

ENERGY SAVING FIRST

MUTUAL VALUE SHARED

**DENAIR
Diesel Screw Air Compressor
Presentation**



DENAIR

www.denair.net

Contents

- 1. Diesel Mobile Air Compressor Summary**
- 2. Diesel Mobile Air Compressor Model Definition**
- 3. Diesel Mobile Air Compressor Features**
- 4. Diesel Mobile Air Compressor Main Components Introduction**
- 5. Operating Instructions**



1. Diesel Mobile Air Compressor Summary

1.1 Reference images



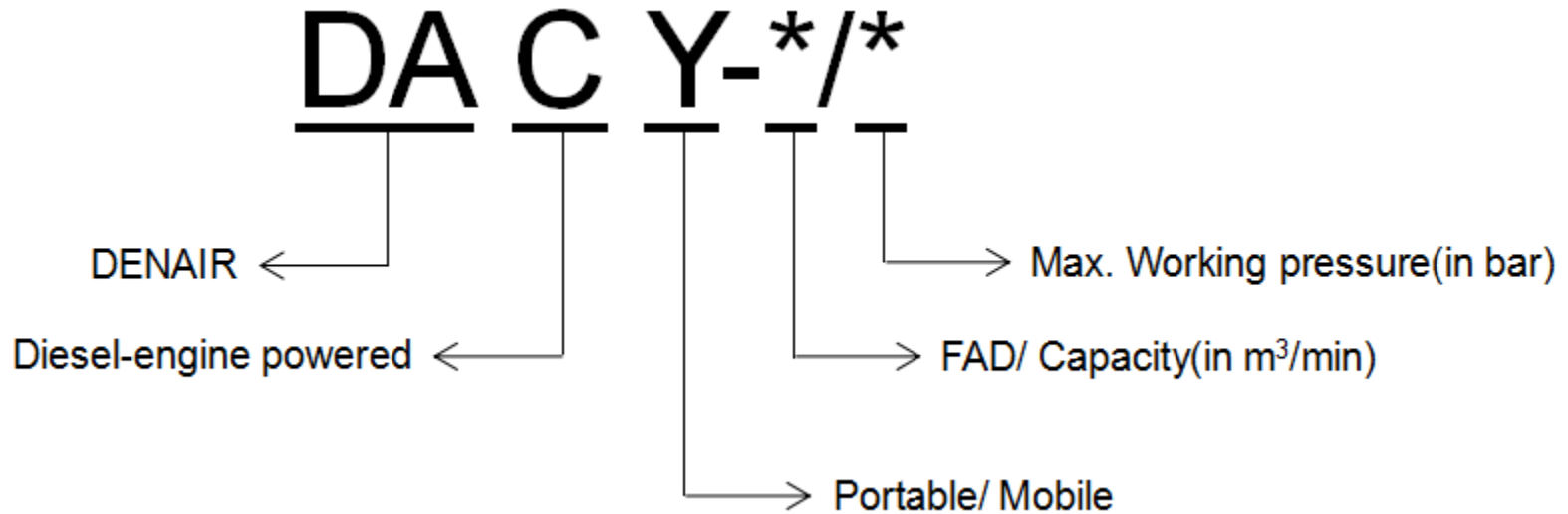
1.2 Specifications

- 3.2 to 45 m³/min (113 to 1600 cfm)
- 7 to 35 bar (102 to 508 psig)
- 32 to 522 kW (42 to 700 HP)

1.3 Applications

- Jack hammer / cleaning / piling / pole fixing / tunnelling / breaker / reventing / wire saw /ld4 **(185 - 650 cfm at 100 psi)**
- Sand blasting / guniting / blasting / painting
(300 - 750 cfm at 100 - 150 psi)
- Pigging / pipeline laying / dewatering / mud handling / cement / ash transfer
(300 - 650 cfm at 200 psi)
- 3" - 4½" DTH drilling for pneumatic and hydraulic track & wagon drill
(300 - 900 cfm at 150 - 250 psi)
- 6½" DTH drilling in open mines **(475 - 1500 cfm at 150 - 400 psi)**
- CBM drilling / off shore drilling / oil /gas exploration drilling **(900 - 1100 cfm @ 350 psi)**
- Optical cable laying - **(400 cfm at 175 psi with after cooler)**
- Electrical portable - **(131 - 500 cfm at 100 - 135 psi)**

