



BOOSTER COMPRESSORS



*524-526-530 SERIES
OPERATOR MANUAL*

524-526-530 SERIES BOOSTER COMPRESSOR MODELS



- 524, 526 CANOPY -



- 530 BOOSTER SERIES -



VeriCert
Verification
Certification

CERTIFICATE

Scope: ALKIN KOMPRESÖR SAN. VE TİCARET LİMİTİ ŞİRKETİ

Address: Çineyay Mah. Tabak Yolu Kömür Evi No.3 Mandıra/İzmir

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TURKISH STANDARDS INSTITUTION
CERTIFICATE OF CONFORMITY TO TURKISH STANDARDS

Belge Numarası: 215977-TSE-01-01

Belgeyi İnceleme Tarihi: 08.04.2019

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Belge Sahibi Kuruluşun Adı: ALKIN KOMPRESÖR SAN.VE TİC. LİMİT ŞİTİ

Belge Sahibi Kuruluşun Adres: ÇINEYAY MAH. TABAK YOLU KÖMÜR EVI NO:3 MANDIRA/İZMİR

Üretim Yeri Adı: ALKIN KOMPRESÖR SAN.VE TİC. LİMİT ŞİTİ

Üretim Yeri Adres: ÇINEYAY MAH. TABAK YOLU KÖMÜR EVI NO:3 MANDIRA/İZMİR

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Üretim Yeri Adres: ÇINEYAY MAH. TABAK YOLU KÖMÜR EVI NO:3 MANDIRA/İZMİR

IEP ENERGY PETROLEUM INSTITUTE

IEP ATEX

(1) EU-Unit Verification Certificate

(2) Equipment or Protective System Intended for use in Potentially Explosive Atmosphere Directive 2014/54/EU

(3) EU-Unit Verification Certificate Number: IEP 19 ATEX 0732X

(4) Product name / Model - Serial number: W32 Type Compressor / W32-6-240-P48 - 090704

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

(6) Firm Address: Çineyay Mah. Tabak Yolu Kömür Evi No:3 Mandıra / İzmir - TÜRKİYE

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

(8) The IEP (Challenge) Body (Panel) (Certifier), Notifier and/or Technical Organizations (T.O. Ltd. Sd.) notified body number 2284 in accordance with Article 17 of the Directive 2014/54/EU of European Parliament and of the Council dated 29 February 2014, verifies 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 atmospheres, given in Annex IX(2) to the Directive. The certification not test results are recorded in confidential Report No. IEP_Ap.04.16.1332 Date 04.19.2019.

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

EN 60959-1: 2012, EN 12429:2015, EN 12430: 2015

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to specified Conditions of Safe Use specified in the schedule to this certificate.

(11) This EU-Unit Verification Certificate relates only to the design and construction of the specified product in accordance to the directive 2014/54/EU. Further responsibility of the directive apply in the manufacturing process and supply of the product. These are not covered by this certificate.

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

EX II 2G Ex IC T4 Gb
II 2G Ex IC T4 Gb

Responsible Person: Mustafa Ertoğrul
Head of Certificate Body

Date of Issue: 09.03.2019

IEP Challenge Body Petrol Gıda, Sanayi ve Tabak Hl. Org. Tl. Ltd. Şti.
TSE Kalite Enstitüsü (TSE) A.Ş.
Türkiye Kalite Enstitüsü (TSE) A.Ş.
Türk Standartları Enstitüsü (TSE) A.Ş.
Türkiye Kalite Enstitüsü (TSE) A.Ş.
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Türkiye 23.09.2018 09:05

TÜRK LOYDU

TYPE APPROVAL CERTIFICATE

This Certificate consists of 3 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. LİMİT ŞİTİ

Is found to comply with: Türk Loydu Rules for Classification of Ships and ISO 1217 - IS 7783 Displacement compressors - Acceptance tests

Application: High pressure breathing air compressor (B11) Medium pressure air compressor (3008/702) Max. working pressure: 300 Bar and 40 Bar Operation media: Air

Design: ALKIN KOMPRESÖR SAN. VE TİC. LİMİT ŞİTİ

Site: See left page

Address of Manufacturer: Çineyay Mah. Tabak Yolu Kömür Evi No.3 Mandıra/İzmir

Place and date: İSTANBUL / 09.05.2019

Subject to the conditions referred to in the following pages, this certificate is valid until 10.05.2020

Kemal SÖĞÜTÇÜ
New Building Division Manager

Form No: CLS.91.00.37 February 2019

T.C. TÜRK PATENT ENSTİTÜSÜ

MARKA TESCİL BELGESİ

Marka No : 2012 61885 - Ticaret - Hizmet

ALKIN

Marka Sahibi: ALKIN KOMPRESÖR SANAYİ VE TİCARET LİMİT ŞİRKETİ
TÜRKİYE CUMHURİYETİ
İbrahim Taras Cad. No:127 Mandıra İZMİR
2.46.87.11.35.37
Bhktötle.

Markaların Korunması Hakkında 556 Sayılı Kanun Hükmünde Kararnameye göre 09/07/2012 tarihinde ibrahim ON YILMAZ tarafından tescil edilmiştir.

TÜRK PATENT ENSTİTÜSÜ

T.C. TÜRK STANDARLARI ENSTİTÜSÜ

HİZMET YETİRLİLİK BELGESİ

Belge No: 2019-01010

Belge Veriliş Tarihi: 06.03.2019

Belge Geçerlilik Tarihi: 06.03.2020

Firmanın Adı: ALKIN KOMPRESÖR SANAYİ VE TİCARET

Firmanın Adres: ÇINEYAY MAH. TABAK YOLU KÖMÜR EVI NO:3 MANDIRA/İZMİR

Hararet Test Adresi: ÇINEYAY MAH. TABAK YOLU KÖMÜR EVI NO:3 MANDIRA/İZMİR

Belge Sahibi: Verilen Hizmeti Sağlayan

1. TS EN 12075 (04-12-2014) YETİRLİLİK BELGESİ- KOMPRESÖRLER İÇİN KUSURLAR STANDARTINA UYGUN HİZMET YETİRLİLİK BELGESİ
ALKIN KOMPRESÖR SANAYİ VE TİCARET YETİRLİLİK BELGESİ

Markaların Korunması Hakkında 556 Sayılı Kanun Hükmünde Kararnameye göre 09/07/2012 tarihinde ibrahim ON YILMAZ tarafından tescil edilmiştir.

TÜRK PATENT ENSTİTÜSÜ

ALKIN COMPRESSORS

Booster Compressors

Operator Manual

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© ALKIN KOMPRESÖR SAN. ve Tic. Ltd. Şti
Cüneytbey Mah. Tabaş Yolu Küme Evleri No.3
Menderes, İzmir
Tel: +90 232 782 22 90
Fax: +90 232 782 22 89

www.alkin.com.tr

- January, 2020 -

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..... | 10 |
| 2.2. Technical Data..... | 13 |
| 2.3. Piping and Instrumentation (P&I) Diagram | 15 |
| 2.4. Identification of the Compressor | 19 |
| 2.5. Principles of Operation..... | 20 |
| 2.6. Lubrication System..... | 20 |
| 2.7. Major Components | 20 |
| 2.7.1. Compressor unit | 20 |
| 2.7.2. System..... | 23 |
| 2.8. PLC (Programmable Logic Controller)..... | 24 |
| 2.8.1. User Interface | 25 |
| 2.8.2. Graphic Display | 26 |
| 2.8.3. Menu Navigation..... | 27 |
| 2.9. Description of Controls | 32 |
| 2.9.1. Manual start | 32 |
| 2.9.2. Auto start-stop..... | 32 |
| 2.9.3. Auto drain (for auto drain models)..... | 32 |
| 2.10. Installation..... | 32 |
| 2.10.1. Inspection..... | 32 |
| 2.10.2. Location..... | 32 |
| 2.10.3. Piping..... | 33 |
| 2.10.4. Electrical controls | 33 |
| 2.10.5. Wiring..... | 34 |
| 2.11. Storage..... | 34 |
| 2.12. Operation | 34 |
| 2.12.1. Initial start-up procedure..... | 34 |
| 2.12.2. Oil recommendation | 35 |
| 2.12.3. Extremely cold ambient temperatures | 36 |
| 2.12.4. Motor lubrication..... | 36 |
| 2.13. Adjustment | 36 |
| MAINTENANCE..... | 37 |

| | | |
|-----------|--|----|
| 3. | General | 37 |
| 3.1. | Maintenance Table | 38 |
| 3.1.1. | Check Table | 38 |
| 3.1.2. | Replacement Table..... | 39 |
| 3.2. | Torque Values | 40 |
| 3.3. | Maintenance Instructions..... | 40 |
| 3.3.1. | Oil level check | 41 |
| 3.3.2. | Leak check | 41 |
| 3.3.3. | Auto drain valve check..... | 41 |
| 3.3.4. | Intake filter check..... | 41 |
| 3.3.5. | V-Belt alignment check..... | 42 |
| 3.3.6. | Components check | 42 |
| 3.3.7. | Serpentines, Intercoolers and aftercooler, flywheel cleaning | 42 |
| 3.3.8. | Current check | 42 |
| 3.3.9. | Safety valve check | 42 |
| 3.3.9.1. | Safety valve replacement | 43 |
| 3.3.10. | Check valve check | 43 |
| 3.3.10.1. | Check valve replacement | 43 |
| 3.3.11. | V-Belt replacement | 44 |
| 3.3.12. | Oil change | 44 |
| 3.3.13. | Intake filter replacement | 44 |

TROUBLESHOOTING 45

DECLARATION OF CONFORMITY

WARRANTY CERTIFICATE

FOREWORD

A **ALKIN** booster compressors will provide you with the solid and reliable performance that you should expect from a heavy-duty 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 years long trouble free service.

