

OIL-FREE SCREW COMPRESSORS

AIR ZEUS

SDS-U SERIES

⚠ Safety Precautions

■Regarding compressor application

- The compressor described in this catalog utilizes only air as a gas. Absolutely avoid using it for compression of a gas other than air.
 - this could result in a fire hazard or damage to the equipment.
- Never use compressed air for human breathing.

■Regarding installation site

- Install this compressor indoors. (Except products with outdoor specifications)
 - Avoid using it at a place susceptible to moisture such as precipitation or vapors.
 - this could result in a fire hazard, electric shock, rusting or shortened life of parts.
- There should be no explosive or flammable gas (acetylene, propane, etc.), organic solvent, explosive powder or flame used near the compressor.
 - otherwise, there is a fire hazard.
- Avoid using the compressor at a place where there is corrosive gas such as ammonia, acid, salt, sulfurous acid gas, etc.
 - this could result in rusting, shortened life or damage to the equipment.

■Regarding usage

- Before use, be sure to read the instruction manual thoroughly for correct use of the compressor.
- Absolutely avoid modifying the compressor or its components.
 - this could result in damage or malfunction.

Specifications in this catalog are subject to change with or without notice, as Hitachi continues to develop the latest technologies and products for its customers.

📍Hitachi Industrial Equipment Systems Co., Ltd.

📍Hitachi, Ltd., Infrastructure Systems Company

For further information, please contact your nearest sales representative.

