



## SA series – Screw Air Compressor

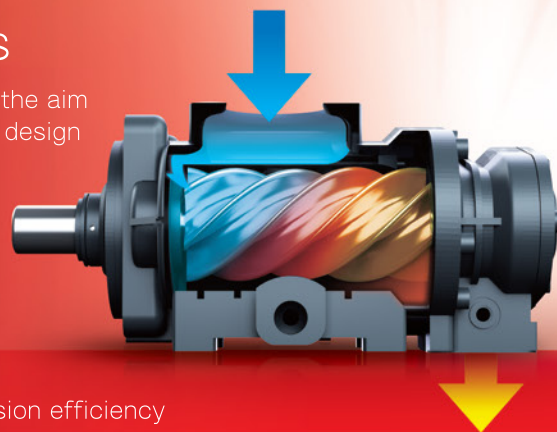
SA08 - 200 Standard series

SA08 - 160 Plus premium series



# High Efficiency Airend Induce Air Flow from Axial and Radial directions

- Fusheng's global R&D center in Germany is established with the aim to improve gear profile, volume efficiency and energy saving design and increase operating efficiency at low rpm.
- The axial air intake and exhausting design reduces axial imbalance effectively, and brings the following advantages for airend design:
  - ▶ Lower operational noise level
  - ▶ Longer service life of airend and bearings.
  - ▶ Fully utilize effective rotor length to maximize the compression efficiency



## Highly Efficient Design



### Intake valve

One valve serves as non-return valve, shut-off valve and modulation control valve (optional). The low pressure drop design optimizes air intake efficiency. The compressor adjusts itself automatically with the actual need for compressed air as it operates, allowing for more accurate control of unload pressure and thus greater energy efficiency.



### Independent bearing

No more bearing lubrication by oil from secondary oil return pipe. The bearings are now lubricated by independent lubrication line. With the independent oil filter, the cleanness of lubricant is ensured.



### All end faces sealed to completely remove the leakage

An environment-protective zinc-connector is mounted for connection and the end faces are sealed to completely remove the leakage.



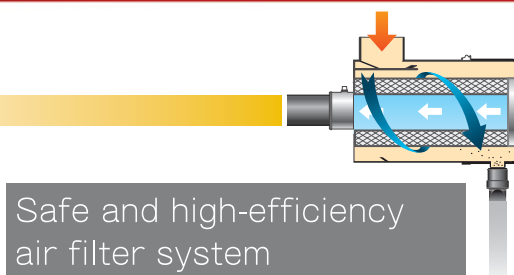
### Vibration reducing device

The vibrations are reduced efficiently as the compressor is operating. It also prevents the propagation of low-frequency noises through resonance of solid objects while prolonging the compressor's service life.

### IoT smart real-time service system (optional)

The IoT compressor management system in the cloud platform realizes the unification of monitoring, malfunction diagnosis and servicing in one package. The messages of compressor malfunction and real-time status are sent to the designated professionals by SMS and email.

**GoService**



### Safe and high-efficiency air filter system

- The big particle size of dust in the vacuumed air will follow the air whirl and fall into the rubber slot at front end of air filter casing instead of attaching to clog the surface of filtration core.
- The long service life filtration core is designed with large filtration area and smaller resistance against air suction to ensure that the pure air whirl is without impurities.
- The independent air intake and filtration path allows the colder air is sucked directly from the outside, making the air intake denser for better efficiency.

### Eco- and User-friendly idea

IE3 electric motor is used for all SA series screw compressor. It gives the compressor greater performance and better energy efficiency.

