

## **ENC EN500/EN600 frequency inverter used for Screw Air compressor**

As an air source device, air compressor is the heart of pneumatic system. It's a basic product of industrial modernization which converts the original mechanical energy to air pressure energy. Air compressor widely used for production line, machine tool and all applications which need compressed air.

### **1. Applications of Air compressor**

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### **2. Process of Air compressor operation**

## 2.1、 Suction process

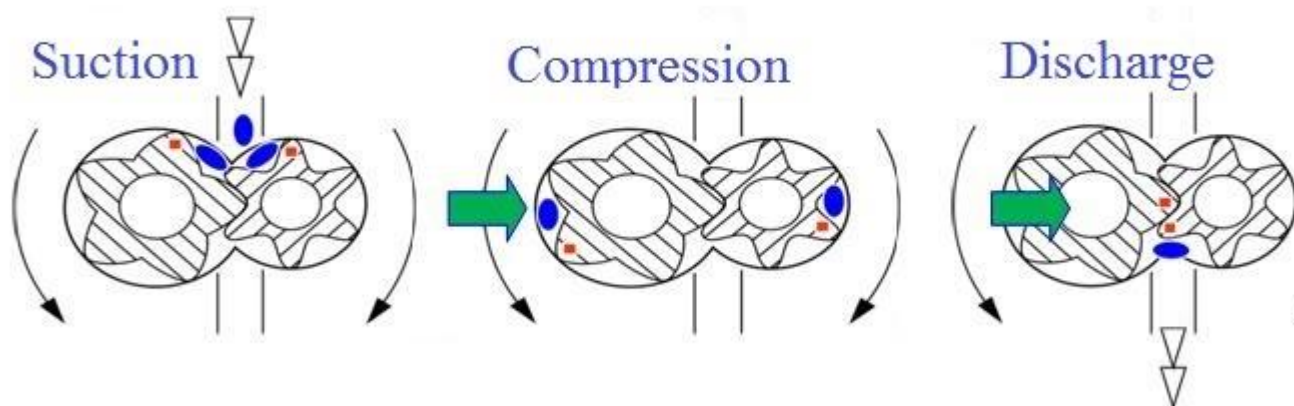
With the rotor rotating, air comes into the compressor from the inlet port, which is suction. The suction process completed when air full of the space between male rotor and female rotor.

## 2.2、 Compression process

The convex lobes of the male rotor start to mesh with the concave cavities of the female rotor to compress the entrapped air.

## 2.3、 Discharge process

The compression motion of male rotor decreases the volume of air gradually and extrudes the entrapped air to outlet to complete the discharge process.



## 3. EN500/EN600 Introduction

EN500/EN600 series high-performance flux vector inverter adopt advanced control mode to achieve high torque ,high precision and wide-range speed regulation drive, realizing PG closed-loop vector control and non-PG open-loop vector control. Speed vector, torque vector two operation modes available, it can limit the shock current quickly, which widely used for top manufacturing industry. EN500/EN600 series inverter has high control precision, fast speed response, good features at low

