

**OUR HEAD OFFICE AND PLANT ARE CERTIFIED
TO BOTH ISO 9001 AND ISO 14001.**

Niigata plant:

Shimo Aozu, Tsubame-city, Niigata-prefecture, 959-0293 Japan.



ISO9001 : JQA-0581
ISO14001 : JQA-EM4670

SAFETY

Before use, please read the operation manual carefully and use the machine safely in order to prevent an accident and failure. Please make sure to perform daily and/or periodic check.

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DISTRIBUTOR:

General Industrial Machinery

2016

AIRMAN®

**SCREW
COMPRESSOR**

3.7 - 160kW

Screw Compressor

PROAIR

AIRMAN® delivers a new wind.

We have been producing and selling compressors ever since our founding more than 70 years ago. AIRMAN is one of the top brand manufacturers in Japan, and is one of the few manufacturers that is capable of independently performing all steps from development to production and sales of air-ends.

The "outdoor installation type screw compressors" which are currently attracting much attention were developed utilizing more than 40 years of AIRMAN technology and expertise, and have been highly rated as products that are one step ahead of the times.

As a comprehensive manufacturer of industrial machinery including air compressors, engine generators, and scissors lifters, we will continue to deliver the original and innovative AIRMAN style.

We were awarded the 2012 "Good Green Spaces Factory Prize" by Minister of Economy, Trade and Industry.



Niigata Head Office and Plant "Hometown Forest"



NEW Introducing the new-model AS rotor!! 15 - 75kW

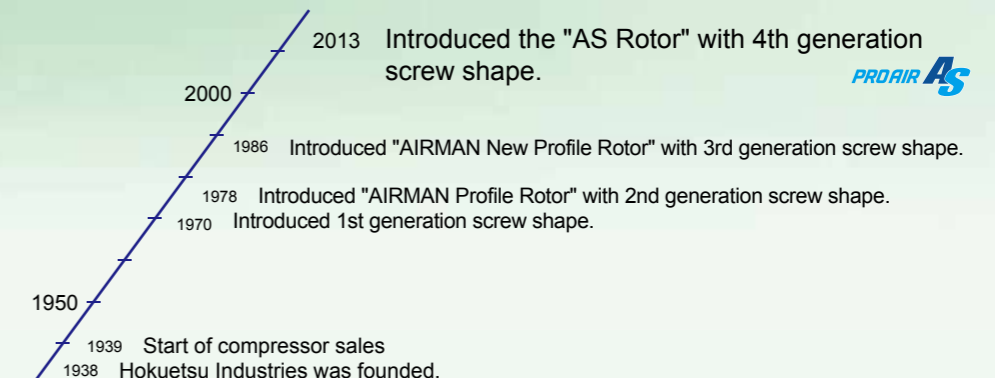
By optimizing the screw rotor profile that is at the heart of the compressor and making fine-tuned improvements to the compressor unit, we have achieved the highest level of air delivery in the class.



Niigata Head Office and Plant



History of AIRMAN screw rotors



Select according to your need

Select by motor output.

Select from the motor output [kW] which drives the compressor motor power.

3.7 - 11kW



Page 5

15 - 37kW



Page 9

55 / 75kW



Page 15

Select from outdoor installation types

These units can be installed outdoors.

3.7 - 75kW



Page 17

Select from medium pressure model

Select from the compressor pressure [MPa].

Medium pressure 1.4 MPa



Page 23

Select from oil-free model

Select from oil-free models that supply clean compressed air that contains no oil.

37 - 160kW



Page 21

Supplies nitrogen enriched air

Nitrogen enriched air with 95 - 99% purity is supplied to the laser.


Laser assist



Page 23

Product Lineup

- V Inverter control : An inverter is used for energy-saving control of motor speed.
- S 2-position control: Energy-saving control using A.C.C.S. and purge control
- P 2-position control: Energy-saving control using A.C.C.S. (oil-free)
- R Regulator : Energy-saving control using purge control

 Discharge airflow (m³/min)

Oil injection										Oil-free		
Air cooled					Water cooled					Air cooled		Water cooled
Outdoor installation type					Indoor installation type					Outdoor installation type	Indoor installation type	
Inverter control V	2-position control S	Regulator R	Inverter control V	2-position control S	Regulator R	Medium pressure 1.4MPa V R	2-position control S	Regulator R	Motor output	2-position control P	2-position control P	2-position control P
	0.44 SMS4ESD			0.44 SAS4SD					3.7kW			
				0.72 SAS6SD					5.5kW			
	1.1 SMS8ESD			1.1 SAS8SD					7.5kW			
1.9 SMS11EVD	1.6 SMS11ESD	1.6 SMS11ERD	1.9 SAS11VD	1.6 SAS11SD	1.6 SAS11RD				11kW			
2.8 SMS15EVD	2.6 SMS15ESD	2.6 SMS15ERD	2.8 SAS15VD	2.6 SAS15SD	2.6 SAS15RD				15 kW			
						2.7 1.4MPa SASG19VD/RD			18.5kW			
4.7 SMS22EVD	4.1 SMS22ESD	4.1 SMS22ERD	4.7 SAS22VD	4.1 SAS22SD	4.1 SAS22RD				22kW			
7.65 SMS37EVD	6.9 SMS37ESD	6.9 SMS37ERD	7.65 SAS37VD	6.9 SAS37SD	6.9 SAS37RD				37kW	5.3 SMAD37PD	5.3 SAD37PD	5.3 SWD37PD
11.8 SMS55EVD	10.2 SMS55ESD	10.2 SMS55ERD	11.8 SAS55VD	10.2 SAS55SD	10.2 SAS55RD				55kW	8.5 SMAD55PD		
16.1 SMS75EVD	13.9 SMS75ESD	13.9 SMS75ERD	16.1 SAS75VD	13.9 SAS75SD	13.9 SAS75RD				75kW	11.7 SMAD75PD		12.8 SWD75PD
									90kW			12.7 0.95MPa SWD90PD
									120kW			19.5 SWD120P
									140kW			22.5 SWD140P
									160kW			26.0 SWD160P

Small size, advanced functions, high durability, and energy savings!!



Inverter control V Type 11kW



Air control system Energy-saving mechanism
Inverter control + Purge control + Automatic start/stop

Energy Savings

The operating speed is automatically controlled according to the air demand, reducing energy consumption.

Constant pressure control

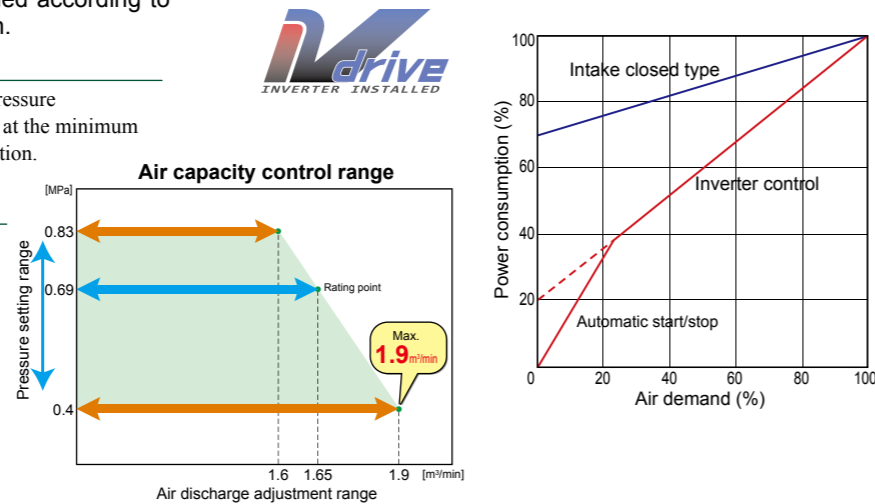
Due to its precise constant pressure control that limits pressure fluctuations to ± 0.01 MPa or less, the pump can operate at the minimum required pressure, eliminating wasteful energy consumption.

Air delivery boost function

When the discharge pressure is set at or below the rated pressure (0.69 MPa), the maximum operating speed is raised, increasing the air delivery.

Air pressure boost function

When a pressure higher than the rated pressure (0.69 MPa) is needed, it can be set easily on the panel.



2-position control S Type 3.7 - 11kW



Air control system Energy-saving mechanism
2-position control + A.C.C.S. + Purge control + Automatic start/stop

Regulator R Type 11kW



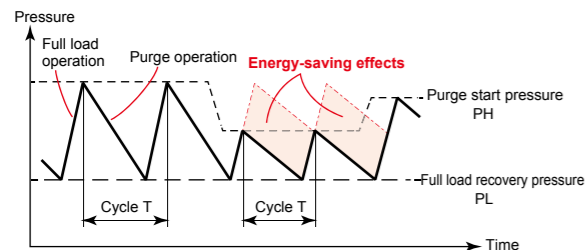
Air control system Energy-saving mechanism
Regulator control + Purge control + Automatic start/stop

2-position control S Type

The intake-air capacity is controlled in 2 steps: open (load) and closed (unload).

A.C.C.S. (AIRMAN Computer Control System) S Type

The purge start pressure (PH) is changed automatically according to the air demand, preventing frequent capacity control and thereby reducing power consumption.



Regulator control R Type

The intake-air capacity is controlled without steps within the range of 0 - 100%.

Purge control S Type R Type

When the air demand is reduced and the load factor is remained below the purge operating transition load factor for a certain length of time, the system transits to purge operation in order to save energy.

Automatic start/stop S Type R Type

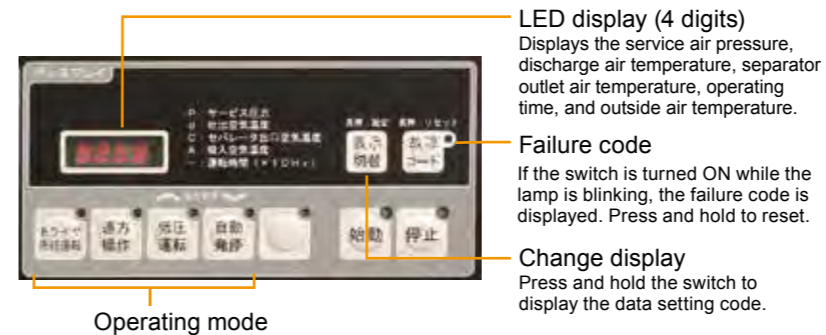
The system saves energy by automatically stopping operation based on microcomputer predictions of the stop time according to changes in the air demand. It also increases the pressure in the service air before stopping. This extends the stop time, saves energy, and reduces the motor load at restart.



Common functions V Type S Type R Type

Easy operation

Start/Stop can be performed with a single touch using display button.



Dryer Advance operation

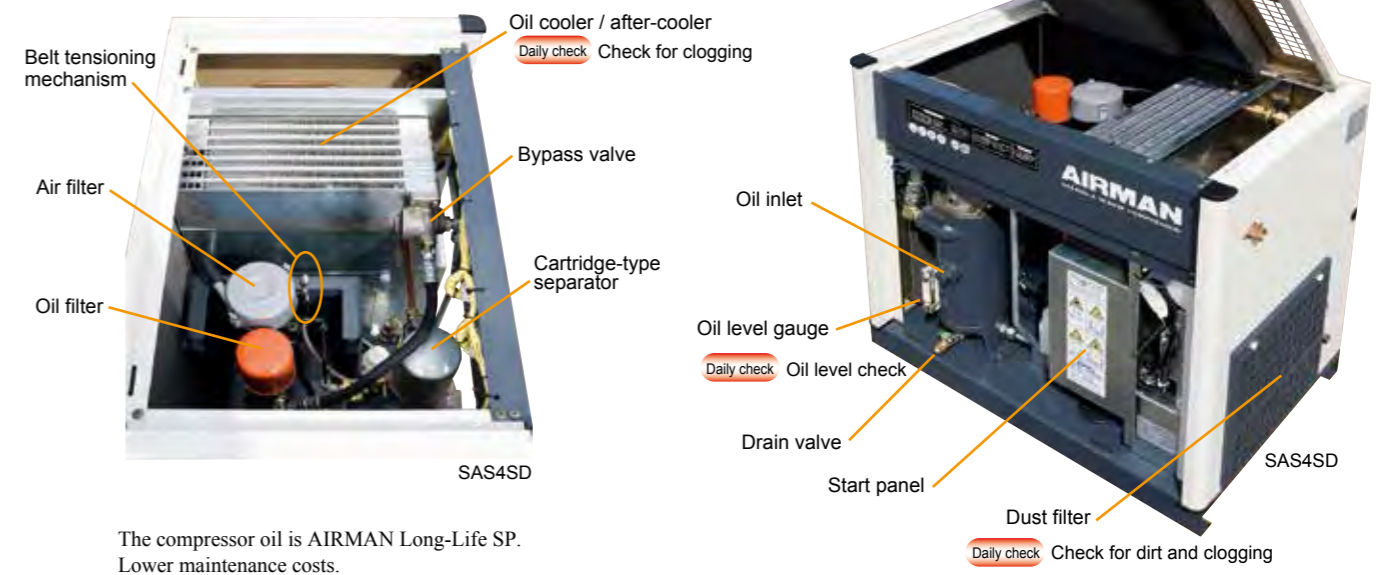
Clean air is supplied, beginning from the moment the compressor starts.

