AIRMAN® also provides you with the following products

Engine Compressor

Standard / High Pressure / After-cooler / Dry-air type

Free air delivery: 65 - 1,550 CFM
Operating pressure: 0.69 - 2.5 MPa

Engine Generator

Standard / Leak-guard / Ultra super silent type

Prime output: 10.5 - 800 kVA

Scissors Lift

Self-propelled / Hand push type

Max. height above ground: 3.2 - 9.9 m

Mini-Excavator

Zero-tail swing type

Operating weight: 1,110 - 5,210 kg

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https://airman-usa.com

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

Niigata plant:
Shimo Aozu, Tsubame-city, Niigata-prefecture, Japan.

ISO 9001
ISO 14001

ISO9001 : JQA-0581
ISO14001 : JQA-EM4670

DISTRIBUTOR :

No.01 SC EN 26-03 Ⓙ

AIRMAN®

Stationary Oil-Injected & Oil-free

SCREW COMPRESSORS

INDOOR Installation Type

SAS series / SAD series

OUTDOOR Installation Type

SMS series / SMAD series

AIRMAN CORPORATION

AIRMAN is Committed to Creating a Carbon-neutral Society

For over 80 years our company has continued to produce and sell air compressors. AIRMAN is committed to saving energy by optimizing the design of the screw rotor placed at the heart of our compressors, employing high-efficiency motors, and expanding the sales of inverter-equipped models.
As the needs of the next generation change with the times, AIRMAN will continue to take on the various social challenges using our cultivated craftsmanship, state-of-the-art technologies, and insistence on quality products.

Screw shape AS Rotor

Major Milestones of AIRMAN Compressors

1970
1972 - Launch of the SWS series equipped with the patented AIRMAN Unloader
1979 - Launch of the package-type SAS/SWS series (Models 53/63)

1980
Japan's first all-weather (outdoor installation) compressor
1981 - Launch of the SAS-P series, an all-weather (outdoor installation) compressor

Compressor with integrated air dryer
1987 - Model change of the all-weather (outdoor installation) series Renamed to SMS series
1988: Launch of screw Jr.

1990
1994 - Launch of SASG series for medium-pressure applications

Introduction of inverter-equipped models
1998 - Launch of the SAS-V series with inverter control

2000
Introduction of outdoor oil-free models
2006 - Launch of the SMAD series, oil-free compressors for outdoor installation

2010
Models equipped with the new AS rotor profile
2012 - Launch of SAS/SMS series equipped with the new AS rotor profile
2017 - Launch of the MWH200, an outdoor installation model (water-cooled / 200 kW / 1.6 MPa specification)
2018 - Launch of the MWS160S, an outdoor installation model (water-cooled / 160 kW specification)
2019 - Touch panel introduced on higher-class models (SAS/SMS series 22 kW and above)

SAS series

SMS series
(Outdoor installation)

SMAD series
(Outdoor installation / Oil-free)

SAS / SMS series (Current machine)

AIRMAN's screw compressors have an extensive product lineup that you can choose from.

We offer an extensive product lineup to meet various needs.
According to your operating conditions, you can choose indoor or outdoor installation types.
You can also choose control types from inverter, Load/Unload, and regulator control models depending on your applications.

Indoor installation
Oil-injected type
SAS / SWS SASG

Outdoor installation
Oil-injected type
SMS MWS / MWH

Indoor installation
Oil-free type
SAD / SWD

Outdoor installation
Oil-free type
SMAD

Oil-injected type ▶ P.03
Oil-free type ▶ P.21

V : Inverter control　S P : Load/Unload Control　R : Regulator control

Motor Output (kW)	Oil-injected													Oil-free				
	Indoor installation type								Outdoor installation type					Indoor installation type			Outdoor installation type	
	Air-cooled					Water-cooled			Air-cooled			Water-cooled		Air-cooled		Water-cooled	Air-cooled	
	SAS			SASG (Medium P.)		SWS			SMS			MWS	MWH (Medium P.)	SAD		SWD	SMAD	
	V	S	R	V	R	V	S	R	V	S	R	S	S	V	S	P	V	S
3.7		●								●								
5.5		●																
7.5	●	●							●	●								
11	●	●	●						●	●	●							
15	●	●	●						●	●	●							
18.5				●	●													
22	●	●	●						●	●	●			●	●		●	●
37	●	●	●						●	●	●			●	●		●	●
55	●	●	●						●	●	●						●	●
75	●	●	●			●	●	●	●	●	●					●	●	●
160												●				●		
200													●					

V

Inverter control

The operating speed is automatically controlled according to the air demand which saves energy.

Selection Guide for Inverter Control	Recommended for applications with large load fluctuations, such as pneumatic equipment

Air Delivery 1.05 to 16.1 m³/min

For main specifications, see **P15 to P19**.

SAS8VD

SMS22EVD

Reasons Why We Recommend Inverter Models

The power consumption of compressors is said to account for 20 to 30% of the power consumption of the entire factory. Therefore, the power saving of compressors greatly affects the energy savings of the entire factory. This is why we recommend inverter compressors, which have a significant energy-saving effect. An inverter compressor adjusts the operating speed of its motor to supply compressed air according to the operating conditions. For example, an inverter compressor can lower the operating speed of the motor using its inverter to reduce power consumption during night hours when air demand is low compared with daytime hours.
The usage of inverter compressors produces significant energy savings, so it is no surprise their use is increasing every year, and is about eight times greater than in 2011※1. AIRMAN offers many inverter compressors that have high performance and various functions. Please consider using one of our products that is optimal for you.

※1 The usage of our inverter compressors (according to our survey).
※2 The diagram is for illustrative purposes only.

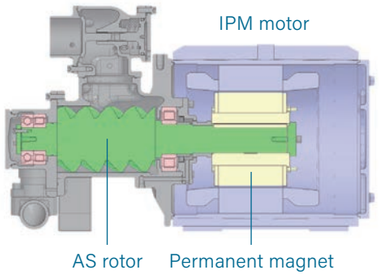
Built-in direct-coupling structure

Energy saving

V

The use of an IPM (interior permanent magnet) motor makes it possible to offer higher efficiency as compared with high-efficiency induction motors.
Also, the built-in direct-coupling structure reduces echanical loss.
This is how excellent energy-saving properties are achieved.

Applicable models: SAS/SMS22 to 75



The highest energy-saving performance in its class is achieved.

V
Inverter control

Indoor installation type
SAS series

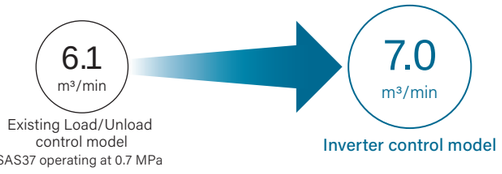
Outdoor installation type
SMS series

Increased air delivery Energy saving V

The use of a high-efficiency AS rotor※ significantly improves the basic performance, making it possible to offer the highest level of air delivery in its class.

※ SAS15 to 75

Approx.15% increase



Comparison of air delivery

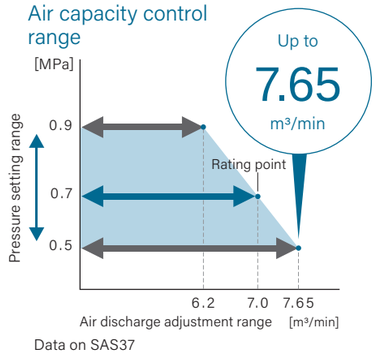
Unit: m³/min

Model	SAS8	SAS11	SAS15	SAS22	SAS37	SAS55	SAS75
Existing S type (Load/Unload control)	1.0	1.5	2.4	3.7	6.1	9.1	12.4
V type (Inverter control)	1.05[+5%]	1.65[+10%]	2.65[+10%]	4.2[+14%]	7.0[+15%]	10.4[+14%]	14.2[+15%]

SAS8: 0.83 MPa, SAS11: 0.69 MPa, SAS15-75: 0.7 MPa.

Super-wide range control Patented V

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



Data on SAS37

Max. pressure ⇔ Max. air discharge

Unit: m³/min

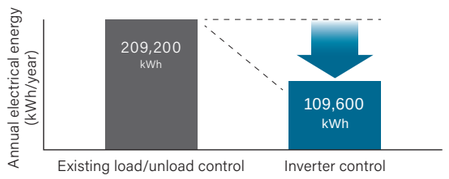
Model	SAS8	SAS11	SAS15	SAS22	SAS37	SAS55	SAS75
Max. pressure	1.05	1.5	2.35	3.75	6.2	9.1	12.5
	[0.83]		[0.85]	[0.9]			
Rated pressure	1.05	1.65	2.65	4.2	7.0	10.4	14.2
	[0.83]	[0.69]	[0.7]				
Min. pressure	1.25	1.9	3.0	4.7	7.65	11.8	16.1
	[0.5]	[0.4]	[0.5]				

※ The numbers in parentheses are pressures in MPa

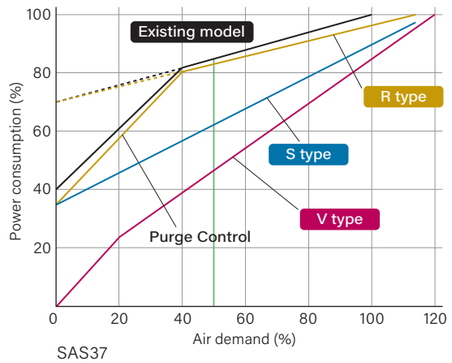
Energy-saving effect Energy saving V

The built-in direct-coupling structure※ consisting of a high-efficiency AS rotor and an IPM motor allows significant energy savings as compared with existing models. ※ SAS/SMS22 to 75

