

# OIL FREE

## Scroll Air Compressor



Medical

Precision & Semiconductor

Food Industry

Painting

Chemical

**COAIRE**  
COMPRESSOR

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## The history of compressors was established and advanced by Kyungwon.

For over 50 years, we, Kyungwon Machinery Co., Ltd. has been dedicated to providing clean, compressed air to a myriad of industries around the world. Founded with the principles of quality, service and innovation, Kyungwon Air Compressor products are designed to offer cutting edge technology and solutions for compressed air requirements. Our quality is backed by our lauded internal quality program with all components and units tested prior to shipping and then support by a network of personnel dedicated to solving customer requirements. Try a Kyungwon Air Compressor to experience Clean Air In Motion!

As an industry leading manufacturer of oil-less scroll and oil-less piston compressors, we are able to offer the market innovative compressor designs. Whether you require a bare compressor or a 50HP enclosed scroll, we have the perfect fit for your application. Our products can save on both energy and maintenance costs. If you require oil-less compressed air, look no further than Kyungwon.

Kyungwon is firm in our commitment to bringing you, our customers the best value in compressor technology backed up with exceptional customer service and technical support. We also do our part in sustaining the environment by providing compressors that are oil-less not requiring oil to operate.



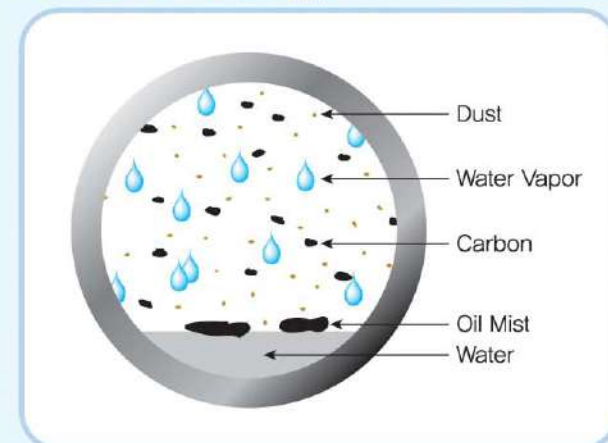


# Compressed Air & Oil Free Scroll

## Compressed air of oil injection type air compressor

- ❖ The usual air feed contains about 1.8 billion particles of airborne dust, water vapor and oil mist, which are fed into the compression process and are transformed into 2 billion particles of dust and 0.03mg/m<sup>3</sup> of oil vapor in the output air stream, resulting from the heating of supplied grease that produces hydro carbon.
- ❖ The oil mist or vapor from the compressed air stream causes the machines being used to malfunction, the coats of paint to become easily separated or cause spin holes. If used in food processing or medical purposes, there is a risk that the harmful matter may be ingested.
- ❖ The oil mist problems can increase the expense of water treatment by the oil being included in the condensed water as an output of separation during dryer or filtering process.
- ※ Oil mist is the most difficult element to separate from the output air stream containing the pollutants such as water vapor and dust. Methods such as cooling or regenerated desiccant dryer or filters are commonly employed to remove the dust and water particles, but the oil mist filter does not offer the complete separation of the vapor, which causes unexpected problems in the secondary process as the mist is sure to pass through and corrupt the filters and dryers. In this respect, the surest way to prevent adverse effect lies in preventing the oil mist from occurring.

### ● Cross section of A/C pipe



## Compressed air of Oil Free scroll air compressor

- ❖ The Oil-Free scroll compressor products of Kyungwon are developed to operate without the use of oil during the compression process, resulting in 'Oil-Free' high grade compressed air.
- ❖ With the installation of a convenient dryer and filter, our oil-less scroll compressor products are able to produce pure compressed air of the first quality that meets the ISO standards.
- ❖ There would be no additional costs involved as the condensed water removed by the dryer and filters does not contain any oil, heading off any requirements for water treatment.