Remote control

A terminal block for start/stop, error display output, and other purposes are installed as standard.

Easy maintenance

The fully open top cover and large front door can be removed by a single touch without tools, allowing easy maintenance.



The compressor oil is AIRMAN Long-Life SP. Lower maintenance costs.

Easy belt tensioning [Patented]

Adjust the belt tension simply by loosening the 2 mounting bolts and tightening the tension bolt nut.

Low-pressure operation Energy Savings

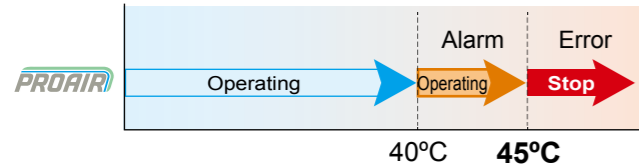
Pressure 0.83 MPa \rightarrow 0.63 MPa
Adjustment range: 0.02 - 0.2 MPa

10% energy savings

Common functions VSR

Operate at ambient temperatures up to 45°C with standard specifications

The use of a dryer that is resistant to high temperatures allows operation at ambient temperatures of up to 45°C. The compressor is compact, and the use of a counter-flow type oil cooler with good cooling efficiency allows operation at ambient temperatures of up to 50°C. When the compressor intake temperature reaches 45°C, a warning is displayed on the monitor.



* If continuous operation over long periods occurs in an environment where the ambient temperature exceeds 40°C, the lifetimes of the lubrication oil, electronics, O-rings, and other components will be shortened from their usual values.

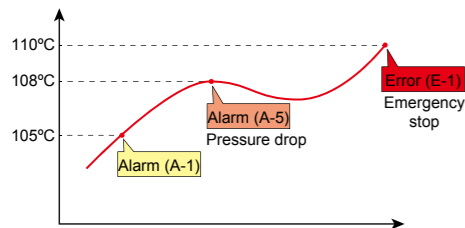
Low pressure-loss dryer (11 kW) Energy Savings

The dryer uses a stainless steel plate heat exchanger that features lower pressure loss than conventional models, as well as excellent durability.

Pressure drop: 0.005 MPa (approximately 1.2% energy savings)

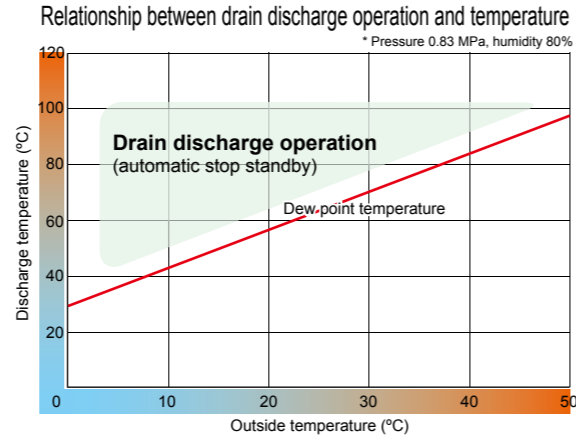
Discharge air temperature: 3-stage detection [Patented]

When an abnormal rise in discharge air temperature occurs, detection also occurs in 3 stages.



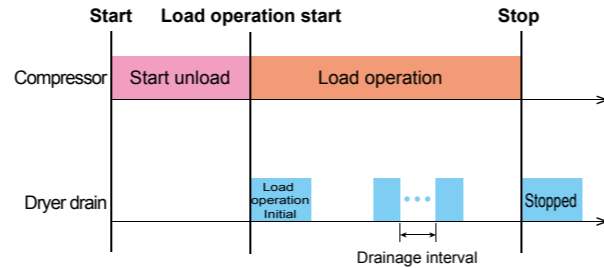
Original drain processing [Industry's first]

The dew point is estimated from the outside air temperature, and operation continues until the discharge air temperature exceeds the dew point. This allows faster and more reliable drain operation than with conventional models, and it eliminates troublesome manual drain work.



Dryer drain system [Patented]

The dryer drainage interval is controlled by a solenoid valve according to the outside air temperature and load operating time. This minimizes wasted air discharge.



Outdoor installation type Outdoor SMS VSR

Advantages of the outdoor installation types

- Prevent overheating.
- Prevent intake of dust in the plant and oil smoke from machine tools.
- Reduce installation cost of compressor chamber, duct, ventilation fan, and other equipment.
- Machine heat does not affect the plant air conditioning.
- Can be installed in a corridor, under stairway, or on a rooftop.
- Maintenance space can be easily ensured.

Special hood for outdoor use

A special hood is used to minimize the intrusion of rainwater into the machine.



Installation examples



Manufacturing plant: SMS11ED x 2, SMS8ED x 1

3.7 - 7.5kW specifications

Model	3.7kW		5.5kW		7.5kW	
	Air cooled					
Item	Outdoor installation type, 2-position control SMS4ESD-5C/6C	2-position control SAS4SD-5C/6C	2-position control SAS6SD-5C/6C	Outdoor installation type, 2-position control SMS8ESD-5C/6C	2-position control SAS8SD-5C/6C	
● Compressor						
Type	Rotating screw type, 1-stage compressed oil cooling					
Air delivery ^{*1}	m ³ /min	0.44	0.72	1.1 [1.0]		
Discharge pressure ^{*2}	MPa	0.83	0.83	0.83 [0.93]		
Capacity control system	2-position control + A.C.C.S. + Purge control + Automatic start/stop					
Intake conditions	Atmospheric pressure, 2 [°] - 40°C		Atmospheric pressure, 2 - 40°C		Atmospheric pressure, 2 [°] - 40°C	
Lubricant oil capacity ^{*3}	L	2.5	3.5	5.0		
Discharge air pipe diameter	A	10 (3/8B)		20 (3/4B)		
● Motor						
Type	Fully-enclosed, external fan, 3-phase squirrel cage induction motor					
Output	kW	3.7	5.5	7.5		
Frequency	Hz	50/60				
Voltage	V	200/200*220 [400/400*440]				
No. of poles	P	2			4	
Starting system	Direct input					
● Approx. dimensions and approx. weight						
Overall width	mm	860	760	900	1,070	950
Overall depth	mm	560	510	580	670	630
Overall height	mm	780	750	900	1,130	1,050
Weight	kg	180	160	235	315	290
Noise level ^{*4}	dB [A]	56				
● Dryer						
Input (chiller nominal output)	kW	0.27/0.25 / 0.28 (0.3)		0.27/0.29 / 0.31 (0.4)		0.28/0.30 / 0.32 (0.4)
Outlet dew point ^{*5}	°C	10 (under pressure)				
Coolant		R134a				

11kW specification

Model	11kW					
	Air cooled					
Item	Outdoor installation type, inverter SMS11EVD-C	Outdoor installation type, 2-position control SMS11ESD-5C/6C	Outdoor installation type, regulator SMS11ERD-5C/6C	Inverter SAS11VD-C	2-position control SAS11SD-5C/6C	Regulator SAS11RD-5C/6C
● Compressor						
Type	Rotating screw type, 1-stage compressed oil cooling					
Air delivery ^{*1}	m ³ /min	1.65 (1.9 - 1.6)	1.6 [1.7] [1.4]	1.6 [1.7] [1.4]	1.65 (1.9 - 1.6)	1.6 [1.7] [1.4]
Discharge pressure ^{*2}	MPa	0.69 (0.4 - 0.83)	0.83 [0.69] [0.93]	0.83 [0.69] [0.9]	0.69 (0.4 - 0.83)	0.83 [0.69] [0.93]
Capacity control system	Inverter control	2-position control + A.C.C.S. + Purge control + Automatic start/stop		Purge control + Automatic start/stop	Inverter control	2-position control + A.C.C.S. + Purge control + Automatic start/stop
Intake conditions	Atmospheric pressure, 2 [°] - 40°C			Atmospheric pressure, 2 - 40°C		
Lubricant oil capacity ^{*3}	L	8.0				
Discharge air pipe diameter	A	25 (1B)				
● Motor						
Type	Fully-enclosed, external fan, 3-phase squirrel cage induction motor					
Output	kW	11				
Frequency	Hz	Both 50/60	50/60	Both 50/60	50/60	
Voltage	V	200/200*220 [400/400*440]				
No. of poles	P	4				
Starting system		Inverter	Direct input		Inverter	Direct input
● Approx. dimensions and approx. weight						
Overall width	mm	1,320			1,160	
Overall depth	mm	700				
Overall height	mm	1,240			1,200	
Weight	kg	442 (400)	427 (387)		397 (362)	387 (352)
Noise level ^{*4}	dB [A]	56				
● Dryer						
Input (chiller nominal output)	kW	0.52/0.6 / 0.61 (0.5)				
Outlet dew point ^{*5}	°C	10 (under pressure)				
Coolant		R407C				

*1 Air delivery is converted at intake conditions at atmospheric pressure and 30°C. As for guaranteed value of air delivery, please contact us if necessary. *2 Inverter model figures in parentheses () are the setting range. The high-pressure specifications are an option at the time of manufacture. *3 Be sure to use Long-Life SP genuine Hokuetsu compressor oil. *4 The noise value is converted to anechoic chamber conditions at a distance of 1.5 m from the pump front (operating side) and a height of 1.0 m when the pump is operating at full load. Depending on the installation environment (effects of surrounding reverberation, etc.), the noise level when the system is actually installed may be higher than the level indicated here. The noise level also changes when the capacity control operation is in effect. *5 Outlet dew point is at ambient temperature of 30°C. *6 When using in cold weather regions (2°C or below), the optional tape heater is required. (Cold weather region) * A separate air tank with sufficient capacity must be installed.

The use of a newly developed AS rotor and built-in direct coupling structure results in a large increase in air delivery.

Inverter control
V Type



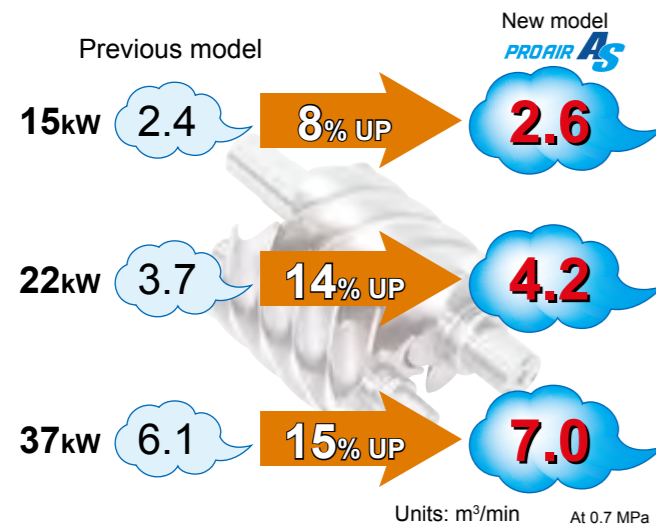
Air control system Energy-saving mechanism
Inverter control + Purge control + Automatic start/stop



Large increase in air delivery

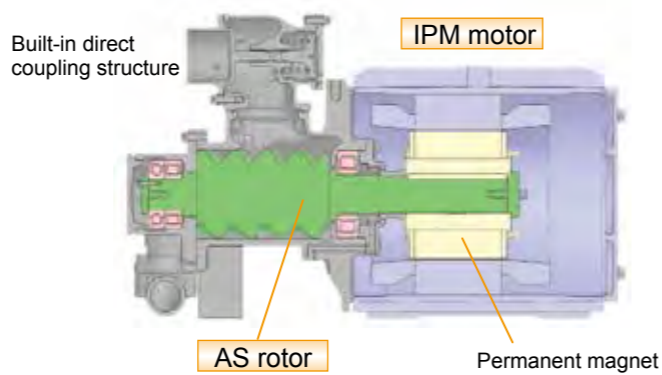


Newly developed AS rotors achieve more great performance and high efficiency, and provides the top level of air delivery in the class.



Built-in direct coupling structure (22/37kW)

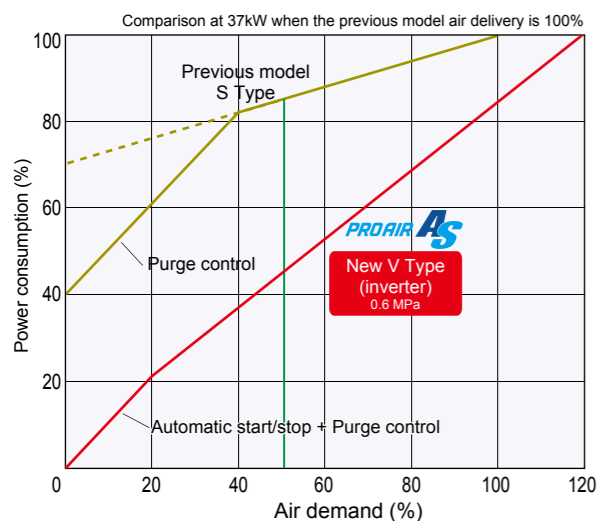
IPM (Interior Permanent Magnet) motor provides more efficient performance than premium efficiency motors. Achieved no transmission loss by built-in direct coupling structure, excellent energy-saving performance.



