P07.11: X serial number

P07.12: X production year

P07.12: Machine test date

Menu P08: Alarm/Error code description:

P08.01 – P08-252 Alarm / Error codes and descriptions

Menu P08: Alarm/Error code explanations;

P08.01 – P08-252 Alarm/Error codes and explanations

INLET PRESSURE WORKING AND CODE LIST

R:2130 & R:2131 “FIRST OPERATION” OBSTRUCTIVE CONDITIONS

R:2130 LOWER VALUE:

Displayed if it falls below the value P15.15

How to remove the code? It must reach the total value between P15.15 + P15.16 parameters

R:2131 UPPER VALUE:

Displayed if it rises above the value P15.17.

How to remove the code? It must reach the difference value between P15.17 – P15.18 parameters.

L:2130 & L:2131 “LOAD” OBSTRUCTIVE CONDITIONS

L:2130 LOWER VALUE:

Displayed if it falls below the value P15.15

How to remove the code? It must reach the total value between P15.15 + P15.16 parameters

L:2131 UPPER VALUE:

Displayed if it rises above the value P15.17.

How to remove the code? It must reach the total value between P15.17 – P15.18 parameters

A:2131 ALARM

Displayed when the inlet pressure reach the value P16.16 parameter

E:2131 EMERGENCY STOP

Displayed when the inlet pressure reach the value P17.81 parameter

2.8.3. Display (AirMaster FIT)

The status and navigation toolbars are always displayed on every screen view.



Status Toolbar Icons:

- Locked, menu item adjustment inhibited
- Unlocked, an access code has been entered and accepted
- Power Failure Auto Reset function is active
- Remote Load Control and/or Remote Start Control function is active
- ISC function is active
- Warning Alarm
- Fault Alarm

Home Screen



After power-up, the controller will display the 'Home' screen.

When in 'Pressure Switch' mode the 'Home' screen will be the 'Operational' screen.

To view operational values press the UP or DOWN button (More); The 'Operational' screen will be displayed.



Operational Screen

Press 'DOWN' (More) to view more available parameter values in the 'Operational' list. The number and type of available parameters is dependent on configuration and options. Press 'CANCEL' (Exit) to exit the operational screen and return to the 'Home' screen (only applicable to

500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSORS

Pressure Sensor mode). When a value is out of range '---' will be displayed.

2.8.4. Menu Mode Structure and Navigation (AirMaster FIT)

From the 'Operational' screen press 'ENTER' (Menu) to enter the menu mode structure.



The menus and menu items displayed is dependent on configuration and options. All available menus and menu items can be viewed without entering an access code. An access code is required for menu item adjustment.

To adjust a menu item value or option Press 'UP' or 'DOWN' to highlight the menu item then press 'ENTER' to select the menu item; see 'To Adjust a Parameter Value or Select an Option'.

To return to the 'Home' screen from any menu structure screen, press and hold the 'CANCEL' button for longer than two seconds. If a parameter or option is being modified, and the modified value has not been entered and saved, the modified value or option will be abandoned, and the original setting maintained. Any access code that has been entered and accepted will be cancelled. Any shown alarm that isn't active anymore will be cleared.

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

To Adjust a Parameter Value or Select an Option



Press 'UP' or 'DOWN' (Adjust) to adjust a value or select an option. When kept pressing, the value will change increasingly faster.

After adjustment press 'ENTER' (Save) to permanently save the value or option.

Press 'CANCEL' (Cancel) to quit an adjustment and return to the menu items screen.

2.8.5. User Menu (AirMaster FIT)

Operational

| <u>Parameter</u> | <u>Explanation</u> | <u>Unit</u> |
|------------------|---------------------|--------------------------|
| P01.01 | Load | bar/psi/kPa/MPa/mbar |
| P01.02 | Offload | bar/psi/kPa/MPa/mbar |
| P01.03 | Drain time | second |
| P01.04 | Drain interval | second |
| P01.05 | Fan on | °C / °F |
| P01.06 | Fan off | °C / °F |
| P01.07 | Active light level | - |
| P01.08 | Timeout light level | - |
| P01.09 | Screen timeout | second |
| P01.10 | Pressure unit | bar/psi/kPa/MPa/mbar |
| P01.11 | Temperature unit | °C / °F |
| P01.12 | Alarm logs | yes / no |
| P01.14 | Language | TUR / ENG / FR / IT / NL |

P01.01: It is the load pressure value of the machine.

P01.02: It is the idle pressure value of the machine

P01.03: It is the evacuation time when operating in load and idle position.

P01.04: How long does it take to evacuate when in the load and neutral position?

P01.05: It is the temperature value at which temperature the cooling fan will be activated.

P01.06: It is the temperature value at which the cooling fan will turn off.

P01.07: It is the light level when the screen is active

500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS

P01.08: It is the light level when the screen is passive

P01.09: Transition time from active screen to passive screen

P01.10: Pressure unit to be used

P01.11: Temperature unit to be used

P01.12: In the Alarm Logs menu; clears faults, alarms, warnings

P01.14: Available languages options

- Parameters P01.05 & P01.06 and P01.03 and P01.04 are displayed if any relay is assigned to the “FAN or DRAIN” function. Each 2 functions can be programmed to 2 different relays.

The evacuation time is half of the value set in the P01.03 parameter when the machine is in the idle position, and the evacuation interval is; It works for 10 times the value set in P01.04 parameter.

- If the Load and Unload pressures do not reach the desired values, please contact the compressor service.

Alarm Log

The last 16 fault and warnings/alarms given by the machine are displayed in this menu.

Faults and warnings are listed chronologically. The last incoming fault is defined as the 1st fault.

If the cursor is placed on any fault or warning encountered, that fault or warning:

- In which position the machine is faced with this malfunction or warning,
- Instant pressure information at the time of failure or warning,
- Shows the total operating hours at the time of the Fault or Warning.