2. Diesel Mobile Air Compressor Model Definition

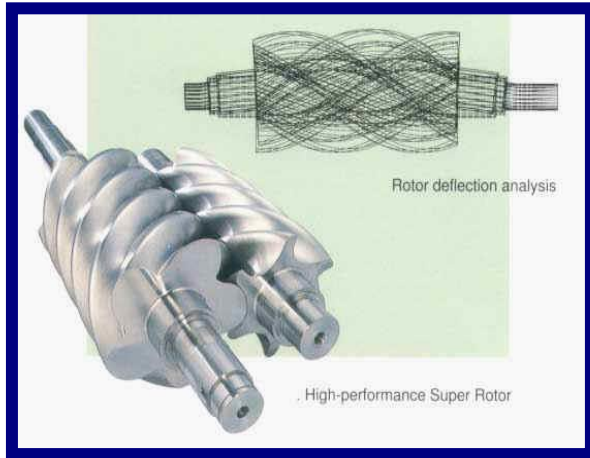


E.g.: DACY-11/10

DENAIR Diesel-engine powered Mobile air compressor with Capacity of 10 m³/min @ Max. working pressure of 10 bar.

3. Diesel Mobile Air Compressor Features

Efficient and Energy saving



- Air End: Original DENAIR air end, advanced SAP profile design, superior Sweden SKF element bearings.
- Profile: The latest generation of asymmetric tooth design 5:6, tooth gap is small, high efficient compression.
- Workmanship: The rotors are precision grinding processing, accuracy 0.005 mm; The rotor is tested by the dynamic and static equipment, which runs more smoothly, with less vibration, lower noise and longer lifetime.

3. Diesel Mobile Air Compressor Features

High reliability



- High-end configuration: International brand engines. Superior valves and drive system.
- Optimized design, including electronic control system and pneumatic control system.
- Full air control, responsive, air pressure fluctuation less than 5% rated exhaust pressure.

3. Diesel Mobile Air Compressor Features

Environment-friendly with a lower noise



- Superior air end and axial fan radically reduces noise.
- The damper at the bottom of the air end effectively avoids the resonance transmission of noise.
- Both the inlet and outlet airflows have diversion guides to ensure a lower running noise.

3. Diesel Mobile Air Compressor Features

Integrated design



- The ergonomically designed gull-wing wide open door gives you the best viewing angle and operating space for maintenance, saving a lot of manpower and reduced productivity due to downtime.
- The engine and air compressors feature a separate two-stage air filtration system to ensure minimal core component losses in harsh field construction environments.
- The maintenance service part of the equipment is concentrated on one side of the machine body, which can be easily accessed to ensure the rapid maintenance.

3. Diesel Mobile Air Compressor Features

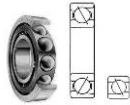
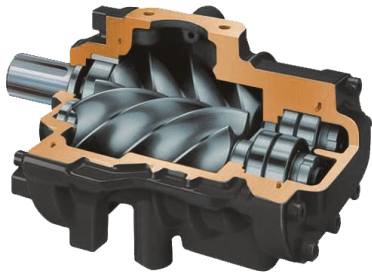
Easy to operate



- To start-up just by pressing the “START” button.
- Various safety indicators and digital indicators ensure that the operating status is clear at a glance.
- Working pressure, air exhausted temperature, cooling water temperature, engine oil pressure, fuel level are clearly showed on the panel.