AIR ZEUS

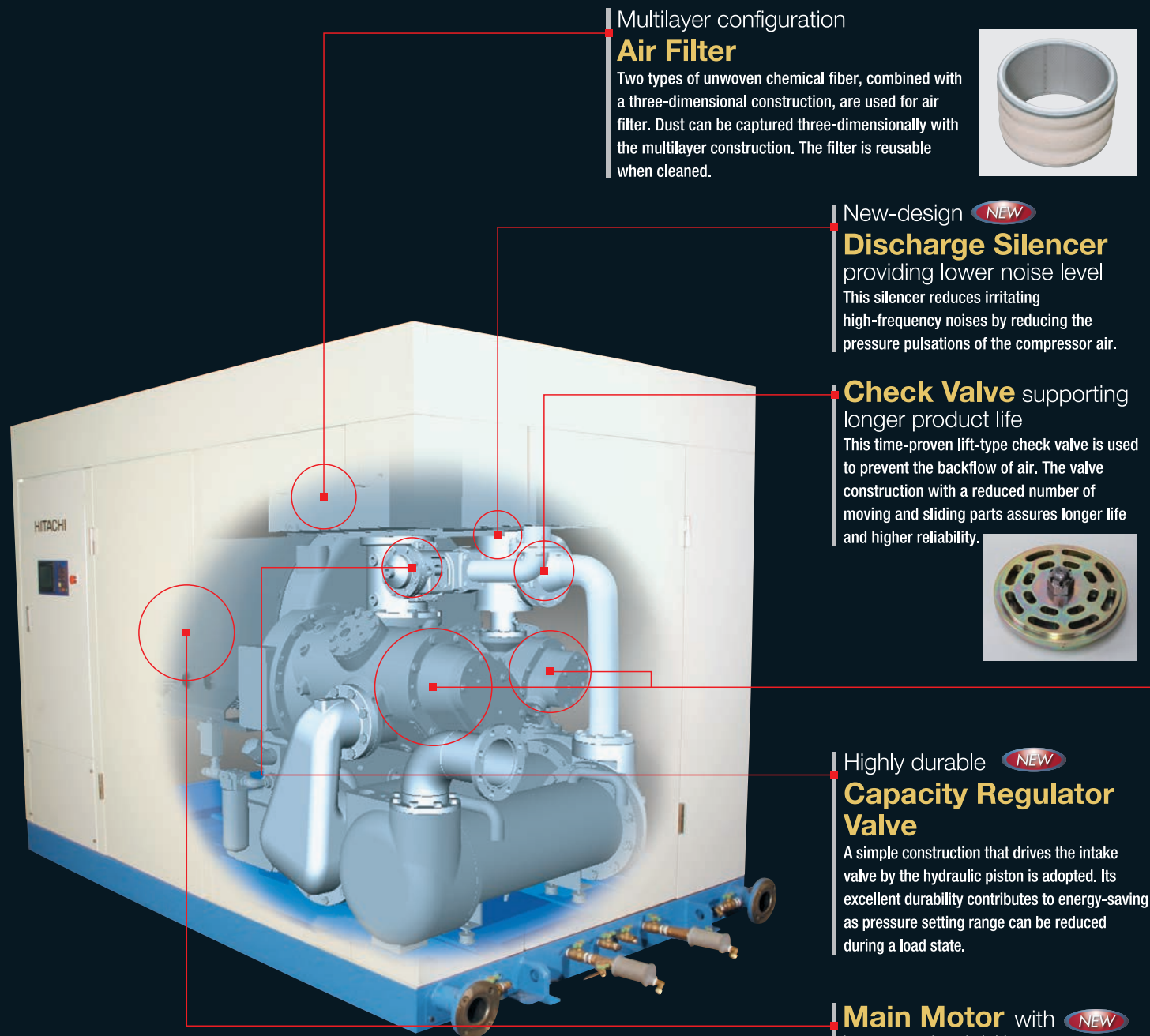
OIL-FREE SCREW COMPRESSORS
SDS-U SERIES

Toward a New Era of Compressors Genesis of Premium Air

The ultimate features created through the pursuit of higher efficiency,
sophisticated operation and reduced irritating high-frequency noise ...

The innovation of performance offered by the new SDS-U Series embodies the New Era.





Multilayer configuration

Air Filter

Two types of unwoven chemical fiber, combined with a three-dimensional construction, are used for air filter. Dust can be captured three-dimensionally with the multilayer construction. The filter is reusable when cleaned.



New-design

Discharge Silencer

providing lower noise level
This silencer reduces irritating high-frequency noises by reducing the pressure pulsations of the compressor air.

Check Valve supporting longer product life

This time-proven lift-type check valve is used to prevent the backflow of air. The valve construction with a reduced number of moving and sliding parts assures longer life and higher reliability.



Highly durable

Capacity Regulator Valve

A simple construction that drives the intake valve by the hydraulic piston is adopted. Its excellent durability contributes to energy-saving as pressure setting range can be reduced during a load state.

Main Motor with improved reliability

A totally enclosed flange-type motor is used for the main motor to improve reliability. Maintenance operation is not necessary for the main shaft, which is directly connected to gears without using a coupling or a step-up gear bearing.

Noise Control Cover in Robust Construction

Advanced measures are incorporated to prevent various kinds of noise such as the panel-transmitting noise and the noise leaking from the (suction) inlet and the air vent.

Environment-friendly Oil Capturing System

OMCS (Oil Mist Capturing System) is commonly equipped in this series. It collects smoke from the gear casing.

Improving Performance by 2.5% compared with Hitachi's conventional model

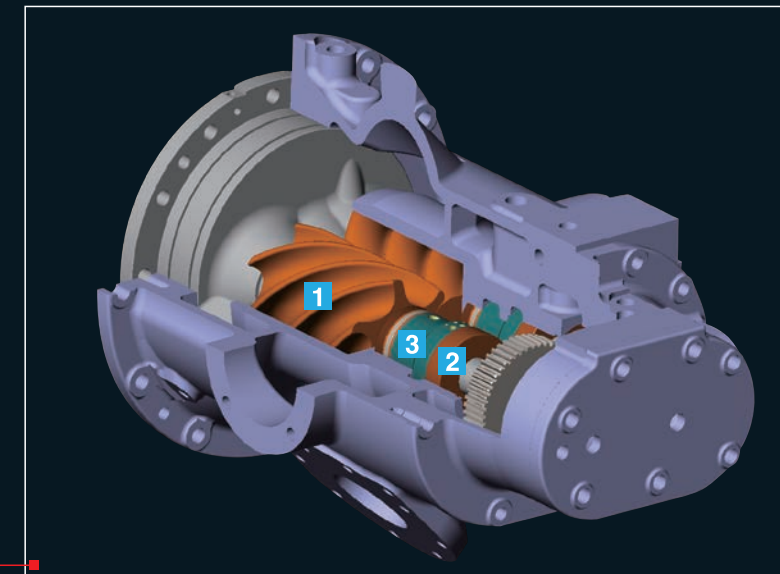
SDS-U280(280kW)

Reducing approximately
¥670 thousand
in energy
consumption annually
*1

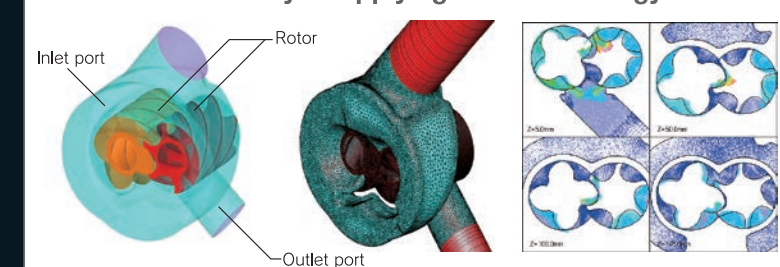
Reducing CO₂ emission by
approximately
31 tons
annually
*2

New-Type Air Block

Improving efficiency and saving energy



Air Block Fluid Analysis applying CFD Technology



The essence of our original technologies behind abundant track record, is concentrated into profiling Air Block. The 3-D fluid analysis that makes full use of an advanced CFD (Computational Fluid Dynamics) technology simulates to assist in optimising shapes of air flow path, inlet, outlet and rotor.

