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

Hitachi Australia Pty. Ltd.
Level 8, 123 Epping Road,
North Ryde, NSW, 2113 Australia
Phone: +61 2 9888 4100
Fax: +61 2 9888 4188
Email: compressors@hitachi.com.au
Website: www.hitachi.com.au/products/business/power/atg.dhtml

For further information please contact your nearest sales representative.

HITACHI OIL-FREE SCREW COMPRESSOR

HITACHI
Inspire the Next

OIL FREE SCREW

SINGLE STAGE / TWO STAGE

omers.

Class Zero
ISO 8573-1

■ ISO 8573-1 : 2010

CLASS 0 TÜV Approval

Energy-Saving, User-Friendly HITACHI High Standard Oil Free Rotary Screw Compressor for Both Environment and Productivity

'Increased Energy-Saving and User-Friendly' is the concept for the outstanding HITACHI DSP Series oil free screw compressors.
The variable speed model has achieved further energy saving by constant pressure control, while providing a wide line up of choices.

- Environmentally friendly, oil free rotary screw compressor
- Easy operation by large LCD monitoring display
- Advanced functions and performance by scheduled operation and efficient maintenance
- Contribution to cost saving and productivity

Ultimate Air Quality

True Oil-free Air at Class 0 Level

Class Zero ISO-8573-1

Tests and analysis of condensation of oil in the discharge air of Hitachi Oil-free Screw Compressor (DSP) are implemented by a third party (TÜV), based on the ISO8573-1 standard. The testing established that the discharge air of Hitachi DSP is certified as the highest level of quality air - "Class 0" (zero).

■ ISO8573-1:2010 CLASS 0 TÜV Certification

TÜV (The Technische Überwachungs Verein), a German based international third-party test service on aspects of technical safety and quality evaluation, is globally renowned for its neutrality and expertise as well as its strictness in testing.

High Performance Air End

Stainless Steel Fine Rotor

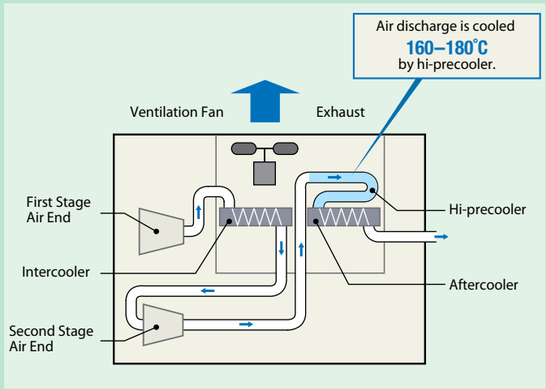
Our rotor utilizes unique stainless steel, superior in corrosion resistance and durability - with highly accurate grinding. Furthermore, to reduce internal leakage the mirror finished surface enables optimal clearance, including thermal expansion during operation.

● High Performance Rotor Profile

The rotor enlarges significantly due to thermal expansion.
Heat expansion of the rotor occurs with exposure to 300˚C discharge air, to the single-stage model (200˚C for the two-stage model). HITACHI original 3D correction technology is used to keep the most appropriate clearance.

Hi-precooler System

The Hi-precooler system cools high temperature discharge air down to 180˚C and below before entering the aftercooler.
This enables the aftercooler to remain below the upper temperature limit.



Model List

■ DSP Fixed Speed Series (kW)

		Dryer	15	22	30	37	45	55	75	90	100	120	132 – 240※1
Single-stage	Air-cooled	—	●	●		●		●					
		Built-in	●	●		●		●					
	Water-cooled	—	●	●		●	●	●					
Two-stage	Air-cooled	—		●	●	●	◉	◉	◉	◉	◉	◉	●
		Built-in		●	●	●	◉	◉	◉				
	Water-cooled	—					◉	◉	◉	◉	◉	◉	◉
		Built-in					◉	◉	◉				

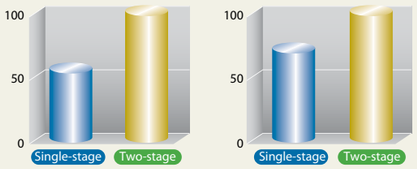
■ DSP V-type with Variable Speed Drive (kW)

		Dryer	15	22	30	37	45	55	75	90	100	120	132 – 240※1
Single-stage	Air-cooled	—		●		●		◉					
		Built-in		●		●		◉					
	Water-cooled	—				●		◉					
Two-stage	Air-cooled	—				●		◉	◉		◉		
		Built-in				●		◉	◉				
	Water-cooled	—						◉	◉		◉		◉※2
		Built-in						◉	◉				

● : V plus ◉ : NEXT Series
※1 132, 145, 160, 200 and 240kW
※2 160 and 240kW

Single-stage, oil free screw compressor is an HITACHI original.

Cut Down Maintenance and Initial Cost



※ Example of Hitachi 55kW without dryer model

Comparison of cost with the same class motor output

Because there is only one air end for DSP single-stage model, the initial cost is lower than two-stage model. The maintenance cost is about half the price of two-stage for the same reason.

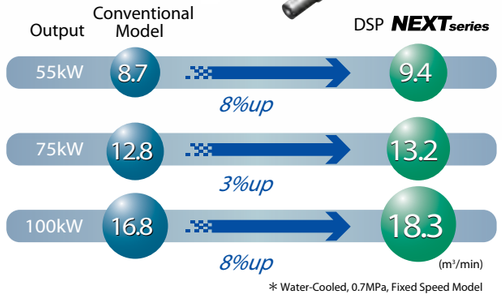
Thorough Reduction of Loss due to the New Air-End
Large Air Delivery and Energy-Saving by DSP NEXTseries

＊Picture above shows the internal structure of the new NEXTseries DSP-75kW V-type, Water-Cooled model.

High Capacity

Equipped with New Air-End

High capacity is realized by the newly developed Air-End.



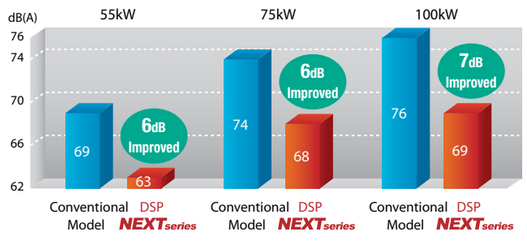
＊Water-Cooled, 0.7MPa, Fixed Speed Model

Low Noise

Low Noise Design

Low noise achieved by the low-noise rotor profile, adoption of vibration-proof driving system and low-noise structure of suction and exhaust.

■ Air-Cooled, 0.7MPa, Fixed Speed Model



Line-Up of Variety

High Discharge Pressure Available

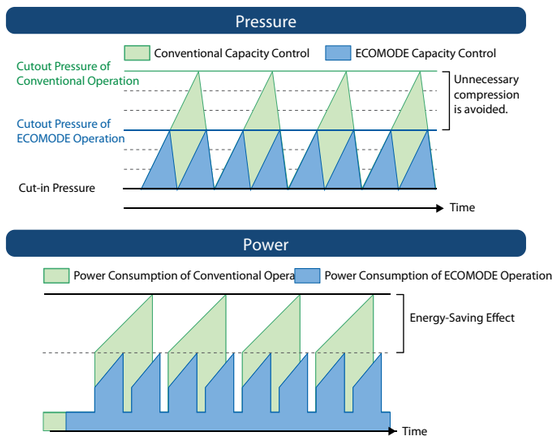
Maximum pressure changes from 0.88MPa to 0.93MPa. There are a range of high discharge pressure options within the series line-up allowing a variety of system designs.