4. Diesel Mobile Air Compressor Main Components Introduction

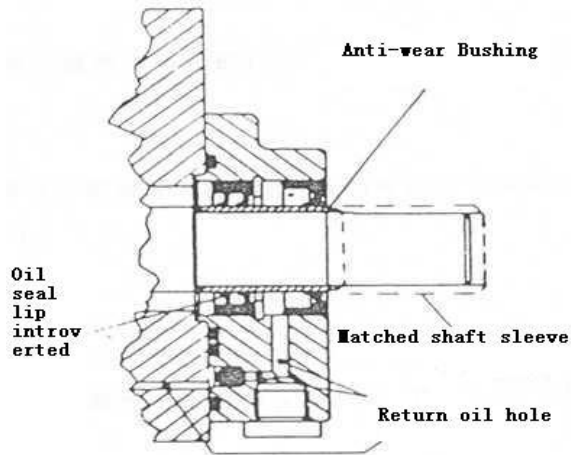
DENAIR Screw Air End (Germany Core Tech)



- The rotor is manufactured by German processing equipment to ensure the dimensional accuracy of the parts.
- World brand SKF bearing with a longer service life.
- High volumetric efficiency.
- Low noise.

4. Diesel Mobile Air Compressor Main Components Introduction

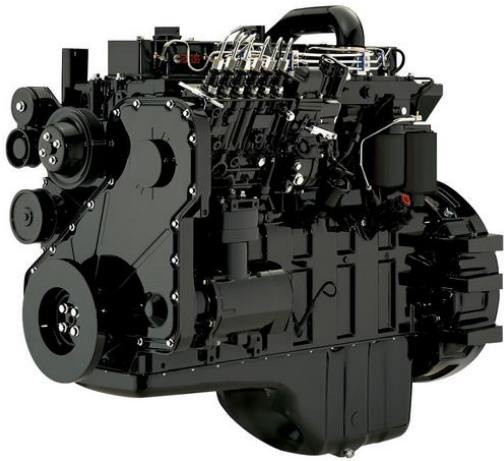
Double Screw Air End Shaft Seal



- Triple lips shaft seal.
- Oil return hole in shaft seal.
- Assembly of the bushing on the main shaft to reduce shaft seal wear and extend shaft seal life.

4. Diesel Mobile Air Compressor Main Components Introduction

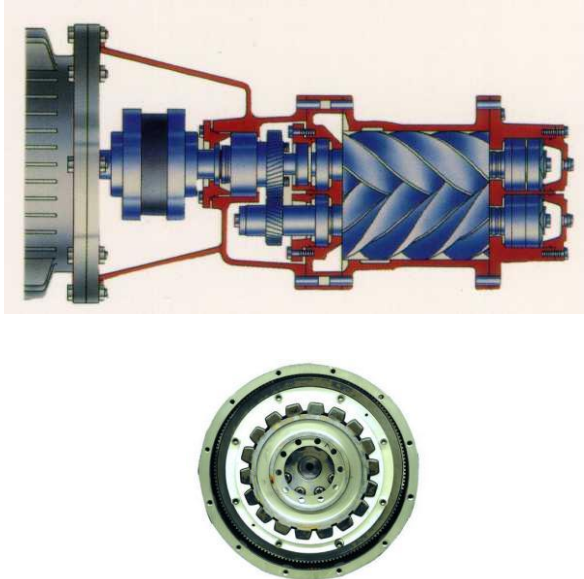
Diesel engine (Cummins / Volvo / Kubota)



- Exhaust turbocharger is used in the intake system to improve power.
- Meets Euro II / III / IV emission standards, high performance oil pump, low fuel consumption.
- The overall structure is compact and the appearance is beautiful.
- Covering the worldwide after-sales service network, users can get prompt and complete service.

4. Diesel Mobile Air Compressor Main Components Introduction

Transmission structure



- The combination of gear box transmission and coupling transmission ensure high efficiency, safety and reliability, and long service life.
- The helical gear drive compensates for 30% of the axial thrust, further extending the life of the screws.
- Diesel engine (motor) and screw mainframe are connected by a flange, which ensures permanent alignment of the drive system.