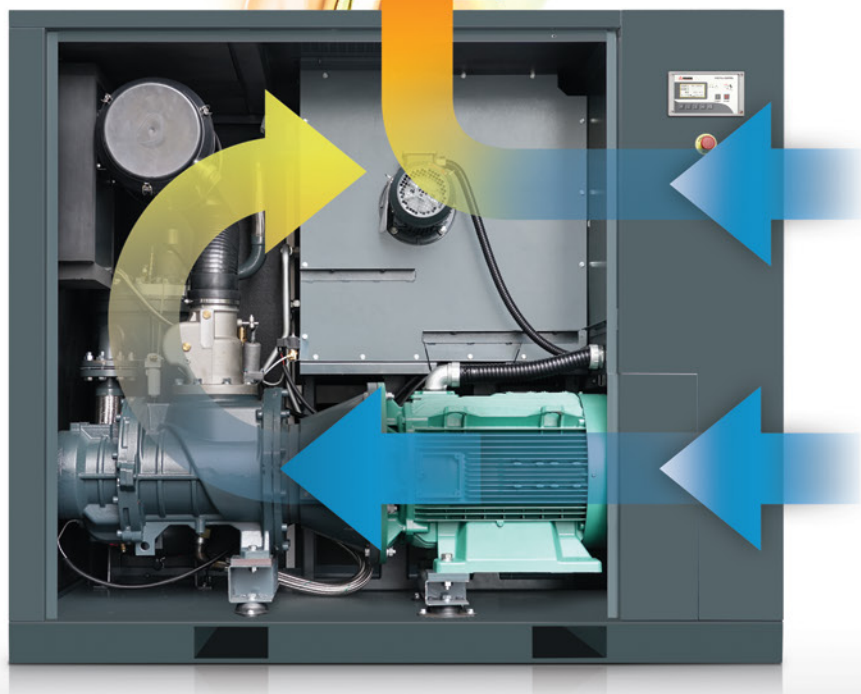


# Unique cooling flow field for silence and efficiency

- With the centrifugal fan, cold air is sucked in directly from outside to cool the cooler, and hot air is dissipated out from the top; With the greater heat transfer surface, the cooler ensuring excellent cooling effect.
- During cooler cleaning, simply remove the cover without dismantle the air duct and doors.
- In the electric control box, the colder air is drawn in directly to ensure the best heat dissipation.
- Independent air intake line in the motor ensures that colder outside air is drawn to the motor directly, and a silencing design is added at the intake port.
- For water-cooled models, heavy duty tube cooler is introduced for its large capacity and outstanding cooling effects, perfect for high-temperature environment.
- The compressed air flows through the line smoothly with virtually no pressure drop. Water flows through the inner tube and air in outer tube. The straight-through design makes cleaning very easy.



- Dual fan design, one or two fans are activated depending on the ambient temperature. This design is equivalent to the combination of cooling fans and additional “mechanical frequency inversion.” (available for 90kW series above)



## Better noise control

Noise control is performed better now in SA series. Low-noise design is introduced to air filtering, independent air intake line of motor and cooling fans in addition to highly efficient vibration reducing device. Noises are minimized from the source.

## Highly efficient, easy-to-maintain oil separator

- ▶ The supersized oil separator design features a large separation area that reduces the pressure drop during the air/oil separation while providing better filtration, thus making the compressed air system more efficient.
- ▶ A patented rotating shaft design is adopted on the separator cover. The replacement of oil separator is made much easier.

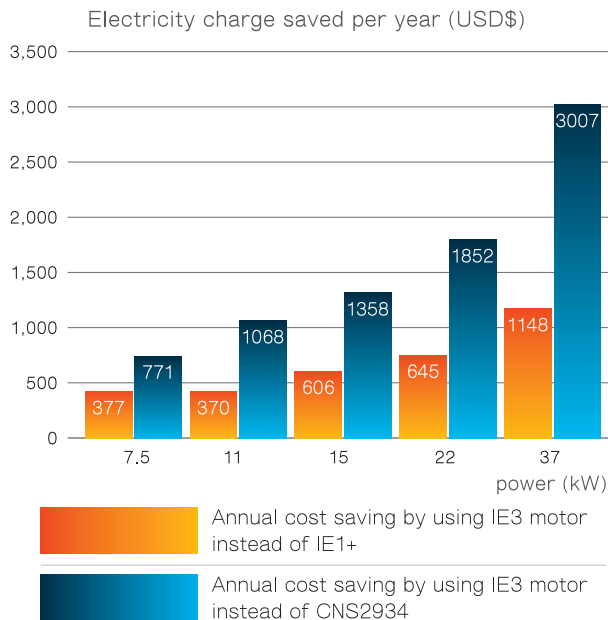


# IE3 Ultra-efficient Motor

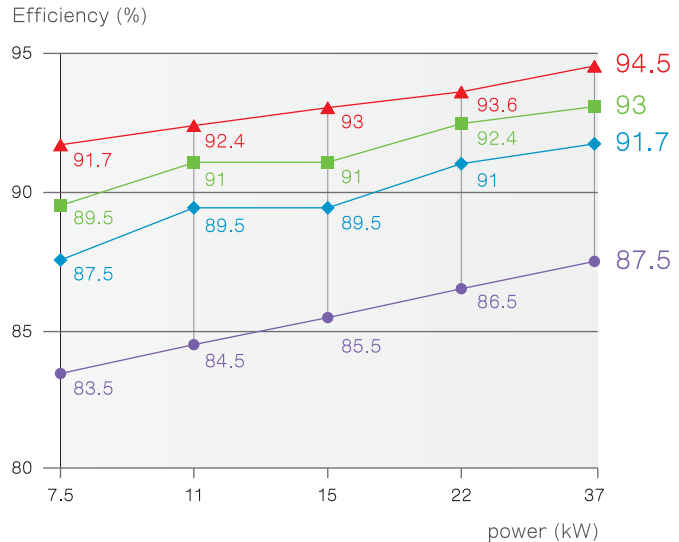


The combination of brand-new SA series and the IE3 ultra-efficient motor means not only full-scale performance improvement but also significant reduction in operating costs.