1 3-D Screw Rotor Compensating Thermal Deformation

A 3-D screw rotor (patented) that compensates for the thermal deformation distribution from the difference in air temperature between the inlet and outlet sides. The rotor, for which the high precision machining technology is applied, has a surface coated with a new resin material (patented), which gives the rotor a high level of durability.



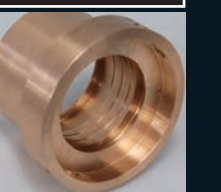
2 Long-Life Bearings

In addition to high quality materials and high precision technology used for the bearings, advanced analysis technologies and lubricating theory are applied to select the type of lubricant, cleanliness, spray nozzle shape and other items affecting the bearings. Every effort is made to give the bearings a longer life.



3 Highly Reliable Shaft Seal

Through the use of a wear-resistant floating seal, air leakage can be sealed for a long time. High quality thread seals are also employed for bearings, providing double prevention against oil mist entering the compression chamber.

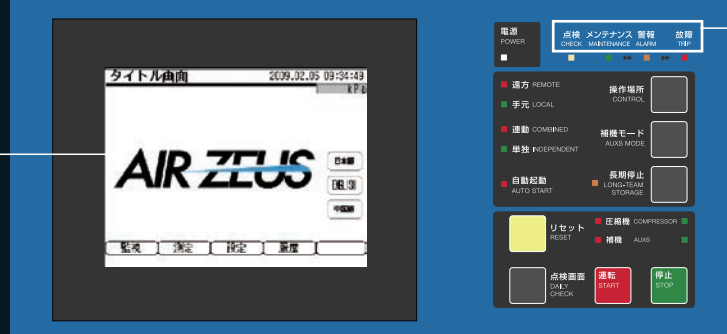


*1: Unit power cost of ¥12/kWh (compared with Hitachi's conventional model)
*2: CO₂ emission coefficient of 0.555 kg CO₂/kWh (compared with Hitachi's conventional model)

Energy-Efficient Control Functions Empowered by Multi-Control System


New and Highly-Functional Control Panel featuring quick and simple operation

An easy-to-watch, highly maneuverable and color LCD touch panel is adopted. Quick navigation function works to instantly reach your desired screen and facilitates your operation. It is capable of setting various parameters and displaying various histories as well as trend graphs. HELP function also has been upgraded. Multi-control, data communication and remote monitoring can be selected as optional functions.

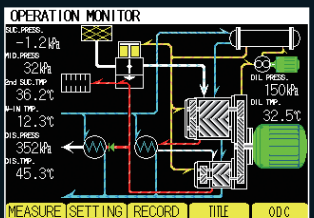


Color LCD Touch Panel

Display of CHECK and 3-Step Self-Diagnostic Functions (MAINTENANCE/ALARM/TRIP)




Easy-to-Watch Monitoring Display

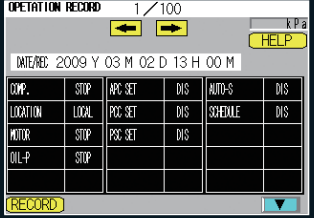


Operation monitoring

Measured value display




Operation History (Value/Graph)

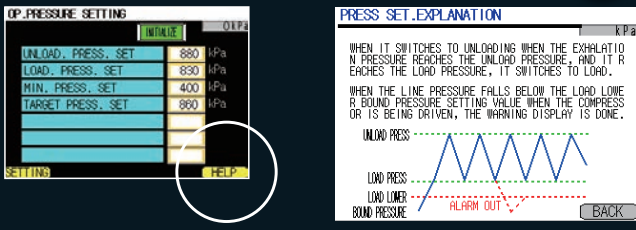


Operation history display (set and measured values)

Trend graphs display

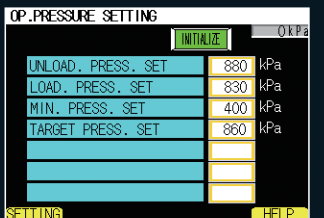


Easy-to-Understand HELP Function



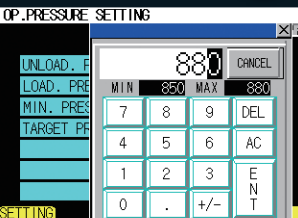
HELP display

Simple Setting Display

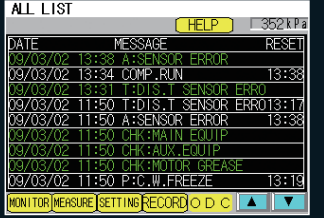


Input

10-key input

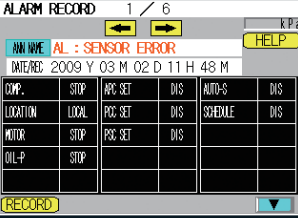


Trip History (Detail/List)



Trip history list display

Trip history detail display



A Variety of Optional Functions

- Multiple Unit Control Function**
Multiple unit control function can be installed in a control panel to operate up to nine compressor units.
- Communication Function**
An office PC can remotely access and obtain operating data, when communication ports are mounted on control panels.
- Remote Monitoring Function**
On a LAN basis, multiple PCs can remotely monitor operating status.