2.8.6. Alarm Codes (AirMaster FIT)

| | |
|------------------------|----------------------------------------|
| Start Barrier | |
| S 3500 | [DI] Start Barrier |
| S 3502 | Controls Studio Connection Active |
| Working Barrier | |
| R 1000 | [DI] Working Barrier |
| R 2130 | Inlet Pressure Low |
| R 2131 | Inlet Pressure High |
| R 2132 | Inlet Pressure Low |
| R 2133 | Inlet Pressure High |
| R 3123 | Low Temperature Welded Working Barrier |

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

| | | | |
|----------------------|----------------------------------|-----------------------|-----------------------------|
| R 3161 | 1. Stage Pressure High | | |
| Load Barrier: | | | |
| L 0129 | Low Temperature Overload Barrier | | |
| L 2132 | Inlet Pressure Low | | |
| L 2133 | Inlet Pressure High | | |
| Alarms: | | Malfunctions : | |
| A 0050 | [DI] Driers | E 0005 | [P2] Inlet Pressure Sensor |
| A 0088 | Main Engine Power | E 0007 | [DI] Pressure |
| A 0119 | Outlet Pressure High | E 0010 | [DI] Emergency Stop |
| A 0129 | Temperature High | E 0030 | Cover Open |
| A 0210 | [DI] Warning | E 0039 | Inlet Oil Pressure |
| A 0261 | 1. Stage Pressure High | E 0040 | Oil Level |
| A 2030 | [DI] Air filter | E 0050 | [DI] Driers |
| A 2035 | [DI] Separator | E 0070 | [DI] Fan Motor |
| A 2040 | [DI] Oil filter | E 0082 | Main Motor Over Current |
| A 2131 | Inlet Pressure High | E 0083 | Main Motor Phase Imbalance |
| A 2816 | Power Outage | E 0084 | Main Motor Low Current |
| A 4801 | Service Hour: Service 1 | E 0085 | Fan Motor Low Current |
| A 4802 | Service Hour: Service 2 | E 0086 | Fan Motor Over Current |
| A 4803 | Service Hour: Service 3 | E 0088 | Main Motor Power |
| A 4804 | Service Hour: Service 4 | E 0090 | Phase Sequence |
| A 4805 | Service Hour: Service A | E 0091 | L1 Phase |
| A 4806 | Service Hour: Service B | E 0092 | L2 Phase |
| A 4807 | Service Hour: Service C | E 0093 | L3 Phase |
| A 4808 | Service Hour: Service D | E 0115 | [P1] Output Pressure Sensor |
| A 4809 | Service Hour: Air Filter | E 0119 | Output Pressure High |
| A 4810 | Service Hour: Oil Filter | E 0125 | [T1] Temperature Sensor |
| A 4811 | Service Hour: Separator | E 0129 | Temperature High |
| A 4812 | Service Hour: Air/oil Filter | E 0220 | [DI] Malfunction |
| A 4813 | Service Hour: Filter | E 0251 | 1. Stage Low Pressure Low |
| A 4814 | Service Hour: Oil | E 0261 | 1. Stage Low Pressure High |
| A 4815 | Service Hour: Cooler | E 0271 | [P2] 1st Stage Sensor |
| A 4816 | Service Hour: Lubrication | E 0821 | Short Circuit AI/DI |
| A 4817 | Service Hour: Belt | E 0866 | Voltage Supply Low |

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

| | Pulley | | Voltage |
|--------|-----------------------|--------|---------------------|
| A 4828 | Purifier Filter | E 1803 | [DI] Phase Sequence |
| A 4829 | Service Hour: Revised | E 1887 | [DI] Main Motor |
| A 5000 | Defaults | E 1903 | [DI] Temperature |
| | | E 2030 | [DI] Air Filter |
| | | E2035 | [DI] Separator |
| | | E 2040 | [DI] Oil Filter |
| | | E 2131 | Inlet Pressure High |

Note:
 1.] DI: Digital Input Connection
 2.] Alarm / Warning and Fault codes are listed as numerator.

MAINTENANCE

The product should only be cleaned with a soft cloth moistened with water or with a 50% water 50% alcohol solution. The use of any substance containing corrosive acids or alkalis is strictly prohibited. Unplug all power sources before cleaning the product.

2.10. Description of Controls

2.9.1. Operation control

In medium pressure series compressors, starting control is done in 2 ways.

I. Manual start

Compressor can be started or stopped by pressing the start / stop button on the control panel.

II. Auto stop



Medium series compressors can be controlled by a pressure switch to automatically stop and restart at the upper and lower pressure limits. Pressure switches cuts off the electric motor control when the compressor reaches the adjusted upper pressure. When the pressure drops to the adjusted lower pressure, the pressure switches cut in to restart the compressor.

2.9.2. Drain control

I. Manuel drain

At regular intervals, the manual discharge valves under the purifier and the water separator on the compressor are manually opened, allowing the collected water and oil to be discharged.

II. Auto drain

Springs in automatic drain valves are over the piston in high pressures and under the piston in low pressure valves. Thus, the surface where low-pressure acts on is larger than the surface where the high pressure effectively acts on the piston. Therefore, the force on the top is larger and causes the piston to sit and seal the high pressure vent port. Automatic drain valves are controlled by a solenoid. It receives compressed air from the 2nd stg. air inlet and sends it over 4 drain valves forcing them to stay closed. When the solenoid is de-energized, it removes the control air on the top of the drain valve pistons, allows the high pressure acting from the bottom of the pistons, to open and perform drain operation.

2.11. Handling and Installation

2.10.1. Unpacking

To simplify handling and transportation, the compressor is placed in a cardboard box and placed on a pallet

2.10.2. Handling

The compressor can be carried to the appropriate usage area after being unwrapped from its packing. To move the product, a forklift, a pallet jack, or two persons will be needed. Use the carry handles to lift the compressor. If lifting the compressor manually is necessary, ensure two people are doing it.

2.10.3. Inspection

The compressor should be inspected and checked for the following when received:

- Check if any damage exists during shipping, handling, etc.
- Check the compressor nameplate to verify the equipment confirms the working conditions.
- Check the electrical motor nameplate to verify the compliance with the available power and electrical supply.
- Check the compressor if it is filled with oil or not.
- Check the purifier if the cartridge is installed or not.
- Check if the intake filter is installed.

The compressor frame is equipped with shock mounts and thus a machine base or special means of securing the compressor are not necessary

2.10.4. Location

The location, where the compressor is installed determines to a considerable extent the overall performance and service life of the unit.

500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSORS

IMPORTANT:

The compressor should be located in an area that is sheltered, solid and dry, well ventilated, not exposed to high ambient temperatures, airborne contaminants such as dust, fumes, lint, vapor, steam, gases, engine exhaust, and another contaminant.