99,600 kWh
Energy-saving effect



Annual electrical energy of SAS37 (air demand: 50%)
Comparison between our existing load/unload control and inverter control



SAS37
Comparison between the SAS37 V / S / R Type and our existing model

Example of annual electrical energy

Unit: kWh/year

Model	SAS15	SAS22	SAS37	SAS55	SAS75
Existing Models (load/unload control)	87,600	130,000	209,200	280,800	383,200
V Type (inverter control)	56,400	67,200	109,600	147,200	181,200
	31,200 kWh Energy-saving effect	**62,400** kWh Energy-saving effect	**99,600** kWh Energy-saving effect	**133,600** kWh Energy-saving effect	**202,000** kWh Energy-saving effect

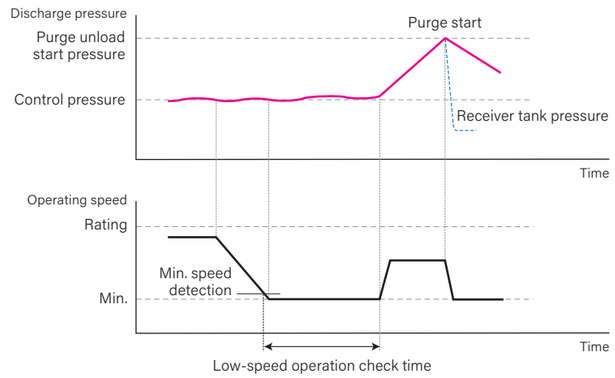
Conditions Calculations with an operating time of 6,000 hours / year and an air demand of 50%

Purge control + Automatic start/stop Energy saving Patented V

AIRMAN's own technology

When the air demand decreases and the inimum-speed operation continues for a certain length of time, the operating speed will increase to quickly raise the discharge pressure and transition to purge operation in order to save power.
If the air demand further decreases and the unload operation continues for more than a certain length of time, then the compressor will automatically stop.

Applicable models: SAS/SMS8 to 15



Applications

■Model：SAS75VD
■Location：Manufacturing plants

■Model：SMS55EVD (outdoor installation)
■Location：Processing plant

■Model：SMS15EVD (outdoor installation)
■Location：Processing plant

The highest level of discharge airflow
in its class is achieved.

S Load/Unload control　R Regulator control

Indoor installation type
SAS series

Outdoor installation type
SMS series

S Load/Unload control

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

Selection Guide for Load/Unload Control	Recommended when prioritizing a balance between initial cost and running cost.

R Regulator control

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

Selection Guide for Regulator Control	Recommended for base-load operation requiring stable air pressure.

Air Delivery　0.44 to 13.9 m³/min

For main specifications, see **P16 to P20**.

SAS22SD

SMS8ESD

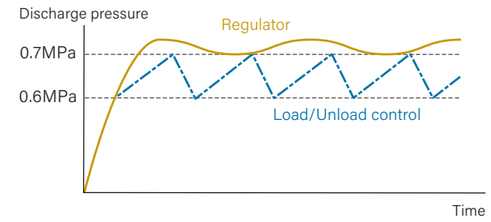
Capacity control　S R

S Load/Unload control

Load/unload control regulates capacity in two stages by opening (load) or closing (unload) the air intake.

R Regulator control

Capacity is continuously controlled from 0 to 100% by regulating the intake air volume.



Increased air delivery　Energy saving　S R

The use of a high-efficiency AS rotor※ significantly improves the basic performance, making it possible to offer the highest level of air delivery in its class.

※ SAS15 to 75

Approx.15% increase

Comparison of air delivery

Unit: m³/min

Model	SAS15	SAS22	SAS37	SAS55	SAS75
Existing model	2.4	3.7	6.1	9.1	12.4
PROAIR AS	2.65[+10%]	4.1[+11%]	6.9[+13%]	10.2[+14%]	13.9[+15%]

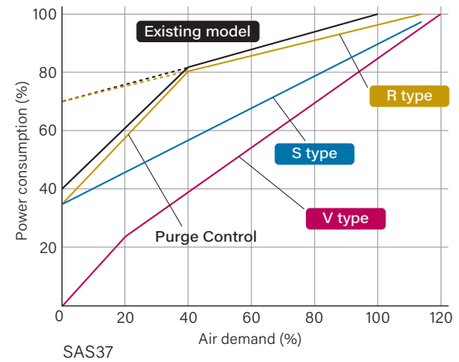
At 0.7 MPa

Energy-saving effect　Energy saving　S R

The use of a high-efficiency AS rotor※ allows energy saving as compared with existing models.

※ SAS/SMS15 to 75

Screw shape AS Rotor



SAS37
Comparison between the SAS37 V / S / R Type and our existing model

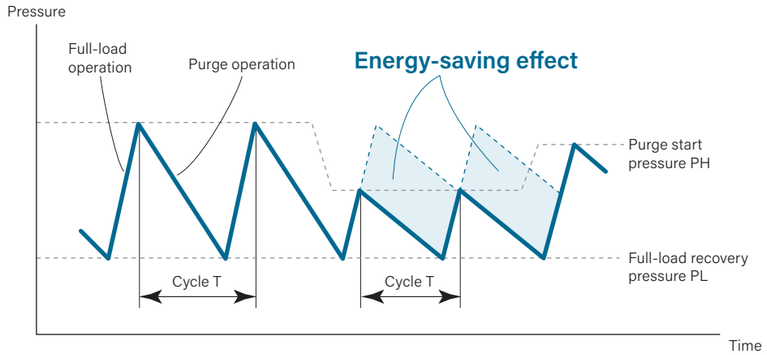
The highest level of discharge airflow in its class is achieved.

S Load/Unload control　R Regulator control

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

The purge start pressure PH is automatically adjusted according to the air demand to save power. To optimize the cycle T, the purge start pressure is automatically changed to save power. (EX: If the pressure range of PH/PL is 0.1MPa, about 3% of power can be saved by reducing the pressure by up to 0.06MPa.)

A.C.C.S. : **A**IRMAN **C**omputer **C**ontrol **S**ystem



Purge control + Automatic start/stop Energy saving S R

▶When the air demand decreases...,

The compressor saves power by transitioning to purge operation in which compressed air in the separator tank is purged to reduce the pressure.

▶▶When the air demand further decreases...,

The compressor saves power by stopping automatically after predicting when it can stop.
Also, by increasing the service air pressure before stopping automatically, it extends the stop time to save more power and reduce load on the motor upon restart.

Applications

■Model：SAS22SD
■Location：Manufacturing Plants

■Model：SMS4ESD（Outdoor installation）
■Location：Manufacturing Plants

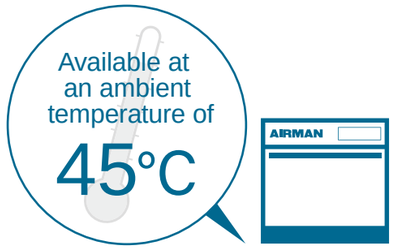
■Model：SMS8ESD（Outdoor installation）
■Location：Manufacturing Plants

Common specifications

V Inverter control　S Load/Unload control　R Regulator contro

Standard availability at ambient temperatures of 45/50°C V S R

Thanks to performance of air cooler and fan cooling system, and improved air dryer, the SAS/SMS4 - 11 model can operate at an ambient temperature of up to 45°C, while the SAS/SMS15 - 75 model can operate at an ambient temperature of up to 50°C.



SAS/SMS4 to 11

SAS/SMS15 to 75

When continuous operation is performed for a long time in an environment exceeding ambient temperature 40°C, the lifecycle of lubricating oil, electrical components, O-rings, and other components will be shorter than usual.

Advance dryer operation V S R

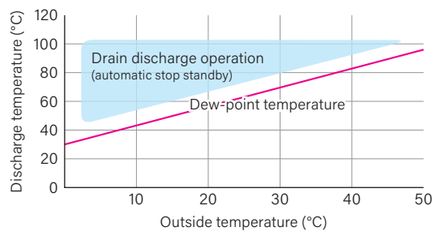
This allows the compressor to supply clean air once it starts up.
During startup, the dryer operates for cooling in advance.
Since the compressor starts when the dryer is sufficiently cooled, it can supply dehumidified air.

Original drain processing V S R

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 as compared with conventional models, thereby eliminating the need for troublesome manual drain work.

※ When the air demand has significantly decreased, or when the temperature and humidity are high, liquid waste may accumulate. Check the drain and remove liquid waste about once a week.