Pursuit of Energy-Saving

ECOMODE

Responding to the compressor load ratio, unnecessary compression is avoided by automatically lowering the unload start-up pressure. Great energy-saving is achieved. Taking the 75kW water-cooled, 0.7MPa SPEC, Fixed Speed model as an example, in case of 70% load ratio 11.3MWh is saved annually, and in case of 90% load ratio 28MWh is saved annually.

(Calculation condition: air receiver tank of 2.26m ³ is installed, 8,000h/year operation)

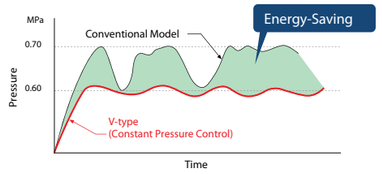


Energy-Saving due to Variable Speed Drive (V-type)

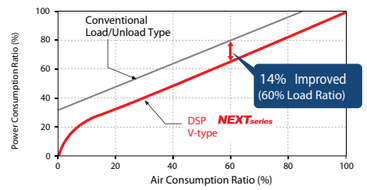
Enlarged Energy-Saving Effect due to Original Capacity Control

For V-type model, the variable speed drive and air capacity control are all originally designed by Hitachi. The control system enables control of the discharge pressure within ±0.01MPa, not only making high response to the load possible, but also achieving great Energy-Savings plus outstanding stability.

Significant Energy-Saving due to Constant Pressure Control



Energy-Saving Achieved by Variable Speed Drive



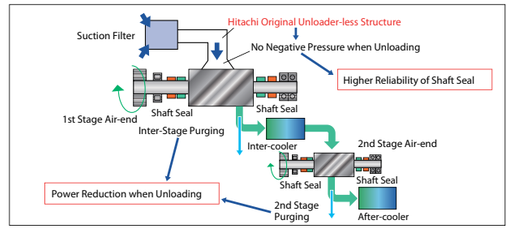
About 83MWh Annual Energy-Saving

Calculation condition:
75kW V-type (0.7MPa SPEC),
0.6MPa as necessary pressure,
8,000h/year operation, 60% load rate

Power Reduction and Reliability Improvement during Unload Operation due to Hitachi Original Unloader-less and Inter-Stage Purge Technology

Patented (JP 3817420)

Significant power reduction and reliability improvement of shaft seal during unload operation are secured due to the Hitachi original technology of purging on both inter-stage and 2nd stage.
And because of unloader-less structure, maintenance of unloader (suction throttle valve) is unnecessary.



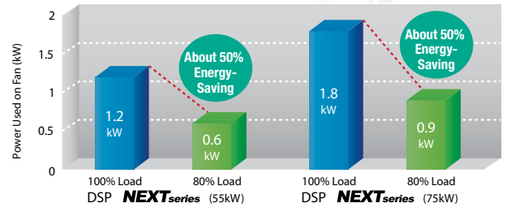
DCBL Drive System for 55/75kW (JP 3255213 others)

Japan Regional Award

- Cascade Vector Control (in line form) as the DCBL motor control system achieves both significant Energy-Saving and excellent reliability.
- Retry function when minor failure occurs is equipped as standard on DCBL controller. Retry is performed up to 3 times according to judgment by itself when the motor trips. So it is possible to eliminate the influence on the operation of the compressor from outside disturbance.

Cooling Fan (45/55/75kW Air Cooled Models)

The newly developed turbo fan is controlled by inverter. Responding to the air delivery change, the rotation speed of the cooling fan is automatically lowered to achieve Energy-Saving.
At the same time, noise from the cooling fan is lowered too.

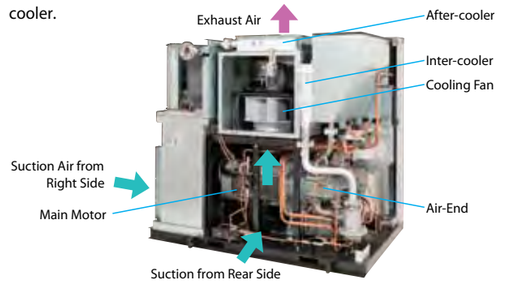


Standard Response to Ambient Temperature up to 45˚C

Continuous operation under up to 45˚C and a long maintenance cycle are made possible by the adoption of a new internal structure which minimizes the internal temperature rise.

Continuous Operation under Ambient Temperature of up to 45˚C + Same as the conventional model (respond up to 40˚C) in maintenance cycle

- Ventilation Structure of Air Cooled Model.
  Compulsory ventilation structure inside the unit utilizes wind from the cooler.



Environment Friendly

Oil Mist Remover (OMR) and Auto Drain Valve installed as Standard Equipment

Oil Mist Remover (OMR), which recaptures the oil mist from gear case and recycle, is standard equipment.
Also, auto drain valves for inter-cooler and after-cooler, to drain intermittently without air loss, are standard equipment.

Oil Mist Remover (OMR)

Auto Drain Valves for Inter-cooler/After-cooler (without Built-in Dryer Model ONLY)

Air Dryer (Built-in Dryer Type)

Low Pressure Drop Stainless Heat Exchanger

Low pressure drop, stainless heat exchanger is newly developed. Loss due to pressure drop is minimized, together with improvement in durability.

Improvement of Reliability

Compared to the conventional model, the performance when operated in high temperature environment is significantly improved.

Improvement in Reliability and Maintenance

Adoption of Totally Enclosed Flange Motor

Reliability is improved due to the adoption of totally enclosed flange motor. Maintenance also becomes easier due to the removal of coupling.

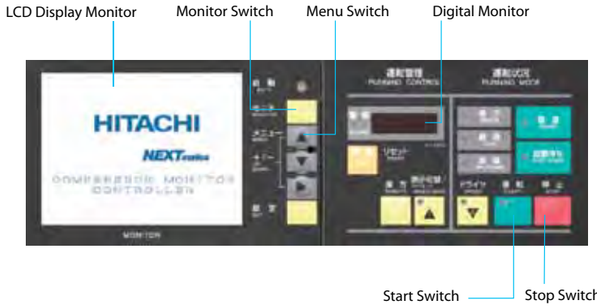
Improvement in Maintenance

Maintenance-friendly layout is adopted, which makes filter change and cleaning of cooler much easier.

Versatility of Control Design

Large LCD Display Monitor with Easy Command Interface

Large LCD display monitor is equipped as standard. Various functions can be easily set by control panel. In case of trouble, the information of status of compressor is displayed so that it is possible to quickly carry out Troubleshooting.



Standard Function

- 3 Languages Available (English, Japanese, Chinese)
- ECOMODE
- Maintenance Time Notification
- Alarm and Trouble History Display
- Schedule Operation
- Operation Data Memory
- Instantaneous Power Interruption (IPI) Restart etc.