### ● Compressed Air Quality (ISO8573-1 Class Standard)

| Quality Class | Solid Particle (per air 1m <sup>3</sup> ) |              |            | Water Dewpoint At 7bar (ppm.vol) | Oil (Including Steam) mg/m <sup>3</sup> |
|---------------|---|--------------|------------|----------------------------------|---|
|               | 0.1~0.5 micron                            | 0.5~1 micron | 1~5 micron |                                  |   |
| 0             | More stringent than class 1               |              |            |                                  |   |
| 1             | 20,000                                    | 400          | 10         | -70 (0.3)                        | 0.01                                    |
| 2             | 400,000                                   | 6,000        | 100        | -40 (16)                         | 0.1                                     |
| 3             |   | 90,000       | 1,000      | -20 (128)                        | 1                                       |
| 4             |   |              | 10,000     | 3 (940)                          | 5                                       |
| 5             |   |              | 100,000    | 7 (1,240)                        |   |
| 6             |   |              |            | 10 (1,500)                       |   |

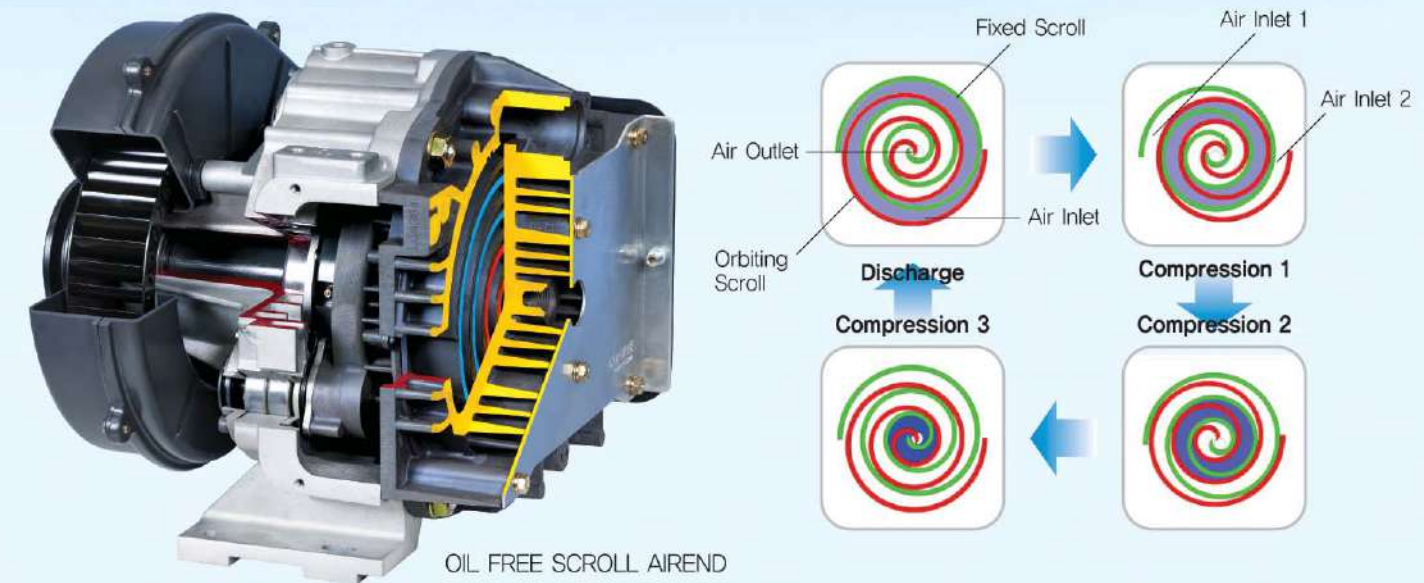
### ● Quality Standard of Compressed Air for Each Category of Use

| Application                     | Quality Class |       |            |
|---------------------------------|---------------|-------|------------|
|                                 | Dirt          | Water | Oil        |
| Pharma, Printing, Semiconductor | 1             | 1     | 1 or above |
| Conveyance of food/ Beverages   | 2             | 3     | 1 or above |
| Pneumatic Cylinder              | 3             | 3     | 5          |
| General Works Air               | 4             | 4     | 5          |

## Principle of Scroll Air Compressor

- ❖ The motion of the rotation scroll causes the decreased volume (compression) of the feed air in the shape of a crescent moon formed between the fixed scroll and the

rotating scroll, which compress the feed air before being output to the outlet.



## ISO 8573-1 Class 0 Compliance

Based on more than 40 years of experience in producing air compressor products, Kyungwon has been able to develop and manufacture the first oil-less scroll air compressor products in 2004, with numerous citations including Korean government awards of Net Technology (NT) and New Excellent Technology (NEP). Also in 2012 Kyungwon acquired ISO 8573-1 Class 0 Certificate from a global provider of technical, safety and certification services TÜV Germany, thus becoming a superior manufacturer of oil free compressors. Kyungwon manufactures 100% oil-less clean compressed air, which meets requirements of the most demanding customers.