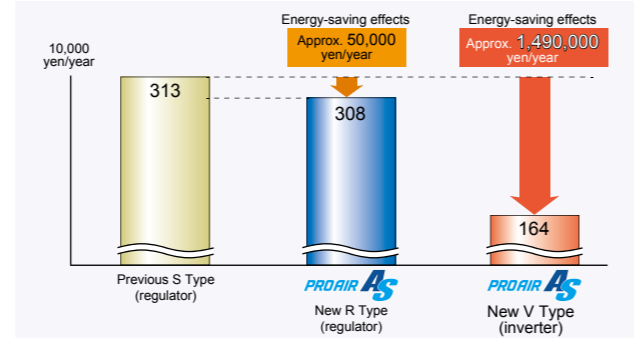
Energy-saving effects



Newly developed AS rotors coupled IPM motor provide more efficient and energy savings than conventional models.



Example: 37 kW model annual energy cost (air demand 50%)



Example of annual energy costs

Type	Class	15kW	22kW	37kW
Previous S Type		132	194	313
New R Type		131 [Δ1]	193 [Δ1]	308 [Δ5]
New V Type		84 [Δ48]	101 [Δ93]	164 [Δ149]

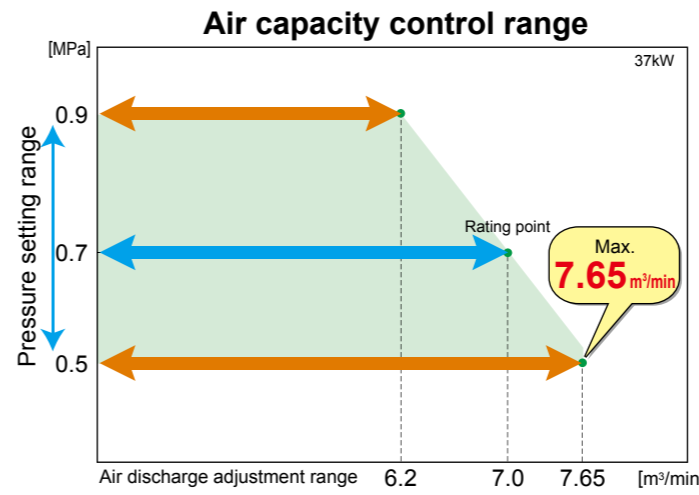
Conditions Air delivery: 3.0 m³/min (50% load of conventional unit), pressure: inverter type 0.6 MPa / regulator type 0.7 MPa, dryer OFF, electricity cost: 15 yen/kWh, operating time: 6,000 hrs/year



Super-wide range control [Patented]



The use of a high-efficiency AS rotors and motor expands the control range. Any pressure can be set in the range of 0.5 - 0.9 MPa (in increments of 0.01 MPa).



- Air delivery boost function: The amount of air delivery is increased by lowering the set pressure and increasing the maximum operating speed.
- Air pressure boost function
- Constant pressure control

Max. pressure ⇔ Max. air discharge [m³/min]

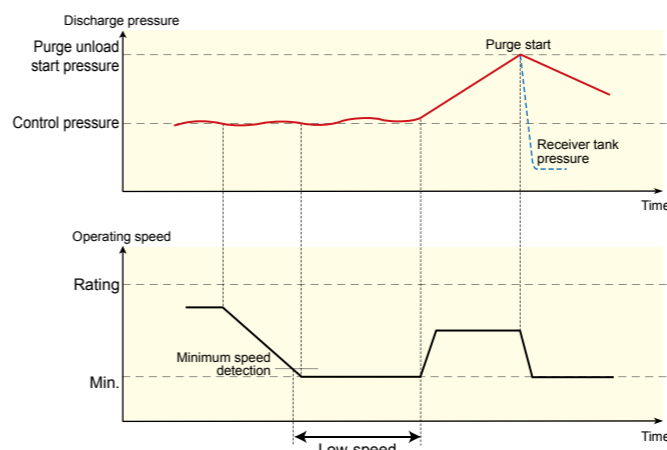
	15kW	22kW	37kW
0.9 MPa*	2.35 [90%]	3.75 [89%]	6.2 [89%]
0.7 MPa	2.6 [100%]	4.2 [100%]	7.0 [100%]
0.6 MPa	2.7 [104%]	4.45 [106%]	7.4 [106%]
0.5 MPa	2.8 [108%]	4.7 [112%]	7.65 [109%]

* 0.85 MPa with the 15 kW model.
• Values in [] indicate the percentage increase in air discharge when the air discharge at 0.7 MPa is 100%.

Purge control



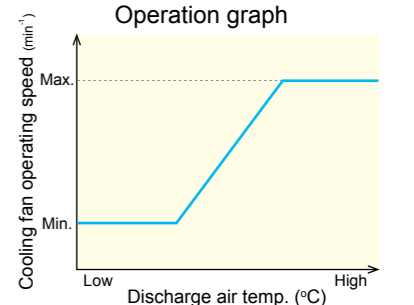
When the air demand decreases and the minimum operation speed continues for a certain length of time, the operating speed is increased to quickly raise air delivery pressure and transition to purge operation in order to save energy. Patent pending



Inverter control also for the cooling fan (22/37kW)



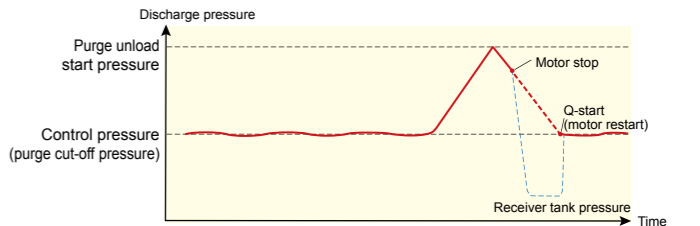
Controlling the cooling fan operating speed by the inverter with detecting the air delivery temperature, motor winding temperature, and outside air temperature. It achieves saving energy, reducing noises, and extending the oil lifetime.



Q-start



Depending on the changes of the air demand amount, the system saves energy by automatically stopping operation by the predictions of the stop time. It also increases the pressure in the service air before stopping, extending the stop time and saving energy. When the air delivery pressure decreases to the control pressure, the system restarts without any delay, preventing the line pressure from decreasing.



Includes a newly-developed AS rotor that largely increases the air delivery.

2-position control
S Type

S Type
Air control system Energy-saving mechanism
2-position control + A.C.C.S. + Purge control + Automatic start/stop

Regulator
R Type

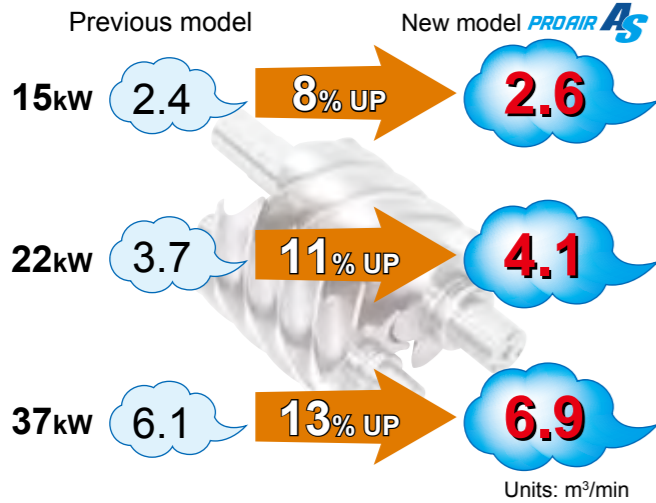
R Type
Air control system Energy-saving mechanism
Regulator control + Purge control + Automatic start/stop



Large increase in air delivery

Recommended point

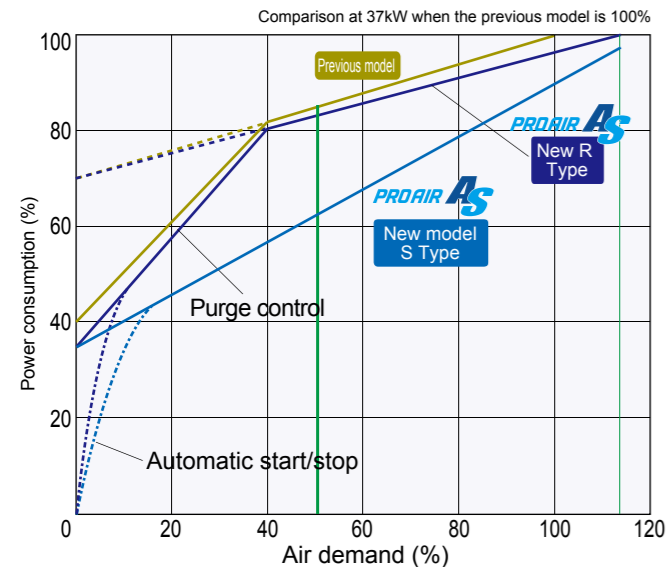
Newly developed AS rotors achieve more great performance and high efficiency, and provides the top level of air delivery in the class.



Energy-saving effects

Energy Savings

The high-efficiency new AS rotors save more energy when compared with conventional models.



Air control system

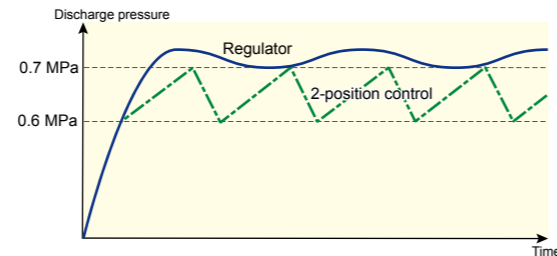
Select one of the following capacity controls according to the purpose of use.

• **2-position control** S Type

The intake-air capacity is controlled in 2 stages: open (load) and closed (unload).

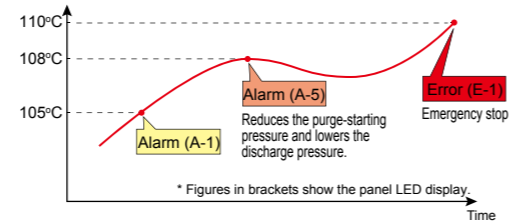
• **Regulator control** R Type

The intake-air capacity is controlled without stages within the range of 0 - 100%.



Discharge air temperature: 3-stage detection [Patented] S Type

Discharge air temperature is detected at 3 stages when abnormal temperature rising. To lower discharge air temperature, purge-starting pressure is reduced while the 2nd alarm rings.

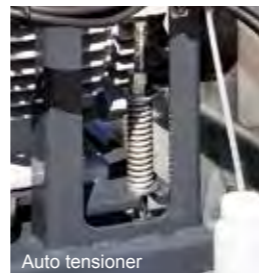


Maintenance-free belt

The using of a belt drive system in the 15kW model, and a belt automatic tensioner in the 22 and 37kW models, achieves maintenance-free performance and a further improvement in reliability.

Belt tension
Adjustment is not necessary

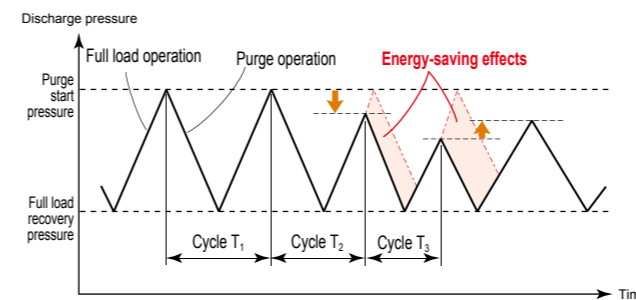
Belt
Improved reliability



A.C.C.S. (AIRMAN Computer Control System) S Type

Energy Savings

The unload-starting pressure is adjusted automatically according to the air demand to save energy.



The purge start pressure is automatically adjusted to keep cycle T 30 - 50 sec. By reducing pressure maximum 0.06 MPa, it produces energy saving up to 3%.

Peak-up start/stop S Type

Energy Savings

When the air demand is reduced, stop time is predicted during purge operation. And operation is determined to be stopped soon, stop time is extended with increasing discharge pressure temporarily (Peak-up) to save the power and reduce the load on the motor at restart.

Purge control R Type

Energy Savings

When the air demand is reduced and the load factor is remained below the purge operating transition load factor for a certain length of time, the system transits to purge operation in order to save energy.