Relationship between drain discharge operation and temperature
(Output: 0.83 MPa; Humidity: 80%)



Common specifications

V Inverter control　S Load/Unload control　R Regulator control

Indoor installation type

SAS series

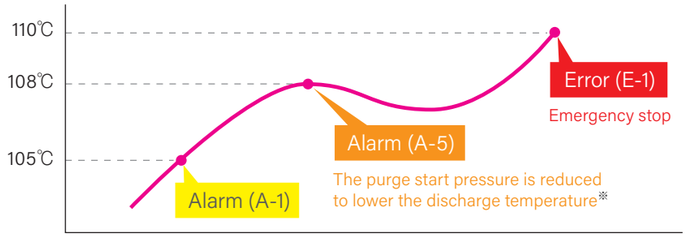
Outdoor installation type

SMS series

Three-stage detection of discharge air temperature　Patented　V S R

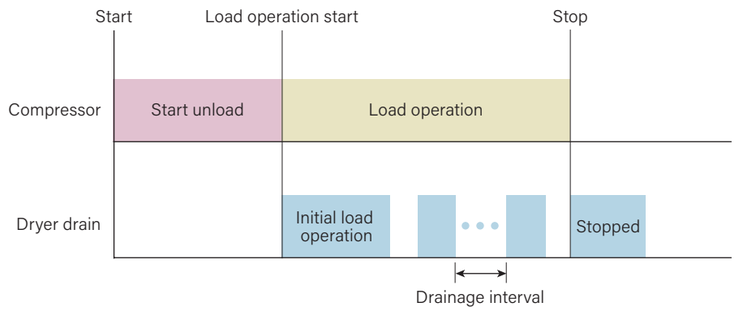
If the discharge air temperature abnormally rises, it is detected in three stages. When the second alarm occurs, the purge start pressure is reduced to lower the discharge temperature so that operation can continue for as long as possible※.

※ Applicable only to SAS/SMS15 to 37 load/unload control models (excluding touch panel models).



Dryer drain system　Patented　V S R

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



Cathodic electro-deposition coating　V S R

The body (charcoal-colored parts) is coated with cathodic electro-deposition coating, which provides excellent resistance to rust and corrosion.

This coating method is also widely used for guardrails and posts. By applying paint evenly using an electrical process, it ensures a uniform and high-quality finish without uneven coating.

Easy operation　V S R

The compressor can be started and stopped with a single touch using the buttons on the operation panel.

Applicable Models: SAS/SMS4 to 75※

※ Operation panel models of SAS/SMS22 to 75 can also be changed to an touch panel as an option.
(Factory-installed option)

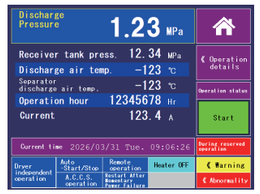
LED display (4 digits)
Displays the service air pressure, discharge air temperature, separator outlet air temperature, operating time, and outside air temperature.

Failure code
If the switch is turned ON while the lamp is blinking, the failure code is displayed. Press and hold the switch to reset.

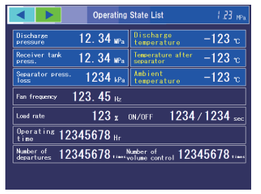
Change display
Press and hold the switch to display the data setting code.

Touchscreen operation　Applicable models: SAS/SMS22 to 75　V S R

This optional high-visibility color touchscreen visualizes operation screens and system diagrams, allowing you to see settings, operation records, and other information you need in one glance. You can check the operating conditions, compressor settings, operation records, and alarm history by touch operation.



Main screen



Operating conditions

System diagram

Easy maintenance　V S R

The large front door can be removed with a single touch without tools, allowing easy maintenance.
(The top cover of only SAS/SMS4 to 15 can be removed without tools.)

AIRMAN Long-Life SP is used as the compressor oil. It is a highly durable lubricant.
(The SASG series and MWH200SD use AIRMAN Long-Life HP.)

Easy belt tensioning　Patented

You can adjust the belt tension simply by loosening the two mounting bolts and tightening the tension bolt nut.

Applicable models: SAS/SMS4 to 11※

※ For the SAS/SMS 15 to 37, the belt tension is adjusted in a different manner.

SAS4SD

Advantages of outdoor installation

Outdoor installation type
SMS series

Outdoor installation type
SMAD series

Outdoor installation model built on AIRMAN's expertise and technology.

A half-century has passed since we launched a portable motor compressor in 1965.
It has also been 40-odd years since we rolled out the outdoor installation type motor compressor SAS in 1981, which is the base for the current model (SMS).
AIRMAN's outdoor installation type compressors boast reliability and are backed by the know-how and track record that we gained over the years.

Great reductions in installation costs

- No need for ducts or ventilation fans
- No need for structures such as a compressor room
- Easy to relocate because it is air-cooled with a dryer
- Capable of being installed close to the load in order to minimize pressure loss
- Allow additional units to be easily installed because of outdoor installation (no need for the existing units to be upgraded)

A better environment inside the plant

- Discharge exhaust heat directly to the outside
- Allow exhaust heat to be used to supplement plant heating (requiring duct work)
- No effects of machine heat on the air conditioning of the plant
- No echoes of compressor noise in the plant
- Higher compression efficiency thanks to the outside air source

Achieve full compressor performance

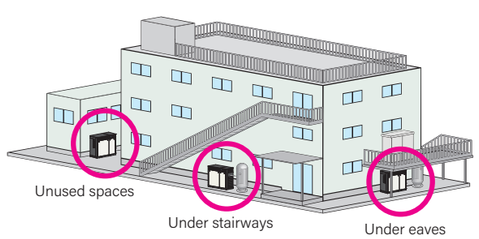
- Prevent overheating in the summer
- Optimal installation environment (avoid factory dust and mist)
- Prevent reductions in air delivery due to rising temperatures
- Prevent the intake of dust in the plant or oil smoke from machine tools

Easy maintenance

- Facilitate the cleaning of the cooler
- Allow the oil to be changed quickly
- A simple removable large door that facilitates daily maintenance
- Full-open top cover (3.7 to 15 kW)
- Minimize trouble caused by contaminants from the plant

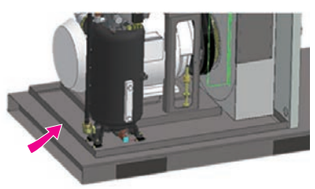
Effective use of space

- Capable of being installed in corridors, underneath stairways, or in other spaces
- No need for changes to the plant layout
- Allow maintenance spaces to be easily secured



Oil fence function

In the event that oil leaks onto the frame, the oil fence function will prevent the oil from flowing out of the machine.



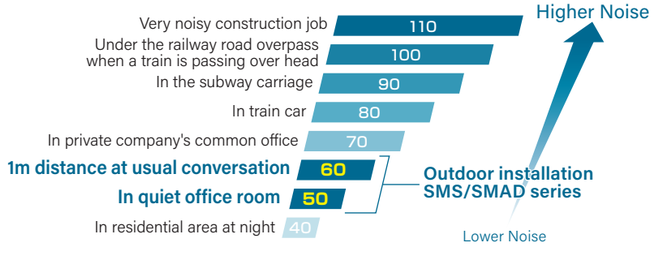
Applicable models: SMS15 to 75

※ This function does not guarantee the prevention of all oil leakages.

Quiet Operation

- Low noise levels achieved through features such as a low-noise enclosure structure, helping reduce the impact on the surrounding environment.

Noise Level
(1.5 m in front of the machine, 1.0 m above ground level, under full-load operation)



Special hood for outdoor use

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

Special seal

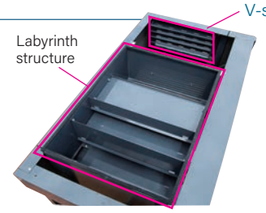
The top cover and door seal utilize the same type of press-fit seal that is used in automobiles.
The structure with raised sides also blocks the entry of rainwater.

Waterproofing washers and stainless-steel bolts

Stainless-steel bolts are used to resist corrosion.
The top covers of the SMS15–75 use waterproofing washers that prevent rainwater from entering the bolt holes. (The top covers of the SMS4–11 are boltless.)

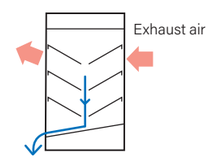
Rain trap package

A labyrinth structure is used for the intake and exhaust ports on the compressor side, and a V-shape louver structure (SMS15 to 75) is also used for the exhaust port on the dryer side to create a path for intruding rainwater to flow back out of the machine. The labyrinth structure and V-shape louver structure also reduce machine noise.



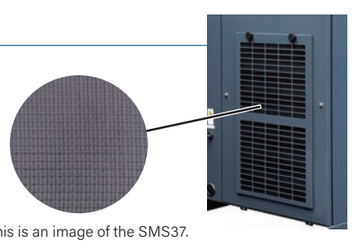
※ Top view of the SMS22

V-shape louver structure
Patented



Dust filter

Prevents large dust, insects, and other substances from entering the machine. Easy to replace.



※ This is an image of the SMS37.