## ISO 8573-1 Class 0 is...

Certification according to ISO 8573-1 covers more stringent quality requirements to the total oil content (aerosol, liquid, vapour)



ISO 8573-1 Class "0" Certificate

### NEP is...

An award for the product developed by using creative know-how technology and that has perfect performance and quality.



Launch of oil free scroll compressors in 2004 for the first time in Korea



Acquired NEP award in 200



Compliance with ISO 8573-1 Class 0 Standard by TÜV Germany



# Kyungwon Oil Free Scroll Technology

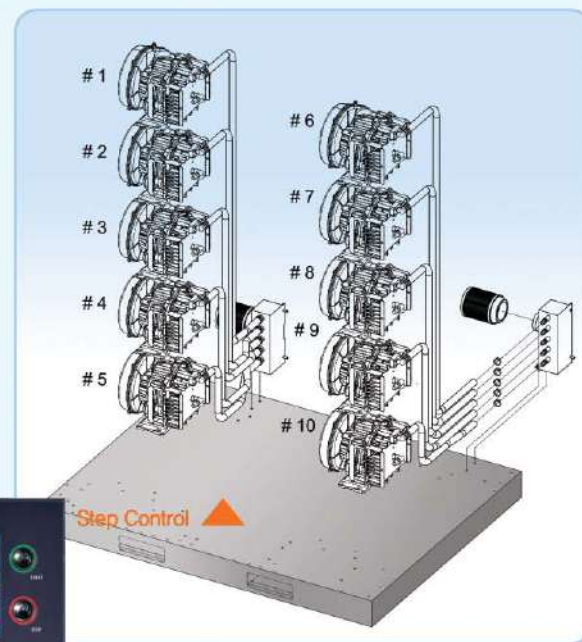
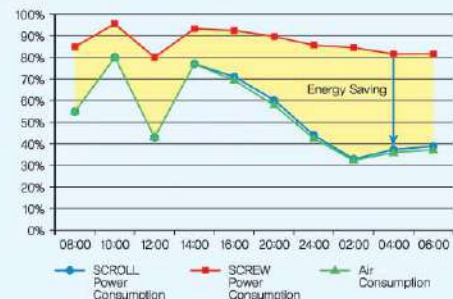
## Best Performance

- The optimized output outlet of the scroll airend is designed to maximize energy saving and the output volume.
- The standard stainless steel tanks are designed to produce optimally-controlled air without any additional after cooler.
- Corrugated type high performance after cooler and large capacity cooling fan enable scroll air compressor produce optimized air without any additional after cooler installation.



## Energy Saving

- **Energy saving through the sequential control:** the inrush or starting current affecting the current peak loading is designed to be minimal by applying the sequencing process of starting up the series of air compressors.
- **Energy saving based on the pyramid control process:** Kyungwon scroll compressor products consist of a series of compressors, which offer flexibility to various conditions required by independent or unmanned automatic operations. The control process proves to be the most effective energy saving device by utilizing the amount of air being consumed to minimize the power consumption.



## High Reliability

- The simple mechanism of the Scroll Air End provides the industrial durability by the small number of components being used.
- The specially treated coating after the high-precision fabrication offers desirable weather resistance and durability in extreme conditions.
- The heavy-duty Sirocco fan to cool the Scroll Airend and the 2-way cooling method of the after cooler offers stable operation at the ambient temperature of 50°C.
- The suction filter unit offers 99.9% of dust elimination and provides a clean, compressed air supply.
- The controllers are CE-approved and passed EMI and EMC testing requirements.
- The use of a rotary (time-shifting) control process is used to offer sequential operation as programmed for the operation time to balance the average usage hours and to maximize the overhaul cycles.



## User Friendly

- The controller suitable for the capacity is selected to enable Tandem, time-shifting and emergency jump operations and to provide language supports including English and Chinese interfaces.