IMPORTANT:

If ambient temperature exceeds 50°C, air conditioning will be necessary.

NOTE:

It will be required to install an air intake extension extending in from the outdoors or a location with the specified ventilation requisites if the compressor is positioned in a location without the ventilation requirement.

The floor must be flat and capable of taking the load of the system weight. Install the compressor at least 60 cm distance to surrounding walls, to ensure adequate cooling and access for service. For compressors using a petrol or diesel engine, a piping / positioning is required where the compressor air intake can only be supplied with fresh air.

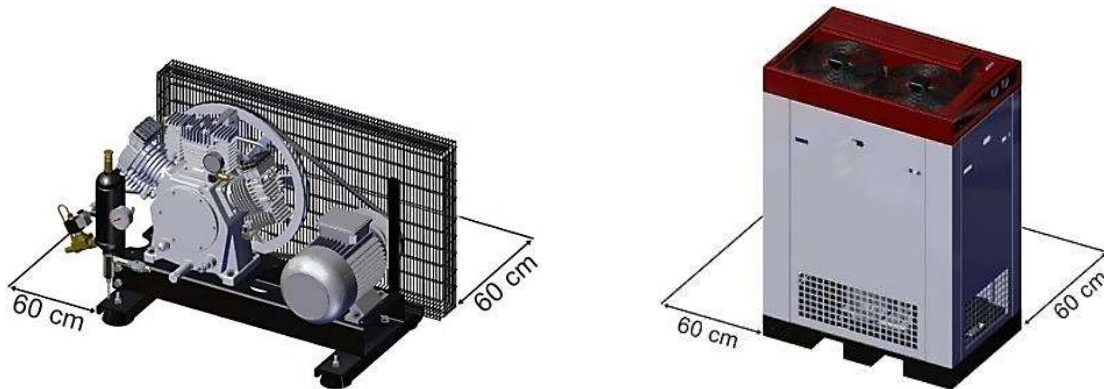


Figure 13 – 500-700-702 series compressors layout

2.10.5. Piping

Inlet Piping: If it is necessary to carry the inlet air filter to a clean location, due to excessive dirt, heat, dampness, or toxic fumes in the near vicinity of the compressor, use a suitable diameter NON-TOXIC transparent steel wire hose; the distance from the compressor should not exceed 3 meters (10 ft). If the intake filter will be somewhere outdoors, protect it with a proper hood against possible environmental effects like rain, fume, etc.

500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSORS

Discharge Piping: If piping is required between the compressor and the filling panel or fill station, depending on the length between the compressor and the filling panel properly selected stainless-steel pipes must be used. The piping should be installed in full compliance with all Federal, State, and local codes, standards, and regulations. If required, consult the manufacturer for further information.

Drain Line Piping: There will be a hose line required from the bottom fitting through a drum, to discharge the water collected inside the silencer. Ensure the hose is connected well, against flying out and causing danger.

2.10.6. Electrical controls

IMPORTANT:

Although all electrical instructions are addressed to the reader directly, the actual inspection, wiring, installation, maintenance, repair, etc. must be carried out by licensed and certified electricians only.

Make electrical connections to the compressor in accordance with the wiring diagrams and in full compliance with all applicable federal, state, and local standards, codes, and regulations, including those dealing with the earthing requirements. A few electrical checks should be made to ensure that the first start-up will be trouble-free. Make the following checks before attempting any startup:

- Check line voltage. Verify that the compressor motor corresponds with these specifications.
- Check the electrical motor nameplate to verify compliance with the available power and electrical supply.
- Check the tightness of all electrical connections including those in the electrical panel of the compressor.
- At startup, check the direction of rotation to ensure that the flywheel rotates to the direction of the arrow on it. Although a few minutes of operation in the wrong direction of rotation will not seriously damage the compressor, it will cause serious damages to the compressor if it runs in this position for a long time as the cooling airflow will be reversed, the compressor cylinders cannot be cooled down and the oil pump will not pump oil, the compressors will run without lubrication.
- Check starter and max. load for conformity with the motor power and current data.

2.10.7. Wiring

It is important to select the right size and capacity wire and fuses. Install a switch with magnetic protection and a capacity of bigger than the motor full load current on the wall.

2.12. Storage

If the compressor will not be working for more than six months for any reason and stored idle during this time, it is suggested to do the following steps before putting it out of reach to keep it in good condition:

- Store the compressor in a dry, clean, and sheltered indoor area.
- Remove the dust cap from the inlet port.
- Start the compressor 2 times a month and run it for app. 15 minutes to lubricate the internal parts. If not possible, the compressor pulley should be turned by hand. Failure to do this may result in corrosion on the internal parts of the compressor.
- Check if there is any leak on the fittings, hoses, tubes, filters, and valves.
- When the compressor is warm, shut it down.
- Open the drain valves and release the pressure inside the compressor.
- Close the filling valves and drain valves after the unit is completely depressurized.
- Turn off the power of the compressor by turning off the main power switch.
- Place a dust cap at the intake port against the dust and fumes that may enter.
- For long-term storage, please view the electric / petrol engine the manufacturer's instructions.

If the compressor will be started up after a long time of storage, it is suggested to do the following steps before starting to fill bottles.

- Clean the compressor with a clean cloth.
- Install a new intake filter.
- Open the intakes which have been closed while stored against dust, fume, etc. may enter the compressor.
- Check the oil level; make sure there are no leaks or sweating around the connections, gaskets, etc.
- Run the compressor for a while till it gets warm while the filling valves, drain valves are open and the purifier cartridge is empty. Do not fill any cylinders at this time. Make sure that there is no leakage.
- Stop the compressor.
- Put the compressor in normal service.

500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSORS

NOTE:

If the compressor has been stored with the old oil inside for more than 2 years, it should be drained before running and replaced with fresh oil.