Your compressor is backed up with worldwide sales and service organization, ready to accommodate your everyday needs for parts & service.

Service and parts supply anywhere in the world can be done by an ALKIN Compressors. For any questions please feel free to call our Menderes plant, in İzmir-Turkey.

Here are the contact details:

ALKIN KOMPRESÖR SAN. ve Tic. Ltd. Şti
Cüneytbey Mah. Tabaş Yolu Küme Evleri No.3
Menderes, İzmir
Tel: +90 232 782 2290 • Fax: +90 232 782 22 89
www.alkin.com.tr

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

Additionally, replacement parts not manufactured or approved by ALKIN can damage your compressor creating risks of accidents and injuries.

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.

GENERAL INFORMATIONS

1. General

1.1. General Safety Information

All ALKIN booster compressors are designed and manufactured with equipment and components that allow 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 read also 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 beyond the specified limits (pressure, etc.) and speeds except with prior written approval of ALKIN.

524-526-530 SERIES BOOSTER 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 |

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

524-526-530 SERIES BOOSTER COMPRESSORS

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 hand held 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 making adjustments 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.

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 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 persons are clear of the compressor prior to attempting to operate it.

Make adjustments only when the compressor is shut off. When necessary, make adjustments, then start the compressor to check if the adjustment is correct or not. If incorrect, shut the compressor, blow down the air, re-adjust, than 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 hazard.

524-526-530 SERIES BOOSTER COMPRESSORS

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 use of proper protective equipment. Do not let the hoses move free or don't 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 if and 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. Tag the power supply to avoid 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.

524-526-530 SERIES BOOSTER COMPRESSORS

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 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 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 F/L should be positioned under the compressor just like shown in the figure below. The height of the compressor from the ground must be max. 10 cm during carriage.

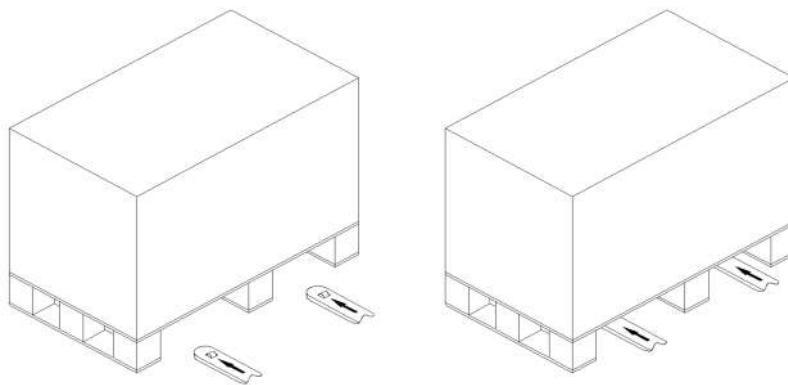


Figure 1 – Lifting and transporting by forklift

Do not distract the forklift operator during carriage.

Verify the lifting hook has a safety clamp, and ensure a robust fastening with tough ropes or chain. Avoid the compressor swinging while suspended, by using guide ropes. Keep all persons 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.

524-526-530 SERIES BOOSTER COMPRESSORS

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 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

524 series booster compressors are one stage-two cylinders, 526 series booster compressors are one stage- three cylinders, 530 series booster compressors are one stage-3 cylinders reciprocating type, air cooled and splash lubricated compressors. Working pressure of these compressors are 40 bar (580 psi). Do not attempt to modify 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.

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

All stages include relief valves that allow the pressure to drop when the compressor stops. 530 type booster compressor increases the pressure by compressing the compressed air or gas which the cylinders have sucked simultaneously with the help of a manifold. 530 series compressors are designed with aftercooler with serpentine after the discharge line for cooling the compressed air.

There is a Safety Valve at each stage to prevent an unwanted increase in pressure resulted 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.

Medium pressure series compressors are equipped with stainless valves at each stage that are designed to maintain the 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.

NOTE:

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

**524-526-530 SERIES
BOOSTER COMPRESSORS**

Figure 2 shows the head group views of the 524-526 and 530 series booster compressors.

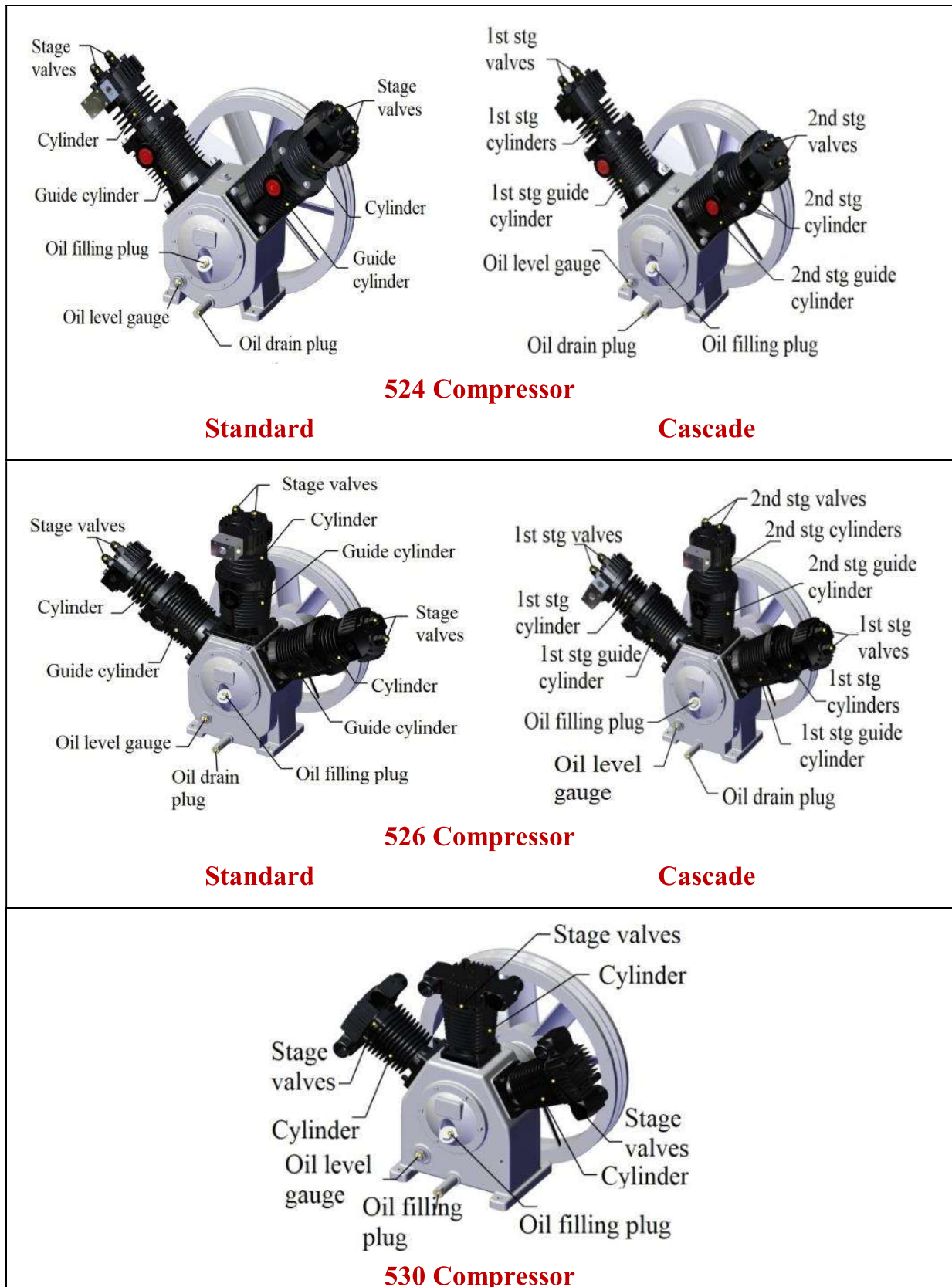


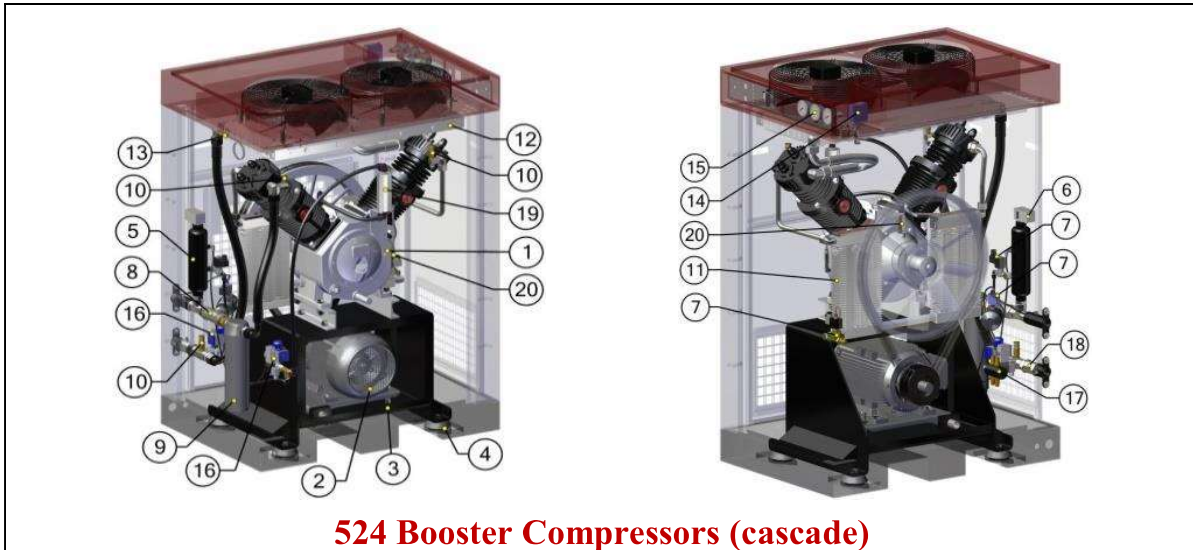
Figure 2 – 524-526-530 series compressors stages