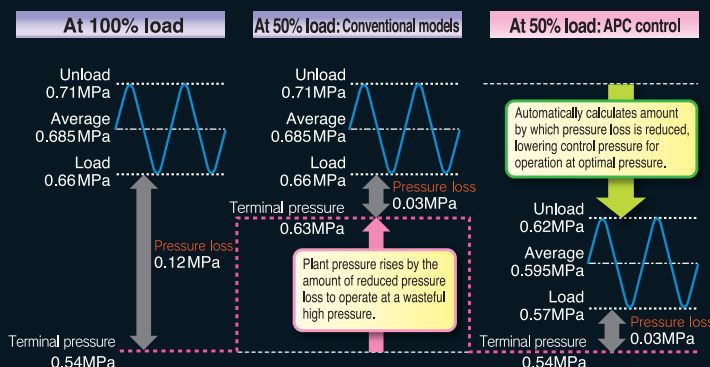


Power Saving Control (Standard)

Capable of saving energy and reducing CO₂ emission by controlling energy consumption multi-functionally

End Pressure Control with APC (Active Power Control)

Air pressure discharged from a compressor loses as air decreases through various equipment. It automatically calculates and controls its pressure setting value to maintain constant end pressure to a user, reducing redundant high pressure operation and contributing to energy saving.



Tentative calculation *3

Average Load Factor: 70%

9% Energy Saving

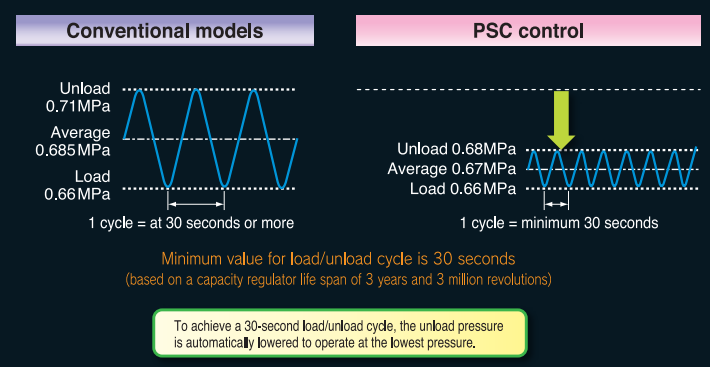
Reducing approximately ¥1,960 thousand in energy consumption annually

Reducing CO₂ emission by approximately 91 tons annually

*3: For annual operation of 8,000 hours under conditions with a unit power cost of ¥12/kWh; a CO₂ emission coefficient of 0.555 kg CO₂/kWh; operating pressure of 0.69 MPa; and the lowest end pressure of 0.54 MPa when 100% loaded and pressure loss of 0.12 MPa (compared with Hitachi's conventional model).

Precision Pressure Control with PSC (Power Save Control)

It can automatically control pressure range while ensuring a specified load-unload cycle time, which leads to reducing abundant air pressure and contributing to energy saving.



Tentative calculation *4

Average Load Factor: 70%

2% Energy Saving

Reducing approximately ¥520 thousand in energy consumption annually

Reducing CO₂ emission by approximately 24 tons annually

*4: For annual operation of 8,000 hours under conditions with a unit power cost of ¥12/kWh; a CO₂ emission coefficient of 0.555 kg CO₂/kWh; operating pressure of 0.69 MPa; and pressure range of 0.05 MPa → 0.02 MPa (compared with Hitachi's conventional model).

Automatic Start/Stop with ASS (Auto Start & Stop)

A compressor automatically stops as line pressure rises up to a certain preset pressure and also unload state continues over a specified time period. It automatically starts up when the line pressure drops to the preset pressure level.

OP. PRESSURE SETTING

ASS SETTING

AUTO START SETTING

AUTO START: DIS

AUTO START PRESS.: 450 kPa

WHEN THE NUMBER CONTROL IS EXECUTED, THE COMPRESSOR : WHILE CONTROLLING, PLEASE SELECT "INV ALIDITY" ABOUT THE AUTOMATIC START CONTROL SETTING SO AS NOT TO START AUTOMATICALLY.

Tentative calculation *5

Daily Continuous Unload Time: 20%

5% Energy Saving

Reducing approximately ¥1,030 thousand in energy consumption annually

Reducing CO₂ emission by approximately 48 tons annually

*5: For annual operation of 8,000 hours under conditions with a unit power cost of ¥12/kWh; a CO₂ emission coefficient of 0.555 kg CO₂/kWh; operating pressure of 0.69 MPa (compared with Hitachi's conventional model).