4. Diesel Mobile Air Compressor Main Components Introduction

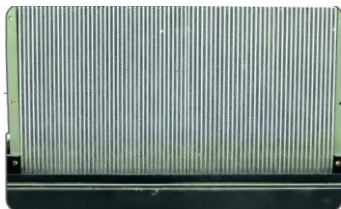
Vibration reducing system



- Air end reduction: vibration reducing rubber block.
- Vibration reduction: shock absorber.
- Double damping, the machine runs more smoothly.

4. Diesel Mobile Air Compressor Main Components Introduction

Cooling system



- Large heat sink cooler design for harsh environments such as high temperature, high humidity, etc.
- The cooler adopts oil-cooled water-cooled side-by-side cooling method to cool evenly, high temperature resistance up to **60°C** especially for GCC market.
- Unique fin and channel design, good heat dissipation, reduced pressure, easy to clean.
- Low-speed, low-noise axial fan with low operating noise, long service life.
- Horizontal exhaust, avoid hot air recirculation, optimize cooling effect.

4. Diesel Mobile Air Compressor Main Components Introduction

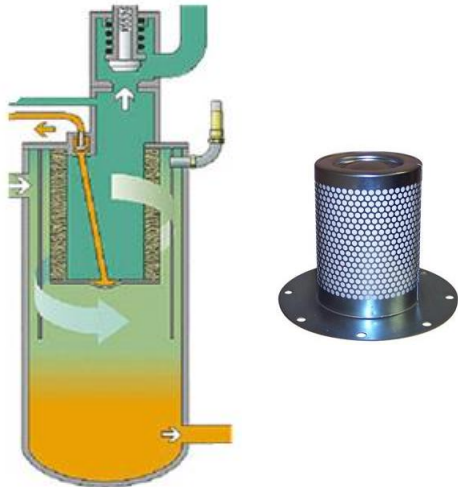
Air filtration system



- Cyclone, coarse filtration, safe filtration, three-stage air filtration, especially suitable for harsh environments such as dust in the field.
- 99.99% removes 3 μ or more particles.
- Large filter surface area, imported filter paper, long life and small pressure drop.
- The filter is located in the cold room area to optimize unit performance.

4. Diesel Mobile Air Compressor Main Components Introduction

Oil and gas separation system



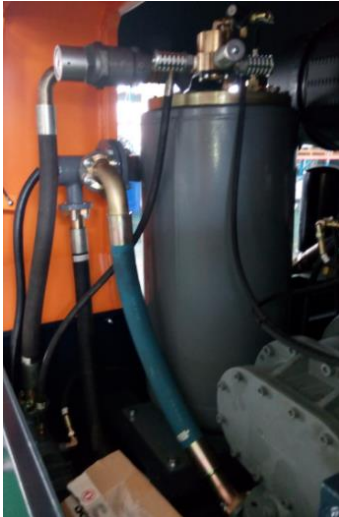
■ Principle of centrifugal force

When oil and gas enters through the inlet, impacting the wall of the oil and gas barrel can separate the oil droplets in the oil and gas mixture. The oil and gas barrel adopts the principle of centrifugal action, and relies on the gravity of the oil droplet to separate the oil droplets with larger diameter from the gas. Oil droplets larger than 1um can be effectively separated by the principle of centrifugation.

It can be seen from the principle of centrifugal action that when the oil and gas mixture acts by centrifugal force, the oil molecules are controlled to a certain flow rate range, so that the oil droplets fall to the bottom of the oil and gas barrel during the discharge process, and the oil content of the air discharge can be reduced.

4. Diesel Mobile Air Compressor Main Components Introduction

Piping system



- Large diameter pipe and short length – minimize internal pressure drop.
- Hose design improves mechanical reliability under all conditions. Enhancing vibration resistance and reducing noise.
- SAE-O ring seals - the most effective seal prevention structure for leak prevention through the American Automobile Manufacturers Association.