**524-526-530 SERIES
BOOSTER COMPRESSORS**

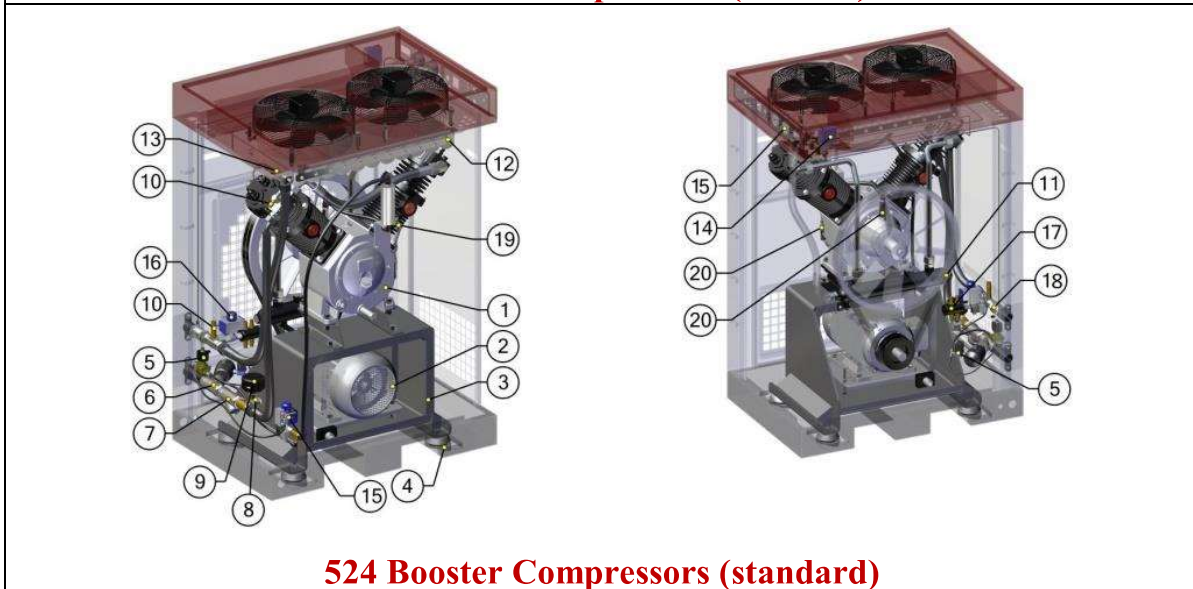
2.1. Compressor Unit

524 and 526 series CANOPY booster compressor units involve the main groups below;

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Compressor unit 2. Electric motor 3. Subbase 4. Shock mounts 5. Tank (cascade) 6. Pressure switch (cascade) 7. Solenoid valve (cascade) 8. Pneumatic piston (cascade) 9. Filter | <ol style="list-style-type: none"> 10. Safety valve 11. Intercooler (524 series) Radiator (526 series) 12. Aftercooler 13. Heat sensor 14. Pressure switch 15. Manometer 16. Actuator 17. Filter 18. Check valve 19. Oil retainer 20. Check valve |
|--|--|



524 Booster Compressors (cascade)



524 Booster Compressors (standard)

**524-526-530 SERIES
BOOSTER COMPRESSORS**

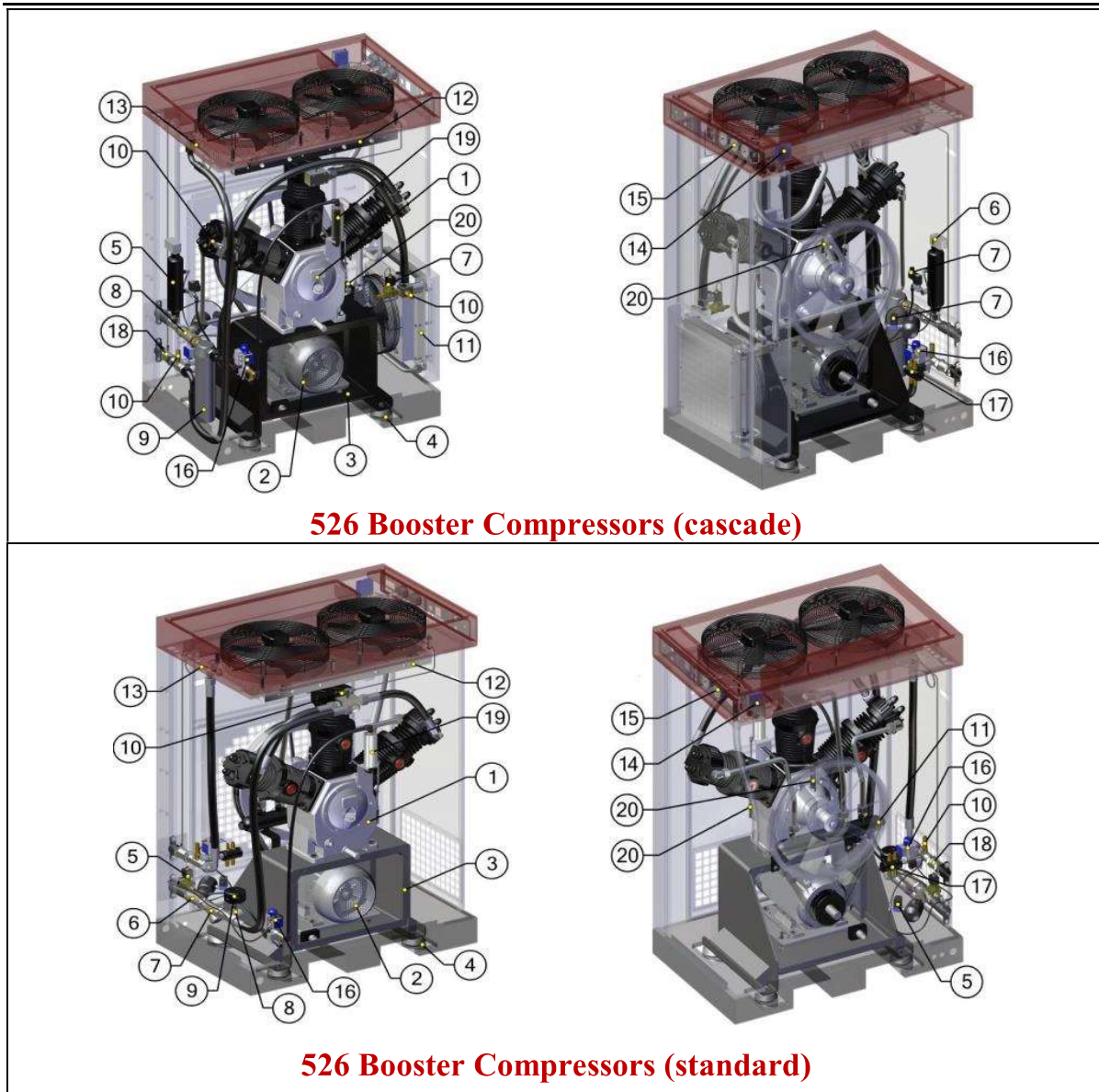


Figure 3 – 524-526 series canopy booster compressor general layout

524-526-530 SERIES BOOSTER COMPRESSORS

530 series booster compressor unit involves the main groups below;

- | | |
|---------------------|------------------|
| 1. Compressor unit | 10. Check valve |
| 2. Electric motor | 11. Manometer |
| 3. Subbase | 12. Safety valve |
| 4. Shock mounts | 13. Oil retainer |
| 5. Strainer | 14. Check valve |
| 6. Pneumatic piston | 15. Cooler |
| 7. Solenoid valve | 16. Filter |
| 8. Actuator | 17. Check valve |
| 9. Vacuum filter | |