Products Lineup

AIR ZEUS OIL-FREE SCREW COMPRESSORS
SDS-U SERIES

Energy Conservation
Enabled by Inverter Control

AIR ZEUS OIL-FREE SCREW COMPRESSORS
INVERTER
SDS-UV SERIES

SDS-U Series Standard Specifications (Constant speed model)

Frequency		50Hz												
Discharge pressure MPa [kg/cm ²]	Model	SDS-U105	SDS-U115	SDS-U145	SDS-U160	SDS-U185	SDS-U200	SDS-U225	SDS-U250	SDS-U280	SDS-U325	SDS-U360	SDS-U400	SDS-U450
	Frame number	UH20E	UH20D	UH20C	UH20B	UH20A	UH31D	UH31C	UH31B	UH31A	UH42D	UH42C	UH42B	UH42A
	Inlet air conditions	30°C 75%RH, atmospheric pressure												
0.69 [7.0]	Capacity	m ³ /h	1,000	1,295	1,550	1,780	1,985	2,245	2,480	2,770	3,110	3,630	3,970	4,380
		m ³ /min	16.7	21.6	25.8	29.7	33.1	37.4	41.3	46.2	51.8	60.5	66.2	73.0
	Motor output	kW	105	115	140	160	185	195	220	250	280	320	350	390
0.93 [9.5]	Capacity	m ³ /h	900	1,070	1,360	1,520	1,770	1,825	2,100	2,360	2,670	3,090	3,490	3,930
		m ³ /min	15.0	17.8	22.7	25.3	29.5	30.4	35.0	39.3	44.5	51.5	58.2	65.5
	Motor output	kW	105	115	145	160	190	195	220	250	280	320	360	410
0.93 [9.5]	Capacity	m ³ /h	12.0	14.0	16.0	18.0	21.0	22.0	24.0	26.0	29.0	34.0	38.0	41.0
		m ³ /min	2.0	2.3	2.7	3.0	3.5	3.7	4.0	4.3	4.8	5.7	6.3	6.8
	Motor output	kW	105	115	145	160	190	195	220	250	280	320	360	410
0.93 [9.5]	Capacity	m ³ /h	12.0	14.0	16.0	18.0	21.0	22.0	24.0	26.0	29.0	34.0	38.0	41.0
		m ³ /min	2.0	2.3	2.7	3.0	3.5	3.7	4.0	4.3	4.8	5.7	6.3	6.8
	Motor output	kW	105	115	145	160	190	195	220	250	280	320	360	410
Frequency		60Hz												
Discharge pressure MPa [kg/cm ²]	Model	SDS-U105	SDS-U115	SDS-U145	SDS-U160	SDS-U185	SDS-U200	SDS-U225	SDS-U250	SDS-U280	SDS-U325	SDS-U360	SDS-U400	SDS-U450
	Frame number	UH20E	UH20D	UH20C	UH20B	UH20A	UH31D	UH31C	UH31B	UH31A	UH42D	UH42C	UH42B	UH42A
	Inlet air conditions	30°C 75%RH, atmospheric pressure												
0.69 [7.0]	Capacity	m ³ /h	1,010	1,290	1,560	1,775	2,010	2,220	2,500	2,810	3,115	3,630	3,935	4,435
		m ³ /min	16.8	21.5	26.0	29.6	33.5	37.0	41.7	46.8	51.9	60.5	65.6	73.9
	Motor output	kW	105	115	140	160	185	195	220	250	280	320	350	395
0.93 [9.5]	Capacity	m ³ /h	900	1,055	1,350	1,530	1,810	1,830	2,070	2,360	2,690	3,090	3,505	3,890
		m ³ /min	15.0	17.6	22.5	25.5	30.2	30.5	34.5	39.3	44.8	51.5	58.4	64.8
	Motor output	kW	105	115	145	165	195	195	215	250	290	320	360	405
0.93 [9.5]	Capacity	m ³ /h	12.0	14.0	16.0	18.0	21.0	22.0	24.0	26.0	29.0	34.0	38.0	41.0
		m ³ /min	2.0	2.3	2.7	3.0	3.5	3.7	4.0	4.3	4.8	5.7	6.3	6.8
	Motor output	kW	105	115	145	165	195	195	215	250	290	320	360	405
Motor Type		Totally enclosed fan cooled type												
Oil tank capacity	L	70					70					100		
	Air outlet (A)	65					80					100		
	Water inlet & outlet (A)	50					65					80		
Dimensions	Length	mm	2,600					2,800					3,400	
	Width	mm	1,700					1,700					1,950	
	Height	mm	2,000					2,150					2,300	
Approx. mass		kg	4,800					5,800					8,500	

Notes: (1) Capacity shows the corresponding values in terms of the suction state of compressor. (2) Discharge pressure shows gauge pressure. (3) Motor output indicates nominal output. (4) Dimension of starter panel is not included in approx. dimension. (5) Approx. mass indicates dry mass for model with power-supply voltage at 3kV level. (6) Hitachi is prepared to offer high-discharge pressure specifications (1.03 MPa). Contact us for details.