Option

- Dual Operation
- Multi-Unit Control Operation
- AUTO Operation
- Communication Function

Specifications

Variable Speed Drive

Item · Unit		Model	DSP-55VAT[R]N		DSP-75VAT[R]N		DSP-100VA5MN		DSP-55VWT[R]N		DSP-75VWT[R]N		DSP-100VW5MN	
Cooling Method		––	Air-cooled						Water-cooled					
Discharge Pressure		MPa	0.70	0.93	0.70	0.93	0.70	0.93	0.70	0.93	0.70	0.93	0.70	0.93
		PSIG	101	135	101	135	101	135	101	135	101	135	101	135
Discharge Capacity		m³/min	9.3	7.7	12.6	10.9	18.0	15.4	9.5	8.0	12.9	11.4	18.3	15.6
		CFM	332	275	450	389	643	550	339	286	461	407	653	557
Capacity @ PQ WIDEMODE ON at 0.6MPa		m³/min	9.6	9.3	13.0	12.6	––		9.8	9.5	13.4	13.0	––	
		CFM	343	332	464	450			350	339	479	464		
Nominal Output		kW	55		75		100		55		75		100	
Motor Type		––	DCBL Motor				2-Pole TEFC Flange Motor		DCBL Motor				2-Pole TEFC Flange Motor	
Intake Air Press. / Temp.		––	Atmospheric Pressure / 0 – 45˚C [5 – 45˚C]						Atmospheric Pressure / 0 – 45˚C [5 – 45˚C]					
Discharge Temperature		˚C	Ambient Temperature + 15 or below						Cooling Water Temperature + 13 or below					
Discharge Pipe Diameter		B	2 (Flange)						2 (Flange)					
Amount of Cooling Water		L/min	––						90		120		160	
Cooling Water Temperature		˚C							35 or below					
Cooling Water Pipe Diameter		B							1・1/4				1・1/2	
Starting Type		––	Soft Start				Inverter		Soft Start				Inverter	
Driving Method		––	Direct Connection with Motor + Gear Driving						Direct Connection with Motor + Gear Driving					
Lubricating Oil Capacity		L	25 (Not filled)				26 (Not filled)		15 (Not filled)				16 (Not filled)	
Cooling Fan Motor Output		kW	1.5		2.2		1.5 × 2		0.05 × 2				0.2 × 2	
[Air Dryer]	P.D.P	˚C	[10 (Under Pressure)]				––		[10 (Under Pressure)]				––	
	Refrigerator Nominal Output	kW	[2.2]		[3.0]				[2.2]		[3.0]			
	Refrigerant	––	[R407C]						[R407C]					
Weight		kg	1,340 [1,490]		1,560 [1,730]		2,350		1,320 [1,470]		1,410 [1,580]		2,200	
Dimensions (W×D×H)		mm	2,000×1,300×1,800		2,250×1,300×1,800		2,150×1,520×1,975		2,000×1,300×1,800				2,150×1,520×1,825	
Sound Level (1.5m from front side)		dB(A)	63	65	67	68	69	71	63		65	66	67	69

Fixed Speed Series (45/55/75 kW)

Item · Unit		Model	DSP-45AT[R]5N		DSP-55AT[R]5N		DSP-75AT[R]5N		DSP-45WT[R]5N		DSP-55WT[R]5N		DSP-75WT[R]5N	
Cooling Method		––	Air-cooled						Water-cooled					
Discharge Pressure		MPa	0.70	0.93	0.75	1.0	0.70	0.93	0.70	0.93	0.70	0.93	0.70	0.93
		PSIG	101	135	109	145	101	135	101	135	101	135	101	135
Discharge Capacity		m³/min	7.4	6.2	9.2	7.2	13.0	10.5	7.5	6.4	9.4	7.4	13.2	10.7
		CFM	264	221	329	257	464	375	268	229	336	264	471	382
Nominal Output		kW	45		55		75		45		55		75	
Motor Type		––	2-Pole TEFC Flange Motor						2-Pole TEFC Flange Motor					
Intake Air Press. / Temp.		––	Atmospheric Pressure / 0 – 45˚C [5 – 45˚C]						Atmospheric Pressure / 0 – 45˚C [5 – 45˚C]					
Discharge Temperature		˚C	Ambient Temperature + 15 or below						Cooling Water Temperature + 13 or below					
Discharge Pipe Diameter		B	2 (Flange)						2 (Flange)					
Amount of Cooling Water		L/min	––						90				120	
Cooling Water Temperature		˚C							35 or below					
Cooling Water Pipe Diameter		B							1・1/4					
Starting Type		––	Star-Delta (3 contact)						Star-Delta (3 contact)					
Driving Method		––	Direct Connection with Motor + Gear Driving						Direct Connection with Motor + Gear Driving					
Lubricating Oil Capacity		L	25 (Not filled)						15 (Not filled)					
Cooling Fan Motor Output		kW	1.5				2.2		0.05 × 2					
[Air Dryer]	P.D.P	˚C	[10 (Under Pressure)]						[10 (Under Pressure)]					
	Refrigerator Nominal Output	kW	[2.2]				[3.0]		[2.2]				[3.0]	
	Refrigerant	––	[R407C]						[R407C]					
Weight		kg	1,500 [1,650]				1,790 [1,960]		1,480 [1,630]				1,640 [1,810]	
Dimensions (W×D×H)		mm	2,000×1,300×1,800				2,250×1,300×1,800		2,000×1,300×1,800					
Sound Level (1.5m from front side)		dB(A)	63	65	63	65	68		63		63		65	66

Fixed Speed Series (90/100/120 kW)

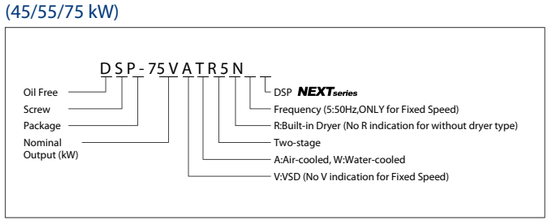
Item · Unit		Model	DSP-90A5L(M)N		DSP-100A5L(M)N		DSP-120A5MN		DSP-90W5L(M)N		DSP-100W5L(M)N		DSP-120W5MN	
Cooling Method		––	Air-cooled						Water-cooled					
Discharge Pressure		MPa	0.70	0.93	0.70	0.93	0.70	0.93	0.70	0.93	0.70	0.93	0.70	0.93
		PSIG	101	135	101	135	101	135	101	135	101	135	101	135
Discharge Capacity		m³/min	16.6	13.9	18.0	15.4	20.5	17.3	16.8	14.0	18.3	15.6	21.0	17.6
		CFM	593	496	643	550	732	618	600	500	653	557	750	628
Nominal Output		kW	90		100		120		90		100		120	
Motor Type		––	2-Pole TEFC Flange Motor						2-Pole TEFC Flange Motor					
Intake Air Press. / Temp.		––	Atmospheric Pressure / 0 – 45˚C						Atmospheric Pressure / 0 – 45˚C					
Discharge Temperature		˚C	Ambient Temperature + 15 or below						Cooling Water Temperature + 13 or below					
Discharge Pipe Diameter		B	2 (Flange)						2 (Flange)					
Amount of Cooling Water		L/min	––						160				180	
Cooling Water Temperature		˚C							35 or below					
Cooling Water Pipe Diameter		B							1・1/2					
Starting Type		––	Star-Delta (3 contact)						Star-Delta (3 contact)					
Driving Method		––	Direct Connection with Motor + Gear Driving						Direct Connection with Motor + Gear Driving					
Lubricating Oil Capacity		L	26 (Not filled)						16 (Not filled)					
Cooling Fan Motor Output		kW	1.1 × 2				1.5 × 2		L : 0.2 × 2, M : 0.05 × 3				0.05 × 3	
Weight		kg	2,250				2,400		2,100				2,250	
Dimensions (W×D×H)		mm	2,150×1,520×1,975						2,150×1,520×1,825					
Sound Level (1.5m from front side)		dB(A)	68	70	69	71	72	73	66	68	67	69	69	70

NOTE:

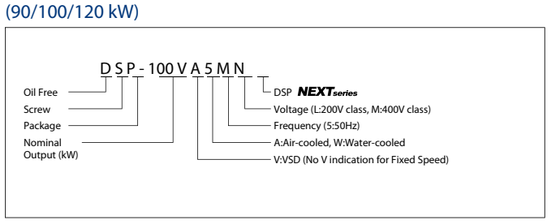
1. Capacity is converted value at its inlet condition (atmospheric pressure).
2. Sound Level is value at 1.5m in front and 1m height in an anechoic room. It may vary in different operating conditions and/or different environment with echo of actual field installations.
   Sound level might be increased by 2dB at PQ WIDEMODE ON.
3. P.D.P is measured at 30 degree C of intake air temperature and rated discharge pressure.
   P.D.P might be much worse at 0.4MPa or less of discharge pressure.
   P.D.P might be 13 degree C at PQ WIDEMODE ON and 0.6MPa of discharge pressure.
4. Capacity of Built-in Dryer model may decrease by up to 3% when drain condensates.
5. Earth leakage circuit breaker is out of scope of supply from Hitachi.
6. DSP NEXTseries compressors are not designed, intended or approved for breathing air applications.
7. Pressures are indicated as the gauge pressure.
8. DSP NEXTseries can not run in excess of 45˚C of ambient temperature. Ventilation and/or air conditions should be considered to maintain the compressor room temperature.
9. For the quality of the cooling water, contact your nearest dealer or Hitachi local representative offices.
10. Install the DSP indoors and avoid flammable and corrosive environment, moisture and dust.
11. Select 3.5-4.5 ton duty fork truck for transportation of DSP-90/100/120 NEXTseries.
12. Hitachi may make improvements and/or changes in the appearance and/or specifications described in this publication at anytime without notice.

Model Nomenclature

(45/55/75 kW)



(90/100/120 kW)



Debut of DSP *NEXT*series V-type in Large Class (160/240kW) water-cooled
Enlarged Line-up of DSP *NEXT*series in 132–240kW Range

Air Intake Filter
Dual layout filter element provides higher reliability.

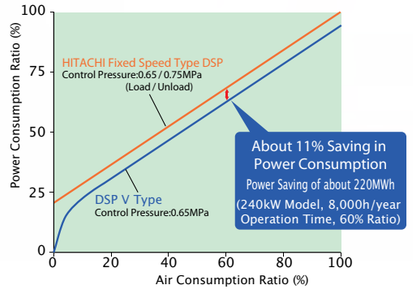
Auto drain solenoid valves for condensate of both intercooler and aftercooler minimize air consumption.

AC/IC Auto Drain Solenoid Valve

Strainer

Energy-Saving (V-type)

Further Energy-Saving is achieved by DSP *NEXT*series with Built-in Inverter.



∗Compared to conventional Load/Unload Control Type, lower pressure setting is possible due to the stable pressure control.

*High Capacity by Equipping New NEXT*series *Air-End*

Low Noise and Vibration

Compact Design by Optimized Layout of Components

High Discharge Pressure Available (up to 1.0MPa)

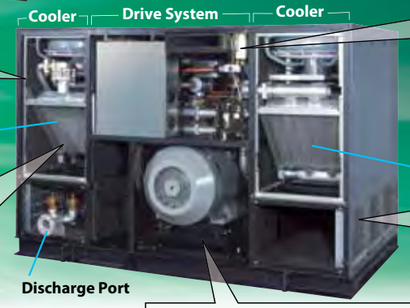
Specifications

Item · Unit	Model	DSP-132W5N		DSP-145W5N		DSP-160W5N		DSP-200W5N		DSP-240W5N		DSP-160VW5N		DSP-240VW5N	
Cooling Method	––	Water-cooled													
Control Method	––	Fixed Speed Type										V type (VSD)			
Discharge Pressure	MPa	0.75	0.93	0.75	0.93	0.75	0.93	0.75	0.93	0.75	0.93	0.75	0.93	0.75	0.93
	PSIG	109	135	109	135	109	135	109	135	109	135	109	135	109	135
Discharge Capacity	m³/min	23.4	20.7	26.0	22.2	28.5	24.8	37.0	32.2	40.5	35.0	28.5	24.8	40.5	35.0
	CFM	836	739	928	793	1018	886	1321	1150	1446	1250	1018	886	1446	1250
Nominal Output	kW	132		145		160		200		240		160		240	
Motor Type	––	4-Pole TEFC Flange Motor													
Intake Air Press. / Temp.	––	Atmospheric Pressure / 0 – 40˚C													
Discharge Temperature	˚C	Cooling Water Temperature + 13 or below													
Discharge Pipe Diameter	B	2 1/2 (Flange)						3 (Flange)				2 1/2 (Flange)		3 (Flange)	
Starting Type	––	Star-Delta										Inverter			
Driving Method	––	Direct Connection with Motor + Gear Driving													
Lubricating Oil Capacity	L	40 (Not filled)						50 (Not filled)				40 (Not filled)		50 (Not filled)	
Cooling Fan Motor Output	kW	0.4													
Weight	kg	3,800						4,800				4,000		5,100	
Dimensions (W×D×H)	mm	2,500×1,600×1,925						2,800×1,800×1,950				2,500×1,600×1,925		2,800×1,800×1,950	
Sound Level (1.5m from front side)	dB(A)	68	69	69	70	69	70	69	70	70	71	70	70	71	71

NOTE:
1. Capacity is converted value at its inlet condition (atmospheric pressure).
2. Sound Level is value at 1.5m in front and 1m height in an anechoic room. It may vary in different operating conditions and/or different environment with echo of actual field installations.
3. Earth leakage circuit breaker is out of scope of supply from Hitachi.
4. DSP *NEXT*series compressors are not designed, intended or approved for breathing air applications.
5. Pressures are indicated as the gauge pressure.
6. DSP *NEXT*series can not run in excess of 40˚C of ambient temperature. Ventilation and/or air conditions should be considered to maintain the compressor room temperature.
7. For the quality of the cooling water, contact your nearest dealer or Hitachi local representative offices.
8. Install the DSP indoors and avoid flammable and corrosive environment, moisture and dust.
9. Hitachi may make improvements and/or changes in the appearance and/or specifications described in this publication at anytime without notice.

Advanced Technology, Top Class of Energy-Saving Achieved
Large Class of Air-cooled DSP 132–240kW

Front



Compact Design
Air/Oil coolers are installed in both sides of drive system.

Dual-V installation of Coolers
Quick and Easy access through rear panel for inspection and cleaning.

Oil Mist Remover as Standard
Collects oil mist from the gear case and recycles.

Low Sound Airflow Path
Newly developed silencer structure airflow path.

TEFC Motor
Highly reliable, highly efficient 4-pole TEFC motor.

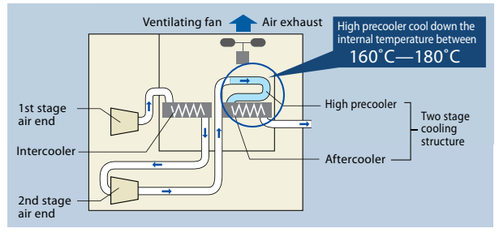
High Reliability and Easy Maintenance

Totally enclosed flange motor is standard
New totally enclosed flange motor is applied to improve reliability. Motor shaft in direct connection without coupling enables easy maintenance work.

High precooler system (air cooled models)
High precooler system reduces temperature of extremely hot air to aftercooler and two stage cooling structure improves reliability.

High Discharge Pressure Available
1.0MPa is available with high reliability.

Maintenance Friendly
DSP series provides easy accessibility for inspection and maintenance.