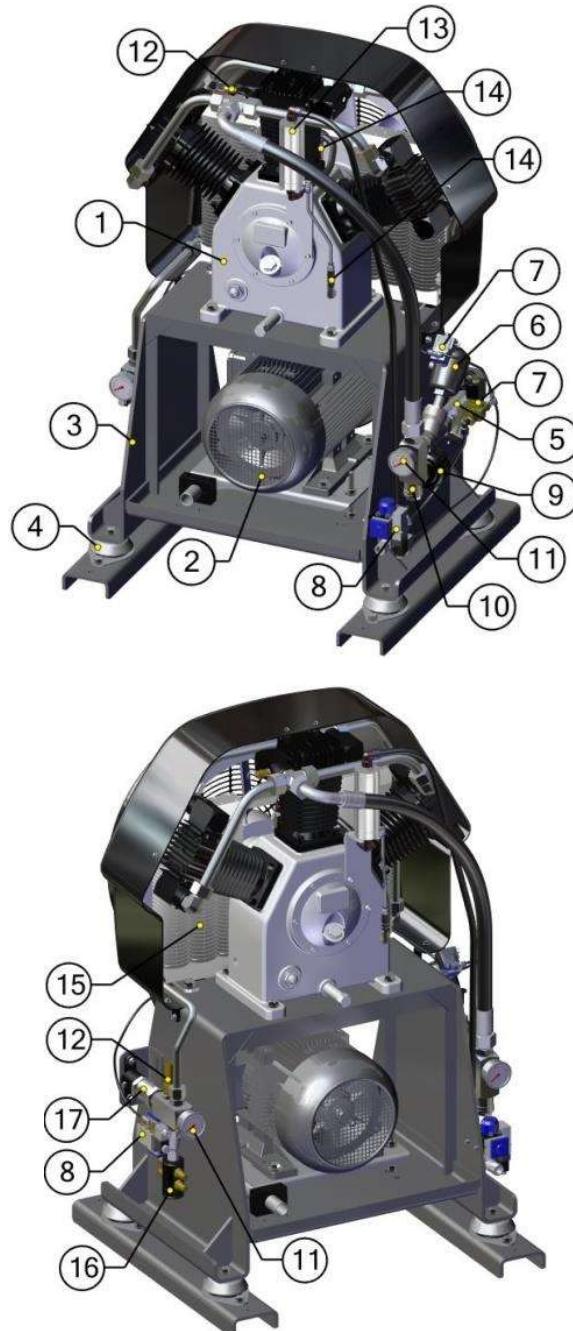


Figure 4 – 530 series booster compressor general layout

**524-526-530 SERIES
BOOSTER COMPRESSORS**

2.2. Technical Data

The 524-526 series canopy booster compressors' design is based on the below data;

| Compressor | 524-526 Series Booster | | | |
|--------------------------------|---|------|------------|---------|
| Sectors | Pet bottle blowing, Gas filling facilities, Industrial applications | | | |
| Suction pressure | 8 bar | | | |
| Models | 524 | | 526 | |
| Working pressure | 40 bar (580 psi) | | | |
| Free Air Delivery (FAD), l/min | 2500 | 3400 | 5000 | 6000 |
| Motor power, kW | 11 | 15 | 18,5 | 22 |
| Speed, rpm | 670 | 800 | 750 | 840 |
| Motor pulley diameter | Ø 160 | - | Ø 140 | Ø 150 |
| Belt dimensions | 22x2200 | - | 22x2150 | 22x2150 |
| Compressor pulley diameter | Ø 160 | | | |
| Piston stroke | 101,6 | | | |
| Number of stages | 1 | | | |
| Number of cylinders | 2 | 2 | 3 | 3 |
| Cylinder diameter | 60 mm | | | |
| Oil capacity | 4 liters | | | |
| Working temperature | 0/+50 °C | | | |
| Weight, kg | 440 | 450 | 630 | 640 |
| Dimensions, WxLxH, cm | 77x111x160 | | 77x120x172 | |

**524-526-530 SERIES
BOOSTER COMPRESSORS**

The 530 series booster compressors' design is based on the below data;

| Compressor | 530 Series | | |
|--------------------------------|--|-------------------|--------------------|
| Sectors | Pet bottle blowing, Gas filling facilities, Industrial applications | | |
| Suction pressure | 8 bar | | |
| Working pressure | 40 bar (580 psi) | | |
| Free Air Delivery (FAD), l/min | 2800 (99 Cfm) | 3800 (134 Cfm) | 4800 (169 Cfm) |
| Motor power, kW | 11 kW (15 Hp) | 15 kW (20 Hp) | 18,5 kW (25 Hp) |
| Speed, rpm | 600 | 800 | 1000 |
| Motor pulley diameter | Ø 150 | Ø 160 | Ø 190 |
| Belt dimensions | 22x2200 | 22x2200 | 22x2225 |
| Compressor pulley diameter | Ø 600 | | |
| Piston stroke, mm | 58,6 | | |
| Number of stages | 1 | | |
| Number of cylinders | 3 | | |
| Cylinder diameter | 60 mm | | |
| Oil capacity | 4 liters | | |
| Working temperature | 0/+50 °C | | |
| Weight, kg | 410 | 420 | 430 |
| Dimensions, WxLxH, cm | 87x77x131 | | |

524-526-530 SERIES BOOSTER 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.