Main specifications

Indoor Installation Type 〈Air-cooled SAS series / Water-cooled SWS series〉

PROAIR Indoor installation type screw compressor with a nominal output of 3.7 to 11 kW

PROAIR 4S Indoor installation type screw compressor with a nominal output of 15 to 75 kW

V Indoor installation type SAS-V series/SWS75VD <inverter control>
Air control system: Inverter control + Purge control + Automatic start/stop

V	SAS8VD -C	SAS11VD -C	SAS15VD -E	SAS22VD -E	SAS37VD -E	SAS55VD -E	SAS75VD -E	SWS75VD -E
Cooling system	Air-cooled							Water-cooled
COMPRESSOR								
Type	Rotary twin screw, Single-stage, Oil-injected							
Air delivery※1 (m³/min)	1.05 (1.25–1.05)	1.65 (1.9–1.5)	2.65 (3.0–2.35)	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)	0.83 (0.5–0.83)	0.69 (0.4–0.83)	0.7 (0.5–0.85)	0.7 (0.5–0.9)				
Intake conditions	Atmospheric pressure, 2-40°C							
Lubricant oil capacity※3 (L)	5.0	8.0		13	18	41	42	
Discharge air pipe diameter	3/4″	1″			1 1/2″ ※4	2″		
Nominal output of the fan motor (kW)	0.4	–	0.75		1.5			–
MOTOR								
Type	Fully-enclosed, external fan, 3-phase squirrel cage induction motor			Totally-enclosed IPM 3 phase synchronous motor				
Nominal output (kW)	7.5	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							
DIMENSION & WEIGHT								
Overall width (mm)	1,045	1,160		1,380	1,620	2,450		
Overall depth (mm)	730	670		780	890	1,150		
Overall height (mm)	1,050	1,200	1,270	1,420	1,530	1,570		
Weight※5 (kg)	330	397(362)	520(495)	540(500)	820(750)	1,345(1,250)	1,485(1,370)	1,545(1,435)
Noise level※6 (dB[A])	56		58	57	59	58	62	
DRYER								
Input (chiller nominal output) (kW)	0.28/ 0.30·0.32(0.4)	0.52/ 0.6·0.61(0.5)	0.51/ 0.58·0.6(0.5)	1.19/ 1.47·1.5(1.1)	1.1/ 1.3(1.5)	1.7/ 2.1(1.5)	2.3/ 2.7(1.9)	
Outlet dew point (°C)	Below 10°C ※7 (under pressure)							
Coolant	R134a	R407C			R410A			

※1 Air delivery is calculated assuming the intake conditions is at atmospheric pressure and at a temperature of 30°C. For the guaranteed value of air delivery, please contact us.
※2 The numbers in parentheses "()" represent the pressure setting range.
※3 Be sure to use our genuine Long-Life SP compressor oil.
※4 The discharge pipe diameter for dryerless specs is 1 1/4".
※5 The numbers in parentheses "()" for weight are for dryerless specs.
※6 The noise values are calculated assuming the anechoic chamber conditions are at a distance of 1.5 m from the front (operating side) of the compressor, at a height of 1.0 m, and at an outside temperature of 30°C during full-load operation.
The noise level also varies during air capacity control operation.
※7 The outlet dew point is at an ambient temperature of 30°C and rated pressure. For compressors with a built-in dryer, the dryer dew point may deteriorate as the discharge pressure decreases.

※ <Coolant conditions for the SWS75VD> Water quantity: 125 L/min; Water temperature: 4 to 35°C; Water supply/drainage pipe diameter: Rp 1 1/4"
※ A separate air tank with sufficient capacity must be installed.

S Indoor installation type SAS-S series/SWS75SD <Load/Unload control>
Air control system: Load/Unload control + A.C.C.S + Purge control + Automatic start/stop

R Indoor installation type SAS-R series/SWS75RD <regulator control>
Air control system: Regulator control + Purge control + Automatic start/stop

S	SAS4SD -5C/6C	SAS6SD -5C/6C	SAS8SD -5C/6C	SAS11SD -5C/6C	SAS15SD -5E/6E	SAS22SD -5E/6E	SAS37SD -5E/6E	SAS55SD -5E/6E	SAS75SD -5E/6E	SWS75SD -5E/6E
R	—	—	—	SAS11RD -5C/6C	SAS15RD -5C/6C	SAS22RD -5E/6E	SAS37RD -5E/6E	SAS55RD -5E/6E	SAS75RD -5E/6E	SWS75RD -5E/6E
Cooling system	Air-cooled									Water-cooled
COMPRESSOR										
Type	Rotary twin screw, Single-stage, Oil-injected									
Air delivery※1 (m³/min)	0.44	0.67	1.0 [0.93]	1.5 [1.65][1.35]	2.65 [2.35][2.15]	4.1 [3.6][3.4]	6.9 [6.2][5.9]	10.2 [9.3][8.8]	13.9 [12.7][12.1]	
Discharge pressure※2 (MPa)	0.83		0.83 [0.93]	0.83 ※3 [0.69][0.93]〈0.9〉	0.7 [0.85][0.93]〈0.9〉※3					
Intake conditions	Atmospheric pressure, 2-40°C									
Lubricant oil capacity※4 (L)	2.5	3.5	5.0	8.0		13	20	41	42	
Discharge air pipe diameter	3/8″	3/4″		1″			1 1/2″ ※5	2″		
Nominal output of the fan motor (kW)	–		0.4	–	0.75		1.5			–
MOTOR										
Type	Fully-enclosed, external fan, 3-phase squirrel cage induction motor									
Nominal output (kW)	3.7	5.5	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				
DIMENSION & WEIGHT										
Overall width (mm)	760	900	950	1,160		1,380	1,620	2,450		
Overall depth (mm)	510	580	630	670		780	890	1,150		
Overall height (mm)	750	900	1,050	1,200	1,270	1,420	1,530	1,570		
Weight※6 (kg)	160	235	300	387(352)	505(480)	685(645)	990(920)	1,555(1,460)	1,625(1,510)	1,655(1,540)
Noise level※7 (dB[A])	56				58	57	59		62	
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)	0.52/ 0.6·0.61(0.5)	0.51/ 0.58·0.60(0.5)	1.19/ 1.47·1.5(1.1)	1.1/ 1.3(1.5)	1.7/ 2.1(1.5)	2.3/ 2.7(1.9)	
Outlet dew point (°C)	Below 10°C※8 (under pressure)									
Coolant	R134a			R407C			R410A			

※1 Air delivery is calculated assuming the intake conditions are at atmospheric pressure and at a temperature of 30°C. For the guaranteed value of air delivery, please contact us.
※2 The high-pressure specs are an option at the time of manufacture. Values in [ ] indicate values for high-pressure specifications.
※3 Values in "〈〉" indicate values for regulator control.
※4 Be sure to use our genuine Long-Life SP compressor oil.
※5 The discharge pipe diameter for dryerless specs is 1 1/4".
※6 The numbers in parentheses "()" for weight are for dryerless specs.
※7 The noise values are calculated assuming the anechoic chamber conditions are at a distance of 1.5 m from the front (operating side) of the compressor, at a height of 1.0 m, and at an outside temperature of 30°C during full-load operation.
The noise level also varies during air capacity control operation.
※8 The outlet dew point is at an ambient temperature of 30°C and rated pressure. For compressors with a built-in dryer, the dryer dew point may deteriorate as the discharge pressure decreases.

※ <Coolant conditions for SWS75SD/RD>
Water quantity: 125 L/min; Water temperature: 4-35°C; Water supply/drainage pipe diameter: Rp 1 1/4"
※ A separate air tank with sufficient capacity must be installed.

※ The products shown in the images are for domestic usages in Japan, so they may differ in appearance, etc.

Outdoor installation type SMS series

Outdoor installation type screw compressor with a nominal output of 3.7 to 11 kW

Outdoor installation type screw compressor with a nominal output of 15 to 75 kW

V Outdoor installation type SMS-V series <inverter control>

Air control system: Inverter control + Purge control + Automatic start/stop

V		SMS8EVD -C	SMS11EVD -C	SMS15EVD -E	SMS22EVD -E	SMS37EVD -E	SMS55EVD -E	SMS75EVD -E
Cooling system		Air-cooled						
COMPRESSOR								
Type		Rotary twin screw, Single-stage, Oil-injected						
Air delivery※1	m³/min	1.05 (1.25–1.05)	1.65 (1.9–1.5)	2.65 (3.0–2.35)	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	0.83 (0.5–0.83)	0.69 (0.4–0.83)	0.7 (0.5–0.85)	0.7 (0.5–0.9)			
Intake conditions		Atmospheric pressure, 2※3- 40°C						
Lubricant oil capacity※4	L	5.0	8.0		13	18	41	42
Discharge air pipe diameter		3/4″	1″			1 1/2″ ※5	2″	
Nominal output of the fan motor	kW	0.4	–	0.75		1.5		
MOTOR								
Type		Fully-enclosed, external fan, 3-phase squirrel cage induction motor			Totally-enclosed IPM 3 phase synchronous motor			
Nominal output	kW	7.5	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						
DIMENSION & WEIGHT								
Overall width	mm	1,130	1,320		1,590	1,840	2,590	
Overall depth	mm	780	700		850	960	1,250	
Overall height	mm	1,130	1,240	1,310	1,570	1,630	1,750	
Weight※6	kg	350	442(402)	565(530)	645(605)	945(875)	1,525(1,430)	1,665(1,550)
Noise level※7	dB[A]	56		58	54	58		61
DRYER								
Input (chiller nominal output)	kW	0.28/ 0.30·0.32(0.4)	0.52/ 0.6·0.61(0.5)	0.51/ 0.58·0.6(0.5)	1.19/ 1.47·1.5(1.1)	1.1/ 1.3(1.5)	1.7/ 2.1(1.5)	2.3/ 2.7(1.9)
Outlet dew point	°C	Below 10°C※8 (under pressure)						
Coolant		R134a	R407C			R410A		

※1 Air delivery is calculated assuming the intake conditions are at atmospheric pressure and at a temperature of 30°C. For the guaranteed value of air delivery, please contact us.
※2 The numbers in parentheses "()" represent the pressure setting range.
※3 To use the compressor in a cold weather region (at 2°C or below), the optional tape heater is required. (Specs for cold weather regions)
※4 Be sure to use our genuine Long-Life SP compressor oil.
※5 The discharge pipe diameter for dryerless specs is 1 1/4".
※6 The numbers in parentheses "()" for weight are for dryerless specs.
※7 The noise values are calculated assuming the anechoic chamber conditions are at a distance of 1.5 m from the front (operating side) of the compressor, at a height of 1.0 m, and at an outside temperature of 30°C during full-load operation. Depending on the installation environment (effects of surrounding reverberation, etc.), the noise level under the actual installation conditions may be higher than the value shown herein.
The noise level also varies during air capacity control operation.
※8 The outlet dew point is at an ambient temperature of 30°C and rated pressure. For compressors with a built-in dryer, the dryer dew point may deteriorate as the discharge pressure decreases.