### Use of proven and reliable components

#### Feature (Apply to AL3~AL10)

- Compact design to offer ultimate convenience.
- Timer function programmable to carry out various operations. (Automatic pause delay, manual pause delay, operation delay, load delay)
- The alarm and shutdown functions are designed to provide stable operation. (Detection sensors for pressure, upper or lower limit of temperature)
- The built-in hour meter provides added convenience. (Operation hour, maintenance cycle check, elapsed time after the latest service.)
- The resident self-diagnostic functions are designed to protect your valuable tools and machines. (To detect the on or off status of pressure and temperature sensors.)



Tandem Controller

### Intelligent Micom Controller

#### Feature (Apply to AL15~AL40)

- 5" large sized LCD panel
- The key pad is designed in consideration for the operator movements.
- Multi-language interface (Korean, Chinese and English) is a built-in function for international use.
- The Pull-down Menu makes the operation or handling easier.
- The operation history saved up to 160 items is a safeguard for stable operation.



Standard Controller

### Wide selection of models and options to meet all customer demands

#### Feature (Apply to AL50)

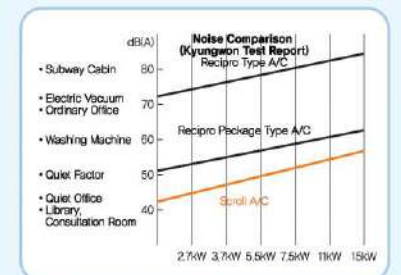
- 6" large sized touch Screen
- Large touch-screen LCD display makes visual monitoring and handling easier. The large selection of input and output terminals allows the operation up to 60HP.
- The Pull-down Menu makes the operation or handling easier.
- The reliable multi-phased control allows maximum energy-saving and efficiency.



Touch Screen Controller

## The most minimal noise level of 49dB among the competitors

- The scroll mechanism designed to minimize the torque fluctuations through the continuous cycle of air feed, compression and output, and the sound insulation treatment of the front cover are designed to keep the noise levels at a minimum.
- The balancing design of crank shaft and rotor scroll and the special sound insulating rubber that supports the Airend and Motor base feature complete vibration-and sound-preventing structure.



## Convenience improvement

- Condensate drain is installed to remove the condensate in the system. This improves the reliability.
- Ball valve is installed to operate during the partial inspection. (applied to AL30~AL50)





# Various Model

Various models of Kyungwon products will satisfy all your requirements.

## AL Series



### ●Automatic ON/OFF through AL3, AL5 pressure sensors

- 100% oil-free condensed water drastically reduces the cost for water treatment.
- The stainless tank is provided as a built-in standard.
- A Micom Controller is a built-in standard for all Kyungwon products.
- Service room temperature: ambient temperature of +25°C (per standard 5HP)
- The opening of covers from the four sides allows convenient service access for maintenance and inspection.
- 3~5HP products comes in the 'without Tank Type.' (AL3N~AL5N)



### ●Tandem control interface with the array comprising two units of AL7 and AL10 compressors

- The combination of two compressors allows for a time-shifting operation suitable for the commissioned work environments to optimize the life span of the compressors.
- The automatic On/Off functions are in sync with the air output demands and allow 50% of energy saving.
- The operation temperature of +15°C (per the standard of AL10)



### ●Array of multi-units of AL15, AL20, AL25, AL30, AL40, and AL50 compressors

- Multi-control system is adopted for the array of multiple operation ranging from 3 to 10 units as required by the output air demands to provide optimal operation efficiency.
- Rotary control and emergency jump operation (Bank-up function) is possible.
- The Pull-Down Menu makes the operation easier.
- Timer operation for daily or weekly basis is possible.
- The operation temperature of +15°C (per the standard of AL40)

## AL A Series

**Dryer, Filter and Receiver tank all integrated in one compressor!**

### ●AL A Series Feature

- Model : 3~10HP (AL3A~AL10A)
- All-in-one functions including cooling dryer provide instant operation without the need to install separate piping structure.
- Stainless tank is provided as a built-in standard.
- Dew point: 10 °C
- Filtration: 5 Micron



## AL D Series

**Dental Oil-free Scroll Compressor – Solution for problems such as “oil, noise, and stench”**

### ●AL D Series Feature

- 100% Oil-free provides highest quality of compressed air.
- The stainless tank is provided as a built-in standard.
- Filter is provided as a built-in standard. (1 Micron)
- One unit set is capable of operation for up to 6 chair units.
- Reliable sound insulation and the vibration-preventing structure enable a pleasant dental operation.