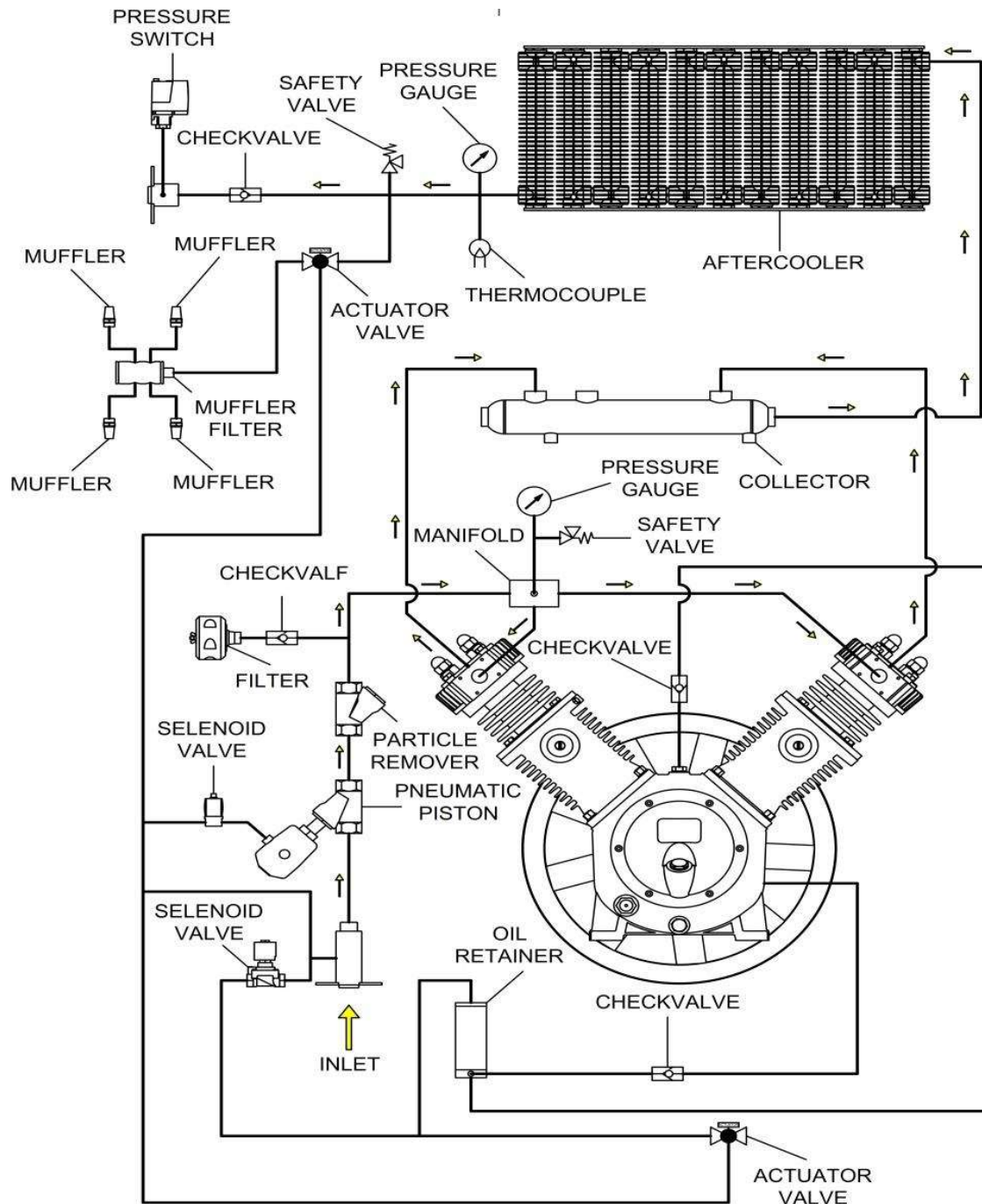


Figure 5 –524 series canopy booster compressor P&ID

**524-526-530 SERIES
BOOSTER COMPRESSORS**

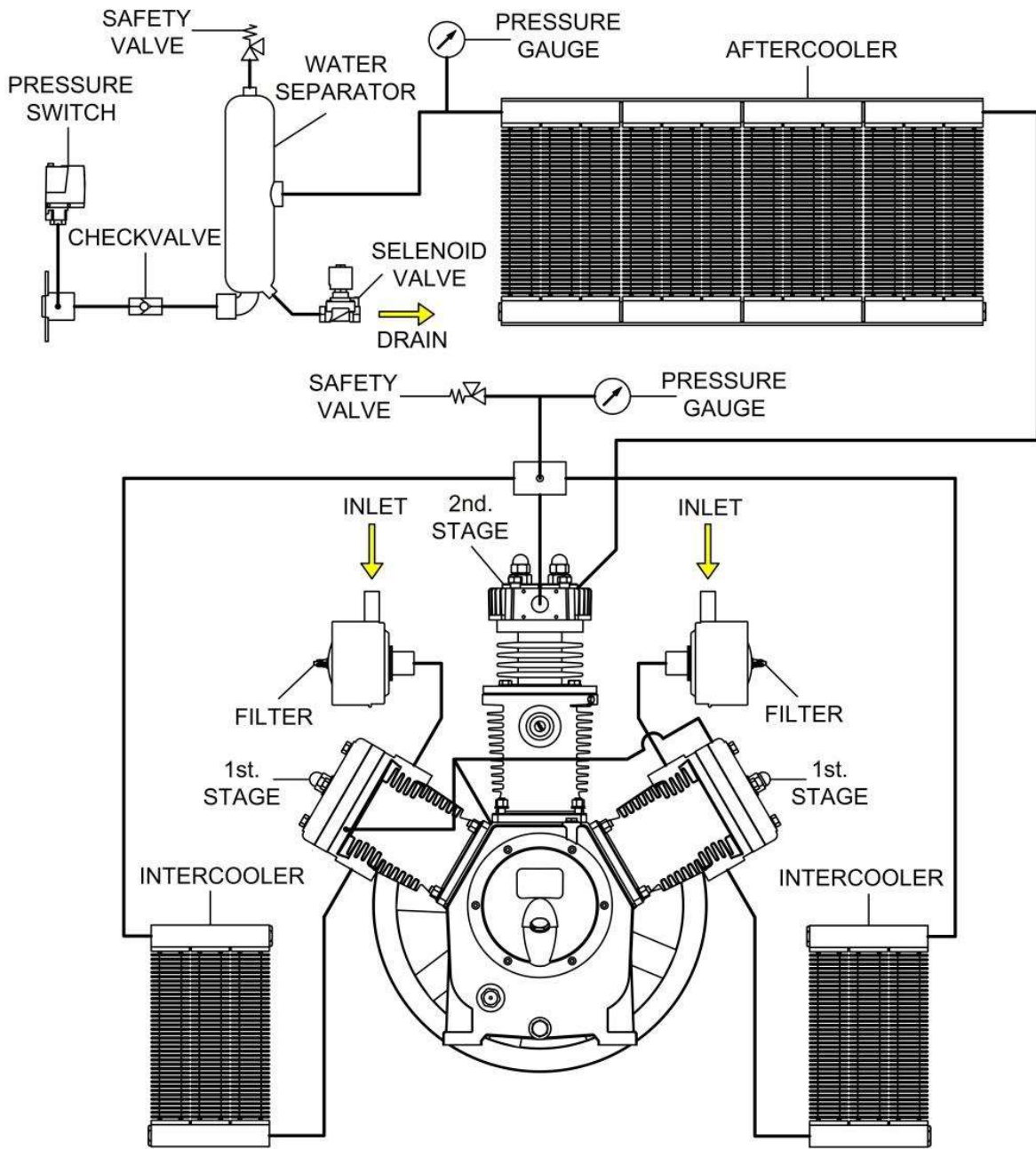


Figure 6 – 526 series canopy booster compressor P&ID

**524-526-530 SERIES
BOOSTER COMPRESSORS**

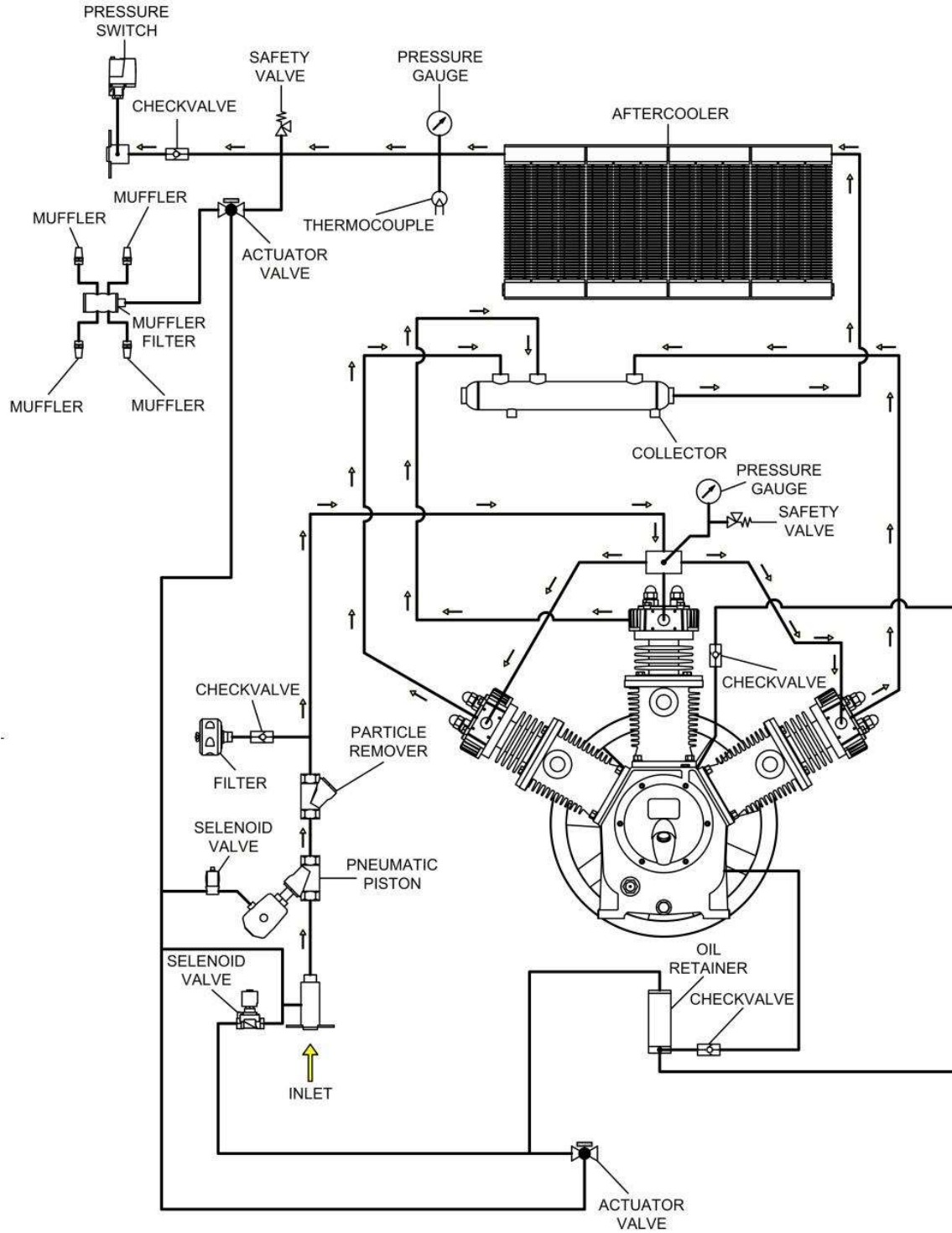


Figure 7 – 526 series canopy booster compressor P&ID

**524-526-530 SERIES
BOOSTER COMPRESSORS**

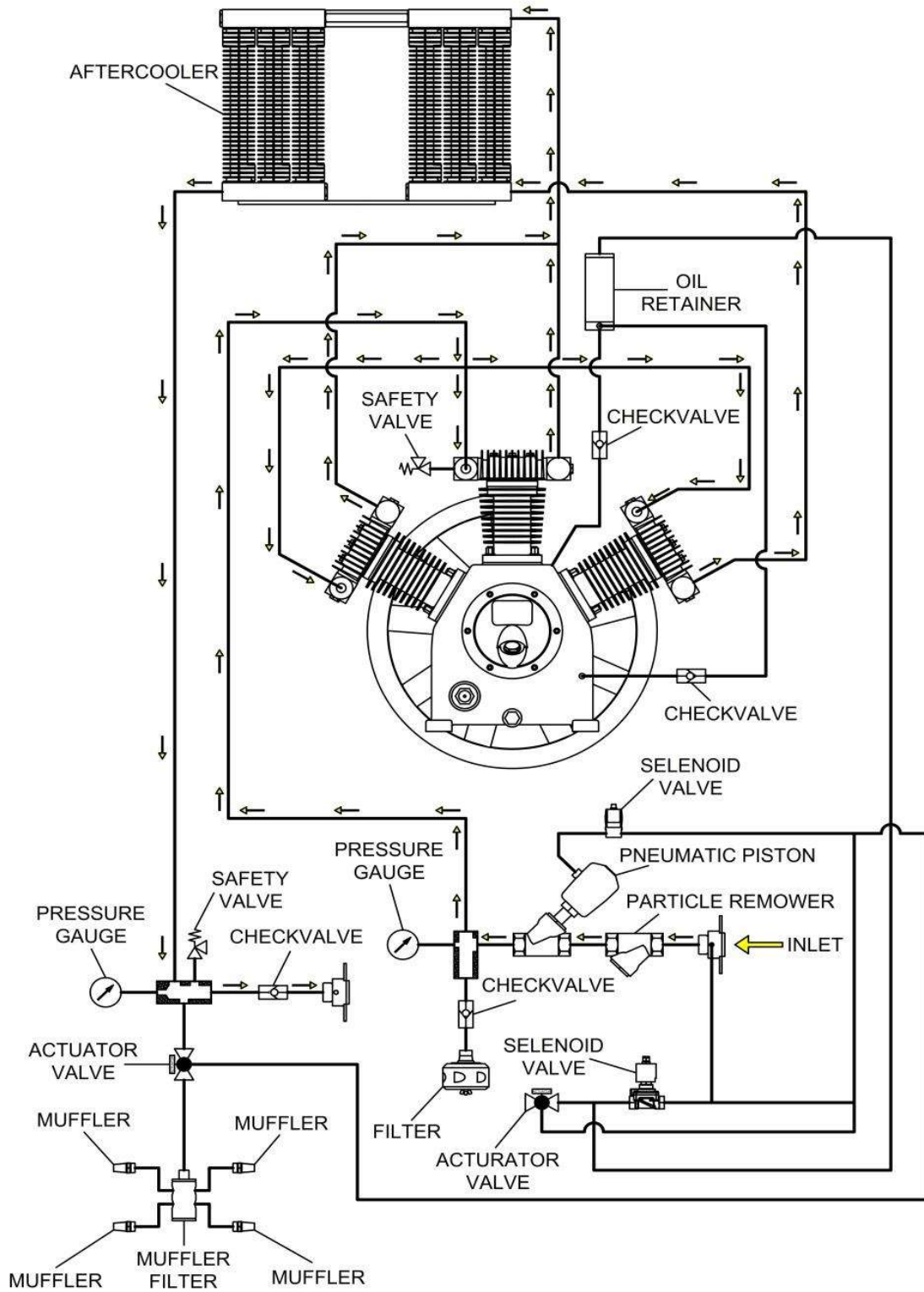





Figure 8 – 530 series booster compressor P&ID

**524-526-530 SERIES
BOOSTER COMPRESSORS**

2.4. Identification of the Compressor

Each compressor has an identification label attached to its frame.