※ A separate air tank with sufficient capacity must be installed.

S Outdoor installation type SMS-S series <Load/Unload control>

Air control system: Load/Unload control + A.C.C.S + Purge control + Automatic start/stop

R Outdoor installation type SMS-R series <regulator control>

Air control system: Regulator control + Purge control + Automatic start/stop

S		SMS4ESD -5C/6C	SMS8ESD -5C/6C	SMS11ESD -5C/6C	SMS15ESD -5E/6E	SMS22ESD -5E/6E	SMS37ESD -5E/6E	SMS55ESD -5E/6E	SMS75ESD -5E/6E
R		—	—	SMS11ERD -5C/6C	SMS15ERD -5E/6E	SMS22ERD -5E/6E	SMS37ERD -5E/6E	SMS55ERD -5E/6E	SMS75ERD -5E/6E
Cooling system		Air-cooled							
COMPRESSOR									
Type		Rotary twin screw, Single-stage, Oil-injected							
Air delivery※1	m³/min	0.44	1.0 [0.93]	1.5 [1.65][1.35]	2.65 [2.35][2.15]	4.1 [3.6][3.4]	6.9 [6.2][5.9]	10.2 [9.3][8.8]	13.9 [12.7][12.1]
Discharge pressure※2	MPa	0.83	0.83 [0.93]	0.83 [0.69][0.93]〈0.9〉※3	0.7 [0.85][0.93]〈0.9〉※3				
Intake conditions		Atmospheric pressure, 2※4- 40°C							
Lubricant oil capacity※5	L	2.5	5.0	8.0		13	20	41	42
Discharge air pipe diameter		3/8″	3/4″	1″			1 1/2″ ※6	2″	
Nominal output of the fan motor	kW	–	0.4	–	0.75		1.5		
MOTOR									
Type		Fully-enclosed, external fan, 3-phase squirrel cage induction motor							
Nominal 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			
DIMENSION & WEIGHT									
Overall width	mm	860	1,070	1,320		1,590	1,840	2,590	
Overall depth	mm	560	670	700		850	960	1,250	
Overall height	mm	780	1,130	1,240	1,310	1,570	1,630	1,750	
Weight※7	kg	180	325	427(387)	550(515)	780(740)	1,100(1,030)	1,735(1,640)	1,805(1,690)
Noise level※8	dB[A]	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/ 0.6·0.61(0.5)	0.51/ 0.58·0.60(0.5)	1.19/ 1.47·1.5(1.1)	1.1/ 1.3(1.5)	1.7/ 2.1(1.5)	2.3/ 2.7(1.9)
Outlet dew point	°C	Below 10°C※9 (under pressure)							
Coolant		R134a		R407C			R410A		

※1 Air delivery is calculated assuming the intake conditions are at atmospheric pressure and at a temperature of 30°C. For the guaranteed value of air delivery, please contact us.
※2 The high-pressure specs are an option at the time of manufacture. Values in [ ] indicate values for high-pressure specifications.
※3 Values in "〈〉" indicate values for regulator control.
※4 To use the compressor in a cold weather region (at 2°C or below), the optional tape heater is required. (Specs for cold weather regions)
※5 Be sure to use our genuine Long-Life SP compressor oil.
※6 The discharge pipe diameter for dryerless specs is 1 1/4".
※7 The numbers in parentheses "()" for weight are for dryerless specs.
※8 The noise values are calculated assuming the anechoic chamber conditions are at a distance of 1.5 m from the front (operating side) of the compressor, at a height of 1.0 m, and at an outside temperature of 30°C during full-load operation.
The noise level also varies during air capacity control operation.
※9 The outlet dew point is at an ambient temperature of 30°C and rated pressure. For compressors with a built-in dryer, the dryer dew point may deteriorate as the discharge pressure decreases.

※ A separate air tank with sufficient capacity must be installed.

※ The products shown in the images are for domestic usages in Japan, so they may differ in appearance, etc.

Delivers high-energy compressed air

V Inverter control　R Regulator control

1.4MPa
Medium Pressure
Indoor installation specifications

SASG19VD
<inverter control>

Air control system:
Inverter control
+ Purge control
+ Automatic start/stop

SASG19RD
<regulator control>

Air control system:
Regulator control
+ Purge control
+ Automatic start/stop

V R		SASG19VD-E	SASG19RD-5E/6E
Cooling system		Air-cooled	
COMPRESSOR			
Type		Rotary twin screw, Single-stage, Oil-injected	
Air delivery※1	m³/min	2.0(2.0–2.7)	2.0
Discharge pressure※2	MPa	1.4(1.4–0.88)	1.4
Intake conditions		Atmospheric pressure, 2-40°C	
Lubricant oil capacity※3	L	12	
Discharge air pipe diameter		3/4″	
Nominal output of the fan motor	kW	0.75	
MOTOR			
Type		Totally-enclosed IMP 3-phase synchronous motor	Fully-enclosed, external fan, 3-phase squirrel cage induction motor
Nominal output	kW	18.5	
Frequency	Hz	Both 50/60	50/60
Voltage	V	200/200·220〔400/400·440〕	
No. of poles	P	6	2
Starting system		Inverter	Direct input
DIMENSION & 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	°C	Below 10°C※5 (under pressure)	
Coolant		R410A	

※1 Air delivery is calculated assuming the intake conditions are at atmospheric pressure and at a temperature of 30°C. For the guaranteed value of air delivery, please contact us.　※2 The numbers in parentheses "()" for the inverter model represent the pressure setting range.　※3 Be sure to use our genuine Long-Life SP compressor oil.　※4 The noise values are calculated assuming the anechoic chamber conditions at a distance of 1.5 m from the front (operating side) of the compressor, at a height of 1.0 m, and at an outside temperature of 30°C during full-load operation. The noise level also varies during air capacity control operation.
※5 The outlet dew point is at an ambient temperature of 30°C and rated pressure. For compressors with a built-in dryer, the dryer dew point may deteriorate as the discharge pressure decreases.　※ A separate air tank with sufficient capacity must be installed.

Nitrogen-Enriched Air Supply System

Laser Assist
SASG19VD + NMAG19 〈Integrated type〉

- Reduces oxide film during laser processing
- Reduces laser processing running costs

Air control system:
Inverter control + Purge control
+ Automatic start/stop

※ For more information, please contact your nearest distributor.

Ideal for high-volume compressed air applications

S Load/Unload control

Large Capacity
Outdoor Installation
Water-Cooled

MWS160S

MWH200SD
〈Medium Pressure〉

Air control system:　Load/Unload control + A.C.C.S + Purge control + Automatic start/stop

S		MWS160S-5E/6E	MWH200SD-5E/6E
Cooling system		Water-cooled	
COMPRESSOR			
Type		Rotary twin screw, Single-stage, Oil-injected	
Air delivery※1	m³/min	25.0	20.0
Discharge pressure	MPa	0.7	1.6※3
Intake conditions		Atmospheric pressure, 0-40°C	Atmospheric pressure, 2-40°C
Lubricant oil capacity※2	L	78	132
Discharge air pipe diameter		2 1/2″	2″
MOTOR			
Type		Fully-enclosed, external fan, 3-phase squirrel cage induction motor	
Nominal output	kW	160	200
Frequency	Hz	50/60	
Voltage	V	3,000/3,300※4	400/440
No. of poles	P	2	
Starting system		Reactor	Star delta
DIMENSION & WEIGHT			
Overall width	mm	3,100	3,800
Overall depth	mm	1,450	1,700
Overall height	mm	1,800	2,050
Weight	kg	3,250	5,600
DRYER			
Input (chiller nominal output)	kW	-	3.85/4.66 (3.75)
Outlet dew point	°C	-	Below 10°C※5 (under pressure)
Coolant		-	R407C

※1 Air delivery values are converted to inlet conditions at atmospheric pressure and 30°C. For guaranteed air delivery values, please contact us separately.
※2 Please be sure to use our genuine compressor oils: "Long Life SP" (for MWS160S) and "Long Life HP" (for MWH200SD).
※3 MWH200SD-5E/6E is also available with a discharge pressure specification of 1.3 MPa.
※4 MWS160S-5E/6E requires a separate 200/220 V power supply for the cooling fan drive.
※5 The outlet air dew point is based on an ambient temperature of 30°C and rated pressure. For compressors with a built-in dryer, the dryer dew point may deteriorate as the discharge pressure decreases.

※ Cooling Water Conditions:
〈MWS160S〉
Water flow rate: 200 L/min, Water temperature: 4–35°C, Supply/Drain pipe flange size: 2″
〈MWH200SD〉
Water flow rate: 300 L/min, Water temperature: 4–35°C, Supply/Drain pipe flange size: 3″

※ Please install and use a separate air tank with sufficient capacity.