Specifications

Item · Unit	Model	DSP-132A5		DSP-145A5		DSP-160A5		DSP-200A5		DSP-240A5	
Cooling Method	––	Air-cooled									
Discharge Pressure	MPa	0.75	1.0	0.75	1.0	0.75	1.0	0.75	1.0	0.75	1.0
	PSIG	109	145	109	145	109	145	109	145	109	145
Discharge Capacity	m³/min	22.5	19.0	25.0	20.0	27.5	22.5	35.5	30.0	40.0	32.5
	CFM	803	678	893	714	982	803	1268	1071	1428	1161
Nominal Output	kW	132		145		160		200		240	
Motor Type	––	4-Pole TEFC Flange Motor									
Intake Air Press. / Temp.	––	Atmospheric Pressure / 0 – 40˚C									
Discharge Temperature	˚C	Ambient Temperature + 15 or below									
Discharge Pipe Diameter	B	2 1/2 (Flange)						3 (Flange)			
Starting Type	––	Star-Delta									
Driving Method	––	Direct Connection with Motor + Gear Driving									
Lubricating Oil Capacity	L	50 (Not filled)						60 (Not filled)			
Cooling Fan Motor Output	kW	4.4 (1.1 × 4)						6.0 (1.5 × 4)			
Weight	kg	3,900				4,000		5,200			
Dimensions (W×D×H)	mm	2,900×1,710×1,925						3,200×1,890×1,950			
Sound Level (1.5m from front side)	dB(A)	73	74	74	75	74	75	76	77	77	78

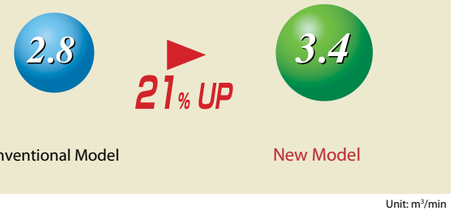
NOTE:
1. Capacity is converted value at its inlet condition (atmospheric pressure).
2. Sound Level is value at 1.5m in front and 1m height in an anechoic room. It may vary in different operating conditions and/or different environment with echo of actual field installations.
3. Earth leakage circuit breaker is out of scope of supply from Hitachi.
4. DSP series compressors are not designed, intended or approved for breathing air applications.
5. Pressures are indicated as the gauge pressure.
6. DSP series can not run in excess of 40˚C of ambient temperature. Ventilation and/or air conditions should be considered to maintain the compressor room temperature.
7. Install the DSP indoors and avoid flammable and corrosive environment, moisture and dust.
8. Hitachi may make improvements and/or changes in the appearance and/or specifications described in this publication at anytime without notice.

High Performance NEW DSP Series

Large Air Delivery

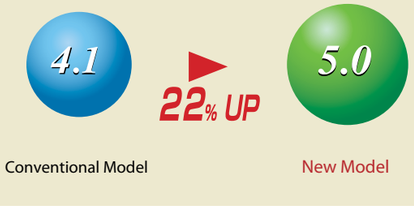
Newly-developed high efficiency air end is applied, and discharge air capacity is increased dramatically.

22kW Single-stage Model (0.69MPa)



Unit: m³/min

37kW Single-stage Model (0.69MPa)



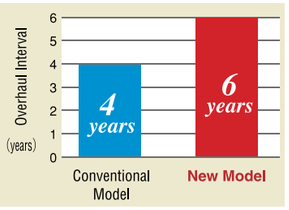
Unit: m³/min

High Reliability and Easy Maintenance

Totally-enclosed, fan-cooled (TEFC) motor is equipped as standard feature.

Longer Overhaul Interval

Overhaul interval is extended from 4 years to 6 years.

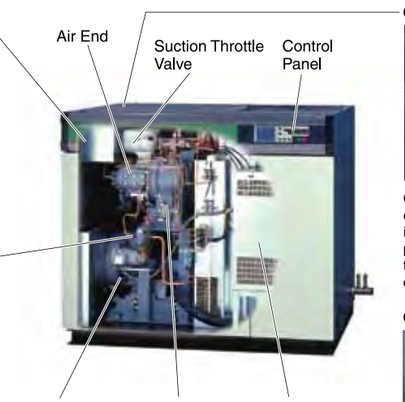


● Suction Filter

Can easily be taken out by removing the left cover.

● Coolant Filter (air-cooled model)

Can be taken out without disconnecting the pipe.



● Oil Mist Remover (option)

Can be built in the package, eliminating the need for installing the gear case vent pipe. All amounts of oil mist from the gear case are collected and reused.

● Cooler (at the back)

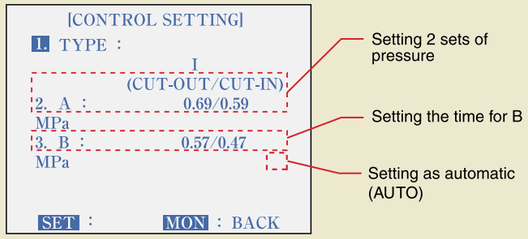
The cooler is installed at the back of the unit and easy to clean.

Further Energy Saving

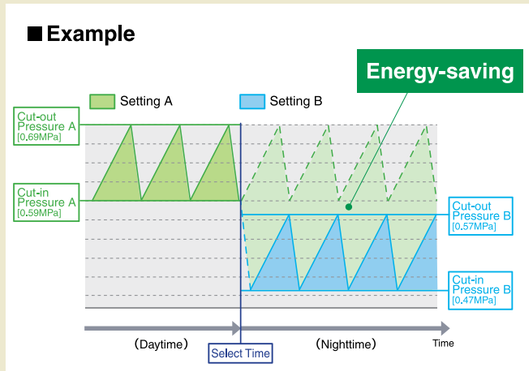
● Hitachi Original Pressure Setting

2 sets of pressure setting, A and B, are available for capacity control. By setting the operation time, it executes capacity control by either A or B. In addition, A and B can be switched externally.*

* Additional modification for terminal block is required.



■ Example



VARIABLE SPEED CONTROL INVERTER DSP V PLUS

AIR COOLED SINGLE STAGE 22kW / 37kW / 55kW

PQ WIDEMODE (22kW, 37kW, 55kW, Air-Cooled, Single-Stage Models)

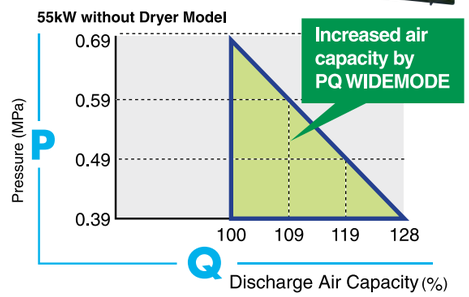
Hitachi inverter controlling system brings about larger capacity under lower pressure or smaller capacity under higher pressure. The available pressure range is between 0.39 and 0.69MPa and air capacity has an increased maximum 19–28% compared with conventional models.

● Capacity in the PQ WIDEMODE

Unit: m³/min (CFM)

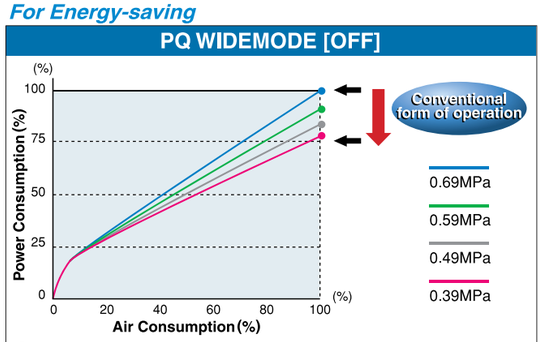
Model \ Discharge Air Pressure MPa (PSIG)	0.39 (42)	0.49 (56)	0.59 (67)	0.69 (85)
22kW	4.3 (154)	4.0 (143)	3.7 (132)	3.4 (121)
37kW	6.4 (229)	6.0 (214)	5.5 (196)	5.0 (179)
55kW	8.2 (293)	7 6. (271)	7 0. (250)	6.4 (229)

Note: Dryer built-in model and 37kW minimum pressure are 0.49MPa in the PQ WIDEMODE.