| | |
|---|----------------------|
|  | |
| CÜNEYTBEY MAH.TABAŞ YOLU KÜME EVLERİ NO:3 Menderes-İZMİR/TÜRKİYE Tel : +90 232 78 222 90 Fax : +90 232 78 222 89 www.alkin-compressors.com alkin@alkin-compressors.com | |
| MEDIUM PRESSURE AIR BOOSTER ORTA BASINÇ HAVA BOOSTER | |
| 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"/> |
|   | |

2.5. Principles of Operation

Refer to the P&I (the Process & Instrument) diagram and try to familiarize yourself with the system layout.

There is a piston control valve at the inlet of the booster compressor. This valve remains open and allows air to pass through as the compressor runs. The primary air (gas) at 5 - 10 bar pressure accumulates in the inlet tank and then comes to the piston pneumatic valve via the strainer. The pressure regulator on the inlet tank controls the inlet pressure. Air (gas) enters the system via piston pneumatic valve. The air (gas) entering through this valve comes through the hydraulic hose to the intake manifold and from there to the pipe to allow it to enter the cylinders. There is a safety valve on the inlet manifold. The air (gas) increases from 5 bar to 40 bar in a single stage and leaves the cylinders through the aftercooler coils connected to the discharge manifold. The aftercoolers are designed to dissipate the heat generated during the compression stages and to reduce the temperature. The relief valve is a 3-way pneumatic valve controlled by a 3-way solenoid valve. The solenoid valve cuts or opens the control air to the discharge valves. The compressor starts and stops automatically with the control of the pressure switch.

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

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. Replace the compressor's oil due to maintenance table periods.

2.7. Major Components

2.7.1. Compressor unit

Crankcase:



This is the frame that holds everything on it. It contains the oil that lubricates the system. The cylinders are mounted on it. The crankshaft is inserted into the bearing housings which is an integral part of the crankcase. There is no maintenance or repair works that need to be done on this part; it needs to be cleaned inside when the oil is changed. If there is a visible

524-526-530 SERIES BOOSTER COMPRESSORS

damage, it should be replaced.

CONSULT ALKIN COMPRESSORS FOR REPLACEMENT OR MAINTENANCE



Crankshaft:

It is overhung type; that means the bearings are on one side, and the crank pin (where connecting rods are mounted) are on the other side. This unique feature allows usage of single piece connecting rods which are far more accurate and safe than split con rods. Large bearings in conjunction with low speeds, allow very long crankshaft life. Replace this part when life of bearings is over.

CONSULT ALKIN COMPRESSORS FOR REPLACEMENT OR MAINTENANCE



Connecting Rods:

There are two connecting rods in 524 series, three connecting rods in 526 and 530 series booster compressors. 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.

The 524 and 526 series connecting rods are available with high quality copper - bronze alloy bushings. When these bushings become worn over time, the connecting rods must be replaced or, if necessary, only the bushings replaced. The 530 series booster compressors have a friction reducing bearing on the connecting rods. These bearings provide maximum life.

CONSULT ALKIN COMPRESSORS FOR REPLACEMENT OR MAINTENANCE

Cylinders:

They are casted separately and are made of high grade casting materials, machined & honed to fined tolerances for long service life. The compression cylinders are mounted on guide cylinder to guide the crosshead piston ass'y. However, have the cylinders tested with proper testing equipment in general overhaul periods and replace them if exceeding the tolerance limits mentioned in parts list or having a visible fault.

CONSULT ALKIN COMPRESSORS FOR REPLACEMENT OR MAINTENANCE

524-526-530 SERIES BOOSTER COMPRESSORS

Valve Complete:

The complete valve consists of valves and up & down covers inside and is located on top of the cylinders. These complete valves should be maintained periodically and replaced if required. The valves must be replaced in every general overhaul period. Replacement of the valves can be made by ALKIN Service Personnel or a trained costumer.

CONSULT ALKIN COMPRESSORS FOR REPLACEMENT OR MAINTENANCE

Breather:

All piston type machines have some compression leak through the rings into the crankcase. There is a breather system to prevent the pressure built up in the crankcase. In the air compressor the crankcase is connected to the inlet with a cupper pipe from where the breathing is made possible.

CONSULT ALKIN COMPRESSORS FOR REPLACEMENT OR MAINTENANCE

Oil level switch:

The oil level switch is located in the crankcase. When the oil level drops, the float goes down and opens the control circuit that stops the motor. It gives a signal that the engine has stopped due to a decrease in the oil level.

Pistons:

Pistons in compressor stages are connected to the crankshaft via connecting rods. Pistons move up & down and compress the air inside the cylinders with the motion supplied by crankshaft. Have the pistons tested with proper testing equipment in general overhaul periods and replace them if exceeding the tolerance limits mentioned in parts list or having a visible fault.

CONSULT ALKIN COMPRESSORS FOR REPLACEMENT OR MAINTENANCE

Safety Valves:

Safety valves are found at the end of each stage of compressor unit. All the safety valves are subject to pressure tests and working pressure is set accordingly. Therefore the safety valves prevent the danger in case of rising pressure in the compressor. 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. Check the safety valves in every general overhaul against leakages, by using foam water, and replace if necessary. Return the old safety valves back to the manufacturer.

IMPORTANT:

Consult ALKIN COMPRESSORS for replacement or maintenance

524-526-530 SERIES BOOSTER COMPRESSORS

2.7.2. System

Subbase:

This is the part carrying the motor and compressor and has been supported with 4 shock mounts.

Canopy:

It is designed to hold various components on the electrical panel and to be easily transported by the pallet truck. It is electrostatically painted for a longer working life. All doors in the system can be easily and quickly accessed and all 4 doors can be easily removed.

Control Board:

In 524 and 526 series booster compressors, the electrical panel is located in the fan cavity at the top and can be accessed by lifting the top cover. In 530 series booster compressors, the electrical panel is provided to be mounted on the wall separately from the compressor system. All electrical equipment that starts the motor and controls the system is located here.

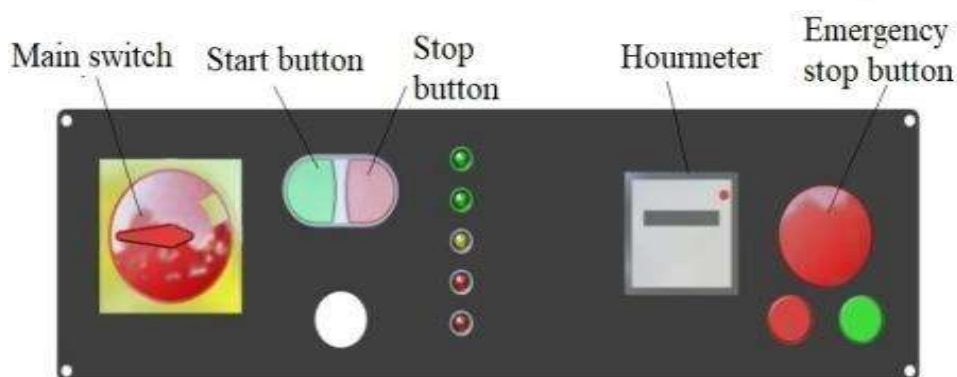


Figure 9– 524-526 series booster compressors control board

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 on is larger than the surface where the high pressure effectively acts on the piston. Therefore the force

524-526-530 SERIES BOOSTER COMPRESSORS

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:



The compressor can be driven by an electric motor and is belt driven. There is an hour meter on the control panel.

Intercoolers and Aftercooler:

These are the cooling tubes 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.

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)











524 and 526 series canopy booster compressors can be equipped with programmable logical controllers (PLC) to ensure uninterrupted production.