Applications

■Model：MWS160S　■Location：Casting Plant

Providing Clean, Valuable Oil-Free Compressed Air

AIRMAN's SAD / SWD / SMAD Series oil-free compressors feature our proprietary A.C.C.S. control system designed to promote energy savings, along with the industry's only outdoor installation type※ lineup.
These advanced compressors are designed with environmental consideration, delivering not only clean discharge air but also reliable and efficient operation.

※ Excluding SAD and SWD series

Major Milestones of AIRMAN Oil-free Compressors

1980
1985 - SWD75/90/110/132/160P-50/60
1987 - SAD45/55P-50/60
1988 - SAD15/22/37P-50/60

1990
1993 - SWD55P-50/60
1994 - SWD75/90P-50/60
1996 - SWD45P-50/60
1997 - SWD120/140P-51/61
1998 - SWD160P-51/61
1999 - SAW11/15/22P-51/61

2000
2002 - SWD75/90/100/125PD-52/62
2004 - SWD75VD-2
2005 - SAD37PD-52/62、SWD55PD-52/62
2006 - SAD37VD-2、SWD37PD-52/62、SMAD75PD-52/62
2007 - SMAD37PD-52/62

2010
2011 - SMAD55PD-5A/6A

The industry's first outdoor oil-free screw compressor with inverter control is introduced.

2016：●SMAD22VD-E ●SMAD22SD-5E/6E
2019：●SMAD55VD-E ●SMAD55SD-5E/6E

Certified to "Class 0", the highest level of air purity, by TÜV, a globally recognized third-party certification body in Germany.

2020
2020：●SMAD37VD-E ●SMAD37SD-5E/6E
2021：●SAD22VD-E
2022：●SMAD75VD-E ●SMAD160S-5E/6E
2023：●SAD22SD-5E/6E ●SMAD75SD-5E/6E
2024：●SAD37VD-E ●SAD37SD-5E/6E

Certified Class 0 Clean Air Supply

AIRMAN oil-free compressors have been certified Class 0, the highest level of air purity in compressed air quality classification, by TÜV, a globally recognized third-party certification body based in Germany.

※ Performance may vary depending on the installation environment.

CLASS ZERO
0
ISO 8573-1

Indoor installation type 〈Air-cooled〉

V S Air Delivery 3.3 to 6.6 m³/min

SAD22SD

SAD37VD

Indoor installation type 〈Water-cooled〉

P Air Delivery 9.4 to 25.8 m³/min

SWD75PD

SWD160P

Outdoor installation type 〈Air-cooled〉

V S Air Delivery 3.3 to 14.6 m³/min

SMAD22SD

SMAD55VD

○ The industry's only outdoor installation type

This is the industry's first outdoor-installable air-cooled oil-free screw compressor.
It can be installed both outdoors and indoors, providing maximum flexibility and eliminating concerns about installation space.

Indoor installation type
SAD series

Outdoor installation type
SMAD series

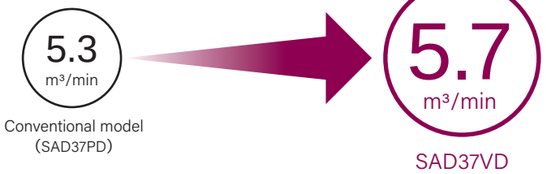
Oil-free compressors produce clean compressed air, helping reduce environmental risks and contributing to a decarbonized society

Highly Efficient Two-Stage Compression

By adopting two-stage compression, high efficiency is achieved.
Both the low-pressure stage and high-pressure stage are equipped with AS rotors (5×6 lobe profile)※.

※ For SMAD37VD/SD and SAD37VD/SD, the AS rotor is installed only in the high-pressure stage.

Approx. 8% increase

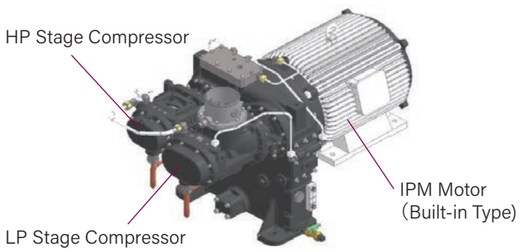


PLUS

The drive motor is optimized for efficiency:

- Permanent Magnet Synchronous Motor (IPM motor) for inverter-controlled models
- High-efficiency induction motor compliant with IE3 for load/unload control models

These features contribute to overall higher energy efficiency.



Inverter-Controlled Model

Applications

■Model：SMAD22SD (outdoor installation)
■Location：Manufacturing plants

■Model：SMAD55VD (outdoor installation)
SMAD22VD (outdoor installation)
■Location：Research laboratories

■Model：SMAD55VD (outdoor installation)
■Location：Manufacturing plants

V Inverter control

Air Delivery 3.3 to 14.6 m³/min

Advanced Energy-Saving Performance V

● Automatic Speed Control Based on Ambient Temperature

Patented

The minimum motor speed is automatically controlled according to ambient temperature and discharge pressure.
When the ambient temperature is low, the motor operates at a lower speed, improving energy efficiency.

● Pressure Boost Function

The discharge pressure can be set up to 0.8 MPa※, and the rotation speed is automatically adjusted according to the set pressure.
Pressure settings can be easily configured on the control panel.

※ SAD/SMAD37VD: Max. 0.7 MPa

● Wide-Range Control

By adopting a high-efficiency airend and IPM motor, a wide control range has been achieved.
The discharge pressure can be freely set between 0.5–0.8 MPa※ in 0.01 MPa increments.

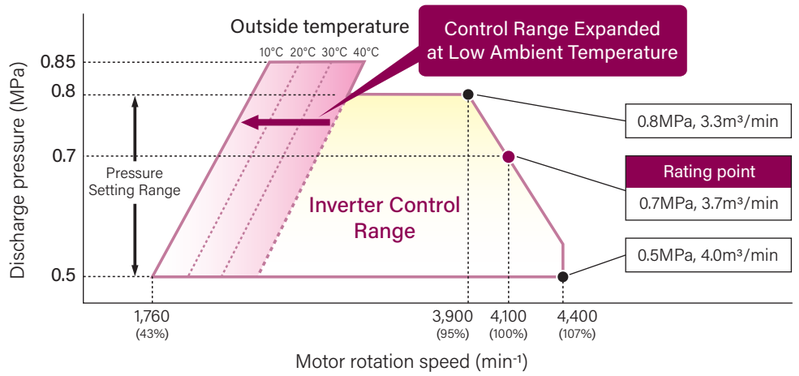
※ SAD/SMAD37VD: 0.5-0.7MPa

● Air Boost Function

By lowering the set pressure, the maximum rotation speed increases, allowing a higher air delivery.

● Constant Pressure Control

Thanks to inverter control, precise constant pressure control is achieved with pressure fluctuation within ±0.01 MPa.



※ 0.85 MPa: Max. Unload Start Pressure ※ Values for SMAD22VD

Cooling Fan Control During Low Load Operation

Patented V

Improved cooling performance of the intercooler and aftercooler may cause the air dryer to freeze when the ambient temperature is low, such as in cold regions or during winter operation.
To prevent this, the cooling fan speed is controlled according to the second-stage discharge air temperature and discharge pressure, ensuring that the second-stage discharge temperature remains above a certain level even in cold conditions, thereby preventing freezing.
Furthermore, during unload operation, the discharge temperature decreases. In this case, the cooling fan speed is reduced to mitigate thermal shock to the cooler.

Oil-free Compressors
Features of Load/Unload Control Models

S
Load/Unload control

Indoor installation type
SAD series

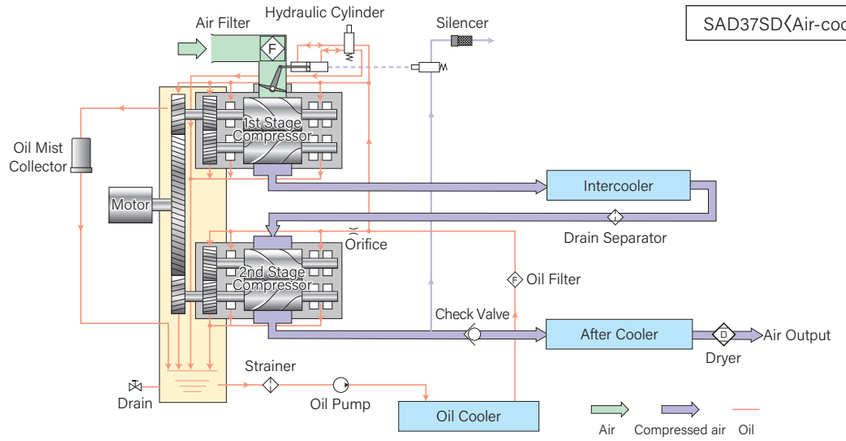
Outdoor installation type
SMAD series

S Load/Unload Control

Air Delivery 3.7 to 25.8 m³/min

P The lineup also includes water-cooled models SWD75PD/160P (indoor installation type) equipped with load/unload control.