• **Cooling fan inverter control (22/37 kW)**

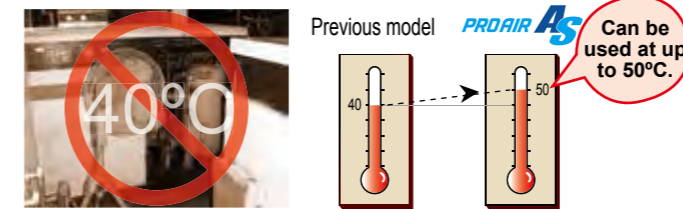
Energy Savings

Common functions V S R

Standard equipment available for 50°C ambient temperatures

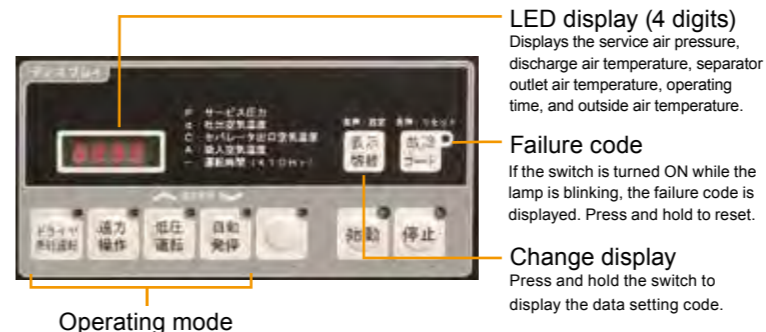
Recommended point

Improvements to the cooler and fan cooling system, and to dryer performance, allow this system to operate at ambient temperatures up to 50°C.



* If continuous operation over long periods occurs in an environment where the ambient temperature exceeds 40°C, the lifetimes of the lubrication oil, electronics, O-rings, and other components will be shortened from their usual values.

Easy-to-use panel

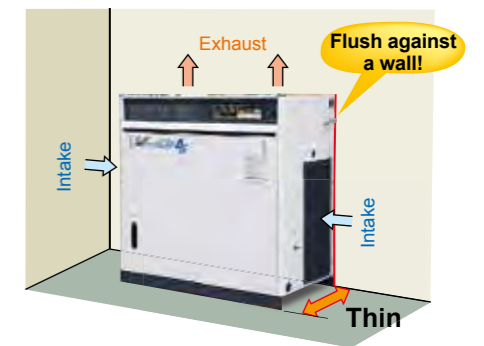


Slim design and Space saving

Recommended point

(Indoor installation type SAS)

There is no intake port on the rear of the machine, and all basic maintenance can be performed from the front and right side. As a result, the machine can be installed flush up against a wall. The compact and slim design with internal dryer also minimizes the required installation space.



- Low-pressure operation (pressure 2-stage switching function)
- Original drain processing
- Low pressure-loss dryer
- Dryer drain system
- Instantaneous power-outage restart function
- Remote control functions
- Dryer Advance operation
- 3-box structure
- Low noise

Outdoor installation type



Advantages of the outdoor installation types

- Prevent overheating.
- Prevent intake of dust in the plant and oil smoke from machine tools.
- Reduce installation cost of compressor chamber, duct, ventilation fan, and other equipment.
- Machine heat does not affect the plant air conditioning.
- Can be installed in a corridor, under stairway, or on a rooftop.
- Maintenance space can be easily ensured.



Special hood for outdoor use

Low noise

The use of a low-noise enclosure with improved intake and exhaust duct structures results in a lower noise level.

Installation examples

* Photo shows the old model.



Printing plant: SMS37SD×7

Oil fence function (22/37kW)

In the event that oil leaks onto the frame, the leak-guard fence will prevent oil from flowing off of the machine. * This function does not guarantee the prevention of all oil leakage.



15kW specification

Model	15 kW					
	Air cooled					
	Outdoor installation type, Inverter	Outdoor installation type, 2-position control	Outdoor installation type, Regulator	Inverter	2-position control	Regulator
Item	SMS15EVD-E	SMS15ESD-5E/6E	SMS15ERD-5E/6E	SAS15VD-E	SAS15SD-5E/6E	SAS15RD-5E/6E
Compressor						
Type	Rotating screw type, 1-stage compressed oil cooling					
Air delivery ^{*1}	m ³ /min	2.6 (2.8 - 2.35)	2.6 [2.35] [2.15]	2.6 (2.8 - 2.35)	2.6 [2.35] [2.15]	
Discharge pressure ^{*2}	MPa	0.7 (0.5 - 0.85)	0.7 [0.85] [0.93]	0.7 [0.85] [0.9]	0.7 (0.5 - 0.85)	0.7 [0.85] [0.93]
Capacity control system		Inverter control	2-position control + A.C.C.S. + Purge control + Automatic start/stop	Regulator + Purge control + Automatic start/stop	Inverter control	2-position control + A.C.C.S. + Purge control + Automatic start/stop
Intake conditions		Atmospheric pressure, 2 ⁷ - 40°C			Atmospheric pressure, 2 - 40°C	
Lubricant oil capacity ^{*3}	L	9			9	
Discharge air pipe diameter	A	25 (1B)				
Motor						
Type	Fully-enclosed, external fan, 3-phase squirrel cage induction motor					
Output	kW	15				
Frequency	Hz	Both 50/60	50/60	Both 50/60	50/60	
Voltage	V	200/200*220 [400/400*440]				
No. of poles	P	4				
Starting system		Inverter	Direct input	Inverter	Direct input	
Approx. dimensions and approx. weight						
Overall width	mm	1,320			1,160	
Overall depth	mm	700			670	
Overall height	mm	1,310			1,270	
Weight ^{*4}	kg	500 (470)	485 (445)	480 (445)	455 (420)	
Noise level ^{*5}	dB [A]	58			58	
Dryer						
Input (chiller nominal output)	kW	0.52/0.6 • 0.61 (0.5)				
Outlet dew point ^{*6}	°C	10 (under pressure)				
Coolant		R407C				

*1 Air delivery is converted at intake conditions at atmospheric pressure and 30°C. As for guaranteed value of air delivery, please contact us if necessary. *2 Inverter model figures in parentheses () are the setting range. The high-pressure specifications are an option at the time of manufacture. *3 Be sure to use Long-Life SP genuine Hokuetsu compressor oil. *4 Weight figures in parentheses show the weight of the unit without dryer. *5 The noise value is converted to anechoic chamber conditions at a distance of 1.5 m from the pump front (operating side) and a height of 1.0 m when the pump is operating at full load. Depending on the installation environment (effects of surrounding reverberation, etc.), the noise level when the system is actually installed may be higher than the level indicated here. The noise level also changes when the capacity control operation is in effect. *6 Outlet dew point is at an ambient temperature of 30°C. *7 When using in cold weather regions (2°C or below), the optional tape heater is required. (Cold weather region) *8 A separate air tank with sufficient capacity must be installed.

22kW specification

Model	22kW					
	Air cooled					
	Outdoor installation type, Inverter	Outdoor installation type, 2-position control	Outdoor installation type, Regulator	Inverter	2-position control	Regulator
Item	SMS22EVD-E	SMS22ESD-5E/6E	SMS22ERD-5E/6E	SAS22VD-E	SAS22SD-5E/6E	SAS22RD-5E/6E
Compressor						
Type	Rotating screw type, 1-stage compressed oil cooling					
Air delivery ^{*1}	m ³ /min	4.2 (4.7 - 3.75)	4.1 [3.6] [3.4]	4.2 (4.7 - 3.75)	4.1 [3.6] [3.4]	
Discharge pressure ^{*2}	MPa	0.7 (0.5 - 0.9)	0.7 [0.85] [0.93]	0.7 [0.85] [0.9]	0.7 (0.5 - 0.9)	0.7 [0.85] [0.93]
Capacity control system		Inverter control	2-position control + A.C.C.S. + Purge control + Automatic start/stop	Regulator + Purge control + Automatic start/stop	Inverter control	2-position control + A.C.C.S. + Purge control + Automatic start/stop
Intake conditions		Atmospheric pressure, 2 ⁷ - 40°C			Atmospheric pressure, 2 - 40°C	
Lubricant oil capacity ^{*3}	L	13				
Discharge air pipe diameter	A	25 (1B)				
Motor						
Type		Totally-enclosed IPM 3 phase synchronous motor	Fully-enclosed, external fan, 3-phase squirrel cage induction motor	Totally-enclosed IPM 3 phase synchronous motor	Fully-enclosed, external fan, 3-phase squirrel cage induction motor	
Output	kW	22				
Frequency	Hz	Both 50/60	50/60	Both 50/60	50/60	
Voltage	V	200/200*220 [400/400*440]				
No. of poles	P	6	4	6	4	
Starting system		Inverter	Star delta	Inverter	Star delta	
Approx. dimensions and approx. weight						
Overall width	mm	1,590			1,380	
Overall depth	mm	850			780	
Overall height	mm	1,570			1,420	
Weight ^{*4}	kg	645 (605)	780 (740)	540 (500)	685 (645)	
Noise level ^{*5}	dB [A]	54	56	57		
Dryer						
Input (chiller nominal output)	kW	1.19/1.47 • 1.5 (1.1)				
Outlet dew point ^{*6}	°C	10 (under pressure)				
Coolant		R407C				

37kW specification

Model	37kW					
	Air cooled					
	Outdoor installation type, Inverter	Outdoor installation type, 2-position control	Outdoor installation type, Regulator	Inverter	2-position control	Regulator
Item	SMS37EVD-E	SMS37ESD-5E/6E	SMS37ERD-5E/6E	SAS37VD-E	SAS37SD-5E/6E	SAS37RD-5E/6E
Compressor						
Type	Rotating screw type, 1-stage compressed oil cooling					
Air delivery ^{*1}	m ³ /min	7.0 (7.65 - 6.2)	6.9 [6.2] [5.9]	7.0 (7.65 - 6.2)	6.9 [6.2] [5.9]	
Discharge pressure ^{*2}	MPa	0.7 (0.5 - 0.9)	0.7 [0.85] [0.93]	0.7 [0.85] [0.9]	0.7 (0.5 - 0.9)	0.7 [0.85] [0.93]
Capacity control system		Inverter control	2-position control + A.C.C.S. + Purge control + Automatic start/stop	Regulator + Purge control + Automatic start/stop	Inverter control	2-position control + A.C.C.S. + Purge control + Automatic start/stop
Intake conditions		Atmospheric pressure, 2 ⁷ - 40°C			Atmospheric pressure, 2 - 40°C	
Lubricant oil capacity ^{*3}	L	18	20	18	20	
Discharge air pipe diameter	A	40 (1 1/2B) ^{*8}				
Motor						
Type		Totally-enclosed IPM 3 phase synchronous motor	Fully-enclosed, external fan, 3-phase squirrel cage induction motor	Totally-enclosed IPM 3 phase synchronous motor	Fully-enclosed, external fan, 3-phase squirrel cage induction motor	
Output	kW	37				
Frequency	Hz	Both 50/60	50/60	Both 50/60	50/60	
Voltage	V	200/200*220 [400/400*440]				
No. of poles	P	6	4	6	4	
Starting system		Inverter	Star delta	Inverter	Star delta	
Approx. dimensions and approx. weight						
Overall width	mm	1,840			1,620	
Overall depth	mm	960			890	
Overall height	mm	1,630			1,530	
Weight ^{*4}	kg	945 (875)	1,100 (1,030)	820 (750)	990 (920)	
Noise level ^{*5}	dB [A]	58			59	
Dryer						
Input (chiller nominal output)	kW	1.1/1.3 (1.5)				
Outlet dew point ^{*6}	°C	10 (under pressure)				
Coolant		R410A				

*1 Air delivery is converted at intake conditions at atmospheric pressure and 30°C. As for guaranteed value of air delivery, please contact us if necessary. *2 Inverter model figures in parentheses () are the setting range. The high-pressure specifications are an option at the time of manufacture. *3 Be sure to use Long-Life SP genuine Hokuetsu compressor oil. *4 Weight figures in parentheses show the weight of the unit without dryer. *5 The noise value is converted to anechoic chamber conditions at a distance of 1.5 m from the pump front (operating side) and a height of 1.0 m when the pump is operating at full load. Depending on the installation environment (effects of surrounding reverberation, etc.), the noise level when the system is actually installed may be higher than the level indicated here. The noise level also changes when the capacity control operation is in effect. *6 Outlet dew point is at an ambient temperature of 30°C. *7 When using in cold weather regions (2°C or below), the optional tape heater is required. (Cold weather region) *8 Discharge air pipe diameter is 32A (1 1/4B) for specifications without dryer. *9 A separate air tank with sufficient capacity must be installed.

Includes a newly-developed AS rotor that largely increases the air delivery.

Inverter control
V Type

Air control system Energy-saving mechanism
Inverter control + Purge control + Automatic start/stop

The operating speed is automatically controlled according to the air demand, reducing energy consumption.

2-position control
S Type

Air control system Energy-saving mechanism
2-position control + A.C.C.S. + Purge control + Automatic start/stop

The intake-air capacity is controlled in 2 stages: open (load) and closed (unload).