## Benefit of using IE3 Motor



## Differences in efficiency of various grade of motors



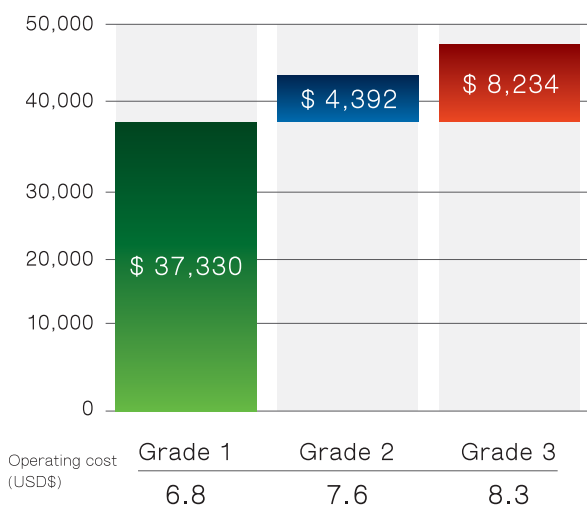
CNS2934 is the standard of old version for 3-phase squirrel cage induction motor.

## Premium Efficiency Air Compressor

**SA<sup>PLUS</sup>** Fusheng base-load compressor with optimized solution applied can save the operating cost by 22%

### 37kW air-cooled air compressor specific power vs. operating cost

Difference in operating cost by using different grade of efficiency based on: discharge air pressure 7kg/cm<sup>2</sup>, 8,000 hours operation per year, 1kWH=USD\$ 106 Cents.



37kW air-cooled air compressor - specific power (kW/m<sup>3</sup>·min<sup>-1</sup>)

### Cost saved from continuous operation for five years

Base-load compressor - The operating cost saved from using the compressors of Grade 1, Grade 2 and Grade 3 efficiency respectively.

( USD\$ )

| Cumulative year of operation | Grade 1 compressor operating cost | Grade 2 compressor operating cost | Grade 1-2 compressor operating cost | Grade 3 compressor operating cost | Grade 1-3 compressor operating cost |
|------------------------------|-----------------------------------|-----------------------------------|-------------------------------------|-----------------------------------|-------------------------------------|
| 1 year                       | 37,330                            | 41,722                            | 4,392                               | 45,564                            | 8,234                               |
| 2 years                      | 74,660                            | 83,444                            | 8,784                               | 91,128                            | 16,468                              |
| 3 years                      | 111,990                           | 125,166                           | 13,176                              | 136,692                           | 24,702                              |
| 4 years                      | 149,320                           | 166,888                           | 17,568                              | 182,256                           | 32,936                              |
| 5 years                      | 186,650                           | 208,610                           | 21,960                              | 227,820                           | 41,170                              |

※ Difference between Grade 1 and 2 = Operating costs of Grade 2 performance machine - Operating costs of Grade 1 performance machine

※ Difference between Grade 1 and 3 = Operating costs of Grade 3 performance machine - Operating costs of Grade 1 performance machine

For compressors of the same specs, a 37kW Fusheng Grade 1 performance air compressor can save up to USD\$ 4,392 per year of power bills as opposed to a typical Grade 2 performance compressor and up to USD\$ 8234 per year as opposed by a typical Grade 3 performance compressor. The more horsepower the compressor has, the more it saves.

# Intelligent Controller



Simplicity Ingenuity Reliability

## Operation messages

- Remote control status
- Alarm history record
- Malfunction history record
- Discharge air pressure/temperature
- Number of load/unload changeover time
- Total running time/total load time
- Motor current display (standard unit)
- Fan current display
- Main power supply voltage display (standard unit)
- Main motor power consumption percentage, frequency percentage display (exclusive for VSD type)

## Features and functions of AIMS Plus controller

- freeze-proofing and no-load running protection function
- Alarm/trip history record in consecutive 30 entries for maintenance and service inquiry
- Monitoring main motor current function
- Monitoring fan current function
- Setting shutdown time due to unload too long function
- Selection for auto start after resetting power failure function

## Fault messages inquiry

- Trip by phase sequence protection
- Malfunctioning pressure transmitter
- Trip by discharge air temperature alarm failure
- Trip by too high discharge air temperature/pressure
- Trip by abnormal discharge air pressure upper/lower limit
- Trip by motor/fan overload
- Input power supply protection