2.13. Operation

2.12.1. Initial start-up procedure

Follow up the following procedures when making the initial start-up of the compressor;

- Make sure that you have read this manual carefully and understand it. If you have any questions, contact ALKIN.
- Make sure that all the preparations described in the installation section of this manual have been made.
- Check the oil level in the crankcase.
- Check the pressure switch and make sure that the pressure adjustments are set at the proper start-stop Pressures.
- Rotate the compressor flywheel several times by hand to see that it is free and working properly.
- Keep all objects such as tools, rugs, etc. away from the compressor.
- Check the direction of rotation. Rotation must be in the direction of the arrow marked on the crankcase and flywheel.
- Press the start button to start the compressor. Check and verify that there is no abnormal vibration, or any abnormal sounds.
- Let the compressor run without producing pressure while the purifier drain valve is open for 10 minutes to observe if any abnormalities in the operation of the compressor exist. This way lubrication of all parts will be complete.
- Check the possible leaks in piping. If there is any leak stop the compressor and let it cool down.
- Check the last stage safety valve if operating proper or not. The safety valve must open and leak at the pressure stated on it. If the safety valve does not open, stop the compressor without waiting for the pressure to rise up.
- To fill cylinders, please read Cylinder Filling Instructions.

2.12.2. Oil recommendation

The oil level should be checked before each start up. Top up to the overfill point when required 4 liters for 500 series compressors, 2 liters for 700 type and 3 liters for 720 type compressors of oil should be loaded during each replacement.

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

RECOMMENDED OILS

| Oil | Brand | Type | Quantity |
|-----------------|--------------|-------------|----------------------------------------------------------------|
| Rarus 427 | Exxon Mobil | Mineral | 4 ltr (500 series) 3 ltr (702 series) 2 ltr (700 series) |
| Rarus 827 | Exxon Mobil | Synthetic | |
| Corena S2 P100 | Shell | Synthetic | |
| Renolin SE 100 | Fuchs | Synthetic | |
| Dasnic 100 | Total | Mineral | |
| Petrocom PA 100 | Petrofer | Mineral | |
| Anderol 750 | Anderol | Synthetic | |

Mobil Rarus 427 Compressor Oil

The use of the Mobil Rarus 427 oil can result in cleaner compressors and lower deposits compared to conventional mineral oils, resulting in longer running periods between maintenance intervals. Their excellent oxidation and thermal stability safely allow extended life capability while controlling sludge and deposit formation. They possess outstanding anti-wear and corrosion protection, which enhances equipment life and performance.

| SPECIFICATIONS | TEST METHOD | MOBIL RARUS 427 |
|-----------------------|--------------------|------------------------|
| ISO VG | ASTM D-2422 | 100 |
| Viscosity, cSt | | |
| @ 40 °C | ASTM D 445 | 104.6 |
| @ 100 °C | ASTM D 445 | 11.6 |
| Flash point, °C | ASTM D 92 | 264 |
| Density, 15°C (60°F) | ASTM D 1298 | 0.879 |
| ISO Viscosity Index | ASTM D 2270 | 100 |

- Do not use another type of oil without prior written approval of the compressor manufacturer.
- Do not mix different brand and type of oils.
- If you will change the oil you use with another approved brand of oil, refill with the new oil after you make sure that you drain the old oil completely in the crankcase.
- Refill the oil every year unless you reach the replacement time of the oil stated in the Maintenance Table.

500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSORS

2.12.3. Extremely cold ambient temperatures

Operating conditions different than stated conditions must be reported to the compressor manufacturer to make the necessary changes to adapt the compressor to the current conditions. For instance, if the compressor needs to work in an extremely cold ambient temperature below freezing temperatures a crankcase heater can be attached to the crankcase of the compressor to prevent the negative effect of the cold ambient temperatures.

2.12.4. Motor lubrication

Electric motors on ALKIN 500-700-702 series compressors are supplied with greased and sealed bearings. They do not any need further maintenance.

2.14. Adjustment

Pressure switch adjustment (for auto drain models)



When adjusting the pressure switch, verify the compressor is operating and make adjustments according to the final outlet pressure.

Adjustment is done by rotating the Red Adjustment Screw.

You can adjust the PH1 pressure switch to the required upper pressure (working pressure) by turning the screw on the pressure switch clockwise or anti-clockwise. Turn the screw clockwise to increase the upper pressure, anti-clockwise to lower.

Standard Pressure Switches used on ALKIN have a standard differential of 10% of working pressure.

For example, a pressure switch set at 200 bar will work between 180 and 200 bar.

Not: Even though there is a monitor scale in the front of the Pressure Switch, setting a value from there is very difficult.

Sequential drain timers (for auto drain models)



These are the drain timers on which the draining times and duration adjustments are made for automatic drain function. On this timer, you will find two dials to make the time adjustments. The upwards dial controls the duration of the automatic drain which the drain valve remains open (drains the condensate) It is adjustable between 0 to 10 seconds. The dial does not have figures showing the times on it; it needs to be proportionally adjusted. The full scale shows 10 seconds while half of the scale indicates 5 seconds. The downwards dial is used to adjust the time period of the automatic drain during which the drain valve will remain closed. Draining time

500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS

periods and duration are adjusted as 5 seconds for every 10 minutes. Factory settings should not be changed for trouble-free operation.

Safety Valves

CAUTION!

- Do not adjust the safety valves and do not alter their original settings. Only authorized service technicians are certified to make such adjustment. If required, replace and return the old one for reconditioning to the manufacturer or to a dealer nearest you.
- Do not remove the leaking safety valves and do not replace it with a plug. This may be extremely dangerous. If the safety valve is leaking, replace with a new one.

MAINTENANCE

3. General

As you proceed through this section, it will be easy to see how simple to maintain the compressor. By following these recommendations, you will get long and trouble-free operation from your air compressor. The following are general guidelines for periodical maintenance; specific details will be mentioned in the following chapters. Use the **Maintenance Table** for maintenance and keeping records.

CAUTION !

Before attempting any maintenance or service work, isolate the compressor by switching off the power and blowing down the pressure inside all equipment like the filters, piping, etc. If a bank system exists, isolate it by closing the appropriate valves.

NOTE !

The priority is working hours for the compressor control and part replacement. However, if the specified working hours do not expire depending on the operating conditions of the compressor, the specified periods (3 months, 6 months, etc.) must be taken into consideration.

CAUTION !

Even if the compressor is completely off during maintenance and repair work, it must be protected against unexpected restart. Disconnect the power cable and make sure the main switch is in the off position.