Regulator
R Type

Air control system Energy-saving mechanism
Regulator control + Purge control + Automatic start/stop

The intake-air capacity is controlled without steps within the range of 0 - 100%.



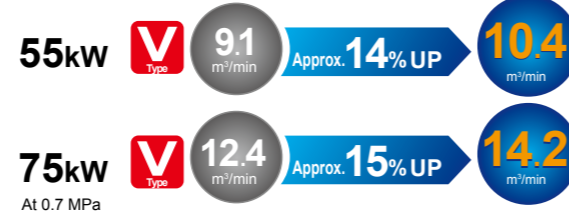
SMS75EVD



SAS55VD

Large increase in air delivery

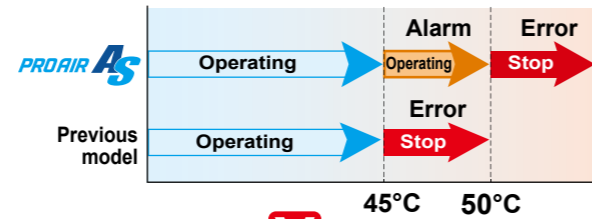
Newly developed AS rotors achieve more great performance and high efficiency, and provides the top level of air delivery in the class.



Standard equipment available for 50°C ambient temperatures

Improvements to the cooler and fan cooling system, and to dryer performance, allow this system to operate at ambient temperatures up to 50°C.

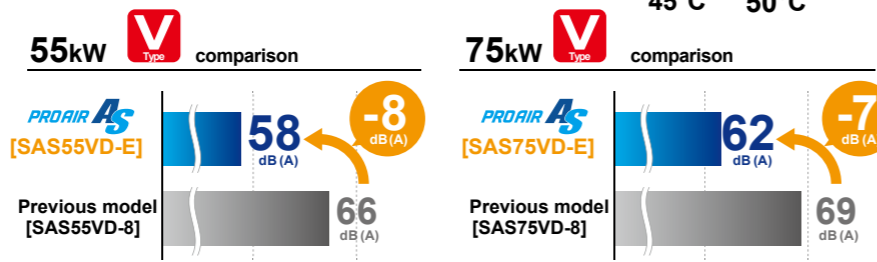
* If continuous operation over long periods occurs in an environment where the ambient temperature exceeds 40°C, the lifetimes of the lubrication oil, electronics, O-rings, and other components will be shortened from their usual values.



Low-noise operation (Quiet operating noise)

The use of a low-noise enclosure with improved intake and exhaust duct structures results in a lower noise level.

* The noise value is converted to anechoic chamber conditions at a distance of 1.5 m from the pump front (operating side) and a height of 1.0 m when the pump is operating at full load with an outside air temperature of 30°C.



- Low pressure-loss dryer
- Low-pressure operation (pressure 2-stage switching function)
- Q-start
- Purge control
- Super-wide range control
- Turbo fan
- New model unloader
- Dryer drain system
- Original drain processing
- Instantaneous power-outage restart function
- Dryer Advance operation
- Cooling fan inverter control
- Remote control functions
- 3-box structure

Outdoor installation type Outdoor SMS V S R

We also maintain a lineup of 6 outdoor installation types in 2 models.

Advantages and characteristics Page 17

55kW specification

Model	55kW						
	Air cooled						
Item	Outdoor installation type, Inverter	Outdoor installation type, 2-position control	Outdoor installation type, regulator	Inverter	2-position control	Regulator	
	SMS55EVD-E	SMS55ESD-SE/6E	SMS55ERD-SE/6E	SAS55VD-E	SAS55SD-SE/6E	SAS55RD-SE/6E	
• Compressor							
Type	Rotating screw type, 1-stage compressed oil cooling						
Air delivery ^{*1}	m³/min	10.4 (11.8 - 9.1)	10.2 [9.3] [8.8]	10.2 [9.3] [8.8]	10.4 (11.8 - 9.1)	10.2 [9.3] [8.8]	10.2 [9.3] [8.8]
Discharge pressure ^{*2}	MPa	0.7 (0.5 - 0.9)	0.7 [0.85] [0.93]	0.7 [0.85] [0.9]	0.7 (0.5 - 0.9)	0.7 [0.85] [0.93]	0.7 [0.85] [0.9]
Capacity control system		Inverter control	2-position control + A.C.C.S. + Purge control + Automatic start/stop	Regulator + Purge control + Automatic start/stop	Inverter control	2-position control + A.C.C.S. + Purge control + Automatic start/stop	Regulator + Purge control + Automatic start/stop
Intake conditions		Atmospheric pressure, 2 ^{*7} - 40°C			Atmospheric pressure, 2 - 40°C		
Lubricant oil capacity ^{*3}	L	41					
Discharge air pipe diameter	A	50 (2B)					
• Motor							
Type		Fully-enclosed, external fan, permanent magnet type 3 phase synchronous	Fully-enclosed, external fan, 3-phase squirrel cage induction motor	Fully-enclosed, external fan, permanent magnet type 3 phase synchronous	Fully-enclosed, external fan, 3-phase squirrel cage induction motor		
Output	kW	55		55			
Frequency	Hz	Both 50/60	50/60	Both 50/60	50/60		
Voltage	V	200/200*220 [400/400*440]					
No. of poles	P	6	4	6	4		
Starting system		Inverter	Star delta	Inverter	Star delta		
• Approx. dimensions and approx. weight							
Overall width ^{*4}	mm	2,590			2,450		
Overall depth	mm	1,250			1,150		
Overall height	mm	1,750			1,570		
Weight ^{*4}	kg	1,540 (1,430)	1,750 (1,640)	1,360 (1,250)	1,570 (1,460)		
Noise level ^{*5}	dB [A]	58	59	58	59		
• Dryer							
Input (chiller nominal output)	kW	1.8/2.2 (1.5)					
Outlet dew point ^{*6}	°C	10 (under pressure)					
Coolant		R410A					

75kW specification

Model	75kW						
	Air cooled			Water cooled			
Item	Outdoor installation type, Inverter	Outdoor installation type, 2-position control	Outdoor installation type, regulator	Inverter	2-position control	Regulator	
	SMS75EVD-E	SMS75ESD-SE/6E	SMS75ERD-SE/6E	SAS75VD-E	SAS75SD-SE/6E	SAS75RD-SE/6E	
• Compressor							
Type	Rotating screw type, 1-stage compressed oil cooling						
Air delivery ^{*1}	m³/min	14.2 (16.1 - 12.5)	13.9 [12.7] [12.1]	13.9 [12.7] [12.1]	14.2 (16.1 - 12.5)	13.9 [12.7] [12.1]	13.9 [12.7] [12.1]
Discharge pressure ^{*2}	MPa	0.7 (0.5 - 0.9)	0.7 [0.85] [0.93]	0.7 [0.85] [0.9]	0.7 (0.5 - 0.9)	0.7 [0.85] [0.93]	0.7 [0.85] [0.9]
Capacity control system		Inverter control	2-position control + A.C.C.S. + Purge control + Automatic start/stop	Regulator + Purge control + Automatic start/stop	Inverter control	2-position control + A.C.C.S. + Purge control + Automatic start/stop	Regulator + Purge control + Automatic start/stop
Intake conditions		Atmospheric pressure, 2 ^{*7} - 40°C			Atmospheric pressure, 2 - 40°C		
Lubricant oil capacity ^{*3}	L	42					
Discharge air pipe diameter	A	50 (2B)					
• Motor							
Type		Fully-enclosed, external fan, permanent magnet type 3 phase synchronous	Fully-enclosed, external fan, 3-phase squirrel cage induction motor	Fully-enclosed, external fan, permanent magnet type 3 phase synchronous	Fully-enclosed, external fan, 3-phase squirrel cage induction motor	Fully-enclosed, external fan, 3-phase squirrel cage induction motor	
Output	kW	75					
Frequency	Hz	Both 50/60	50/60	Both 50/60	50/60	50/60	
Voltage	V	200/200*220 [400/400*440]					
No. of poles	P	6	2	6	2	2	
Starting system		Inverter	Star delta	Inverter	Star delta	Star delta	
• Approx. dimensions and approx. weight							
Overall width ^{*4}	mm	2,590			2,450		
Overall depth	mm	1,250			1,150		
Overall height	mm	1,750			1,570		
Weight ^{*4}	kg	1,680 (1,550)	1,820 (1,690)	1,500 (1,370)	1,640 (1,510)	1,640 (1,540)	
Noise level ^{*5}	dB [A]	61			62		
• Dryer							
Input (chiller nominal output)	kW	2.3/2.7 (1.9)					
Outlet dew point ^{*6}	°C	10 (under pressure)					
Coolant		R410A					

*1 Air delivery is converted at intake conditions at atmospheric pressure and 30°C. As for guaranteed value of air delivery, please contact us if necessary. *2 Inverter model figures in parentheses () are the setting range. High-pressure specification is an option at the time of manufacture. *3 Be sure to use Long-Life SP genuine Hokuetsu compressor oil. *4 Weight figures in parentheses show the weight of the unit without dryer. *5 The noise value is converted to anechoic chamber conditions at a distance of 1.5 m from the pump front (operating side) and a height of 1.2m when the pump is operating at full load. Depending on the installation environment (effects of surrounding reverberation, etc.), the noise level when the system is actually installed may be higher than the level indicated here. The noise level also changes when the capacity control operation is in effect. *6 Outlet dew point is at an ambient temperature of 30°C. *7 When using in cold weather regions (2°C or below), the optional tape heater is required. (Cold weather region) *A separate air tank with sufficient capacity must be installed.

Outdoor installation types with a number of advantages!!

Over 50 years have passed since we developed our first portable motor compressor PR in 1965.
Over 30 years have passed since we released the SAS outdoor installation model compressor which became the basis for our current models in 1981.
The AIRMAN "outdoor installation type" represents the reliability backed by many years of expertise and experience that is our pride.



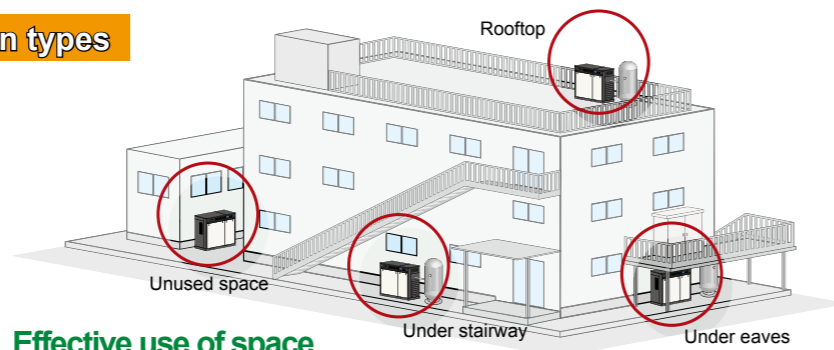
Advantages of the outdoor installation types

Achieve full compressor performance

- Prevent overheating in the summer.
- Optimal installation environment (cool, little dust, little mist)
- Prevent the reduction in air delivery caused by rising temperatures.
- Prevent intake of dust in the plant and oil smoke from machine tools.

Large reduction in installation cost

- Ducts and ventilation fans are not required.
- Structures such as a compressor room are not necessary.
- Because the machine is air-cooled and includes a dryer, it can be easily relocated.
- It can be installed close to the load to minimize pressure loss.
- Because it can be installed outdoors, additional units can be easily installed. (Can be completed without upgrading existing units.)



Effective use of space

- Can be installed on rooftops.
- Can be installed in corridors, underneath stairways, or in other unused spaces.
- No changes to the plant layout are necessary.
- Maintenance space can be easily ensured.

Easy maintenance

- Cooler can be cleaned easily.
- Oil changes can be completed quickly.
- A simple removable large door allows easy everyday maintenance.
- Full-open top cover (3.7 - 15kW)
- Minimizes trouble caused by contaminants from the plant.

A better environment inside the plant

- Exhaust heat is discharged directly outside.
- Exhaust heat can be used to supplement plant heating. (Duct work is required.)
- Machine heat does not affect the plant air conditioning.
- Compressor noise does not echo in the plant.
- Because the air source is outdoor air, compression efficiency is higher.

A wide range of options

- Can be used in cold-weather regions.
- Allows pressure changes and use with different voltages.
- Remote control for easy operation from indoors.

List of outdoor installation types

Type	Air control system	Energy-saving mechanism	Explanation
V	Inverter control	Purge control + Automatic start/stop	The operating speed is automatically controlled according to the air demand, reducing energy consumption. Constant pressure control is possible.
S	2-position control	A.C.C.S. + Purge control + Automatic start/stop	The intake-air capacity is controlled in 2 stages: open (load) and closed (unload). The A.C.C.S. (AIRMAN Computer Control System) works for energy savings. With the S Type, when the amount of air consumption decreases, purge (compressed air discharge) occurs to reduce the motor force.
P	2-position control	A.C.C.S. + Automatic start/stop	The intake-air capacity is controlled without steps within the range of 0 - 100%. When the amount of air consumption decreases, purge (compressed air discharge) occurs to reduce the motor force.
R	Regulator control	Purge control + Automatic start/stop	The intake-air capacity is controlled without steps within the range of 0 - 100%. When the amount of air consumption decreases, purge (compressed air discharge) occurs to reduce the motor force.