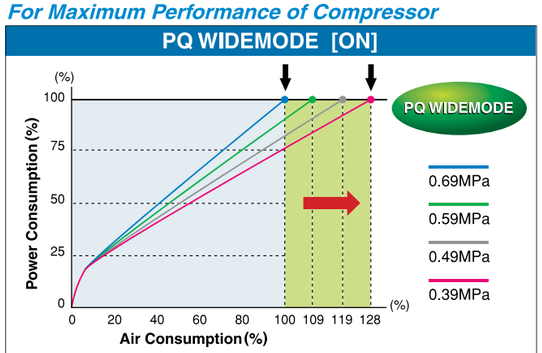
● PQ WIDEMODE is set up as ON or OFF, depends on needs

For Energy-saving



① When the operating pressure is reduced from 0.69MPa to 0.59MPa, the maximum power consumption is automatically reduced to about 92% of 0.69MPa.
② When the pressure is reduced to 0.49MPa, the power consumption reaches about 85%. When the pressure is reduced to 0.39MPa, the power consumption reaches about 79%. If you know your air consumption for sure and wish to reduce the power consumption depressurization, PQ WIDEMODE OFF is recommended.

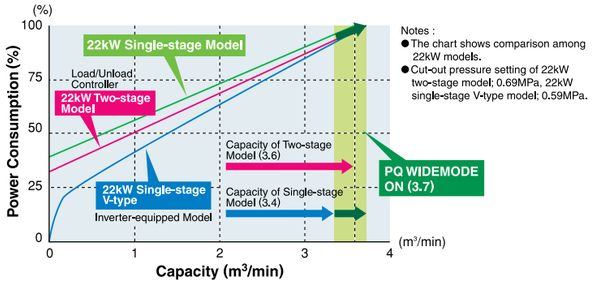
For Maximum Performance of Compressor



① Reducing the operating pressure from 0.69MPa to 0.39MPa, the power consumption is decreased about 79% of 0.69MPa.
② With the excess power from depressurization, you can increase the air flow to 128% of the rating. At that time, the power consumption reaches 100%. If you wish to use maximum performance, PQ WIDEMODE ON is recommended.

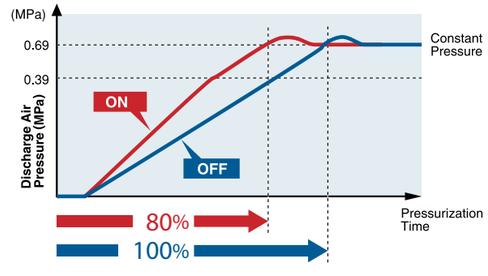
Further Discharge Air Capacity and Energy-Saving Effect, Comparing with Two-Stage Model (22kW Single-Stage Model)

The maintenance cost for single-stage model is low.
PQ WIDEMODE offers competitive discharge air capacity with two-stage model.



Shorten Pressurization Time (PQ WIDEMODE)

Pressurization time is shortened by maximum air capacity operation.
For example, in 55kW model when pressure rises in air receiver from the ambient pressure to 0.69MPa, it can shorten maximum of 20% more than conventional model.



Specifications

New DSP Fixed Speed Series

Single-Stage

■ Air-cooled

Item・Unit		Model	Without Dryer Model								Dryer Built-in Model			
			DSP-15A5Ⅱ		DSP-22A5Ⅱ		DSP-37A5Ⅲ		DSP-55A5Ⅱ		DSP-15AR5Ⅱ	DSP-22AR5Ⅱ	DSP-37AR5Ⅲ	DSP-55AR5Ⅱ
Discharge Pressure		MPa	0.69	0.39	0.69	0.39	0.69	0.39	0.69	0.39	0.69			
		PSIG	100	56	100	56	100	56	100	56	100			
Discharge Air Delivery		m³/min	2.0	2.5	3.4	4.0	5.0	5.9	6.4	8.0	2.0	3.4	5.0	6.4
		CFM	71	89	121	143	179	211	229	286	71	121	179	229
Motor Nominal Output		kW	15		22		37		55		15	22	37	55
Suction Pressure / Temperature		˚C	Atmospheric Pressure / 0 – 40								Atmospheric Pressure / 5 – 40			
Discharge Temperature		˚C	Atmospheric Temperature + 15 or below											
Discharge Pipe Diameter		––	R1				R1 1/2				R1		R1 1/2	
Starter Method		––	Full Voltage Start		Star-Delta (3 contact)						Full Voltage Start	Star-Delta (3 contact)		
Driving Method		––	V-Belt + Gear-Driven											
Cooling Fan Motor Nominal Output		kW	0.75						0.9		0.75			0.9
Coolant Pump Motor Nominal Output		kW(50/60Hz)	0.2 / 0.3											
Lubricating Oil Amount		L	12 (Not filled in)				18 (Not filled in)				12 (Not filled in)		18 (Not filled in)	
Air Dryer	P.D.P.	˚C	––								10 (Under Pressure)			
	Refrigerator Nominal Output	kW									0.5	1.1		
	Refrigerant	––									R407C			
	Fan Motor Output	W									25		25 × 2	120
Weight		kg	750		800		1,020		1,240		780	830	1,170	1,390
Dimensions (W×D×H)		mm	1,400×970×1,400				1,780×980×1,500				1,400×970×1,400		2,180×980×1,500	
Sound Level (1.5m from front side)		dB(A)	62	63	63	64	66	68	68	70	62	63	66	68

■ Water-cooled

Item・Unit		Model	Without Dryer Model									
			DSP-15W5Ⅰ		DSP-22W5Ⅰ		DSP-37W5Ⅲ		DSP-45W5Ⅲ		DSP-55W5Ⅲ	
Discharge Pressure		MPa	0.69	0.39	0.69	0.39	0.69	0.39	0.69	0.39	0.69	0.39
		PSIG	100	56	100	56	100	56	100	56	100	56
Discharge Air Delivery		m³/min	2.0	2.5	3.4	4.0	4.2	5.9	5.0	6.8	6.4	8.0
		CFM	71	89	121	143	150	211	179	243	229	286
Motor Nominal Output		kW	15		22		37		45		55	
Suction Pressure / Temperature		˚C	Atmospheric Pressure / 0 – 40									
Discharge Temperature		˚C	Cooling Water Temperature + 13 or below									
Discharge Pipe Diameter		––	R1				R1 1/2					
Amount of Cooling Water		L/min	50		50		60		80		80	
Cooling Water Temperature		˚C	32 or below									
Cooling Water Pipe Temperature		––	R3/4				R1					
Starter Method		––	Full Voltage Start		Star-Delta (3 contact)							
Driving Method		––	V-Belt + Gear-Driven									
Cooling Fan Motor Nominal Output		kW	0.1									
Lubricating Oil Amount		L	10 (Not filled in)				14 (Not filled in)					
Weight		kg	690		760		970		1,190		1,190	
Dimensions (W×D×H)		mm	1,400×970×1,400				1,520×980×1,500					
Sound Level (1.5m from front side)		dB(A)	62	63	63	64	64	66	64	66	64	66