Standard specification for single-stage model (Constant speed model)

Frequency		50Hz												
Discharge pressure MPa [kg/cm ²]	Model	SDS-U60L	SDS-U75L	SDS-U100L	SDS-U120L	SDS-U135L	SDS-U150L	SDS-U160L	SDS-U195L	SDS-U220L	SDS-U230L	SDS-U250L	SDS-U285L	SDS-U325L
	Frame number	UH2E	UH2D	UH2C	UH2B	UH2A	UH3D	UH3C	UH3B	UH3A	UH4D	UH4C	UH4B	UH4A
	Inlet air conditions	30°C 75%RH, atmospheric pressure												
0.25 [2.6]	Capacity	m ³ /h	955	1,250	1,565	1,860	-	2,290	2,710	3,010	-	3,475	4,120	4,700
		m ³ /min	15.9	20.8	26.1	31.0	-	38.2	45.2	50.2	-	57.9	68.7	78.3
	Motor output	kW	60	80	100	120	-	150	165	180	-	230	255	275
0.34 [3.5]	Capacity	m ³ /h	-	1,005	1,295	1,505	1,745	-	2,070	2,550	2,825	-	3,385	3,840
		m ³ /min	-	16.8	21.6	25.1	29.1	-	34.5	42.5	47.1	-	56.4	64.0
	Motor output	kW	-	75	100	115	135	-	160	195	220	-	250	285
0.34 [3.5]	Capacity	m ³ /h	-	8.4	10.1	12.5	15.4	-	18.3	21.2	24.5	-	28.3	32.1
		m ³ /min	-	1.4	1.7	2.1	2.6	-	3.0	3.5	4.1	-	4.7	5.4
	Motor output	kW	-	75	100	115	135	-	160	195	220	-	250	285
0.34 [3.5]	Capacity	m ³ /h	-	8.4	10.1	12.5	15.4	-	18.3	21.2	24.5	-	28.3	32.1
		m ³ /min	-	1.4	1.7	2.1	2.6	-	3.0	3.5	4.1	-	4.7	5.4
	Motor output	kW	-	75	100	115	135	-	160	195	220	-	250	285
Frequency		60Hz												
Discharge pressure MPa [kg/cm ²]	Model	SDS-U60L	SDS-U75L	SDS-U100L	SDS-U120L	SDS-U135L	SDS-U150L	SDS-U160L	SDS-U195L	SDS-U220L	SDS-U230L	SDS-U250L	SDS-U285L	SDS-U325L
	Frame number	UH2E	UH2D	UH2C	UH2B	UH2A	UH3D	UH3C	UH3B	UH3A	UH4D	UH4C	UH4B	UH4A
	Inlet air conditions	30°C 75%RH, atmospheric pressure												
0.25 [2.6]	Capacity	m ³ /h	960	1,255	1,535	1,865	-	2,290	2,730	3,015	-	3,495	4,170	4,680
		m ³ /min	16.0	20.9	25.6	31.1	-	38.2	45.5	50.3	-	58.3	69.5	78.0
	Motor output	kW	60	80	100	120	-	150	165	180	-	230	255	275
0.34 [3.5]	Capacity	m ³ /h	-	975	1,290	1,510	1,770	-	2,085	2,580	2,830	-	3,385	3,895
		m ³ /min	-	16.3	21.5	25.2	29.5	-	34.8	43.0	47.2	-	56.4	64.9
	Motor output	kW	-	75	100	115	135	-	160	195	220	-	250	285
0.34 [3.5]	Capacity	m ³ /h	-	8.4	10.1	12.5	15.4	-	18.3	21.4	24.5	-	28.3	32.5
		m ³ /min	-	1.4	1.7	2.1	2.6	-	3.0	3.6	4.1	-	4.7	5.4
	Motor output	kW	-	75	100	115	135	-	160	195	220	-	250	285
Motor Type		Totally enclosed fan cooled type												
Oil tank capacity	L	70					70					100		
	Air outlet (A)	80					100					150		
	Water inlet & outlet (A)	40					50					65		
Dimensions	Length	mm	2,600					2,800					3,400	
	Width	mm	1,700					1,700					1,950	
	Height	mm	2,000					2,150					2,300	
Approx. mass		kg	4,600					5,500					7,900	

Notes: (1) Capacity shows the corresponding values in terms of the suction state of compressor. (2) Discharge pressure shows gauge pressure. (3) Motor output indicates nominal output. (4) Dimension of starter panel is not included in approx. dimension. (5) Approx. mass indicates dry mass for model with power-supply voltage at 3kV level. (6) The port size is the standard specification size. (7) At 0.34 MPa specification, compatible up to a discharge pressure of 0.35 MPa.