Motor output (kW)	3.7 kW	7.5 kW	11 kW	15 kW	22 kW	37 kW	55 kW	75 kW
Oil injection	V	S	P	R	V	S	P	R
Oil-free	P							

Installation examples



Component manufacturing plant: SMS11ED x 1



Manufacturing plant: SMS8ED x 1, SMS11ED x 2



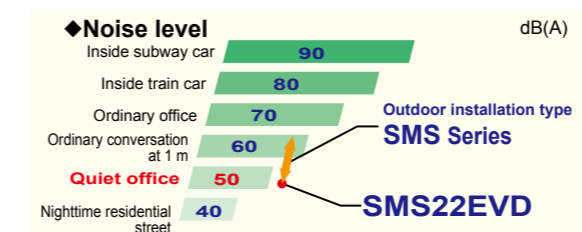
Manufacturing plant: SMS15SD (old model) x 2



Food product plant: SMAD37PD (oil-free) x 2

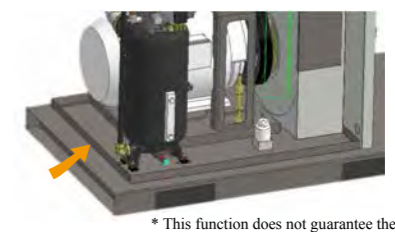
Low noise

The use of a low-noise enclosure with improved intake and exhaust duct structures results in a lower noise level.



Oil fence function (SMS22 - 75)

In the event that oil leaks onto the frame, the leak-guard fence will prevent oil from flowing off of the machine.



* This function does not guarantee the prevention of all oil leakage.

Special hood for outdoor use

A special hood is used to minimize the intrusion of rainwater into the machine.

Special seal

The top cover and door seal utilize the same type of press-fit seal that is used in automobiles. A structure with raised sides also blocks the entry of rainwater.



Waterproofing washers and stainless steel bolts

Bolts are made of stainless steel to resist corrosion. The SMS22 - 75 top cover uses waterproofing washers that prevent rainwater from entering the bolt holes.



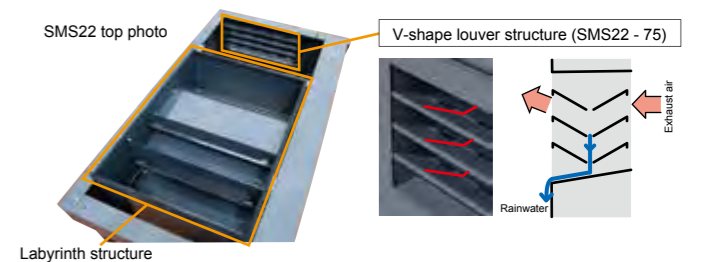
Louver structure

The cooling air intake port uses a louver structure to reduce the possibility of rainwater intrusion.



Rain trap package

A labyrinth structure is used for the compressor-side intake and exhaust ports, and a V-shape louver structure (SMS22 - 75) is used on the dryer-side exhaust port, creating a path for intruding rainwater to flow back out of the machine. The labyrinth structure and V-shape louver structure also reduce the machine noise.



■ Inverter control specification

Model	Inverter control							
	SMS11EVD-c	SMS15EVD-E	SMS22EVD-E	SMS37EVD-E	SMS55EVD-E	SMS75EVD-E		
● Compressor								
Type	Rotating screw type, 1-stage compressed oil cooling							
Air delivery ^{*1}	m ³ /min	1.65 (1.9 - 1.6)	2.6 (2.8 - 2.35)	4.2 (4.7 - 3.75)	7.0 (7.65 - 6.2)	10.4 (11.8 - 9.1)	14.2 (16.1 - 12.5)	
Discharge pressure ^{*2}	MPa	0.69 (0.4 - 0.83)	0.7 (0.5 - 0.85)	0.7 (0.5 - 0.9)				
Capacity control system		Inverter control						
Intake conditions		Atmospheric pressure, 2 ⁷ - 40°C						
Lubricant oil capacity ^{*3}	L	8.0	9	13	18	41	42	
Discharge air pipe diameter	A	25 (1B)		40 (1 1/2B) ^{*8}		50 (2B)		
● Motor								
Type		Fully-enclosed, external fan, 3-phase squirrel cage induction motor			Fully-enclosed, external fan, permanent magnet type, 3-phase synchronous motor			
Output	kW	11	15	22	37	55	75	
Frequency	Hz	Both 50/60						
Voltage	V	200/200*220 [400/400*440]						
No. of poles	P	4			6			
Starting system		Inverter						
● Approx. dimensions and approx. weight								
Overall width ^{*4}	mm	1,320	1,320	1,590	1,840	2,590		
Overall depth	mm	700	700	850	960	1,250		
Overall height	mm	1,240	1,310	1,570	1,630	1,750		
Weight ^{*4}	kg	442 (400)	500 (470)	645 (605)	945 (875)	1,540 (1,430)	1,680 (1,550)	
Noise level ^{*5}	dB [A]	56	58	54	58	58	61	
● Dryer								
Input (chiller nominal output)	kW	0.52/0.60*0.61 (0.5)		1.19/1.47*1.50 (1.1)	1.1/1.3 (1.5)	1.8/2.2 (1.5)	2.3/2.7 (1.9)	
Outlet dew point ^{*6}	°C	10 (under pressure)						
Coolant		R407C			R410A			

■ 2-position control specification

Model	2-position control									
	SMS4ESD-5C/6C	SMS8ESD-5C/6C	SMS11ESD-5C/6C	SMS15ESD-5E/6E	SMS22ESD-5E/6E	SMS37ESD-5E/6E	SMS55ESD-5E/6E	SMS75ESD-5E/6E		
● Compressor										
Type	Rotating screw type, 1-stage compressed oil cooling									
Air delivery ^{*1}	m ³ /min	0.44	1.1 [1.0]	1.6 [1.7] [1.4]	2.6 [2.35] [2.15]	4.1 [3.6] [3.4]	6.9 [6.2] [5.9]	10.2 [9.3]	13.9 [12.7]	
Discharge pressure ^{*2}	MPa	0.83	0.83 [0.93]	0.83 [0.69] [0.93]	0.7 [0.85] [0.93]			0.7 [0.85]		
Capacity control system		2-position control + A.C.C.S. + Purge control + Automatic start/stop								
Intake conditions		Atmospheric pressure, 2 ⁷ - 40°C								
Lubricant oil capacity ^{*3}	L	2.5	5.0	8.0	9	13	20	41	42	
Discharge air pipe diameter	A	10 (3/8B)	20 (3/4B)	25 (1B)		40 (1 1/2B) ^{*8}		50 (2B)		
● Motor										
Type		Fully-enclosed, external fan, 3-phase squirrel cage induction motor								
Output	kW	3.7	7.5	11	15	22	37	55	75	
Frequency	Hz	50/60								
Voltage	V	200/200*220 [400/400*440]								
No. of poles	P	2	4				2			
Starting system		Direct input				Star delta				
● Approx. dimensions and approx. weight										
Overall width ^{*4}	mm	860	1,070	1,320	1,320	1,590	1,840	2,590		
Overall depth	mm	560	670	700	700	850	960	1,250		
Overall height	mm	780	1,130	1,240	1,310	1,570	1,630	1,750		
Weight ^{*4}	kg	180	315	427 (387)	485 (445)	780 (740)	1,100 (1,030)	1,750 (1,640)	1,820 (1,690)	
Noise level ^{*5}	dB [A]	56	56	56	58	56	58	59	61	
● Dryer										
Input (chiller nominal output)	kW	0.27/0.25*0.28 (0.3)	0.28/0.30*0.32 (0.4)	0.52/0.60*0.61 (0.5)	1.19/1.47*1.50 (1.1)	1.1/1.3 (1.5)	1.8/2.2 (1.5)	2.3/2.7 (1.9)		
Outlet dew point ^{*6}	°C	10 (under pressure)								
Coolant		R134a		R407C			R410A			

*1 Air delivery is converted at intake conditions at atmospheric pressure and 30°C. As for guaranteed value of air delivery, please contact us if necessary. *2 Inverter figures in parentheses () are the pressure setting range. The high-pressure specifications are an option at the time of manufacture. *3 Be sure to use Long-Life SP genuine Hokuetsu compressor oil. *4 Weight figures in parentheses show the weight of the unit without dryer. *5 The noise value is converted to anechoic chamber conditions at a distance of 1.5 m from the pump front (operating side) and a height of 1.0 m (1.2 m for SMS55/75) when the pump is operating at full load. Depending on the installation environment (effects of surrounding reverberation, etc.), the noise level when the system is actually installed may be higher than the level indicated here. The noise level also changes when the capacity control operation is in effect. *6 Outlet dew point is at an ambient temperature of 30°C. *7 When using in cold weather regions (2°C or below), the optional tape heater is required. (Cold weather region specifications) *8 Discharge air pipe diameter is 32A (1 1/4B) for specifications without dryer. * A separate air tank with sufficient capacity must be installed.

■ Regulator control specification

Model	Regulator							
	SMS11ERD-5C/6C	SMS15ERD-5E/6E	SMS22ERD-5E/6E	SMS37ERD-5E/6E	SMS55ERD-5E/6E	SMS75ERD-5E/6E		
● Compressor								
Type	Rotating screw type, 1-stage compressed oil cooling							
Air delivery ^{*1}	m ³ /min	1.6 [1.7] [1.4]	2.6 [2.35] [2.15]	4.1 [3.6] [3.4]	6.9 [6.2] [5.9]	10.2 [9.3]	13.9 [12.7]	
Discharge pressure ^{*2}	MPa	0.83 [0.69] [0.9]	0.7 [0.85] [0.9]			0.7 [0.85]		
Capacity control system		Regulator + Purge control + Automatic start/stop						
Intake conditions		Atmospheric pressure, 2 ⁷ - 40°C						
Lubricant oil capacity ^{*3}	L	8.0	9	13	20	41	42	
Discharge air pipe diameter	A	25 (1B)		40 (1 1/2B) ^{*8}		50 (2B)		
● Motor								
Type		Fully-enclosed, external fan, 3-phase squirrel cage induction motor						
Output	kW	11	15	22	37	55	75	
Frequency	Hz	50/60						
Voltage	V	200/200*220 [400/400*440]						
No. of poles	P	4				2		
Starting system		Direct input			Star delta			
● Approx. dimensions and approx. weight								
Overall width ^{*4}	mm	1,320	1,320	1,590	1,840	2,590		
Overall depth	mm	700	700	850	960	1,250		
Overall height	mm	1,240	1,310	1,570	1,630	1,750		
Weight ^{*4}	kg	427 (387)	485 (445)	780 (740)	1,100 (1,030)	1,750 (1,640)	1,820 (1,690)	
Noise level ^{*5}	dB [A]	56	58	56	58	59	61	
● Dryer								
Input (chiller nominal output)	kW	0.52/0.60*0.61 (0.5)	1.19/1.47*1.50 (1.1)	1.1/1.3 (1.5)	1.8/2.2 (1.5)	2.3/2.7 (1.9)		
Outlet dew point ^{*6}	°C	10 (under pressure)						
Coolant		R407C			R410A			

■ Oil-free

Model	Oil-free			
	SMAD37PD-52/62	SMAD55PD-5A/6A	SMAD75PD-52/62	
● Compressor				
Type	Rotating screw type, 2-stage compressed unlubricated type			
Air delivery ^{*1}	m ³ /min	5.3	8.5	11.7
Discharge pressure ^{*2}	MPa	0.7		
Capacity control system		Rotating screw type, 2-stage compressed unlubricated type		
Intake conditions		Atmospheric pressure, 2 ⁷ - 40°C		
Lubricant oil capacity ^{*3}	L	15	16	34
Discharge air pipe diameter	A	40 (1 1/2B)	50 (2B)	50 (2B)
● Motor				
Type		Fully-enclosed, external fan, 3-phase squirrel cage induction motor		
Output	kW	37	55	75
Frequency	Hz	50/60		
Voltage	V	200/200*220 [400/400*440]		
No. of poles	P	2		
Starting system		Star delta		
● Approx. dimensions and approx. weight				
Overall width ^{*4}	mm	2,250	2,650	2,900
Overall depth	mm	1,250	1,250	1,505 (1,616 including suspension bracket)
Overall height	mm	1,740 (1,854 including suspension bracket)	1,740	1,950 (2,111 including suspension bracket)
Weight ^{*4}	kg	1,490 (1,430)	1,630 (1,530)	2,580 (2,470)
Noise level ^{*5}	dB [A]	68	69	69
● Dryer				
Input (chiller nominal output)	kW	1.4/1.8 (1.4)	2.5/3.1 (2.2)	2.9/3.6 (2.2)
Outlet dew point ^{*6}	°C	10 (under pressure)		
Coolant		R407C		

*1 Air delivery is converted at intake conditions at atmospheric pressure and 30°C. As for guaranteed value of air delivery, please contact us if necessary. *2 The high-pressure specifications are an option at the time of manufacture. *3 Be sure to use Long-Life SP genuine Hokuetsu compressor oil. *4 Weight figures in parentheses show the weight of the unit without dryer. *5 The noise value is converted to anechoic chamber conditions at a distance of 1.5 m from the pump front (operating side) and a height of 1.2m (1.0m for SMS15/22/37) when the pump is operating at full load. Depending on the installation environment (effects of surrounding reverberation, etc.), the noise level when the system is actually installed may be higher than the level indicated here. The noise level also changes when the capacity control operation is in effect. *6 Outlet dew point is at an ambient temperature of 30°C. *7 When using in cold weather regions (2°C or below), the optional tape heater is required. (Cold weather region specifications) *8 Discharge air pipe diameter is 32A (1 1/4B) for specifications without dryer. * A separate air tank with sufficient capacity must be installed. * The listed weights of oil-free models are the weights before installation of the Top Runner Motor.