## Service & maintenance prompts

- Motor service & maintenance time
- Compressor service & maintenance time
- Oil filter service & maintenance time
- Lubricating oil service & maintenance time
- Belt service & maintenance time
- Oil fine separator service & maintenance time
- Air filter service & maintenance time

## Load management (Applicable to standardized fix-speed model)

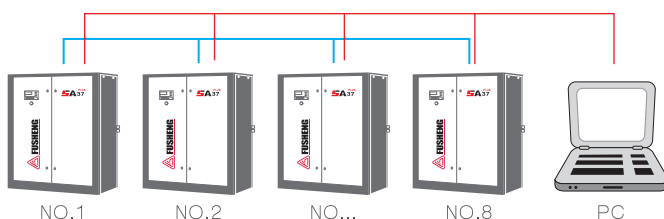
- High expandability, interlock control is available up to 8 compressor units; no need to externally add the interlock box and system pressure transmitter.
- Joint control for multiple compressors to ensure a pressure difference  $<0.2$  bar at each compressor.
- Equipped with MODBUS communication function that can achieve the most effective load management at the least cost and monitor the running status of each compressor just by linking RS485 with a two-core shielded wire (2-wire type)
- Sequence start-up, unloading and switchover time setting
- Disconnection of joint control for multiple compressors will self-enable the area network control function to ensure a stable air supply.

## Controller display

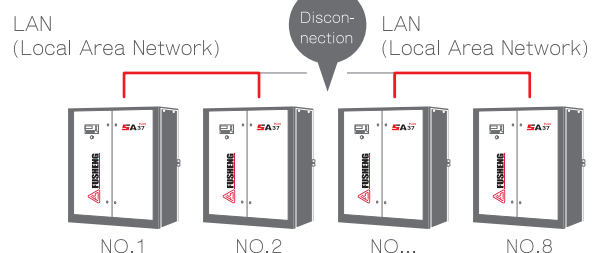
- Simple and easy-to-operate human-machine interface
- Language selection:  
English/Traditional Chinese/Simplified Chinese/Portuguese/Spanish

Remote monitoring (Solution 1)

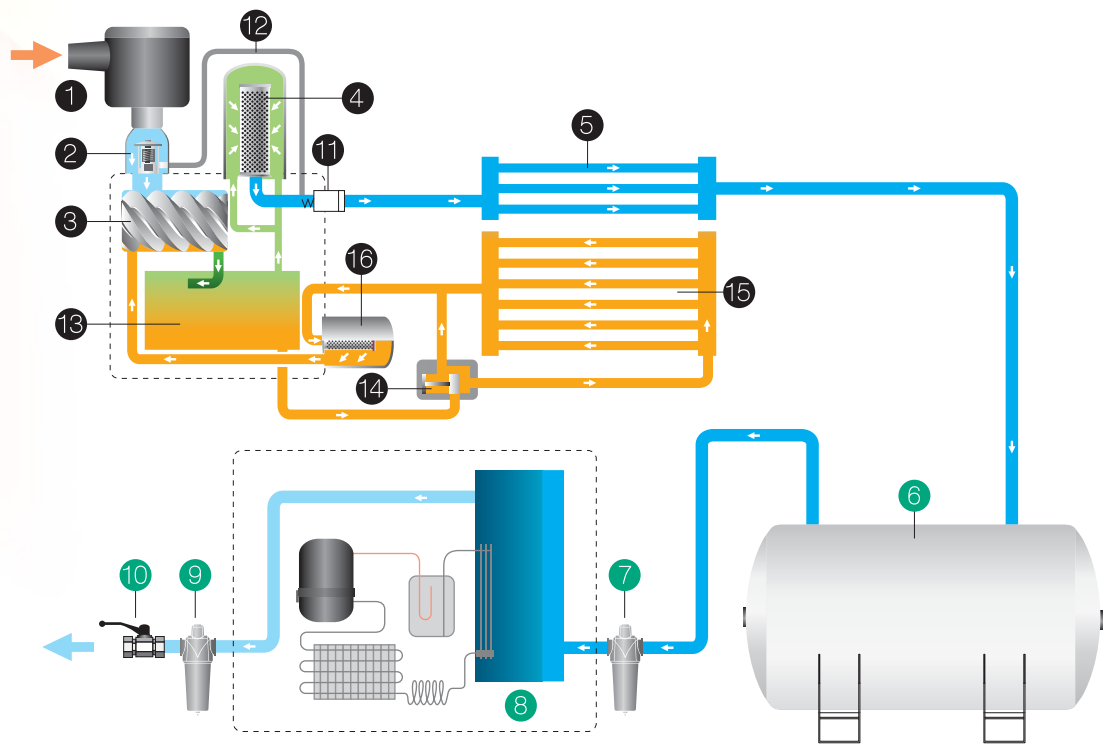
Multiple compressors interlock control function (Solution 2)