Checklist for Energy Efficiency in Compressed Air System

1. By placing compressors in well-ventilated areas or by drawing cool air from the outside, you may ensure that the air entering the compressor is not warm and humid. Power consumption will grow by 1% for every 4°C increase in air inlet temperature.
2. Regularly clean the air intake filters. Pressure drop across the filter will result in reduction in compressor efficiency.
3. Install manometers outlet of the filter and keep an eye on the pressure drop to determine when the element needs to be replaced.
4. Consider the use of air dryers to remove moisture.
5. Fouled inter-coolers reduce compressor efficiency and cause more water condensation in air receivers and distribution lines resulting in increased corrosion. The intercoolers must be regularly cleaned.
6. Compressor free air delivery test (FAD) must be performed on a regular basis to compare the operational capacity to the design capacity and to determine whether corrective action is necessary.
7. Two-stage or multistage compressors should be taken into consideration because they use less power than single stage compressors while producing the same amount of air.
8. To save energy, if possible, reduce the compressor's delivery pressure.
9. Maintain the smallest range possible between the load and unload pressure settings.
10. Automatic timer-controlled drain traps waste compressed air every time the valve opens. Therefore, drainage frequency should be optimized.
11. The performance of the compressor is greatly impacted by leaks in the compressed air line. As a result, periodical leak checks should be performed.
12. Instead of supplying air through extensive pipelines, a smaller specialized compressor can be constructed at the load point, which is located distance from the primary compressor building.
13. Operating pneumatic equipment above the recommended operating pressure not only loses energy but can also result in excessive component wear, which further consumes energy.

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

3.1. Maintenance Table

3.1.1. Check Table

| Check Time | Part | Instruction no. |
|----------------------|-----------------------------------------------------------------------------------------|-----------------|
| Daily | Check oil level | 01 |
| | Check for leakage | 02 |
| | Check pressure and gauges | - |
| Weekly | Check intake filter | 03 |
| | Check V-belt | 04 |
| | Check the tightness of the fasteners | 05 |
| | Clean intercoolers and aftercooler and flywheel | 06 |
| | Check current | 07 |
| | Check the tightness of the cable connections | - |
| 2000 hours / 2 years | Check safety valves, replace if necessary. | 08 |
| | Inspect the stage valves, clean if there are any dirt or carbon deposits in the valves. | - |
| 4000 hours / 4 years | Check the check valve, replace if necessary | 09 |
| | Check belts, replace if necessary | |

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

3.1.2. Replacement Table

For 500 series canopy compressors;

| Replace ment time | No | Explanation | Qty. | Instruction no. |
|----------------------------|----|---------------------------------------------------------------------------------------------------|----------|-----------------------|
| 500 hours / 1 year | 1 | Oil change | 4 liters | 11 |
| | 2 | Intake filter element | 1 pcs. | 12 |
| | 3 | Oil reservoir sponge | 6 pcs | - |
| 2000 hours / 2 years | 1 | Ring | 1 set | Contact with ALKIN |
| | 2 | Check the valves (stage) at every 2000 hours / 2 year. If necessary, replace with new ones. | 1 set | |
| | 3 | Gasket set | 1 set | |
| | 4 | O-ring set | 1 set | |
| | 5 | Safety valve (2 nd stg) | 1 pcs | 08-01 |
| 4000 hours / 4 years | 1 | Check valve | 1 pcs | 09-01 |
| | 2 | V-belt | 2 pcs. | 10 |
| | 3 | Connecting rod bearing set | 1 set | Contact with ALKIN |

CAUTION !

Important: please be advised that compressors which are not maintained according to ALKIN maintenance tables above would be out of warranty.

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

For 700-702 series compressors;

| Replace ment time | No | Explanation | Qty. | Instructio n no. |
|----------------------------|----|---------------------------------------------------------------------------------------------------|----------------------------------|--------------------------|
| 500 hours /1 year | 1 | Oil change | 3 liters (702) 2 liters (700) | 11 |
| | 2 | Intake filter element | 1 pcs. | 12 |
| 2000 hours / 2 years | 1 | Ring | 1 set | Contact with ALKIN |
| | 2 | Check the valves (stage) at every 2000 hours / 2 year. If necessary, replace with new ones. | 1 set | |
| | 3 | Gasket set | 1 set | |
| | 4 | O-ring set | 1 set | |
| 4000 hours / 4 years | 1 | Check valve | 1 pcs | 09-01 |
| | 2 | V-belt | 1 pcs | 10 |

CAUTION !

Important: please be advised that compressors which are not maintained according to ALKIN maintenance tables above would be out of warranty.

3.2. Torque Values

The following table indicates the torque values to which a torque wrench should be set for tightening the various size attaching bolts & nuts. Use these values to set a torque wrench to tighten these fasteners at intervals indicated in the MAINTENANCE TABLE.

RECOMMENDED TORQUE VALUE TABLE

| Bolt | Thread | Quality class | Max torque |
|-------------------------|--------|---------------|---------------------------|
| Bolt - allen head | M6 | 8,8 | 10.5 Nm |
| Bolt - allen head | M8 | 8,8 | 25.3 Nm |
| Bolt - allen head | M10 | 8,8 | 50.8 Nm |
| Bolt - allen head | M12 | 8,8 | 86.9 Nm |
| Bolt - allen head | M14 | 8,8 | 139 Nm |
| Bolt - allen head | M16 | 8,8 | 213 Nm |
| Pipe connections (nuts) | | | Hand tightness +1/2 round |

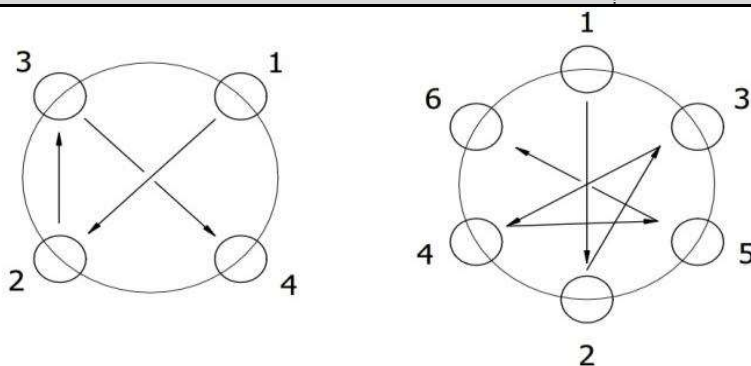


Figure 14 – Tightening order

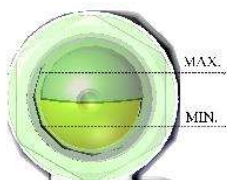
3.3. Maintenance Instructions

Before attempting any maintenance or service work, isolate the compressor by switching off the power and blowing down the pressure inside all equipment like the filters, piping, etc. If a bank system exists, isolate by closing the appropriate valves.