● Compressed Air & Oil Flow Sheet

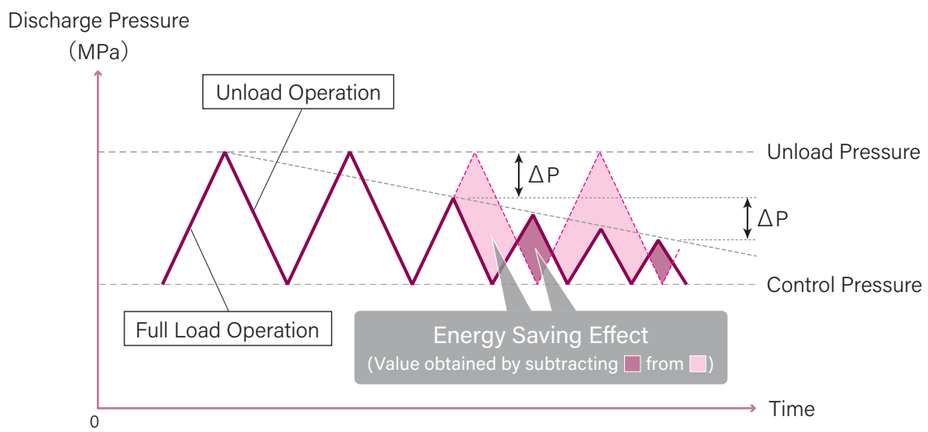


A.C.C.S. (Automatic Pressure Band Control System) Energy Saving S

A.C.C.S. measures and calculates the capacity control cycle time between unload operation and full-load operation. When the repetition time between full load and unload exceeds the preset reference time, the system automatically lowers the unload start pressure.
It then calculates the appropriate pressure band so that the cycle time returns to the reference value.
By automatically controlling the pressure range to the optimal level, power consumption is reduced and energy efficiency is improved.

A.C.C.S. : **A**IRMAN **C**omputer **C**ontrol **S**ystem

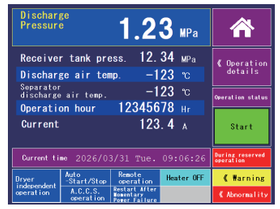
A.C.C.S. Energy Saving Effect



Common Specifications V S

● Easy Operation with Touch Panel

Operating status, settings, operation records, and alarm history can be easily checked via the touch panel.



Touch Panel
※ Image is for illustrative purposes.

● Automatic Restart After Momentary Power Failure

After a momentary power interruption, the compressor automatically restarts when power is restored.

● Scheduled Operation

The compressor operates according to a preset schedule, enabling efficient operation management.

● Pressure Switching Function

Three pressure settings can be stored.
Energy savings can be achieved by selecting the optimal setting according to operating conditions.

● Remote Operation Mode

A terminal block for remote start/stop control and alarm signal output is provided as standard.

● Dryer Pre-Operation

The dryer starts operating before the compressor to ensure clean air supply from startup.

Advantages of Outdoor Installation Type V S

- Special seal
- Rain trap package
- Waterproofing washers and stainless-steel bolts
- Dust filter

For details, please refer to “Special Hood for Outdoor Use” on page 14.

Main specifications

Indoor Installation Type 〈Air-cooled SAD series / Water-cooled SWD series〉

V S		SAD22VD-E	SAD37VD-E	SAD22SD-5E/6E	SAD37SD-5E/6E
Cooling system		Air-cooled			
COMPRESSOR					
Type		Rotary twin screw, Two-stage, Oil-free			
Air delivery※1	m³/min	3.7[4.0-3.3]	5.7[6.6-5.7]	3.7	5.6
Discharge pressure※2	MPa	0.7[0.5-0.8]	0.7[0.5-0.7]	0.7	
Air control system		Inverter control + Purge control + Automatic start/stop		Load/Unload control + A.C.C.S + Purge control + Automatic start/stop	
Intake conditions		Atmospheric pressure, 2-40°C			
Lubricant oil capacity※3	L	9	13	9	13
Discharge air pipe diameter		1″	1 1/2″	1″	1 1/2″
Nominal output of the fan motor	kW	0.75			
MOTOR					
Type		Totally-enclosed IPM 3 phase synchronous motor		Fully-enclosed, external fan, 3-phase squirrel cage induction motor	
Nominal output	kW	22	37	22	37
Frequency	Hz	Both 50/60		50/60	
Voltage	V	200/200·220〔400/400·440〕			
No. of poles	P	6		2	
Starting system		Inverter		Star delta	
DIMENSION & WEIGHT					
Overall width	mm	1,800	2,030	1,800	2,030
Overall depth	mm	900	1,100	900	1,100
Overall height	mm	1,450	1,655	1,450	1,655
Weight※4	kg	870(840)	1,205(1,145)	940(910)	1,220(1,160)
Noise level※5	dB[A]	62	63	62	64
DRYER					
Input (chiller nominal output)	kW	1.19/1.47·1.5(1.1)	1.1/1.3(1.5)	1.19/1.47·1.5(1.1)	1.1/1.3(1.5)
Outlet dew point	°C	Below 10°C※7 (under pressure)			
Coolant		R407C	R410A	R407C	R410A

P		SWD75PD-52/62		SWD160P-51/61
Cooling system		Water-cooled		
COMPRESSOR				
Type		Rotary twin screw, Two-stage, Oil-free		
Air delivery※1	m³/min	12.2	9.4	25.8[22.8]
Discharge pressure※2	MPa	0.7	0.95	0.69[0.88]
Air control system		Load/Unload control + A.C.C.S + Automatic start/stop		
Intake conditions		Atmospheric pressure, 2-40°C		Atmospheric pressure, 0-40°C
Lubricant oil capacity※3	L	28		48
Discharge air pipe diameter		2″		2 1/2″
Nominal output of the fan motor	kW	–		0.4
MOTOR				
Type		Fully-enclosed, external fan, 3-phase squirrel cage induction motor		
Nominal output	kW	75		160
Frequency	Hz	50/60		
Voltage	V	200/200·220〔400/400·440〕		3,000/3,300
No. of poles	P	2		
Starting system		Star delta		Reactor
COOLING WATER				
Flow Rate	L/min	120		230
Temperature	°C	4-32		
Connection Pipe Size		1 1/2″		2″
DIMENSION & WEIGHT				
Overall width	mm	2,525		2,850
Overall depth	mm	1,220		1,630
Overall height	mm	1,500		1,700
Weight※4	kg	2,020(1,890)		3,550
Noise level※5	dB[A]	64		75
DRYER				
Input (chiller nominal output)	kW	2.9/3.6(2.2)		–
Outlet dew point	°C	Below 10°C※7 (under pressure)		–
Coolant		R407C		–

Outdoor Installation Type 〈Air-cooled SMAD series〉

V		SMAD22VD-E	SMAD37VD-E	SMAD55VD-E	SMAD75VD-E
Cooling system		Air-cooled			
COMPRESSOR					
Type		Rotary twin screw, Two-stage, Oil-free			
Air delivery※1	m³/min	3.7[4.0-3.3]	5.7[6.6-5.7]	9.2[10.3-8.5]	13.0[14.6-12.3]
Discharge pressure※2	MPa	0.7[0.5-0.8]	0.7[0.5-0.7]	0.7[0.5-0.8]	
Air control system		Inverter control + Purge control + Automatic start/stop			
Intake conditions		Atmospheric pressure, 2※6-40°C			
Lubricant oil capacity※3	L	12	16	19	25
Discharge air pipe diameter	A	1″	1 1/2″	2″	
Nominal output of the fan motor	kW	0.75		1.5	
MOTOR					
Type		Totally-enclosed IPM 3 phase synchronous motor			
Nominal output	kW	22	37	55	75
Frequency	Hz	Both 50/60			
Voltage	V	200/200·220〔400/400·440〕			
No. of poles	P	6			
Starting system		Inverter			
DIMENSION & WEIGHT					
Overall width	mm	2,040	2,200	2,500	2,700
Overall depth	mm	900	1,250		1,505
Overall height	mm	1,570	1,690	1,800	1,905
Weight※4	kg	950(910)	1,400(1,340)	1,625(1,540)	2,225(2,110)
Noise level※5	dB[A]	60		62	66
DRYER					
Input (chiller nominal output)	kW	1.19/1.47·1.5(1.1)	1.1/1.3(1.5)	1.7/2.1(1.5)	2.3/2.7(1.9)
Outlet dew point	°C	Below 10°C※7 (under pressure)			
Coolant		R407C	R410A		

S		SMAD22SD-5E/6E	SMAD37SD-5E/6E	SMAD55SD-5E/6E	SMAD75SD-5E/6E
Cooling system		Air-cooled			
COMPRESSOR					
Type		Rotary twin screw, Two-stage, Oil-free			
Air delivery※1	m³/min	3.7	5.6	8.6	12.4
Discharge pressure※2	MPa	0.7			
Air control system		Load/Unload control + A.C.C.S + Purge control + Automatic start/stop			
Intake conditions		Atmospheric pressure, 2※6-40°C			
Lubricant oil capacity※3	L	12	16	19	25
Discharge air pipe diameter	A	1″	1 1/2″	2″	
Nominal output of the fan motor	kW	0.75		1.5	
MOTOR					
Type		Fully-enclosed, external fan, 3-phase squirrel cage induction motor			
Nominal output	kW	22	37	55	75
Frequency	Hz	50/60			
Voltage	V	200/200·220〔400/400·440〕			
No. of poles	P	2			
Starting system		Star delta			
DIMENSION & WEIGHT					
Overall width	mm	2,040	2,200	2,500	2,700
Overall depth	mm	900	1,250		1,505
Overall height	mm	1,570	1,690	1,800	1,905
Weight※4	kg	1,010(970)	1,420(1,360)	1,665(1,580)	2,245(2,130)
Noise level※5	dB[A]	60		61	66
DRYER					
Input (chiller nominal output)	kW	1.19/1.47·1.5(1.1)	1.1/1.3(1.5)	1.7/2.1(1.5)	2.3/2.7(1.9)
Outlet dew point	°C	Below 10°C※7 (under pressure)			
Coolant		R407C	R410A		