LAN(Local Area Network) control function



# System flow chart



08-11

## Air Flow

- ① Air filter
- ② Air inlet valve
- ③ Air compressor airend
- ④ Oil fine separator
- ⑤ After cooler
- ⑥ Air receiver (Optional)
- ⑦ Precision filter (Optional)
- ⑧ Refrigeration dryer (Optional)
- ⑨ Post precision filter (Available if required)
- ⑩ Compressed air outlet valve (Optional)
- ⑪ Minimum pressure valve (MPV)
- ⑫ Air inlet control piping

## Oil Flow

- ⑬ Air/Oil separator tank
- ⑭ Thermal control valve
- ⑮ Oil cooler
- ⑯ Oil filter

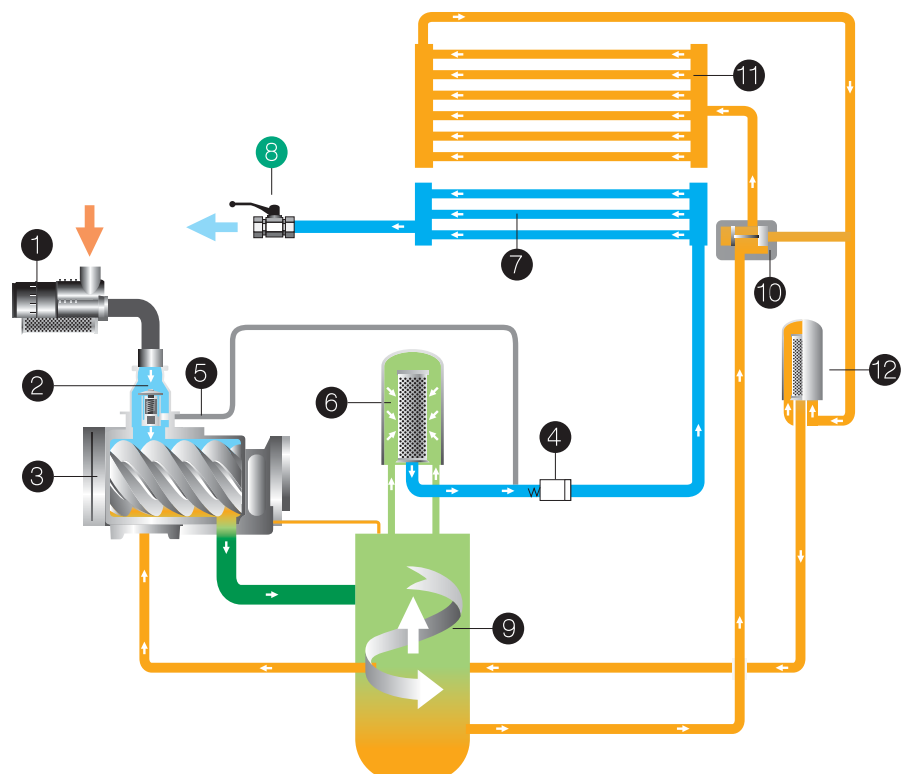
15-37

## Air Flow

- ① Air filter
- ② Air inlet valve
- ③ Air compressor airend
- ④ Minimum pressure valve (MPV)
- ⑤ Air inlet control piping
- ⑥ Oil fine separator
- ⑦ After cooler
- ⑧ Air outlet valve (Optional)

## Oil Flow

- ⑨ Air/Oil separator tank
- ⑩ Thermal control valve
- ⑪ Oil cooler
- ⑫ Oil filter



# Specification

## SA standard series

Air Compressor

SA08-37

### Configuration specifications

● Standard ○ Optional ✕ Not available

| Model | compressor | Dryer | Precision filter | Air receiver | inverter |
|-------|------------|-------|------------------|--------------|----------|
| SA    | ●          | ✕     | ✕                | ✕            | ✕        |
| SA-R  | ●          | ●     | ○                | ✕            | ✕        |
| SA-P  | ●          | ✕     | ✕                | ●            | ✕        |
| SA-F  | ●          | ●     | ○                | ●            | ✕        |