## AL P Series

**Most economic and compact-sized oil free scroll air compressor**

### ●AL P Series Feature

- Model: 3~5HP (AL3P, AL5P)
- 100% oil free, dust and oil vapor eliminated
- Compact design for easy installation and space saving
- Moving wheel installed for easy moving and installation(option)
- 4 way cover adopted for easy check and maintenance

※ Air receiver tank is not included



▶ Option



# Application of Oil Free Scroll



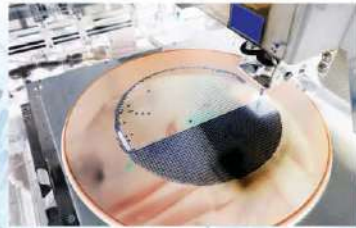
Medical equipment



Painting



Food Industry



High-precision semiconductors



Pharmaceutical, Chemical

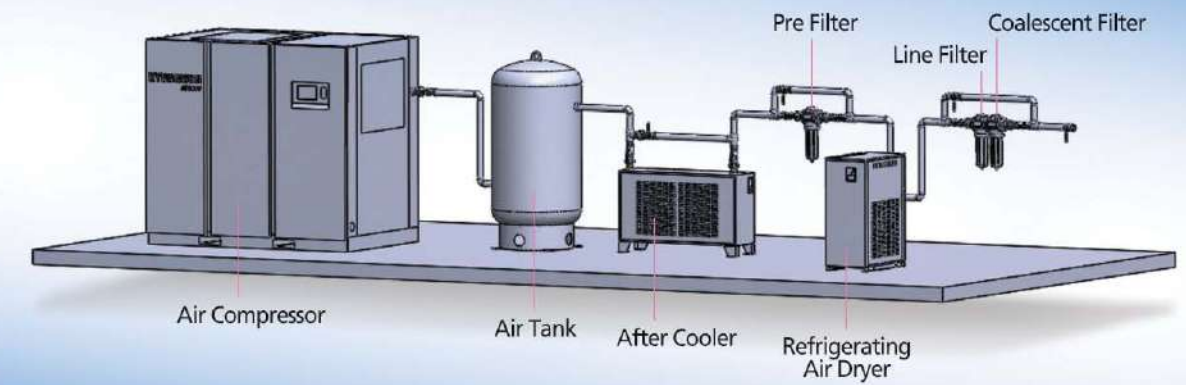


Printing



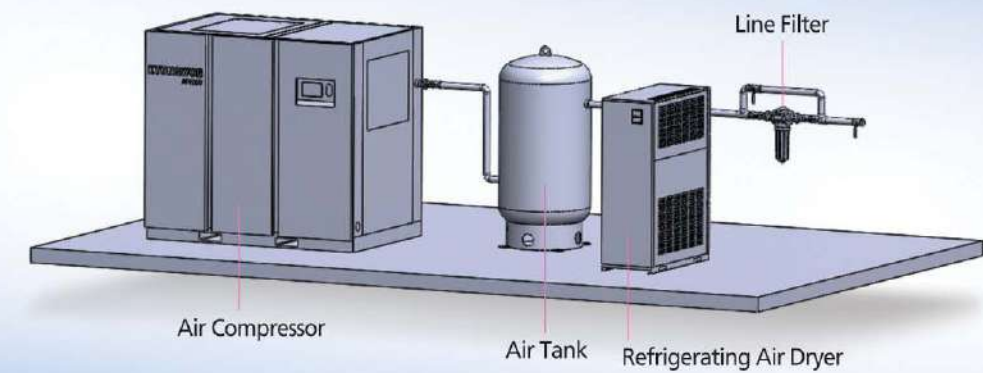
## Application #1

### General Pneumatic line



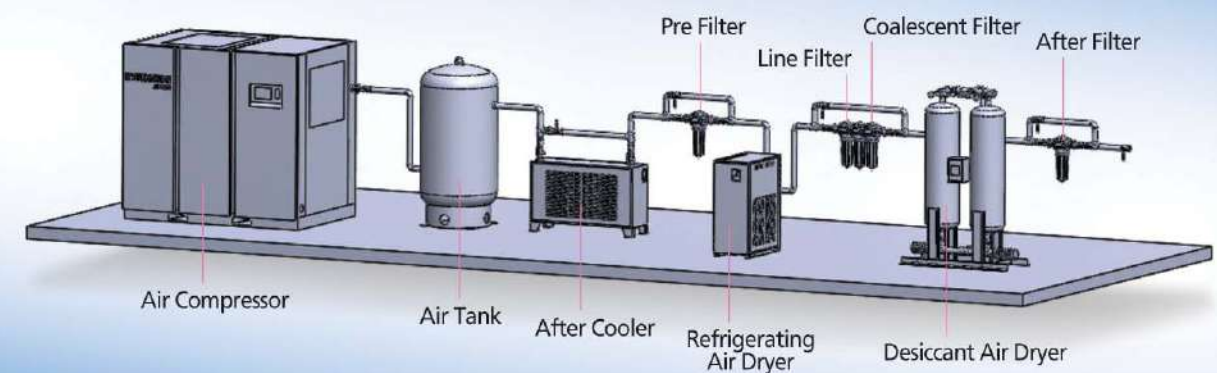
## Application #2

### General Pneumatic line



## Application #3

### High Purification Pneumatic line





# Specification



## AL Series

| Model | Max. Working pressure |      | Capacity |       | Motor Power |      | Noise | Tank Volume | Dimension (LxWxH) | Air Outlet | Weight |
|-------|-----------------------|------|----------|-------|-------------|------|-------|-------------|-------------------|------------|--------|
|       | bar                   | psig | LPM      | CFM   | kW          | HP   | dB(A) | ℓ           | mm                | A(B)       | kg     |
| AL3   | 8.0                   | 115  | 271      | 9.6   | 2.2         | 3    | 49    | 38          | 650x735x1140      | 15(1/2")   | 195    |
|       | 9.9                   | 140  | 219      | 7.7   |             |      |       |             |                   |            |        |
| AL5   | 8.0                   | 115  | 420      | 14.8  | 3.7         | 5    | 50    | 38          | 650x735x1140      | 15(1/2")   | 210    |
|       | 9.9                   | 140  | 352      | 12.4  |             |      |       |             |                   |            |        |
| AL7   | 8.0                   | 115  | 691      | 24.4  | 2.2x1       | 3x1  | 52    | N/A         | 640x1180x1050     | 25(1")     | 335    |