3.3.1. Oil level check

| | |
|------------------------------------------|-----------------|
| Instruction no | 01 |
| Instruction name | Oil Level Check |
| List of tools required | - |
| Parts list to be used in replacement kit | - |

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**



- Oil level can be visually checked through oil level glass in the front of crankcase. Oil level should be below the red line.
- Refill oil if needed.

3.3.2. Leak check

| | |
|------------------------------------------|--------------------|
| Instruction no | 02 |
| Instruction name | Leak Check |
| List of tools required | Sponge, foam water |
| Parts list to be used in replacement kit | - |

- Listen to compressor while working and check for unusual sounds.
- If there is an unusual sound, try to detect the source.
- Detect and tighten the screw, nuts, fittings, etc.
- Put foam water with sponge on where the leak is tightened connectors. Check if leaking is no more.
- Wipe the foam water off the compressor.

3.3.3. Intake filter check

| | |
|------------------------------------------|---------------------|
| Instruction no | 03 |
| Instruction name | Intake Filter Check |
| List of tools required | Lint-free cloth |
| Parts list to be used in replacement kit | None |

- Check intake filter element every week and clean with pressurized air from inside towards outside. Depending on ambient temperature and humidity, replace filter element at most every three months.

3.3.4. V-Belt alignment check

| | |
|------------------------------------------|----------------------|
| Instruction no | 04 |
| Instruction name | V-belt Tension Check |
| List of tools required | - |
| Parts list to be used in replacement kit | - |

- Check the V-belt tension. The proper tension should allow 13 mm (½”) deflection with a 1 kg (2 pounds) weight applied on the center of each belt.

3.3.5. Components check

| | |
|------------------------------------------|-------------------|
| Instruction no | 05 |
| Instruction name | Components Check |
| List of tools required | Appropriate tools |
| Parts list to be used in replacement kit | - |

500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS

- Stop the compressor. Make sure the compressor is cooled down.
- Appropriate tool is selected depending on the component, dual tighten the component according to their torque values.
- Check with foam water for leaks. Mind electrical components. Wipe the foam water off the compressor.

3.3.6. Serpentine, Intercoolers and aftercooler, flywheel cleaning

| | |
|------------------------------------------|-------------------------------------------------------------|
| Instruction no | 06 |
| Instruction name | Serpentine, Intercoolers and Aftercooler, Flywheel Cleaning |
| List of tools required | Cloth |
| Parts list to be used in replacement kit | None |

- Clean dust on serpentine, intercoolers and aftercooler, flywheel with 6-7 bar pressurized air. Wipe if necessary.

3.3.7. Current check

| | |
|------------------------------------------|---------------|
| Instruction no | 07 |
| Instruction name | Current check |
| List of tools required | Ampere meter |
| Parts list to be used in replacement kit | - |

- Check with an ampere meter at max. load for conformity with the motor power and current data.

3.3.8. Safety valve check

| | |
|------------------------------------------|--------------------|
| Instruction no | 08 |
| Instruction name | Safety Valve Check |
| List of tools required | foam water |
| Parts list to be used in replacement kit | - |

- The compressor is operated at full load (maximum pressure level) and at this time, each phase is measured one by one at the ends of the compressor's supply cable (L1, L2, L3) with an ammeter. The measured values are compared with the motor values.

3.3.8.1. Safety valve replacement

| | |
|------------------------------------------|--------------------------|
| Instruction no | 08-01 |
| Instruction name | Safety Valve Replacement |
| List of tools required | No. 27 wrench |
| Parts list to be used in replacement kit | - |

500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS

- Remove the problematic safety valve with the appropriate tool. Start the compressor and verify teflon tape parts are removed from valve hole. Then stop the compressor.
- Wrap Teflon tape on the new safety valve and put it on its place and tighten with appropriate tool.
- Start the compressors. While it is working, put foam water on valves and check for leaks.

3.3.9. Check valve check

| | |
|------------------------------------------|-------------------|
| Instruction no | 09 |
| Instruction name | Check Valve Check |
| List of tools required | No 27 wrench |
| Parts list to be used in replacement kit | - |

- Start the compressor, remove check valve inlet pipe with no. 27 wrench. Check for leaks with foam water. Reconnect the pipe if no leaks. If leaking, replace check valve.

3.3.9.1. Check valve replacement

| | |
|------------------------------------------|---------------------|
| Instruction no | 09-01 |
| Instruction name | Check Valve Replace |
| List of tools required | No 27 wrench |
| Parts list to be used in replacement kit | - |

- If check valve is leaking, remove it with appropriate tool.
- Clean its place and install the new check valve.
- Start the compressor. Check for leaks with foam water.

3.3.10. V-Belt replacement

| | |
|--------------------------------------|---------------------------------|
| Instruction no | 10 |
| Instruction name | V-belt Replacement |
| List of tools required | No 10 wrench, no 5 allen wrench |
| Parts list to be used in replacement | - |

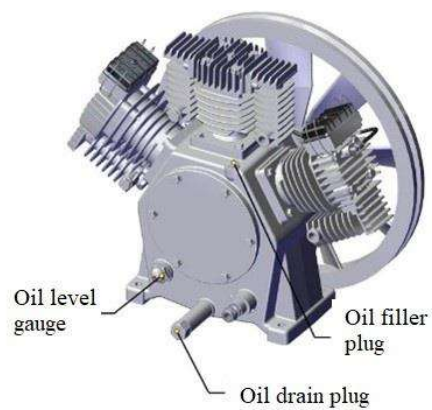
- Stop the compressor and verify complete depressurization.
- Remove flywheel grid with appropriate tools.
- Remove belts from flywheel and install new ones. Rotate flywheel by hand to check tension.
- Reconnect flywheel grid with appropriate tools. Start the compressor and check the proper rotation.