| Model       | Working pressure | Delivery | Main motor power |    | Voltage                              | Lubricating oil volume | Compressed air outlet | Length                      | Width | Height | Weight           | Noise |     |      |     |      |     |    |
|-------------|------------------|----------|------------------|----|--------------------------------------|------------------------|-----------------------|-----------------------------|-------|--------|------------------|-------|-----|------|-----|------|-----|----|
|             | barG             | m³/min   | kW               | HP | V                                    | Liter                  | inch                  | mm                          | mm    | mm     | kg               | dB(A) |     |      |     |      |     |    |
| 50Hz / 60Hz |                  |          |                  |    |                                      |                        |                       |                             |       |        |                  |       |     |      |     |      |     |    |
| SA08        | 7                | 1.27     | 7.5              | 10 | 380<br>415<br>/<br>220<br>380<br>440 | 7.5                    | G $\frac{3}{4}$       | 800<br>1200<br>1545<br>1545 | 670   | 1100   | 275              | 64    |     |      |     |      |     |    |
| SA08-R      | 8                | 1.18     |                  |    |                                      |                        |                       |                             |       |        | 358              | 63    |     |      |     |      |     |    |
| SA08-P      | 10               | 0.99     |                  |    |                                      |                        |                       |                             |       |        | 415              |       |     |      |     |      |     |    |
| SA08-F      | 12               | 0.8      |                  |    |                                      |                        |                       |                             |       |        | 498              |       |     |      |     |      |     |    |
| SA11        | 7                | 1.82     | 11               | 15 |                                      |                        |                       |                             |       | 15     | G1               | 1250  | 880 | 1515 | 610 | 285  | 65  |    |
| SA11-R      | 8                | 1.7      |                  |    |                                      |                        |                       |                             |       |        |                  |       |     |      |     | 368  | 64  |    |
| SA11-P      | 10               | 1.52     |                  |    |                                      |                        |                       |                             |       |        |                  |       |     |      |     | 425  |     |    |
| SA11-F      | 12               | 1.35     |                  |    |                                      |                        |                       |                             |       |        |                  |       |     |      |     | 508  |     |    |
| SA15        | 7                | 2.5      | 15               | 20 |                                      | 15                     | G1                    | 1250                        | 880   |        |                  |       |     | 1515 | 670 | 865  | 71  |    |
|             | 8                | 2.3      |                  |    |                                      |                        |                       |                             |       |        |                  |       |     |      |     |      | 70  |    |
|             | 10               | 2.1      |                  |    |                                      |                        |                       |                             |       |        |                  |       |     |      |     |      |     |    |
|             | 12               | 1.8      |                  |    |                                      |                        |                       |                             |       |        |                  |       |     |      |     |      |     |    |
| SA22        | 7                | 3.9      | 22               | 30 |                                      |                        |                       |                             |       | 18.5   | G1 $\frac{1}{2}$ | 1350  | 940 | 1680 | 865 | 72   |     |    |
|             | 8                | 3.7      |                  |    |                                      |                        |                       |                             |       |        |                  |       |     |      |     | 71   |     |    |
|             | 10               | 3.2      |                  |    |                                      |                        |                       |                             |       |        |                  |       |     |      |     |      |     |    |
|             | 12               | 2.8      |                  |    |                                      |                        |                       |                             |       |        |                  |       |     |      |     |      |     |    |
| SA37        | 7                | 6.6      | 37               | 50 |                                      | 18.5                   | G1 $\frac{1}{2}$      | 1350                        | 940   |        |                  |       |     |      |     | 1680 | 865 | 73 |
|             | 8                | 6.3      |                  |    |                                      |                        |                       |                             |       |        |                  |       |     |      |     |      |     | 72 |
|             | 10               | 5.6      |                  |    |                                      |                        |                       |                             |       |        |                  |       |     |      |     |      |     | 71 |
|             | 12               | 4.9      |                  |    |                                      |                        |                       |                             |       |        |                  |       |     |      |     |      |     | 70 |

\*Noise value is measured pursuant to ISO 2151.