Achieve valuable oil-free compressed air to support clean environments.

P Type Air control system Energy-saving mechanism
2-position control + A.C.C.S. + Purge control + Automatic start/stop

We offer our original control A.C.C.S. to increase energy savings, as well as the only lineup of outdoor installation types in the industry.

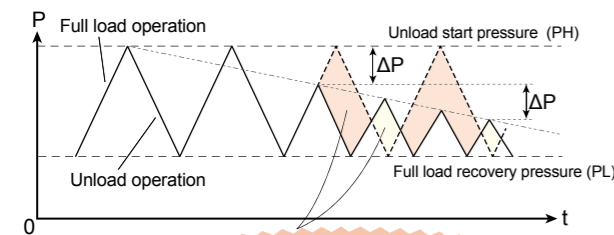
2-position control

The intake-air capacity is controlled in 2 stages: open (load) and closed (unload).

A.C.C.S. (AIRMAN Computer Control System) Energy Savings

The time of repeated unload and full-load operation is calculated by a microcomputer, and control is performed to produce the optimal pressure range. Energy savings are achieved by automatically changing the unload start pressure.

Energy-saving effects



Energy-saving effects (□-□)

Automatic start/stop Energy Savings

When the amount of air consumption drops to 20%, the motor automatically stops. When the amount of air consumption increases, the motor automatically starts.

Pressure 2-stage switching function

Operation switching between a regular operation unit and spare unit, or alternating operation between 2 units, is possible.



Water cooled: SWD75PD

Water cooled: SWD160P

* The actual operation panel is a touchscreen.

Touchscreen

Operation and settings can be performed easily from the touchscreen. Operation status, alarms, errors, and other issues can be checked on the panel.



Air-ends

A special coating treatment is applied to prevent seizure and corrosion, and the high-efficiency AIRMAN profile features a large rotor groove volume relative to the rotor diameter. Compact, lightweight air-ends with improved reliability are used.

- Built-in dryer (Except for SWD120P/140P/160P)
- Dryer Advance operation (Except for SWD120P/140P/160P)
- Remote control functions
- Schedule operation
- Instantaneous power-outage restart



Air cooled: SAD37PD

Outdoor installation type Outdoor SMAD

Advantages of the outdoor installation types

- Prevent overheating.
- Prevent intake of dust in the plant and oil smoke from machine tools.
- Reduce installation cost of compressor chamber, duct, ventilation fan, and other equipment.
- Machine heat does not affect the plant air conditioning.
- Can be installed in a corridor, under stairway, or on a rooftop.
- Maintenance space can be easily ensured.



SMAD37PD



SMAD55PD

Installation examples



Food product plant: SMAD37PD × 2

Special hood for outdoor use

Specifications

Item	Model	Air cooled			
		SAD37PD-52/62	Outdoor installation type SMAD37PD-52/62	Outdoor installation type SMAD55PD-5A/6A	Outdoor installation type SMAD75PD-52/62
Compressor					
Type		Rotating screw type, 2-stage compressed unlubricated type			
Air delivery ^{*1}	m ³ /min	5.3	8.5	11.7	
Discharge pressure	MPa	0.7			
Capacity control system		2-position control + A.C.C.S. + Automatic start/stop			
Intake conditions		Atmospheric pressure, 2 - 40°C		Atmospheric pressure, 2 ⁷ - 40°C	
Lubricant oil capacity ^{*3}	L	15	16	34	
Discharge air pipe diameter	A	40 (1 1/2B)	50 (2B)	50 (2B)	
Motor					
Type		Fully-enclosed, external fan, 3-phase squirrel cage induction motor			
Output	kW	37	55	75	
Frequency	Hz	50/60			
Voltage	V	200/200*220 [400/400*440]			
No. of poles	P	2			
Starting system		Star delta			
Approx. dimensions and approx. weight					
Overall width	mm	2,020	2,250	2,650	2,900
Overall depth	mm	980	1,250	1,250	1,505 (1,616 including suspension bracket)
Overall height	mm	1,500	1,740 (1,854 including suspension bracket)	1,740	1,950 (2,111 including suspension bracket)
Weight ^{*4}	kg	1,160 (1,100)	1,490 (1,430)	1,630 (1,530)	2,580 (2,470)
Noise level ^{*5}	dB [A]	66	68	69	69
Dryer					
Input (chiller nominal output)	kW	1.4/1.8 (1.4)		2.5/3.1 (2.2)	2.9/3.6 (2.2)
Outlet dew point ^{*6}	°C	10 (under pressure)			
Coolant		R407C			

Specifications

Item	Model	Water cooled					
		SWD37PD-52/62	SWD75PD-52/62	SWD90PD-52/62	SWD120P-51/61	SWD140P-51/61	SWD160P-51/61
Compressor							
Type		Rotating screw type, 2-stage compressed unlubricated type					
Air delivery ^{*1}	m ³ /min	5.3	12.8	10.2	12.7	19.5 [19.5]	26.0 [23.0]
Discharge pressure ^{*2}	MPa	0.7		0.95		0.69 [0.88]	
Capacity control system		2-position control + A.C.C.S. + Automatic start/stop					
Intake conditions		Atmospheric pressure, 2 - 40°C			Atmospheric pressure, 2 - 40°C		
Lubricant oil capacity ^{*3}	L	15	28		48		
Discharge air pipe diameter	A	40 (1 1/2B)	50 (2B)		65 (2 1/2B)		
Motor							
Type		2-position control + A.C.C.S. + Automatic start/stop					
Output	kW	37	75	90	120	140	160
Frequency	Hz	50/60					
Voltage	V	200/200*220 [400/400*440]				3,000/3,300	
No. of poles	P	2				Reactor	
Starting system		Star delta				Reactor	
Coolant							
Flow	L/min	60	120		230		
Temperature	°C	4 - 32					
Connection pipe size	A	25 (1B)	40 (1 1/2B)		50 (2B)		
Approx. dimensions and approx. weight							
Overall width	mm	2,020	2,525		2,850		
Overall depth	mm	980	1,220		1,630		
Overall height	mm	1,500	1,500		1,700		
Weight ^{*4}	kg	1,190 (1,140)	1,990 (1,860)		2,200 (2,070)	3,450	3,500
Noise level ^{*5}	dB [A]	66	64		66	68	75
Dryer							
Input (chiller nominal output)	kW	1.4/1.8 (1.4)		2.9/3.6 (2.2)		-	
Outlet dew point ^{*6}	°C	10 (under pressure)					
Coolant		R407C					

^{*1} Air delivery is converted at intake conditions at atmospheric pressure and 30°C. As for guaranteed value of air delivery, please contact us if necessary. ^{*2} The high-pressure specifications are an option at the time of manufacture. ^{*3} Be sure to use Long-Life SP genuine Hokuetsu compressor oil. ^{*4} Weight figures in parentheses show the weight of the unit without dryer. ^{*5} The noise value is converted to anechoic chamber conditions at a distance of 1.5 m from the pump front (operating side) and a height of 1.2m when the pump is operating at full load. Depending on the installation environment (effects of surrounding reverberation, etc.), the noise level when the system is actually installed may be higher than the level indicated here. The noise level also changes when the capacity control operation is in effect. ^{*6} Outlet dew point is at an ambient temperature of 30°C. ^{*7} When using in cold weather regions (2°C or below), the optional tape heater is required. (Cold weather region) * A separate air tank with sufficient capacity must be installed. * The listed weights are the weights before installation of the Top Runner Motor.

High-power air energy



Inverter control SASG19VD

The operating speed is automatically controlled according to the air demand, reducing energy consumption.



Regulator SASG19RD

The intake-air capacity is controlled without steps within the range of 0 - 100%.



Air control system Energy-saving mechanism
Inverter control + Purge control + Automatic start/stop



Air control system Energy-saving mechanism
Regulator control + Purge control + Automatic start/stop

Standard equipment available for 50°C ambient temperatures

Improvements to the cooler and fan cooling system, and to dryer performance, allow this system to operate at ambient temperatures up to 50°C.

* If continuous operation over long periods occurs in an environment where the ambient temperature exceeds 40°C, the lifetimes of the lubrication oil, electronics, O-rings, and other components will be shortened from their usual values.

Contains the newly-developed "AS Rotor"

The number of male rotors has been increased from 4 to 5, and the rotor profile has been improved. By optimizing the screw rotor profile that is at the heart of the compressor and making fine-tuned improvements to the compressor unit, we have achieved the highest level of air delivery in the class.

Original drain processing [Industry's first]

The dew point is estimated from the outside air temperature, and operation continues until the discharge air temperature exceeds the dew point. This allows faster and more reliable drain operation than with conventional models, and it eliminates troublesome manual drain work.

Dryer drain system [Patented]

The dryer drainage interval is controlled by a solenoid valve according to the outside air temperature and load operating time.

Quiet operating noise

The use of a low-noise enclosure structure with improved intake and exhaust duct structures results in a lower noise level.

* The noise value is converted to anechoic chamber conditions at a distance of 1.5 m from the pump front (operating side) and a height of 1.0 m when the pump is operating at full load with an outside air temperature of 30°C.

Built-in direct coupling structure * Inverter specification models only

In addition to the basic performance of the AS Rotor, the use of a permanent magnet-type synchronous motor (IPM motor) and built-in direct coupling structure result in superior energy-saving characteristics.

Easy operation

Start/stop can be performed with a single touch using display button.



Low-pressure operation (pressure 2-stage switching function)

Can be used for backup operation or alternating operation.



- ◆ Dryer Advance operation
- ◆ Instantaneous power-outage restart function
- ◆ Remote control functions

Easy maintenance

A fully opening top cover and large front door provide large openings for easy maintenance.

Installation flush against a wall

All basic maintenance can be performed from the front and right side. As a result, the machine can be installed flush against a wall.

Specifications

Item	Model	Medium pressure 1.4 MPa	
		SASG19VD-E	SASG19RD-SE/6E
Compressor			
Type		Rotating screw type, 1-stage compressed oil cooling	
Air delivery ¹	m ³ /min	2.0 (2.0 - 2.7)	2.0
Discharge pressure	MPa	1.4 (1.4 - 0.88) ²	1.4
Capacity control system		Inverter control	Regulator + Purge control + Automatic start/stop
Intake conditions		Atmospheric pressure, 2 - 40°C	
Lubricant oil capacity ³	L	12	
Discharge air pipe diameter	A	20 (3/4B)	
Motor			
Type		Totally-enclosed IPM 3 phase synchronous motor	Fully-enclosed, external fan, 3-phase squirrel cage induction motor
Output	kW	18.5	
Frequency	Hz	50/60 Both	50/60
Voltage	V	200/200-220 [400/400-440]	
No. of poles	P	6	2
Starting system		Inverter	Direct input
Approx. dimensions and approx. weight			
Overall width	mm	1,260	
Overall depth	mm	710	
Overall height	mm	1,350	
Weight	kg	510	555
Noise level ⁴	dB [A]	55	
Dryer			
Input (chiller nominal output)	kW	0.5/0.5 (0.6)	
Outlet dew point ⁵	°C	10 (under pressure)	
Coolant		R410A	

* 1 Air delivery is converted at intake conditions at atmospheric pressure and 30°C. As for guaranteed value of air delivery, please contact us if necessary. * 2 Figures in parentheses () are the pressure setting range. * 3 Be sure to use "Long-Life HP" genuine Hokuetsu compressor oil. * 4 The noise value is converted to anechoic chamber conditions at a distance of 1.5 m from the pump front (operating side) and a height of 1.0 m when the pump is operating at full load with an outside air temperature of 30°C. Depending on the installation environment (effects from surrounding reverberation, etc.), the noise level when the system is actually installed may be higher than the level indicated here. The noise level also changes when the capacity control operation is in effect. * 5 Outlet dew point is at an ambient temperature of 30°C. * A separate air tank with sufficient capacity must be installed.