500-700-702 SERIES MEDIUM PRESSURE AIR COMPRESSORS

3.3.11. Oil change

| | |
|--------------------------------------|-------------------------|
| Instruction no | 11 |
| Instruction name | Oil Change Instructions |
| List of tools required | funnel, bowl |
| Parts list to be used in replacement | Compressor oil |

- Start the compressor and run for 5 minutes to warm up the oil. Then stop the compressor.
- Remove oil top cap with a no.17 wrench.
- Put a funnel and a bowl below the oil drain plug.
- Remove oil drain cap with a no.17 wrench.
- Wait until all oil is drained.
- Reinstall oil drain cap with a no.17 wrench.
- Refill with new Mobil Rarus 427 oil.
- Reinstall oil top cap with a no.17 wrench.



**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

3.3.12. Intake filter replacement

| | |
|--------------------------------------|---------------------------|
| Instruction no | 12 |
| Instruction name | Intake Filter Replacement |
| List of tools required | Lint -free cloth |
| Parts list to be used in replacement | Intake filter element |

- Remove the wires (1) holding the inlet filter head (2).
- Remove inlet filter head (2).
- Replace intake filter element (3).
- Reconnect the wires (1) on the head (2).



TROUBLESHOOTING

4.1 COMPRESSOR DOES NOT WORK

- | | |
|--------------------------------------|--------------------------------------------------------------------------------------------|
| • No power | Control power line and turn power key ON. |
| • Motor starter overload tripped | Start and check if trips again. If it does, check if compressor in not staying under load. |
| • Pressure switch not making contact | Check all the terminals and wires. If pressure switch is defective, replace it. |

4.2 EXCESSIVE NOISE DURING OPERATION

- | | |
|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| • Loose sheave, flywheel, belt, belt-guard, intercooler, bolts or accessories | Detect and tighten. |
| • Faulty vibration mounts | Check if the mounts are in good condition; if damaged, replace. |
| • Lack of oil in the crankcase | a. Check for possible damage to bearings. b. Refill oil and check if the noise persists |
| • Piston hitting the valve plate | Remove the compressor cylinder head; replace the gasket with the brand new gasket and reassemble. |
| • Deflected crankshaft or crankshaft bearing failure | Replace the crankshaft. |
| • Excessive dirt or carbon on piston(s) | Remove the compressor air heads; clean pistons and valve(s), or replace if worn; reassemble. |

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

4.3 COMPRESSOR KNOCKS

- | | |
|----------------------------------------|--------------------------------------------------------------------------------------|
| • Crankshaft bearing failure | Replace bearings or crankshaft assembly. |
| • Connecting rod journal bearings worn | Replace the connecting rods; if worn, replace the crankshaft bushing center as well. |
| • Wrist pins and journals are worn | Replace complete pin and rod assembly. |

4.4 MILKY OIL IN THE CRANCKASE

- | | |
|-----------------------------------------------------|------------------------------------------------------------------------------|
| • High moisture and dirt content in the ambient air | a. Pipe air intake from less humid source. b. Change oil more frequently. |
|-----------------------------------------------------|------------------------------------------------------------------------------|

4.5 EXCESSIVE OIL CONSUMPTION

- | | |
|-------------------------------|--------------------------------------------------------------|
| • Restricted air intake | Replace intake filter element. |
| • Oil leaks. | Tighten bolts and fittings; replace gaskets |
| • Worn piston rings | Replace piston rings. |
| • Low oil viscosity | Drain oil; refill with oil of proper viscosity |
| • Piston rings misassembled | If piston rings are upside down, install in proper position. |
| • Compressor tilted too much | Level compressor. |
| • Scored or worn cylinder(s). | Replace cylinders. |

4.6 OIL IN DISCHARGE AIR

- | | |
|-------------------------------------------|---------------------------------------------------------------------------|
| • Restricted air intake | Replace intake filter element, check for other restrictions at the inlet. |
| • Worn piston rings | Replace piston rings |
| • Excessive oil in the crankcase | Drain to the overflow level |
| • Low oil viscosity | Drain oil; refill with oil of proper viscosity |
| • Piston rings misassembled | If piston rings are upside down, install in proper position. |
| • Consumed purifier cartridge filling kit | Refill the Purifier cartridge with refilling kit. |

4.7 COMPRESSOR VIBRATION

- | | |
|----------------------------------------|--------------------------------------------------------|
| • Mounting bolts are loose | Tighten the mounting bolts. |
| • Compressor not properly mounted | Level the compressor so that all feet touch the floor. |
| • Motor belt and the sheave misaligned | Align. |

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

4.8 AIR FROM INTAKE

- Broken 1st stg. inlet valve Replace its spring and disc

4.9 INSUFFICIENT AIR AT THE POINT OF USE

- Leaks or restrictions Check for leaks and restrictions in the piping and hoses.
- Restricted air intake Replace the intake filter element
- Slipping belts Tighten the belts.
- Excessive air consumption a. Limit the air consumption to the capacity of the compressor.
- Worn piston rings b. Increase your air capacity with an additional compressor unit.
- Worn cylinders Replace piston rings.

4.10 PRESSURE VESSELS DO NOT HOLD THE PRESSURE WHEN THE COMPRESSOR IS UNLOADED

- Check valve leaks Relieve the pressure vessels and replace the check valve.
- Excessive leaks in the plant piping Check the pipings, repair the leaks.

CAUTION!

Do not service tank, valves, piping, etc. while compressed air exists in the system. Drain the air inside before attempting any repairs.

4.11 EXCESSIVE BELT WEAR

- Sheaves misaligned Realign the motor sheave and the flywheel.
- Belts too tight Adjust tension
- Belts too loose Adjust tension
- Sheave or crankshaft wobble Check for worn or bent crankshaft, keyway or sheave bore

4.12 EXCESSIVE DISCHARGE AIR TEMPERATURE

- Dirty valves / carbon on valves Remove valves; clean or replace.
- Dirty intercoolers and/or cooling surfaces Clean cooling surfaces of the cylinders, intercoolers and aftercooler.
- Poor ventilation and air circulation Relocate the compressor, improve ventilation.
- Blown head gasket Replace the head gasket.