|       | 9.9                   | 140  | 571      | 20.2  | 3.7x1       | 5x1  |       |             |                   |            |        |
| AL10  | 8.0                   | 115  | 840      | 29.6  | 3.7x2       | 5x2  | 53    | N/A         | 640x1180x1050     | 25(1")     | 340    |
|       | 9.9                   | 140  | 704      | 24.9  |             |      |       |             |                   |            |        |
| AL15  | 8.0                   | 115  | 1260     | 44.4  | 3.7x3       | 5x3  | 56    | N/A         | 750x1280x1260     | 25(1")     | 485    |
|       | 9.9                   | 140  | 1056     | 37.3  |             |      |       |             |                   |            |        |
| AL20  | 8.0                   | 115  | 1680     | 59.2  | 3.7x4       | 5x4  | 58    | N/A         | 750x1280x1625     | 25(1")     | 620    |
|       | 9.9                   | 140  | 1408     | 49.7  |             |      |       |             |                   |            |        |
| AL25  | 8.0                   | 115  | 2100     | 74.0  | 3.7x5       | 5x5  | 59    | N/A         | 750x1280x2040     | 25(1")     | 750    |
|       | 9.9                   | 140  | 1760     | 62.2  |             |      |       |             |                   |            |        |
| AL30  | 8.0                   | 115  | 2520     | 88.8  | 3.7x6       | 5x6  | 62    | N/A         | 1600x1280x1260    | 40(1 1/2") | 1080   |
|       | 9.9                   | 140  | 2112     | 74.6  |             |      |       |             |                   |            |        |
| AL40  | 8.0                   | 115  | 3360     | 118.4 | 3.7x8       | 5x8  | 63    | N/A         | 1600x1280x1625    | 40(1 1/2") | 1250   |
|       | 9.9                   | 140  | 2816     | 99.4  |             |      |       |             |                   |            |        |
| AL50  | 8.0                   | 115  | 4200     | 148.0 | 3.7x10      | 5x10 | 65    | N/A         | 1600x1280x2040    | 40(1 1/2") | 1480   |
|       | 9.9                   | 140  | 3520     | 124.3 |             |      |       |             |                   |            |        |