SA series - Screw Air Compressor

SA08 - 200 Standard series  
SA08 - 160 Plus premium series

SA55-200

| Model  | Working pressure | Delivery | Main motor power |     | Voltage                         | Lubricating oil volume | Compressed air outlet | Length | Width | Height | Weight | Noise |
|--------|------------------|----------|------------------|-----|---------------------------------|------------------------|-----------------------|--------|-------|--------|--------|-------|
|        | barG             | m³/min   | kW               | HP  | V                               | Liter                  | inch                  | mm     | mm    | mm     | kg     | dB(A) |
| 50Hz   |                  |          |                  |     |                                 |                        |                       |        |       |        |        |       |
| SA55A  | 7                | 10.3     | 55               | 75  | 380<br>415                      | 39                     | G2                    | 2000   | 1250  | 1750   | 1640   | 74    |
|        | 8                | 9.7      |                  |     |                                 |                        |                       |        |       |        | 1690   |       |
| SA55W  | 10               | 8.7      |                  |     |                                 |                        |                       |        |       |        |        |       |
|        | 12               | 7.8      |                  |     |                                 |                        |                       |        |       |        |        |       |
| 60Hz   |                  |          |                  |     |                                 |                        |                       |        |       |        |        |       |
| SA55A  | 7                | 10.3     | 55               | 75  | 220<br>380<br>440               | 52                     | G2                    | 2180   | 1330  | 1850   | 2025   | 75    |
|        | 8                | 9.7      |                  |     |                                 |                        |                       |        |       |        | 2013   |       |
| SA55W  | 10               | 8.7      |                  |     |                                 |                        |                       |        |       |        |        |       |
|        | 12               | 7.8      |                  |     |                                 |                        |                       |        |       |        |        |       |
| 50Hz   | 60Hz             |          |                  |     |                                 |                        |                       |        |       |        |        |       |
| SA75A  | 7                | 14       | 75               | 100 | 380<br>415<br>220<br>380<br>440 | 52                     | G2                    | 2180   | 1330  | 1850   | 2025   | 76    |
|        | 8                | 12.8     |                  |     |                                 |                        |                       |        |       |        | 2013   |       |
| SA75W  | 10               | 11.8     |                  |     |                                 |                        |                       |        |       |        |        |       |
|        | 12               | 10.6     |                  |     |                                 |                        |                       |        |       |        |        |       |
| SA90A  | 7                | 16.4     | 90               | 125 |                                 | 52                     | G2                    | 2180   | 1330  | 1850   | 2700   | 75    |
|        | 8                | 15.4     |                  |     |                                 |                        |                       |        |       |        | 2600   |       |
| SA90W  | 10               | 14.1     |                  |     |                                 |                        |                       |        |       |        |        |       |
|        | 12               | 12.6     |                  |     |                                 |                        |                       |        |       |        |        |       |
| SA110A | 7                | 21.0     | 110              | 150 |                                 | 80                     | 3"Flange              | 2740   | 1710  | 1725   | 3000   | 76    |
|        | 8                | 20.0     |                  |     |                                 |                        |                       |        |       |        | 2900   |       |
| SA110W | 10               | 17.0     |                  |     |                                 |                        |                       |        |       |        |        |       |
|        | 12               | 15.3     |                  |     |                                 |                        |                       |        |       |        |        |       |
| SA132A | 7                | 25.2     | 132              | 175 |                                 | 120                    | 4"Flange              | 2900   | 1860  | 1945   | 3500   | 77    |
|        | 8                | 23.2     |                  |     |                                 |                        |                       |        |       |        | 3400   |       |
| SA132W | 10               | 21.0     |                  |     |                                 |                        |                       |        |       |        |        |       |
|        | 12               | 18.3     |                  |     |                                 |                        |                       |        |       |        |        |       |
| SA160A | 7                | 29.2     | 160              | 215 |                                 | 120                    | 4"Flange              | 2900   | 1860  | 1945   | 3700   | 78    |
|        | 8                | 27.9     |                  |     |                                 |                        |                       |        |       |        | 3600   |       |
| SA160W | 10               | 24.6     |                  |     |                                 |                        |                       |        |       |        |        |       |
|        | 12               | 21.9     |                  |     |                                 |                        |                       |        |       |        |        |       |
| SA185A | 7                | 32.6     | 185              | 250 |                                 | 120                    | 4"Flange              | 2900   | 1860  | 1945   | 3750   | 79    |
|        | 8                | 30.4     |                  |     |                                 |                        |                       |        |       |        | 3650   |       |
| SA185W | 10               | 27.6     |                  |     |                                 |                        |                       |        |       |        |        |       |
|        | 12               | 25.3     |                  |     |                                 |                        |                       |        |       |        |        |       |
| SA200A | 7                | 35.2     | 200              | 270 |                                 | 120                    | 4"Flange              | 2900   | 1860  | 1945   | 3750   | 80    |
|        | 8                | 33.7     |                  |     |                                 |                        |                       |        |       |        | 3650   |       |
| SA200W | 10               | 30.3     |                  |     |                                 |                        |                       |        |       |        |        |       |
|        | 12               | 27.7     |                  |     |                                 |                        |                       |        |       |        |        |       |