1 Conserves energy with rotation speed control by the inverter

The inverter suppresses fluctuations in discharge pressure to about 0.01 MPa, thereby reducing discharge pressure and power consumption. This permits energy savings of about 14% compared to two-step devices when the load ratio is 60%. *1

Reduce average operation pressure Reduced power consumption *1 Compared with the 185 kW class model from Hitachi

2 Hitachi's unique APC control has been added, for saving energy further

Addition of Hitachi's unique Active Power Control (APC) function permits control of the end pressure, which enables greater energy savings -- about 25% compared to two-step devices when the load ratio is 60%. *2

*2 Compared with Hitachi 185 kW class, in case of single-stage operation at 0.69 MPa specification and 0.12 MPa pressure loss at 100% load factor.

3 Wide range of rotation speed control

The rotation speed may be controlled at about 20-100% of the capacity. *3 *3: Applies to operation at 0.69 MPa

4 Largely improved motor maintainability

The earth brush, indispensable for inverter-driven motors, was a consumable product. The new device adopts new structural parts that eliminate the need for maintenance work, significantly improving maintainability.

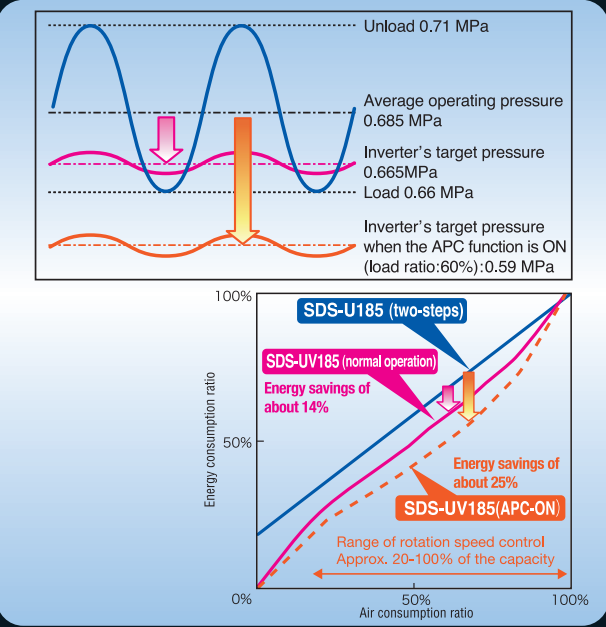
Outdoor specification

Whole series standard lineup



Multi unit control panel

Efficient control contributes greatly to saving energy



Standard specification model (Inverter)

Frequency

AIR ZEUS



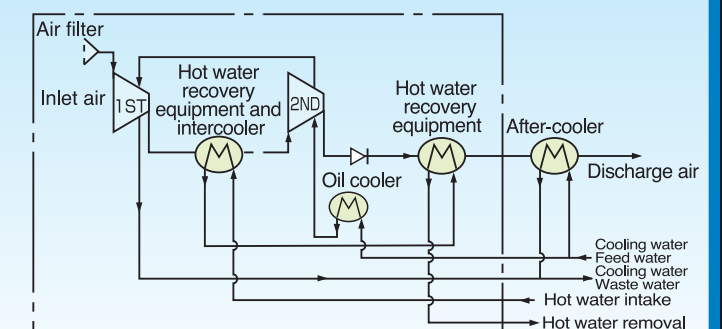
Hot water recovery system

Compressed heat, which accounts for 80-90% of shaft input is recovered in the form of hot water. The effect is to save energy.

- 1** Compressed heat released from cleaning towers etc. is recovered in place of cooling water.
 - 2** The device is compact, and able to recover 80-90% of shaft input heat.
 - 3** During load operation, it is possible to maintain a steady cooling water outlet temperature (max. 95°C, normally 90°C).
 - 4** For standard machines, only the intercooler, after-cooler and plumbing need to be changed.