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

- | | |
|----------------------------------------------|------------------------------------|
| • Restricted air intake | Replace the intake filter element. |
| • Worn valves | Repair or replace valves. |
| • Compressor rotating in the wrong direction | Correct the direction of rotation |
| • Low oil level | Check and refill. |

4.13 AIR LEAKING FROM THE INTERSTAGE SAFETY VALVE

- | | |
|-------------------------------------------|--------------------------------------|
| • Safety valve faulty | Replace the safety valve. |
| • Inlet valve of the next stage leaks | Remove the valves; clean or replace. |
| • Inlet valve of the next stage is broken | Remove the valves; replace. |

4.14 PRESSURE SLOWLY RISING

- | | |
|---------------------------|------------------------------------|
| • Restricted air intake | Replace the intake filter element. |
| • Blown cylinder gasket | Install a new gasket. |
| • Worn or broken valves | Replace valves. |
| • Air leaks in the system | Check for leaks; fix the problem |
| • Loose belts | Adjust tension |
| • Low Compressor Speed | Check RPM |

4.15 RECEIVER PRESSURE RISING TO FAST

- | | |
|-------------------------|------------------------------|
| • Water in the system | Drain the system more often. |
| • High compressor speed | Check RPM |

4.16 COMPRESSOR DOES NOT DISCHARGE WHEN STOPPED

- | | |
|----------------------------------|------------------------------------------------------------------------------------------|
| • Automatic drain valves blocked | Check, disassemble and clean the drain valves; install new o-ring and seat if necessary. |
| • Solenoid valve faulty | Check and replace solenoid valve. |

4.17 AUTO DRAIN VALVES DO NOT OPEN

- | | |
|----------------------------------------|-----------------------------------------------|
| • Condensate drain valve piston jammed | Dismantle drain valve, clean or replace valve |
|----------------------------------------|-----------------------------------------------|

4.18 AUTOMATIC DRAIN VALVE(S) REMAIN(S) OPEN ALL THE TIME

- | | |
|-------------------------------------|---------------------------------|
| • Low 2nd stg. control air pressure | Check the interstage pressures. |
|-------------------------------------|---------------------------------|

**500-700-702 SERIES
MEDIUM PRESSURE AIR COMPRESSORS**

-
- | | |
|--------------------------|---------------------------|
| • Solenoid Valve faulty | Replace solenoid valve. |
| • Blocked drain valve(s) | Clean the drain valve(s). |
-

4.19 COMPRESSOR DOES NOT ACCESS NOMINAL OPERATING SPEED

-
- | | |
|----------------------------------------------|------------------------------|
| • Low voltage | Check the line voltage. |
| • Motor and control panel connectors loosen | Check it, tighten if needed. |
| • Poor power regulation (unbalanced phases) | Notify the power company. |
-

4.20 UNUSUAL PISTON, RING OR CYLINDER WEAR

-
- | | |
|--------------------------------------|------------------------------------------------------------------------------------------------------------|
| • Improper oil | Replace with the proper oil. |
| • Low oil level | Check the oil level and fix the problem, refill oil. |
| • Extremely dirty ambient conditions | Pipe the intake filter to a cleaner location if possible; alternatively use a heavy duty two stage filter. |
-

4.21 ODOR IN COMPRESSED AIR

-
- | | |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| • Purifier cartridge saturated | Replace the cartridge. |
| • Improper oil | Replace with the proper oil. |
| • Wrong direction of rotation | Check the arrow; the compressor flywheel must blow air onto the cylinders; if the direction of rotation is wrong, reverse the phases and make sure it is running in the right direction. |
| • Carbonization on valves | Clean; make sure that the ambient temperatures are within permissible limits. |
-



DECLARATION OF CONFORMITY

2014/35/EU - 2006/42/EC

MANUFACTURER: ALKIN KOMPRESÖR SAN.VE TİC.LTD. ŞTİ.

ADDRESS: Kazım Karabekir mah. Bekir Saydam cad. No: 94/1
Torbalı/İZMİR

Alkin Compressors declare that under our sole responsibility of supply/manufacture of this compressor to which this declaration relates is in conformity with the below standards and the essential health and safety requirements identified in the above directives.

Model : Medium Pressure (500-700-702) Series

This statement is in compliance with the following standards and the above basic health and safety requirements.

Standart No EN 12100
EN 60204-1
EN 1012-1



Date: 01/01/2023

Özcan GÜRSOY
Factory Manager





WARRANTY CERTIFICATE

ALKIN Air/Gas Compressors and accessories are warranted for **two years** from the date of delivery within the framework of the following terms and conditions:

1. This warranty certificate covers the compressor unit and other parts manufactured by ALKIN. Parts & components manufactured by others are covered under the warranty terms of their manufacturer.
2. The date of delivery is the date of actual delivery to the user by our company or authorized dealers, not later than six months.
3. This warranty covers ex-factory free of charge replacement and / or repair of parts found to be defective, subject to investigation of cause and nature of failure. The costs associated with the transport and return of the compressor to our factory belongs to the user.
4. This warranty is valid provided the compressor is properly installed, wired, operated and maintained as instructed in the accompanying instruction manual. This warranty is void in case of repairs and / or interference by third parties other than authorized ALKIN servicemen, or authorized ALKIN distributors, and in case of removal of the compressor nameplates.
5. In case of trouble, the serial number of the compressor, and the nature of the problem must be reported by phone and in writing to ALKIN.
6. Wherever applicable, the terms and conditions of sale of ALKIN prevail and precedes all other terms and conditions.

Date :

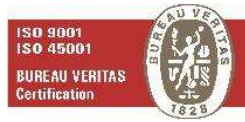
Model :

Serial Number :

ALKIN ALKIN KOMPRESOR
SAN.VE TIC.LTD. STK
Cuneybey Mh. Tabak Yolu KÜltür Evi No:3
Menderes / IZMİR Tel: 0 232 781 2890
Menderes V.D.: 0540 338 9112
Mersis No: 0881000023271000000

ALKIN COMPRESSORS

MORE THAN **120** COUNTRIES
33 YEARS
OF EXPERIENCE



ALKIN COMPRESSORS

Kazım Karabekir mah. Bekir Saydam cad. No: 94/1 35865

Torbalı-İzmir, TÜRKİYE

Phone : +90 232 782 2290 Fax : +90 232 782 22 89

www.alkin-compressors.com