\* If moving caster adopted, height increases 40mm



## AL A Series

| Model | Max. Working pressure |      | Capacity |      | Motor Power |     | Noise | Dew Point | Tank Volume | Fiteration | Dimension (LxWxH) | Air Outlet | Weight |
|-------|-----------------------|------|----------|------|-------------|-----|-------|-----------|-------------|------------|-------------------|------------|--------|
|       | bar                   | psig | LPM      | CFM  | kW          | HP  | dB(A) | ℃         | ℓ           | μm         | mm                | A(B)       | kg     |
| AL3A  | 8.0                   | 115  | 271      | 9.6  | 2.2         | 3   | 49    | 10        | 38          | 5          | 700x740x1450      | 15(1/2")   | 210    |
|       | 9.9                   | 140  | 219      | 7.7  |             |     |       |           |             |            |                   |            |        |
| AL5A  | 8.0                   | 115  | 420      | 14.8 | 3.7         | 5   | 50    | 10        | 38          | 5          | 700x740x1450      | 15(1/2")   | 220    |
|       | 9.9                   | 140  | 352      | 12.4 |             |     |       |           |             |            |                   |            |        |
| AL7A  | 8.0                   | 115  | 691      | 24.4 | 2.2x1       | 3x1 | 52    | 10        | 74          | 5          | 700x1530x1390     | 25(1")     | 435    |
|       | 9.9                   | 140  | 571      | 20.2 | 3.7x1       | 5x1 |       |           |             |            |                   |            |        |
| AL10A | 8.0                   | 115  | 840      | 29.6 | 3.7x2       | 5x2 | 53    | 10        | 74          | 5          | 700x1530x1390     | 25(1")     | 445    |
|       | 9.9                   | 140  | 704      | 24.9 |             |     |       |           |             |            |                   |            |        |

\* If moving caster adopted, height increases 40mm

\* A Series : Dryer, Filter, Receivertank built in (All in one)



## AL D Series

| Model | Max. Working pressure |      | Capacity |      | Motor Power |    | Tank Volume | Filteration | Dimension (LxWxH) | Air Outlet | Weight |
|-------|-----------------------|------|----------|------|-------------|----|-------------|-------------|-------------------|------------|--------|
|       | bar                   | psig | LPM      | CFM  | kW          | HP | ℓ           | μm          | mm                | A(B)       | kg     |
| AL3D  | 8.0                   | 115  | 271      | 9.6  | 2.2         | 3  | 38          | 5           | 645x670x960       | 15(1/2")   | 90     |
| AL5D  | 8.0                   | 115  | 420      | 14.8 | 3.7         | 5  | 38          | 5           | 645x670x960       | 15(1/2")   | 100    |



## AL P Series

| Model | Max. Working pressure |      | Capacity |      | Motor Power |    | Noise | Dimension (LxWxH) | Air Outlet | Weight |
|-------|-----------------------|------|----------|------|-------------|----|-------|-------------------|------------|--------|
|       | bar                   | psig | LPM      | CFM  | kW          | HP | dB(A) | mm                | A(B)       | kg     |
| AL3P  | 8.0                   | 115  | 271      | 9.6  | 2.2         | 3  | 50    | 550x670x780       | 15(1/2")   | 130    |
|       | 9.9                   | 140  | 219      | 7.7  |             |    |       |                   |            |        |
| AL5P  | 8.0                   | 115  | 420      | 14.8 | 3.7         | 5  | 50    | 550x670x780       | 15(1/2")   | 140    |
|       | 9.9                   | 140  | 352      | 12.4 |             |    |       |                   |            |        |

\* If moving caster adopted, height increases 40mm

\* P Series : Reciever tank not included



# Oilfree Reciprocating Air Compressor

The oil-free reciprocating type compressor is the masterpiece of Kyungwon's endeavor in the area of oil-less compressor industry.



## The adoption of the new flapper valve improves the volumetric efficiency.

The durable Sandvic valve steel and the nickel-coated rust-proof valve spacer are Kyungwon's latest triumphs.

## Adoption of a piston ring developed by Kyungwon to improve the sealing performance.

The Teflon ring that contains graphite to improve the resistance to heat and friction ensure the longer life span and the minimal leakage possibilities during the compression process.