Two-Stage

■ Air-cooled

Item・Unit		Model	Without Dryer Model						Dryer Built-in Model					
			DSP-22AT5Ⅰ		DSP-30AT5Ⅰ		DSP-37AT5Ⅰ		DSP-22ATR5Ⅰ		DSP-30ATR5Ⅰ		DSP-37ATR5Ⅰ	
Discharge Pressure		MPa	0.69	0.88	0.69	0.88	0.69	0.88	0.69	0.88	0.69	0.88	0.69	0.88
		PSIG	100	128	100	128	100	128	100	128	100	128	100	128
Discharge Air Delivery		m³/min	3.6	3.1	4.6	3.9	5.3	4.6	3.6	3.1	4.6	3.9	5.3	4.6
		CFM	129	111	164	139	189	164	129	111	164	139	189	164
Motor Nominal Output		kW	22		30		37		22		30		37	
Suction Pressure / Temperature		˚C	Atmospheric Pressure / 0 – 40						Atmospheric Pressure / 5 – 40					
Discharge Temperature		˚C	Ambient Temperature + 15 or below											
Discharge Pipe Diameter		––	R 1 1/2											
Starter Method		––	Star-Delta (3 contact)											
Driving Method		––	V-Belt + Gear-Driven											
Cooling Fan Motor Nominal Output		kW	0.75											
Lubricating Oil Capacity		L	18 (Not filled)											
Air Dryer	P.D.P.	˚C	––						10 (Under Pressure)					
	Refrigerator Nominal Output	kW							1.1					
	Refrigerant	––							R407C					
	Fan Motor Output	W							25 × 2					
Weight		kg	1,050		1,150				1,200		1,300			
Dimensions (W×D×H)		mm	1,780×980×1,500						2,180×980×1,500					
Sound Level (1.5m from front side)		dB(A)	64		66		67		64		66		67	

Specifications

New DSP V-type with Variable Speed Drive

Single-Stage

Item・Unit			Model	Without Dryer Model			Dryer Built-in Model			Without Dryer Model	
				DSP-22VA5Ⅰ	DSP-37VA5Ⅱ	DSP-55VA5Ⅰ	DSP-22VAR5Ⅰ	DSP-37VAR5Ⅱ	DSP-55VAR5Ⅰ	DSP-37VW	DSP-55VW
Cooling Method			––	Air-Cooled						Water-Cooled	
Rated	Discharge Pressure	MPa		0.69						0.69	
		PSIG		100						100	
	Discharge Air Delivery	m³/min		3.4	5.0	6.4	3.4	5.0	6.4	4.2	6.4
		CFM		121	179	229	121	179	229	150	229
in PQ WIDEMODE	Discharge Pressure	MPa		0.39			0.49			––	
		PSIG		56			71				
	Discharge Air Delivery	m³/min		4.3	6.4	8.2	4.0	6.0	7.6		
		CFM		154	229	293	143	214	271		
Operating Range of PQ WIDEMODE		MPa (PSIG)		0.39 (56) - 0.69 (100)			0.49 (71) - 0.69 (100)				
Motor Nominal Output		kW		22	37	55	22	37	55	37	55
Motor Type		––		4-pole TEFC Motor						4-pole TEFC Motor	
Suction Pressure / Temperature		˚C		Atmospheric Pressure / 0 – 40			Atmospheric Pressure / 5 – 40			Atmospheric Pressure / 0 – 40	
Discharge Temperature		˚C		Ambient Temperature + 15 or below						Cooling Water Temperature + 13 or below	
Discharge Pipe Diameter		––		R 1	R 1 1/2		R 1	R 1 1/2		R 1 1/2	
Starter Method		––		Inverter						Inverter	
Driving Method		––		Inverter Control + Purge Control						Inverter Control + Purge Control	
Cooling Fan Motor Nominal Output		kW		0.75		0.9	0.75		0.9	0.2	
Lubricating Oil Filling Amount		L		12 (Not filled)	18 (Not filled)		12 (Not filled)	18 (Not filled)		14 (Not filled)	
Coolant Pump Motor Nominal Output		kW(50/60Hz)		0.2 / 0.3						––	
Amount of Cooling Water		L/min		––						60	80
Cooling Water Temperature		˚C								32 or below	
Cooling Water Pipe Diameter		––								R 1	
Air Dryer	P.D.P.	˚C					10 (Under Pressure)				
	Refrigerator Nominal Output	kW					1.1			–	
	Refrigerant	––					R407C				
	Fan Motor Output	W					25	120			
Weight		kg		850	1,080	1,180	880	1,230	1,330	1,050	1,150
Dimensions (W×D×H)		mm		1,650×970×1,400	1,780×980×1,500		1,650×970×1,400	2,180×980×1,500		1,780×980×1,500	
Sound Level (1.5m from front side)		dB(A)		63	66	68	63	66	68	64	

Two-Stage

Item・Unit		Model	Without Dryer Model		Dryer Built-in Model	
			DSP-37VAT5		DSP-37VATR5	
Cooling Method		––	Air-Cooled			
Discharge Pressure		MPa	0.69	0.88	0.69	0.88
		PSIG	100	128	100	128
Discharge Air Delivery		m³/min	5.3	4.6	5.3	4.6
		CFM	189	164	189	164
Motor Nominal Output		kW	37			
Motor Type		––	4-pole TEFC Motor			
Suction Pressure / Temperature		˚C	Atmospheric Pressure / 0 – 40		Atmospheric Pressure / 5 – 40	
Discharge Temperature		˚C	Ambient Temperature + 15 or below			
Discharge Pipe Diameter		––	R 1 1/2			
Starter Method		––	Inverter			
Driving Method		––	Inverter Control + Purge Control			
Cooling Fan Motor Nominal Output		kW	0.75			
Lubricating Oil Filling Amount		L	18 (Not filled)			
Air Dryer	P.D.P.	˚C	––		10 (Under Pressure)	
	Refrigerator Nominal Output	kW			1.1	
	Refrigerant	––			R407C	
	Fan Motor Output	W			25 × 2	
Weight		kg	1,200		1,350	
Dimensions (W×D×H)		mm	1,780×980×1,500		2,180×980×1,500	
Sound Level (1.5m from front side)		dB(A)	67		67	

NOTE:
1. Capacity shows the flow rate converted in suction condition at rated discharge pressure.
2. Noise Level is the value under the condition of full load running and auto-drain valves closed in an anechoic room.
   It may vary in different operating conditions and/or different environments with echo of actual field installations.
   Noise level might be increased by 3dB when PQ WIDEMODE is ON.
3. P.D.P. is measured at 30 degree C of intake air temperature and rated discharge pressure.
   P.D.P. might be worse at 0.4MPa or less of discharge pressure.
   P.D.P. might be 13 degree C at PQ WIDEMODE ON and 0.6MPa of discharge pressure.
4. Free Air Delivery of Built-in Dryer model may decrease by up to 3% when drain condensates.
5. Earth leakage circuit breaker is out of scope of supply from Hitachi.
6. DSP series compressors are not designed, intended or approved for breathing air applications.
7. Pressures are indicated as the gauge pressure.
8. New DSP series cannot run in excess of 40˚C of ambient temperature. Ventilation and/or air conditions should be considered to maintain the compressor room temperature.
9. For the quality of the cooling water, contact your nearest dealer or Hitachi local representative offices.
10. Install the DSP indoors and avoid flammable and corrosive environment, moisture and dust.
11. Motor output is nominal output.
12. Hitachi may make improvements and/or changes in the appearance and/or specifications described in this publication at anytime without notice.

Optional Specifications

COSMOS II (COmpressor Status MOnitoring System)

Web monitoring system shows real time status of compressors via office computer with high speed interface(100BASE-T).

Features

1 Labor saving

A COSMOS Ⅱ module can set and monitor operating conditions of maximum four (4) DSP units, which saves costs of daily checking and facility workers.