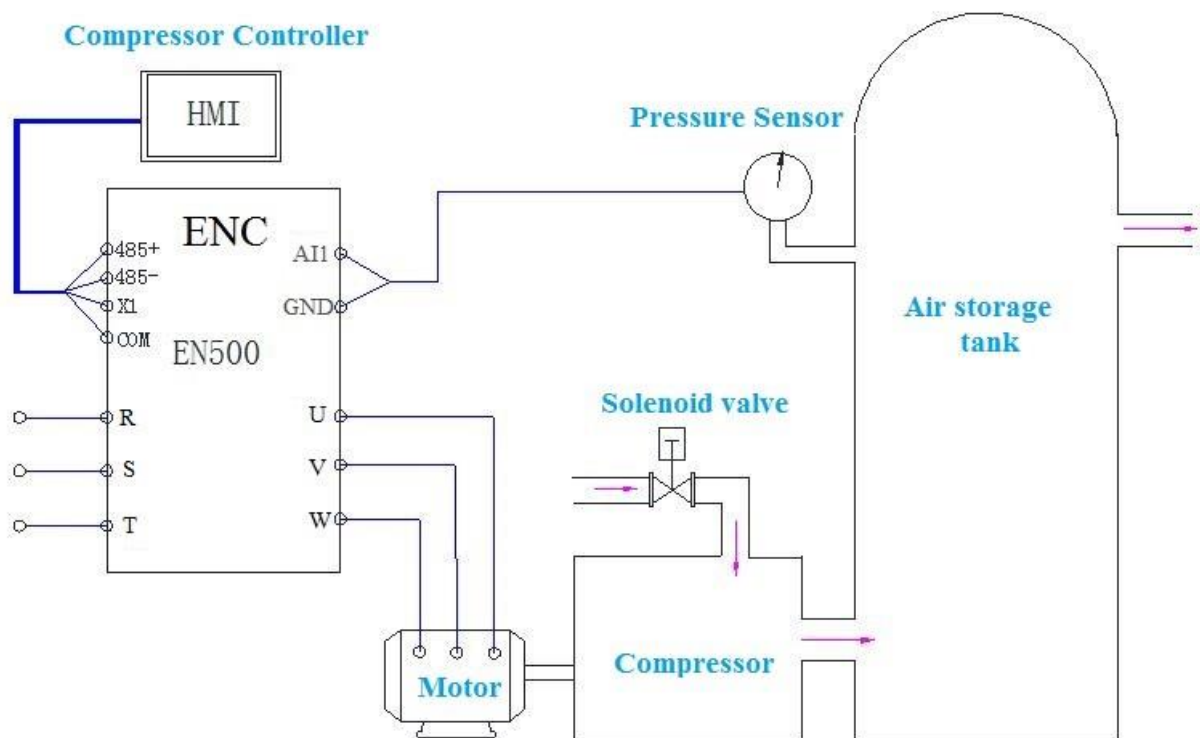
frequency and intelligent inspection and protection functions. Abundant extend cards for choose, like field bus extend cards, terminal extend cards, relays extend cards and analog extend card.



### 3.1 Shortage of traditional air compressor during operation

1. Large start current of main motor which has influence on the stable of power grid and the safety operations of others electric equipment.
2. The work is fruitless when air compressor unloading and the consumed electrical power completely be wasted.
3. Large noise occurs when air compressor operates with grid power supply.
4. Much shock to device when start-up with grid power supply. Greater maintenance needed for device.

### 3.2 EN500/EN600 frequency inverter wiring for air compressor



### 3.3 EN500/EN600 Parameters Setup

Auto-tuning parameters setup under Vector Control

Function Code	Set Range	Explanation
F00.00	2	Select senior list mode
F00.24	1	SVC vector control mode
F15.01	Base on motor type	Motor rated power
F15.02	Base on motor type	Motor rated voltage
F15.03	Base on motor type	Motor rated current
F15.04	Base on motor type	Motor rated frequency

F15.05	Base on motor type	Motor rated speed
F15.06	Base on motor type	Motor pairs of pole
F15.19	1	Motor static auto-tuning mode

#### Constant pressure air supply PID parameters setup

Function Code	Set Range	Explanation
F11.00	1	PID Close-loop control valid
F11.01	6	Select communication provision for pressure
F11.02	0	Select AI1 as pressure feedback signal

#### 3.4 The advantages of EN500/EN600 for Air compressor application

1. Vector control mode with fast response and stable operation;
2. Frequency inverter parameters and system control parameters can be setup by HMI;
3. Advantaged pressure PID control function ensure stable air supply from air compressor device;
4. Good soft starting function avoids mechanical shock and reduces noise;
5. With smart sleeping function and all kinds of operation protection function.