\* Noise level is measured according to ISO 2151

# Improvement of Overall Efficiency

## Optimization of Cost Savings



### Specification

## SA<sup>PLUS</sup> Premium Efficiency Air Compressor

| Model                 | Working pressure | Delivery | Main motor power |     | Voltage           | Lubricating oil volume | Compressed air outlet | Length | Width | Height | Weight | Noise |
|-----------------------|------------------|----------|------------------|-----|-------------------|------------------------|-----------------------|--------|-------|--------|--------|-------|
|                       | barG             | m³/min   | kW               | HP  | V                 | Liter                  | inch                  | mm     | mm    | mm     | kg     | dB(A) |
| 60Hz                  |                  |          |                  |     |                   |                        |                       |        |       |        |        |       |
| SA08 <sup>PLUS</sup>  | 7                | 1.27     | 7.5              | 10  | 220<br>380<br>440 | 7.5                    | G $\frac{3}{4}$       | 800    | 670   | 1100   | 275    | 64    |
|                       | 8                | 1.18     |                  |     |                   |                        |                       |        |       |        |        |       |
| SA11 <sup>PLUS</sup>  | 7                | 1.82     | 11               | 15  |                   | 15                     | G 1                   | 1250   | 880   | 1515   | 610    | 71    |
|                       | 8                | 1.7      |                  |     |                   |                        |                       |        |       |        |        |       |
| SA15 <sup>PLUS</sup>  | 7                | 2.5      | 15               | 20  |                   | 18.5                   | G1 $\frac{1}{2}$      | 1350   | 940   | 1680   | 795    | 72    |
|                       | 8                | 2.3      |                  |     |                   |                        |                       |        |       |        |        |       |
| SA22 <sup>PLUS</sup>  | 7                | 3.9      | 22               | 30  |                   | 1035                   | 73                    |        |       |        |        |       |
|                       | 8                | 3.7      |                  |     |                   |                        |                       |        |       |        |        |       |
| SA37 <sup>PLUS</sup>  | 7                | 6.6      | 37               | 50  |                   |                        |                       |        |       |        |        |       |
|                       | 8                | 6.3      |                  |     |                   |                        |                       |        |       |        |        |       |
| SA75 <sup>PLUS</sup>  | 7                | 14.0     | 75               | 100 | 220               | 52                     | G 2                   | 2180   | 1330  | 1850   | 2070   | 76    |
|                       | 8                | 12.8     |                  |     | 380               |                        |                       |        |       |        |        |       |
| SA110 <sup>PLUS</sup> | 7                | 21.0     | 110              | 150 | 440               | 120                    | 4"Flange              | 2900   | 1860  | 1945   | 4350   | 81    |
|                       | 8                | 20.0     |                  |     |                   |                        |                       |        |       |        |        |       |

\* Noise level is measured according to ISO 2151

\* SA55<sup>Plus</sup> / SA160<sup>Plus</sup> or other models requirement, please contact our sales rep.



## SA series - Screw Air Compressor

SA08 - 200 Standard series

SA08 - 160 Plus premium series

## FUSHENG INDUSTRIAL CO., LTD

### HEAD OFFICE

No.172, Sec. 2, Nanjing E. Rd., Zhongshan Dist.,  
Taipei City 104, Taiwan (R.O.C.)  
TEL : +886-2-2507-2211 FAX : +886-2-2504-7870

### FACTORY(SALES OFFICE)

No.60, Sec. 2, Guangfu Rd., Sanchong Dist., New Taipei City 241,  
Taiwan (R.O.C.)  
TEL : +886-2-2995-1411 FAX : +886-2-2995-7925

### FUSHENG (VIETNAM)

No. 6, Street 3A, Bien Hoa Industrial Zone II,  
Bien Hoa, Dong Nai Province, Vietnam.  
TEL:+84-61-383-4566 FAX:+84-61-383-4599  
E-Mail : sales@fusheng.com.vn

### FUSHENG (THAILAND)

89/16 Moo. 5, Bangna-Trad Road, Bangsarmark,  
Bangpakong, Chachoengsao 24180, Thailand.  
TEL:+66-3-808-6789 FAX:+66-3-808-6757  
E-Mail : fs.compressor@fusheng.thailand.com

Web site : [www.fusheng.com](http://www.fusheng.com)

E-Mail : [machinery.sc@fusheng.com](mailto:machinery.sc@fusheng.com)

### FUSHENG (MALAYSIA)

No.08 Jalan Para U8/103, Metropolitan  
Business Park, Seksyen U8, 40150  
Shah Alam, Selangor, Malaysia  
TEL :+60-3-7832-3952 FAX :+60-3-7832-1954  
E-Mail : [fsmy\\_sales@fusheng.com](mailto:fsmy_sales@fusheng.com)

### FUSHENG (INDONESIA)

Taman Tekno Blok H-9 / 23-25,  
Bumi Serpong Damai Sector XI,  
Tangerang 15314, Indonesia  
TEL:+62-21-2275-6671 FAX:+62-21-2275-6672  
E-Mail : [info.indonesia@fusheng.com](mailto:info.indonesia@fusheng.com)



Distributor/Sales Representative



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