4. Diesel Mobile Air Compressor Main Components Introduction

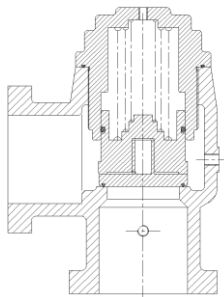
Air intake system



- The stepless throttle adjustment of the intake air flow according to the amount of gas used, in any case can work under the optimal conditions.
- The unique check valve ensures that the air intake is closed tightly and quickly in the event of a shutdown, ensuring that there is no downtime. At the same time, when the compressor is working, the check valve can be opened quickly, and the intake resistance is small.
- It's needed to be cleaned every 3 years, its diaphragm needs to be replaced occasionally as needed.

4. Diesel Mobile Air Compressor Main Components Introduction

Minimum pressure valve



- Control the minimum exhaust pressure.
- Double valve design, low pressure loss.
- Check valve function.
- The valve core is made of non-metal, and there is no malfunction caused by rust.
- Aluminum alloy molding.
- The pressure maintenance valve is gradually opened when the compressor system pressure reaches the pressure maintenance valve setting.
- When the compressor is empty, the first set of valves for the pressure maintenance valve is closed.
- When the air pressure is lower than the pressure maintenance valve setting, the second set of valves closes.

4. Diesel Mobile Air Compressor Main Components Introduction

Filtration system



- A heavy-duty fuel filter with water separator and a two-stage fuel filter replace the standard single-stage filter to reduce possible damage to the engine with low oil quality, further improving engine performance and extending service life.

4. Diesel Mobile Air Compressor Main Components Introduction

Fuel System



- Large-capacity fuel tank design ensures continuous operation of the machine for 10 hours, saving fueling time and reducing productivity caused by downtime.
- Two-stage filtration of Fuel/Water separator and Fuel separator to ensure normal operation in harsh environments.

5. Operating Instructions

5.1. Diesel selection

- (1) Selecting the light diesel, cetane number > 45.
- (2) Selecting different grades of diesel according to different ambient temperatures.

Diesel grade	Ambient temperature
0#	≥ 4 °C
-10#	5 to - 4 °C
-20#	-5 to - 14 °C
-35#	-15 to - 29 °C
-50#	-30 to - 44 °C

5.2. Engine lubricant selection

- (1) Selecting diesel engine oil of CF class or above.
- (2) Selecting different grades of engine lubricant according to different ambient temperatures.

Engine lubricant grade	Ambient temperature
15W-40CF4	-10 to - 15 °C
10W-30CF4	-5 to - 20 °C
5W-20CF4	-25 or less

Diesel lubricant deterioration:

- (1) Lubricant is in dark black (lubricant is thinning)
- (2) Lubricant is in milky color (there are water drops in the lubricant)

5.3. Coolant selection

- (1) When the temperature is close to or lower than 0 °C, the cooling system must be filled with anti-rust antifreeze.
- (2) Selecting different specifications of anti-rust antifreeze coolant according to different ambient temperatures.
- (3) The ratio of water to ethylene glycol in the coolant is different, and the freezing point is also different. The most commonly used antifreeze is ethylene glycol.

Coolant freezing point (°C)	Color	Percentage of ethylene glycol (%)	Percentage of water (%)	Density (kg/m³)
-10	Red	26.4	73.6	1.0340
-20	Red	36.4	63.8	1.0506
-30	Blue	45.6	54.4	1.0627
-40	Blue	52.6	47.7	1.0713
-50	Blue	58.0	42.0	1.0780
-60	Blue	63.1	36.9	1.0833

5.4. Maintenance

In order to keep the compressor in good condition, to maximize performance, and to eliminate the undesirable factors that may cause malfunction, the compressor must be carefully maintained. The idea that the compressor does not have a fault and does not require maintenance work is dangerous. Waiting until the fault occurs before repairing, which causes both maintenance cost and loss of downtime. Please carry out correct operation and routine maintenance of air compressor in accordance with the instruction manual, and confirm the use of Denair genuine parts during maintenance.

For detailed information of Maintenance Instructions, please refer to <DENAIR Diesel Portable Air Compressor User Manual>.

DENAIR

The End!
Thank You!

www.denair.net