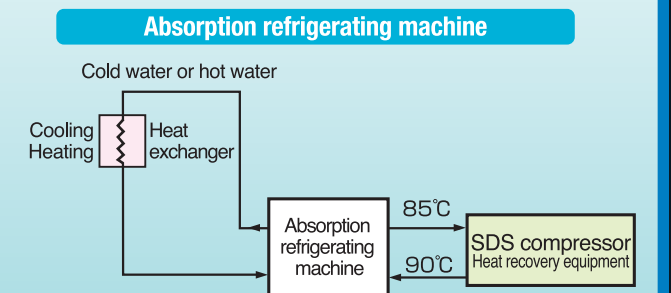
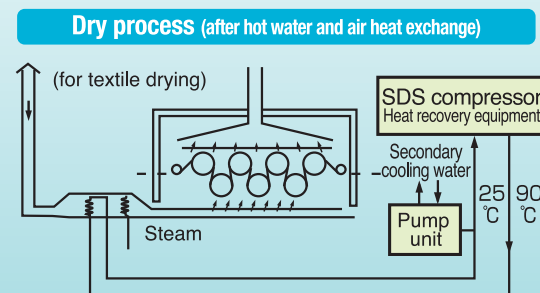
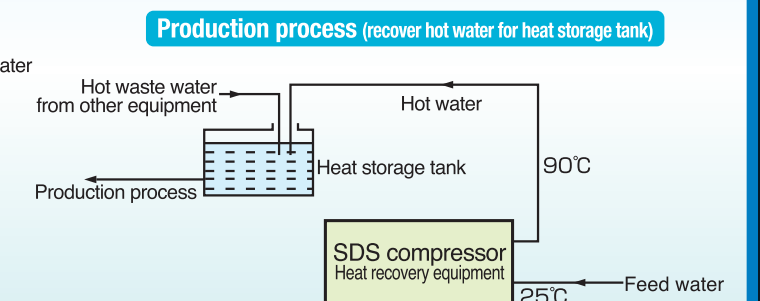
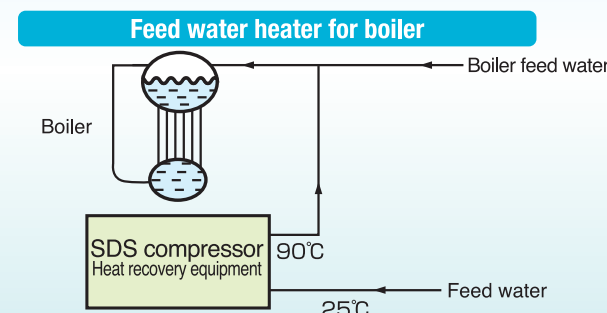
Diagram and example of recovery

Model	Air flow (m³/h)	Main motor output (kW)	Hot water recovered (m³/h)	Recovery heat (MJ/h) [kcal/h]
SDS-105	1,015	105	1.42	(299.3) [71,500]
SDS-200	2,130	200	3.43	(625.8) [149,500]
SDS-360	3,940	360	6.16	(1,147.0) [274,000]



* The numerical values above indicate values calculated for a hot water inlet temperature of 20°C, outlet temperature of 70°C, air inlet temperature of 30°C, and discharge pressure at 0.69 MPa [7 kgf/cm²] (gauge pressure).
*The amount of recovered heat varies depending on the system and hot water recovery temperature.

Example of use



Standard specification for single-stage model

Frequency			50Hz		
Discharge pressure MPa [kg/cm ²]	Model		SDS-320L	SDS-400L	SDS-470L
	Frame number		SDS-H5C	SDS-H5B	SDS-H5A
	Inlet air conditions		30°C 75%RH, atmospheric pressure		
0.29 [3.0]	Capacity	m ³ /h	4,810	6,020	6,850
		m ³ /min	80.2	100.3	114.2
	Motor output	kW	320	400	470
	Cooling water flow	m ³ /h	31	39	44
0.34 [3.5]	Capacity	m ³ /h	4,780	5,980	6,810
		m ³ /min	79.7	99.7	113.5
	Motor output	kW	360	450	520
	Cooling water flow	m ³ /h	33	42	48
Frequency			60Hz		
Discharge pressure MPa [kg/cm ²]	Model		SDS-340L	SDS-400L	SDS-480L
	Frame number		SDS-H5C	SDS-H5B	SDS-H5A
	Inlet air conditions		30°C 75%RH, atmospheric pressure		
0.29 [3.0]	Capacity	m ³ /h	5,040	5,950	6,980
		m ³ /min	84.0	90.2	116.3
	Motor output	kW	340	400	480
	Cooling water flow	m ³ /h	32	38	45
0.34 [3.5]	Capacity	m ³ /h	5,010	5,920	6,940
		m ³ /min	83.5	98.7	115.7
	Motor output	kW	380	450	530
	Cooling water flow	m ³ /h	35	42	49
Motor Type			Open type		
Oil tank capacity		L	110		
Port size	Air outlet	(A)	200		
	Water inlet & outlet	(A)	80		
Dimensions	Length	mm	4,700		
	Width	mm	2,350		
	Height	mm	2,670		
Approx. mass		kg	12,000		

Notes: (1) Capacity shows the corresponding values in terms of the suction state of compressor. (2) Discharge pressure shows gauge pressure. (3) Motor output indicates nominal output.
(4) Dimension of starter panel is not included in approx. dimension. (5) Approx. mass indicates dry mass for model with power-supply voltage at 3kV level.
(6) The port size is the standard specification size. (7) Contact us for details.