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








2.9. User Interface

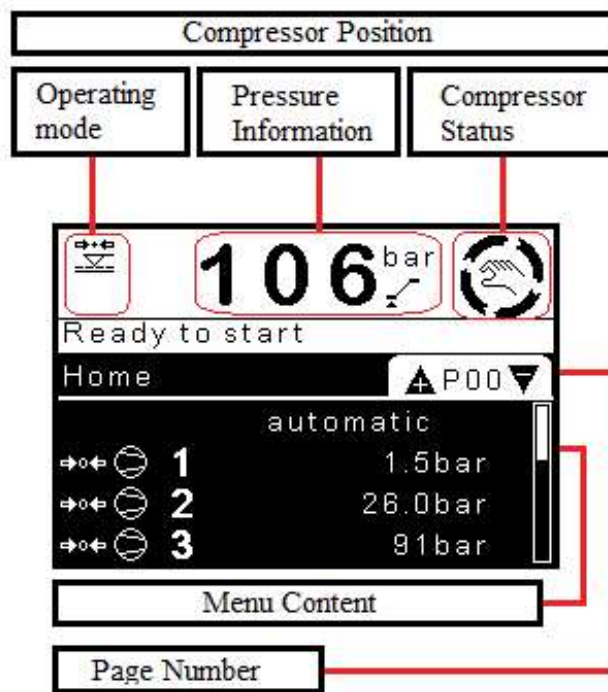


| Icon: Image | Icon: Function |
|---|---------------------------|
|  | Start |
|  | Stop |
|  | Reset |
|  | Enter |
|  | Up |
|  | Down |
|  | Escape |
|  | Advanced Power Monitoring |
|  | Metacentre™ Compatible |
|  | SD Card Option |

**524-526-530 SERIES
BOOSTER COMPRESSORS**

| | |
|---|-----------------------------|
|  | Airbus485™ Compatible |
|  | MODBUS Compatible |
|  | Advanced Control Algorithms |
|  | Internal System Control |
|  | Ethernet Card option |

2.8.2. Graphic Display



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

2.8.3. Menu Navigation

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.

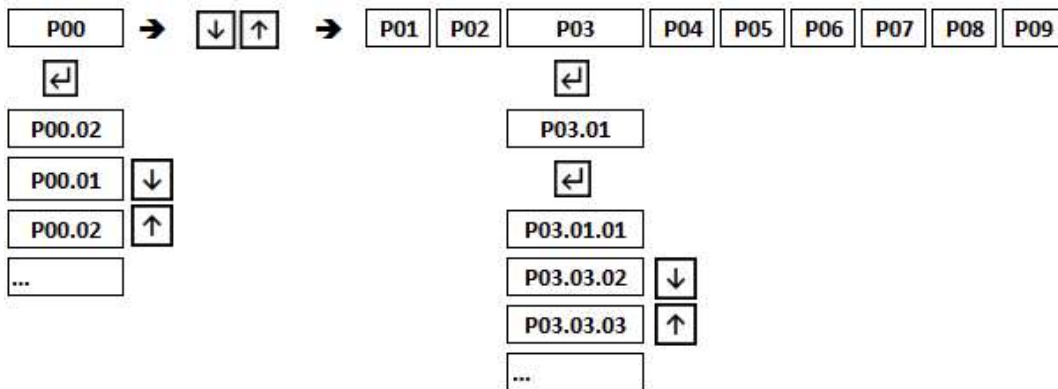
Additionally the menu tab extends to identify the navigation location. For example:

| Item | Description |
|-------------|--------------------|
| P02 | Menu: Utilization |
| P02.10 | VSD average RPM |
| P02.10.01 | AVG RPM 1 – 25% |

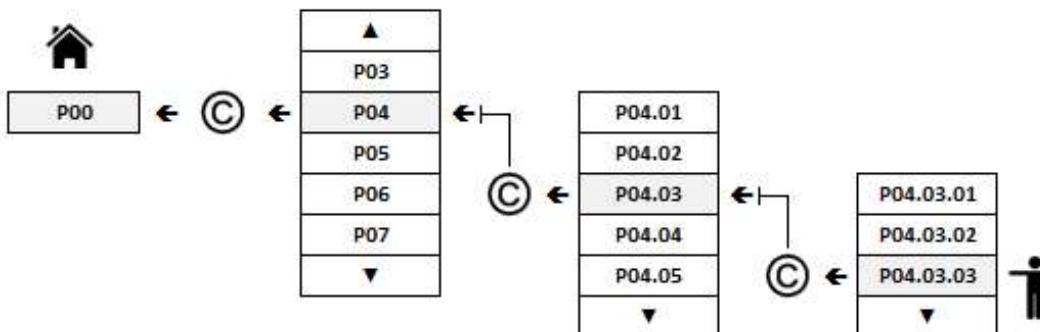
Note: menu content items are only visible when the Airmaster™ is appropriately configured.

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

Progress in Menu

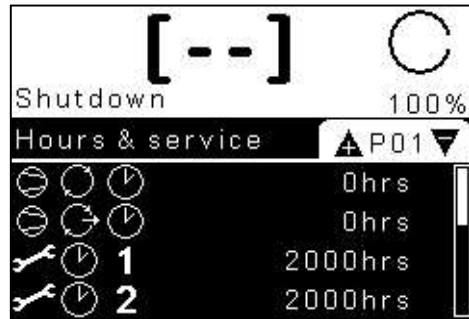


Back to previous Menu



**524-526-530 SERIES
BOOSTER COMPRESSORS**

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



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).



524-526-530 SERIES BOOSTER COMPRESSORS

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

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.*

524-526-530 SERIES BOOSTER COMPRESSORS

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

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

**524-526-530 SERIES
BOOSTER COMPRESSORS**

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

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.

524-526-530 SERIES BOOSTER COMPRESSORS

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

2.10. Description of Controls

2.9.1. Manual start

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

2.9.2. Auto start-stop



If 524-526 and 530 series booster compressors are installed with a pressure switch, the compressor stops when pressure reaches to the stop pressure set on the pressure switch.

2.9.3. Auto drain

Automatic drain takes place with the help of solenoid.

2.11. Installation

2.10.1. Inspection

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

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

2.10.2. Location

Location where the compressor is installed determines to a considerable extent the overall performance and service life of the unit. **Compressor should be located in an area that is dry and sheltered, well ventilated, not exposed to high ambient temperatures, air borne contaminants such as dust, fumes, lint, vapor, steam, gases, engine exhaust and other contaminant.** The floor must be flat and capable of taking the load of the system weight. Install the compressor at least 60 cm distances to surrounding walls, to insure adequate cooling and access for service.

524-526-530 SERIES BOOSTER COMPRESSORS

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.

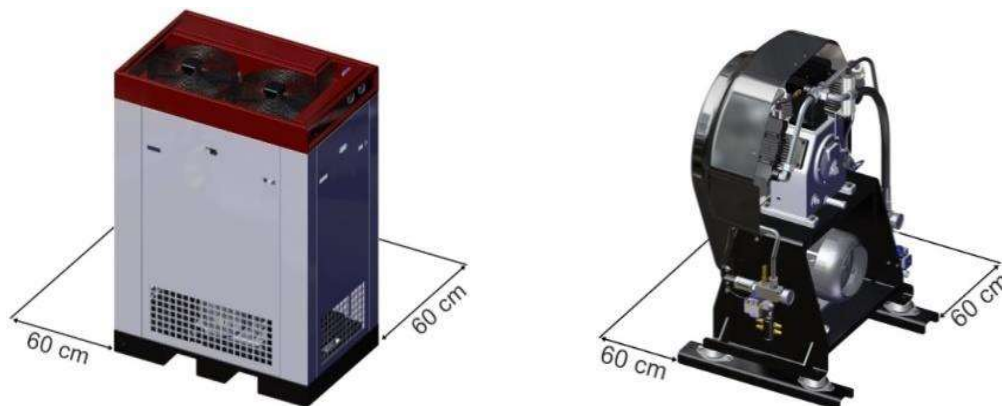


Figure 10 – 524-526 and 530 series compressors layout

2.10.3. 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.

2.10.4. Electrical controls

IMPORTANT:

Although all electrical instructions 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 insure that the first start-up will be trouble free. Make the following checks before attempting any start up:

- a. Check line voltage. Verify that the compressor motor corresponds with these specifications.
- b. Check the electrical motor nameplate to verify the compliance with the available power and electrical supply.
- c. Check tightness of all electrical connections including those in the electrical panel of the compressor.
- d. At start up, check the direction of rotation to insure that 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

524-526-530 SERIES BOOSTER COMPRESSORS

cause serious damages on the compressor if it runs in this position for a long time as the cooling air flow 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.

2.10.5. 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

NOTE:

If the compressor will not be working but stored for a long time, you need to operate the compressor at least twice a month for 1 hour to lubricate inner parts in failure to do so, the oxidization may arise on the inner parts and cause trouble for the operator and compressor during next start up.

NOTE:

If the compressor has been stored with the old oil inside, first run the compressor for a while and stop it after the oil is warmed up, discharge the old oil and refill with new 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;

- a. Make sure that you have read this manual carefully, and understand it. If you have any questions, contact ALKIN.
- b. Make sure that all the preparations described in the installation section of this manual have been made.
- c. Check the oil level in the crankcase.
- d. Check the pressure switch and make sure that the pressure adjustments are set at the proper start-stop Pressures.
- e. Rotate the compressor flywheel several times by hand to see that it is free and working properly.
- f. Keep all objects such as tools, rugs, etc. away from the compressor.
- g. Check the direction of rotation. Rotation must be in the direction of the arrow marked on the crankcase and flywheel.

**524-526-530 SERIES
BOOSTER COMPRESSORS**

- h.** Press the start button to start the compressor. Check and verify that there is no abnormal vibration, or any abnormal sounds.
- i.** 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.
- j.** Check the possible leaks in piping. If there is any leak stop the compressor and let it cool down.
- k.** 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.