※1 Air delivery values are converted to inlet conditions at atmospheric pressure and 30°C. For guaranteed air delivery values, please contact us separately. ※2 Values in [ ] for inverter models indicate the pressure setting range. ※3 Please be sure to use our genuine compressor oil: "Long Life SP" (for SWD160P, use "Long Life HP"). ※4 Values in ( ) indicate specifications without a dryer. ※5 Noise levels are measured at a point 1.5 m from the front (operation side) of the unit and at a height of 1.0 m (1.2 m for SWD75PD and SWD160P), under full-load operation, an ambient temperature of 30°C, and converted to anechoic chamber conditions. Actual noise levels may be higher depending on installation conditions (such as surrounding reflections), and may vary during capacity control operation. ※6 When operating in cold regions (below 0°C), a tape heater must be installed as an option (cold climate specification). ※7 The outlet air dew point is based on an ambient temperature of 30°C and rated pressure. For compressors with a built-in dryer, the dryer dew point may deteriorate as the discharge pressure decreases. When operating at low pressure, a separate external dryer may be required.

※ Please install and use a separate air tank with sufficient capacity.

Peripheral devices and options

○Multi-unit control panel MCS101-F

The multi-unit control panel MCS101-F can control six compressors.
It optimizes operating conditions to save energy and power, for example, by using the rotary operation to equalize operating times among the compressors.

Color touchscreen with high visibility and operability
*The screen is an inset image.

Possible to configure any unit	You can select any compressor as necessary and configure it to start and stop.
Selection of the first unit to operate	When you turn on the start switch of any compressor, this compressor unit will operate first, and then the multi-unit control operation will start.
Skip function	Compressors that have broken down or are not configured for multi-unit control mode are automatically excluded from the multi-unit control circle.

Point ●Six units can be controlled ●Available for both controller and touchscreen models

※ This system is not compatible with combinations of controller units and touch panel models.
※ Please contact your nearest branch, sales office, or service center in the following cases:
- ●When controlling six or more units
- ●When controlling units that include inverter-equipped models
- ●When using a multi-link unit control system without a control panel (touch panel models only)

Schematic diagram of rotary operation

○Cold Climate Specification

IIn cold environments (below 2°C), drain water may freeze. A tape heater prevents freezing. Enhanced cold-weather options are available upon request.

○Single-Point Lifting*

Equipped with a top lifting hook for easy loading and unloading onto trucks.

○Multi Duct*

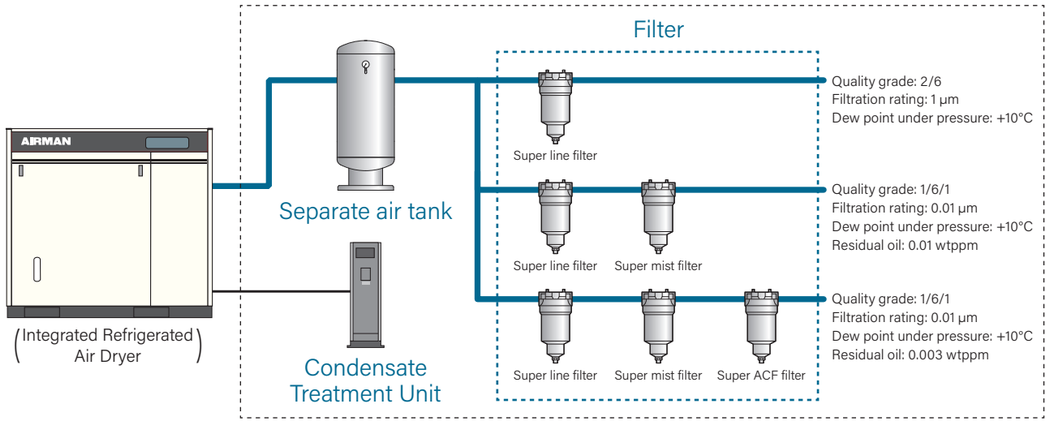
Allows adjustment of airflow direction and helps reduce the impact of snow and noise. Bolt-on design enables easy removal.

*For outdoor installation types

Others ○400/440V voltage specs ○3,000/3,300V voltage specs ○Pressure adjustment ○Anchor plate, etc.

※ For details, please contact your nearest branch or sales office

Peripheral devices



※ The quality grades are as per JIS B 8392-1 (2000)

Precautions for installation

Oil-Injected
Oil-Free

■ Installation location

The installation location must have sufficient space surrounding it, so that it is possible to easily conduct machine inspections and maintenance.

- ●Install the compressor in a location with the following: good ventilation, temperature and humidity are low, and surroundings are as dry as possible. When installing it 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 the intake of air is clean as possible at all times.
- ●Make sure there is 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 of vibration on 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.

■ Power supply

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

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

Nominal output	Breaker rated current (A)	Wire size (mm²)	Grounding wire size (mm²)
3.7 kW	30 (Direct input)	3.5	3.5
5.5 kW	50 (Direct input)	5.5	5.5
7.5 kW	60 (Direct input)	8.0	5.5
	60 (Inverter)	8.0	5.5
11 kW	100 (Direct input)	14	14
	100 (Inverter)	14	14
15 kW	100 (Direct input)	22	14
	100 (Inverter)	22	14
22 kW	200 (Y-△)	38	14
	200 (Inverter)	38	14
37 kW	225 (Y-△)	60	22
	225 (Inverter)	60	22
55 kW	400 (Y-△)	100	22
	400 (Inverter)	100	22
75 kW	600 (Y-△)	150	38
160 kW	100 (Reactor)	38	5.5
200 kW	600 (Y-△)	200	38

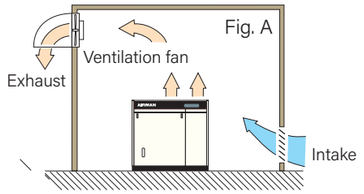
■ Ventilation

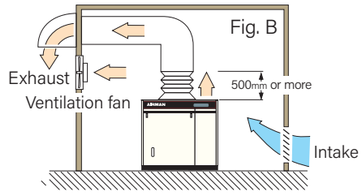
When operating the compressor in a tightly sealed and narrow room or a room that is air-conditioned, ventilation is necessary in order to prevent the room temperature from rising.

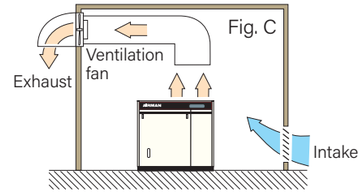
1) General ventilation
When operating the compressor in a small room, such as a compressor room, it is necessary to improve the ventilation so that the room temperature does not exceed 40°C. Although ordinary ventilation fans can be used, make sure to consider the locations of the intake port and ventilation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

2) Local ventilation using ducts
When operating the compressor in a location 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.

3) When installing a ventilation fan inside a duct
If the duct length is made longer or the cross-section area is narrowed, resulting in a pressure loss of 20 Pa (2 mmAq) or more, then a fan must also be installed inside the duct. In this case, in order to prevent overheating and dryer operation failure at low temperatures, the ventilation fan must start and stop as necessary according to the compressor operating conditions.







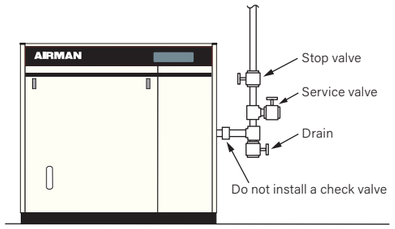
If the metal duct is fastened with rivets directly onto the compressor body, it may interfere with inspections. Therefore, take measures such as using a canvas duct.
<Precautions for ventilation>
- ●Make sure that air enters the ventilator on the intake side of the compressor from the intake duct of the building.
- ●Install a duct on the exhaust-side of the building so that the cooling air that is ejected by the ventilator on the exhaust-side of the compressor can be smoothly discharged.
- ●Make sure that the discharged air does not return to the intake side of the compressor inside the building.
- ●In order to ensure ventilation, walls or other obstacles must not be installed 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	m³/min	42	64	86	126	170	255	415	625	850	200
	Fig. B	m³/min	–	–	17	24	30	50	75	115	160	–
	Fig. C	m³/min	–	–	37	54	70	110	175	265	360	–

■ Piping

- ●Do not create any intermediate lower sections in the piping. If there is a dip or a rise in the piping, make sure to install a drain at the bottom.
- ●In the case of dryerless specifications, install an air filter (commercially available part) for drainage.
- ●Install drains to prevent the backflow of drainage from the main discharge pipe to the compressor side.
- ●Install a stop valve on the main discharge pipe for trial operation or compressor adjustment/inspection. Also install a service valve between the stop valve and the compressor.
- ●All models include a built-in check valve. Therefore, do not install a check valve on the piping coming from the compressor. Otherwise, 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 coming from the compressor must contain the minimum possible number of bends and joint valves in order to reduce the pressure loss.



■ Drains

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