## An epoch-making heat cut piston pin featuring a high insulation was adopted.

We use a revolutionary "Heat Cut" piston pin that is designed to maximize the heat insulation between the piston and the connecting rod. Heat transfer is encapsulated within the piston pin thereby, extending the life of the bearings.



## Package Type P-U Combination Pressure Switch & Automatic Unloading

- The operation can be switched by means of P-U switch. Users can select and use automatic unload operating mode or pressure-switching mode depending on their own choice of usage.
- Since sound adsorption and anti-vibration materials are installed inside the package, this system is suitable for places requiring less noise and vibration. (Less than 75dB(A))
- Since an extra auxiliary air tank is supplied users do not need a separate air vessel. (Except for 1~2HP)



| Spec.                    | Model   | AC-P1CA2    | AC-P2CA2 | AC-P3CA2 | AC-P5CA2      | AC-P7.5CA2 |
|--------------------------|---------|-------------|----------|----------|---------------|------------|
| Motor                    | kW(HP)  | 0.75(1)     | 1.5(2)   | 2.2(3)   | 3.7(5)        | 5.5(7.5)   |
| Bore x Stroke            | mm      | 60x50       | 82x50    |          | 90x60         |            |
| No. of Cylinder          | -       | 1           |          | 2        |               | 3          |
| Piston Displacement      | LPM     | 141         | 285      | 417      | 657           | 985        |
|                          | CFM     | 4.98        | 10.1     | 14.7     | 23.2          | 34.8       |
| Free Air Delivery        | LPM     | 84          | 165      | 255      | 430           | 640        |
|                          | CFM     | 3.0         | 5.8      | 9.0      | 15.1          | 22.6       |
| Max. Working Pressure    | bar(g)  | 8           |          |          |               |            |
|                          | psi(g)  | 116         |          |          |               |            |
| Air Receiver Tank Volume | Main(l) | 25          |          |          |               |            |
|                          | Sub(l)  | -           |          |          |               | 100        |
| Air Outlet               | A(B)    | 15A(1/2")   |          |          |               |            |
| Dimension(LxWxH)         | mm      | 960x660x970 |          |          | 1200x710x1030 |            |
| Weight                   | kg      | 118         | 130      | 155      | 242           | 328        |

※The dimension and specifications may be subject to change without prior notice for improvement or other purpose.

## Bare Type Pressure Switch System

- Users may choose between pressure switching mode and automatic unloading mode.
- The system of 10HP or higher is designed for use in tandem mode.



| Spec.                    | Model  | AC-B1PA1     | AC-B2PA1     | AC-B3PA1     | AC-B5PA1     | AC-B7.5PA1    | AC-B10PA2     | AC-B15PA2     |
|--------------------------|--------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|
| Motor                    | kW(HP) | 0.75(1)      | 1.5(2)       | 2.2(3)       | 3.7(5)       | 5.5(7.5)      | 7.5(10)       | 11(15)        |
| Bore x Stroke            | mm     | 60x50        | 82x50        |              | 90x60        |               |               |               |
| No. of Cylinder          | -      | 1            |              | 2            |              | 3             | 2x2           | 3x2           |
| Piston Displacement      | LPM    | 141          | 285          | 417          | 657          | 985           | 1314          | 1970          |
|                          | CFM    | 4.98         | 10.1         | 14.7         | 23.2         | 34.8          | 46.4          | 69.6          |
| Free Air Delivery        | LPM    | 84           | 165          | 255          | 430          | 640           | 850           | 1250          |
|                          | CFM    | 3.0          | 5.8          | 9.0          | 15.1         | 22.6          | 30.2          | 45.2          |
| Max. Working Pressure    | bar(g) | 8.0          |              |              |              |               |               |               |
|                          | psi(g) | 116          |              |              |              |               |               |               |
| Air Receiver Tank Volume | l      | 75           | 75           | 140          | 160          |               | 260           | 280           |
| Air Outlet               | A(B)   | 15A(1/2")    |              |              |              | 15A(1/2")     | 20A(3/4")     | 25A(1")       |
| Dimension (LxWxH)        | mm     | 1160x450x860 | 1160x450x900 | 1280x450x920 | 1460x530x990 | 1460x530x1080 | 1700x620x1100 | 1830x640x1220 |
| Weight                   | kg     | 90           | 105          | 135          | 188          | 250           | 355           | 500           |

※The dimension and specifications may be subject to change without prior notice for improvement or other purpose.