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 524, 526 and 530 series booster compressors of oil should be loaded during each replacement.**

RECOMMENDED OILS

| Oil | Type | Quantity |
|-----------------------------------|-------------|-----------------|
| Mobil Rarus 427 | Mineral | 4 liters |
| Anderol 755 (equivalent) | Synthetic | |
| Shell Corena S2 P100 (equivalent) | Mineral | |

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 |
|-----------------------|--------------------|------------------------|
| 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.

524-526-530 SERIES BOOSTER COMPRESSORS

- 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.

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 adopt 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 524-526 and 530 series booster 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 pressure switch, verify compressor is operating and make adjustments according to the final outlet pressure.

- Adjustment is done by rotating the Red Adjustment Screw.
- You can adjust 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 standard differential of 10% of working pressure.

For example, a pressure switch set at 40 bar will work between 35 and 40 bar.

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

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 safety valve leaking, replace it.

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, purifiers, piping, etc. If a bank system exists, isolate by closing the appropriate valves.

CAUTION !

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.

**524-526-530 SERIES
BOOSTER 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 | - |
| | Open the manual drains beneath water separators at every 10 minutes to drain condensate water. | 03 |
| Weekly | Check intake filter | 04 |
| | Check V-belt | 05 |
| | Check the tightness of the fasteners | 06 |
| | Clean intercoolers and aftercooler and flywheel | 07 |
| | Check current | 08 |
| | Check the tightness of the cable connections | - |
| 1000 hours / 1 year | Check safety valves, replace if necessary. | 09 |
| | Inspect the stage valves, clean if there are any dirt or carbon deposits in the valves. | - |
| | Check the check valve, replace if necessary | 10 |
| | Check belts, replace if necessary | |

**524-526-530 SERIES
BOOSTER COMPRESSORS**

3.1.2. Replacement Table

For 524, 526 series booster compressors;

| Replace ment time | No | Explanation | Qty. | Instruction no. |
|----------------------------|----|--|----------|-----------------------|
| 500 hours / 1 year | 1 | Oil change | 4 liters | 12 |
| | 2 | Intake filter (524-526) | 1 pcs. | |
| | 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 years. If necessary, replace with new ones. | 1 set | |
| | 3 | Gasket | 1 set | |
| | 4 | O-ring set | 1 set | |
| 4000 hours / 4 years | 1 | Check valve | 1 pcs. | 10-01 |
| | 2 | V-belt | 2 pcs. | 11 |

For 530 series booster compressors;

| Replace ment time | No | Explanation | Qty. | Instruction no. |
|----------------------------|----|--|----------|-----------------------|
| 500 hours / 1 year | 1 | Oil change | 4 liters | 12 |
| | 2 | Oil reservoir sponge | 6 pcs. | |
| 4000 hours / 4 years | 1 | Ring | 1 set | Contact with ALKIN |
| | 2 | Check the valves (stage) at every 4000 hours / 4 years. If necessary, replace with new ones. | 1 set | |
| | 3 | Gasket | 1 set | |
| | 4 | O-ring set | 1 set | |
| | 1 | Bearing of connecting rod | 1 set | - |
| | 2 | V-belt | 2 pcs. | 11 |

**524-526-530 SERIES
BOOSTER COMPRESSORS**

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 |

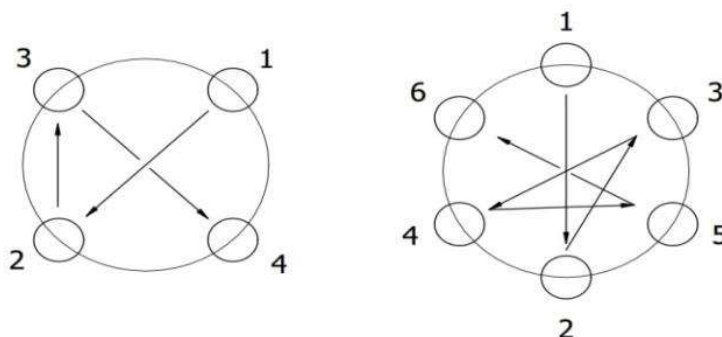


Figure 11– Tightening order

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, purifiers, piping, etc. If a bank system exists, isolate by closing the appropriate valves.

524-526-530 SERIES BOOSTER COMPRESSORS

3.3.1. Oil level check

| | |
|--|-----------------|
| Instruction no | 01 |
| Instruction name | Oil Level Check |
| List of tools required | None |
| Parts list to be used in replacement kit | None |

- 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 | Bowl, sponge, foam water |
| Parts list to be used in replacement kit | None |

- 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. Auto drain valve check

| | |
|--|-------------------------|
| Instruction no | 03 |
| Instruction name | Auto Drain Valves Check |
| List of tools required | None |
| Parts list to be used in replacement kit | None |

- While working, compressor should drain for 5 seconds at every 10 minutes.

3.3.4. Intake filter check

| | |
|--|---------------------|
| Instruction no | 04 |
| Instruction name | Intake Filter Check |
| List of tools required | Clean 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.

524-526-530 SERIES BOOSTER COMPRESSORS

3.3.5. V-Belt alignment check

| | |
|--|----------------------|
| Instruction no | 05 |
| Instruction name | V-belt Tension Check |
| List of tools required | None |
| Parts list to be used in replacement kit | None |

- 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.

3.3.6. Components check

| | |
|--|-------------------|
| Instruction no | 06 |
| Instruction name | Components Check |
| List of tools required | Appropriate tools |
| Parts list to be used in replacement kit | None |

- 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.

3.3.7. Serpentine, Intercoolers and aftercooler, flywheel cleaning

| | |
|--|--------------------------|
| Instruction no | 07 |
| Instruction name | Serpentine, Intercoolers |
| 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.

3.3.8. Current check

| | |
|--|---------------|
| Instruction no | 08 |
| Instruction name | Current Check |
| List of tools required | Ampere meter |
| Parts list to be used in replacement kit | None |

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

3.3.9. Safety valve check

| | |
|------------------|--------------------|
| Instruction no | 09 |
| Instruction name | Safety Valve Check |

**524-526-530 SERIES
BOOSTER COMPRESSORS**

| | |
|--|------------|
| List of tools required | foam water |
| Parts list to be used in replacement kit | None |

- Start the compressors. While it is working, put foam water on valves and check for leaks. Replace valves if necessary.

3.3.9.1. Safety valve replacement

| | |
|--|--------------------------|
| Instruction no | 09-01 |
| Instruction name | Safety Valve Replacement |
| List of tools required | Appr. tools, foam water |
| Parts list to be used in replacement kit | None |

- 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.

3.3.10. Check valve check

| | |
|--|-------------------------|
| Instruction no | 10 |
| Instruction name | Check Valve Check |
| List of tools required | Appr. tools, foam water |
| Parts list to be used in replacement kit | None |

- Start the compressor. When purifier is pressurized, remove check valve inlet pipe. Check for leaks with foam water. Reconnect the pipe if no leaks. If leaking, replace check valve.

3.3.10.1. Check valve replacement

| | |
|--|-------------------------------|
| Instruction no | 10-01 |
| Instruction name | Check Valve Replace |
| List of tools required | appropriate tools, foam water |
| Parts list to be used in replacement kit | None |

- 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.

524-526-530 SERIES BOOSTER COMPRESSORS

3.3.11. V-Belt replacement

| | |
|--------------------------------------|--------------------|
| Instruction no | 11 |
| Instruction name | V-belt Replacement |
| List of tools required | appropriate tools |
| Parts list to be used in replacement | None |

- 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.

3.3.12. Oil change

| | |
|--------------------------------------|-------------------------|
| Instruction no | 12 |
| Instruction name | Oil Change Instructions |
| List of tools required | funnel, bowl |
| Parts list to be used in replacement | Mobil Rarus 427 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.

3.3.13. Intake filter replacement

| | |
|--------------------------------------|---------------------------|
| Instruction no | 13 |
| Instruction name | Intake Filter Replacement |
| List of tools required | 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. |

524-526-530 SERIES BOOSTER 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. |
-

524-526-530 SERIES BOOSTER COMPRESSORS

-
- Motor belt and the sheave misaligned Align.

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.

**524-526-530 SERIES
BOOSTER COMPRESSORS**

| | |
|--|---|
| • Poor ventilation and air circulation | Relocate the compressor, improve ventilation. |
| • Blown head gasket | Replace the head gasket. |
| • 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 |
|--|---|

**524-526-530 SERIES
BOOSTER COMPRESSORS**

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

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

2006/95/EC - 2006/42/EC

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

ADDRESS: Cüneytbey mah. Tabaş yolu Küme evleri No:3 35470
Menderes/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 : Booster Series (524-526-530)

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: 01/01/2020

Özcay GÜRSOY
Factory Manager





ISO 9001
VCR.TR.01.015054



WARRANTY CERTIFICATE

ALKIN Air/Gas Booster Compressors and accessories are warranted for **two year** 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 KOMPRESÖR
SAN.VE TİC.LTD.ŞTİ.
Cuneybey Mh. Tabak Yolu Küme Evi No:3
Menderes / İZMİR Tel: 0 222 781 2690
Menderes V.D.: 0540038910
Mersis No: 08818300000000000000

**ALKIN KOMPRESÖR
SAN. ve TİC. LTD. ŞTİ.**



ALKIN
COMPRESSORS

ALKIN KOMPRESÖR SAN. ve TİC. LTD. ŞTİ.
Kazımkarabekir Mah. Bekir Saydam Cad. No:94
Torbalı-Pancar-İZMİR / TÜRKİYE

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

www.alkin.com.tr