Laser assist

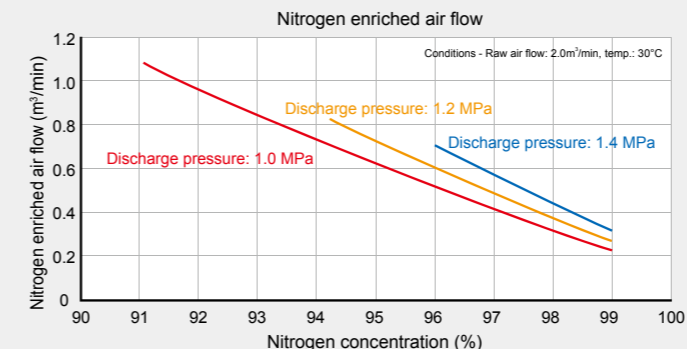
SASG19VD + NMAG19 (integrated type)

Next-generation laser assist that replaces air cutting

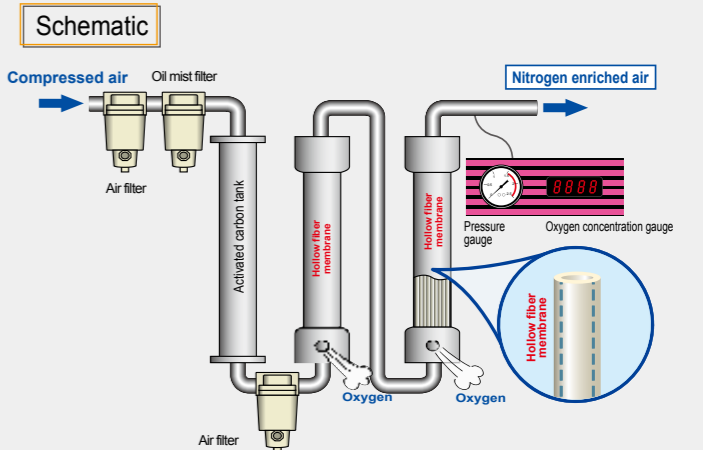
Flowing compressed air into a hollow fiber membrane made of a special polymer (polyimide) enriches the nitrogen in the air, providing a stable supply of inexpensive enriched nitrogen air with 95 - 99% purity. Achieves easy high-quality laser cutting at low cost.

- ◆ Easy installation and connections
- ◆ Low noise
- ◆ Equipped with a concentration gauge as standard
- ◆ Easy daily maintenance
- ◆ Full energy-saving functions

Total width × Total depth × Total height
: 1,745 × 710 × 1,350 mm
Approx. weight : 645 kg



* The flow of nitrogen enriched air varies depending on variation and status of the raw air flow, pressure, temperature, and polymer membrane.
* The flow of nitrogen enriched air is based on the intake conditions, and the value is converted to the compressor intake conditions (air filter primary side).
* The graph does not represent a guarantee of nitrogen enriched airflow or nitrogen concentration.
* Nitrogen enriched air is air with a higher concentration of nitrogen. It is not pure nitrogen.



■ Installation location

The installation location shall have sufficient space surrounding it, and it must be possible to easily conduct machine inspections and maintenance.

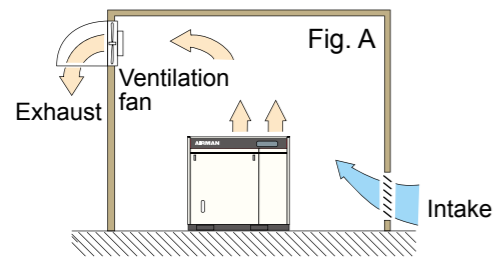
- Install in a location where there is good ventilation, where temperature and humidity are low, and where the surroundings are as dry as possible. When installing indoors in a location exposed to high temperatures, install a ventilation fan or similar equipment to prevent the ambient temperature from exceeding 40°C.
- Select a location where there is little dust, and where intake of clean air is possible at all times.
- Ensure space around and above the machine for intake, exhaust, and inspection/maintenance. Ensure as much space as possible to the rear of the machine as well.
- Because machine vibration is extremely small, there is almost zero risk of adverse effects from vibration in the surrounding area. However, the floor must have sufficient strength to bear the full weight of the machine.
- Be aware that if there is a gap between the machine and floor, this may result in noise or vibration.

■ Ventilation

When operating a compressor in a tightly sealed narrow room or a room that is air-conditioned, ventilation is necessary in order to prevent the room temperature from rising.

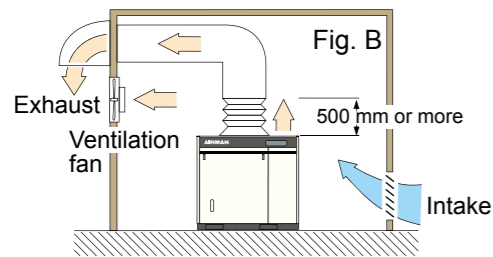
1) General ventilation

When operating in a small room, such as a compressor room, it is necessary to improve the ventilation so that the room temperature does not exceed 40°C. Although ordinary ventilation fans can be used, consider the locations of the intake port and ventilation fan so that air does not stagnate in the room.



2) Local ventilation using ducts

When operating in locations where air conditioning equipment has been installed, it is necessary to install ducts. Even when ducts are installed, it is still necessary to install a fan inside the room because some heat will be discharged into the room.



■ About the power supply

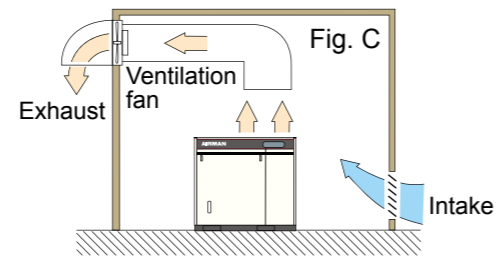
The general power supplies and cables are as shown in the table below. When actually installing, consider the power supply circumstances and select in accordance with internal wiring regulations, technical standards for electrical equipment, power company regulations, and other guidelines.

Motor output	Breaker Rated current (A)	Electromagnetic contactor thread size	Wire size (mm ²)	Grounding wire size (mm ²)
3.7 kW	50 (direct input)	M4	3.5	3.5
5.5 kW	75 (direct input)	M4	5.5	5.5
7.5 kW	100 (direct input)	M5	8.0	5.5
11 kW	125 (direct input)	M6	14	14
15 kW	150 (direct input)	M6	22	14
22 kW	150 (Y-Δ)	M8	38	14
37 kW	300 (Y-Δ)	M8	60	22
55 kW	400 (Y-Δ)	M10	100	22
75 kW	600 (Y-Δ)	M12	150	38

* Value for power supply voltage of 200/220V
* Wire sizes are values for a length of 10 m and connection to 1 unit.

3) When installing a ventilation fan inside a duct

If the duct length is longer or the cross-section area narrows, resulting in a pressure loss of 20 Pa (2 mmAq) or more, install a fan also inside the duct. In this case, in order to prevent overheating and dryer operation failure when temperature is low, start and stop the ventilation fan as necessary according to the compressor operating conditions.



If the metal duct is fastened directly by rivets onto the compressor body, it may interfere with inspections. Therefore, take steps such as using a canvas duct.

Precautions for ventilation

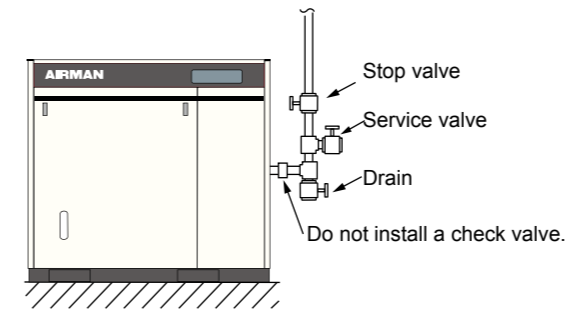
- Arrange so that air enters the ventilator on the compressor intake side from the building intake duct.
- Install a building exhaust-side duct so that the cooling air ejected by the compressor exhaust-side ventilator can be smoothly discharged.
- Be sure that the discharged air does not return to the compressor intake side inside the building.
- In order to ensure ventilation, do not install walls or other obstacles close to the compressor.

Reference: Ventilation fan airflow

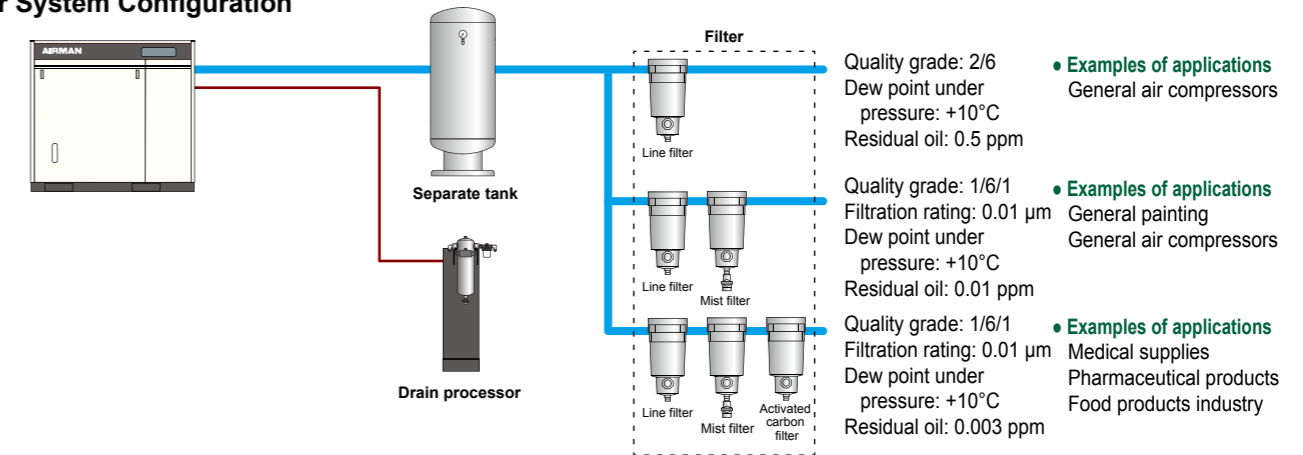
Item		SAS4	SAS6	SAS8	SAS11	SAS15	SAS22	SAS37	SAS55	SAS75	SWS75	
Compressor radiated heat	MJ/h	14.5	21.5	29.3	43.0	58.7	86.1	144.8	215.2	293.5	58.7	
Dryer radiated heat	MJ/h	0.76	1.22	1.62	2.16	2.30	5.62	6.48	6.84	10.08	10.08	
VENTILATION FAN AIRFLOW	Fig. A	m ³ /min	42	64	86	126	170	255	415	625	850	191
	Fig. B	m ³ /min	-	-	-	-	-	50	75	115	160	52
	Fig. C	m ³ /min	-	-	-	-	-	110	175	265	360	93

■ About piping

- Do not create any intermediate low parts in the piping. If there is a dip or a rise in the piping, be sure to install a drain at the bottom.
- In the case of specifications with no dryer, install an air filter (commercially available part) for drainage.
- Install drains and prevent backflow of drainage from the main discharge pipe to the compressor side.
- Install a stop valve on the main discharge pipe for trial operation and compressor adjustment/inspection. Also install a service valve between the stop valve and compressor.
- All models contain a built-in check valve. Therefore, do not install a check valve on the piping forward of the compressor. If a check valve is installed, it may not be possible to obtain the full effects of "automatic start/stop" operation. The same applies when multiple compressors are connected in parallel.
- The compressed air piping forward of the compressor should contain the minimum possible number of bends and joint valves in order to reduce the pressure loss.



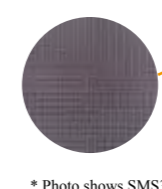
Clean Air System Configuration



Options for outdoor installation types

- Remote operation controller: This allows a compressor installed outdoors to be started and stopped remotely from indoors or another location.
- Cold weather region specifications: In cold weather regions (0°C or below), a tape heater must be installed to prevent the drain from freezing. We can also incorporate further reinforcements upon request.

- Dust filter: Prevents large dust, insects, and other substances from entering the machine.



* Photo shows SMS37.



- Multi-duct: Allows the exhaust direction to be changed. Also prevents snow accumulation and reduces noise. Because it is mounted by bolts, it can be easily removed.



■ About drains

Because the drainage may contain substances that are restricted by the Water Pollution Control Act, request disposal of the drainage by a licensed agent. Dispose of it after separation treatment using a separation system or similar system.

Guideline to sound attenuation

Noise attenuates with distance. The regulatory values for the boundary of the plant grounds are decided by local ordinances. Use the following table as a guideline to noise attenuation over distance.