2 Monitoring energy saving

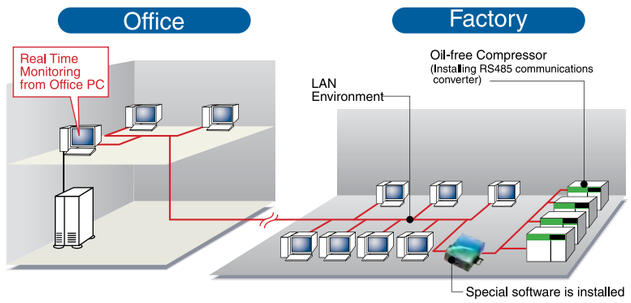
A COSMOS Ⅱ module can monitor the history of compressor load from data of load factor, amperage, mean-load and other operating data.

3 Immediate failure notice

Operating conditions can be monitored visually by animations and bar charts. In an emergency, the operating data and shutdown history are conveyed immediately to make necessary maintenance quicker.

4 Easy installation

RS485 Multi Drop cable system is applied. In addition, connecting to existing LAN cable makes wiring construction easy and economical. When the optional database software is introduced, additional functions such as trend generation will be available to enhance the monitoring capability.



Specifications (model: COS-200)

Interface	RS485 (D-SUB 25-pin connector) - LAN (10/100BASE-T)
Transmission Speed	9600bps
Communication System	Full duplex
Synchronization System	Start-stop synchronous
Isolation	None
Compressor	DSP with control board ver. VO.Z.Z. or higher
No. of Compressors Monitored	4 (monitoring timing with multi-monitor: 10 s)
Transfer Format	Start bit: 1, data bit: 7, parity: even, stop bit: 1
Dimensions and Weight	90 X 64 X 23mm, 200g
Operating Environment	Temperature: 0–40˚C, humidity: 30–80%
Power Supply	100-240VAC (AC adapter:12V, 0.9A)
LAN Protocol	TCP/IP
RS485 Cable Length	250 m, max.
Connector	D-SUB 25-pin Female (RS485), RJ-45 (10/100BASE-T)

* Compressor requires converts for communications. Other applicable models will be lined up sequentially.
* This system is only for COSMOS Ⅱ body, and user shall do wiring separately.
* For existing compressors already installed, please contact Hitachi authorized distributors.
* The PC should be a DOS/V machine with Windows®98,XP,NT and 2000 and browser (IE6.0 or higher).
* It always uploads data in a short time. However, due to facility condition, semantics may slow down.

● ®Windows® is a registered trademark of Microsoft Corporation.

Dual Operation

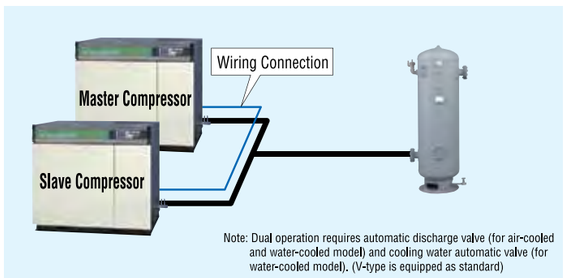
Dual operation is available only by wiring.

Communication between 2 compressors allows operation mode switching by pressure and failure judgement.

- ☐ Alternate Operation Function
- ☐ Pressure Back-up Function
- ☐ Failure Back-up Function

● Operation Setting

```
[MULTI-U SETTING]
1. MODE :          DUAL
2. SELECT :        SLAVE
3. DUAL TIME :     8.0h
4. SWITCH METHOD : OVERLAP
5. SWICHOVER :     15s
6. BUCKUP :        0.05 MPa
7. UNLOAD :        0.02 MPa
SET : STORE  MON : BACK
```



Note: Dual operation requires automatic discharge valve (for air-cooled and water-cooled model) and cooling water automatic valve (for water-cooled model). (V-type is equipped as standard)

Other Options

Automatic Restart Function

It restarts the operation automatically when it is instantaneously shut down. (Time for instantaneous power interruption is between 1 to 5 seconds.)

Auto Operation Function

Compressor can shut down automatically at low loading. (V-type is equipped as standard.)

HITACHI FOOD GRADE DSP OIL (Option)

HITACHI FOOD GRADE DSP OIL – HITACHI Genuine Lubricant for Machine Used in Food Industry

Full Compliance with the International Hygiene Control Method for Food Safety "HACCP"*

To cope with the increasing demand for "Food Safety", HITACHI has developed HITACHI FOOD GRADE DSP OIL, HITACHI genuine lubricant for HITACHI Oil-free Screw Compressor DSP used in food industry, fully complied with "HACCP"*1

Features

- The FOOD GRADE DSP OIL complies with the international hygiene control method for food safety "HACCP"*1
- The FOOD GRADE DSP OIL consists of only prescript substances by the U.S. FDA*2
- The FOOD GRADE DSP OIL is approved and registered as H1 grade*4 by the U.S. NSF International*3.
- The FOOD GRADE DSP OIL has doubled long life compared with the conventional mineral oils*5.

*1 Hazard Analysis Critical Control Point
*2 Food and Drug Administration
*3 National Sanitation Foundation International
*4 The oil which can be used in places where the oil can make occasional contact with foods.
The materials must be prescript substances regulated in the U.S. Food and Drug Law: FDA21 CFR178.3570.
*5 Compared with the conventional mineral oil, longer life by adoption of chemosynthetic based lubricant.
(Exchange cycle: 8,000 operating hours or 1 year which comes earlier.)

Specifications

Item		Unit	Content
ISO Viscosity Grade		—	46
Color Phase		—	Colorless and Transparent
Density	@15˚C	kg/L	0.84
Viscosity	@40˚C	mm^2/s	47
Flash Point		˚C	200
Pour Point		˚C	−50
Content		L	20
Exchange Cycle		—	8,000 operating hours or 1 year which comes earlier
Retrofit		—	Flushing running operation with the exclusive flushing use oil (new oil 20L can) for 30 minutes × twice then refill with new oil
Package		—	Plastic Container Tank
Weight		kg	About 18

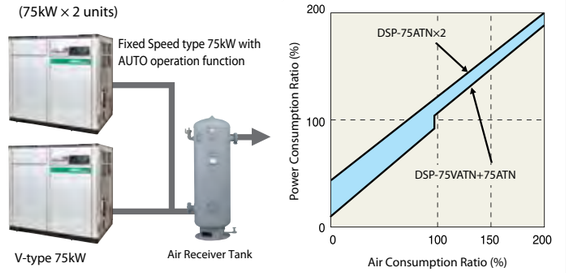
Note:
1. Compliance Standard/Law: NSF H1 approval No. 138329 and FDA21 CFR178.3570
2. For retrofitting from conventional mineral oil to HITACHI FOOD GRADE DSP OIL, contact your nearest HITACHI authorized distributor/dealer.

Proposal for Energy-Saving

Various Energy-Saving operations are possible based on different combinations of V-type model (VSD) and Fixed Speed type model.

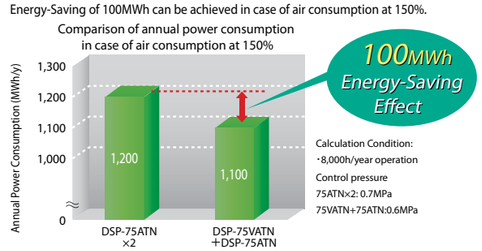
Easy Energy-Saving operation by 2 or 3 units	More Energy-Saving is demanded based on multi-unit control	Further Energy-Saving effect and leveling operation hours are demanded
V-M Combination System	**Multi-Unit Control with Single-V type unit**	**Multi-Unit Control with Multi-V type units**
New Energy-Saving operation achieved by the combination of V-type and Fixed Speed type model	Easy Energy-Saving is possible by multi-unit control with Single V-type unit	Energy-Saving and leveling operation hours are achieved by all V-type units.

■ Basic Example of V-M Combination System
(75kW × 2 units)



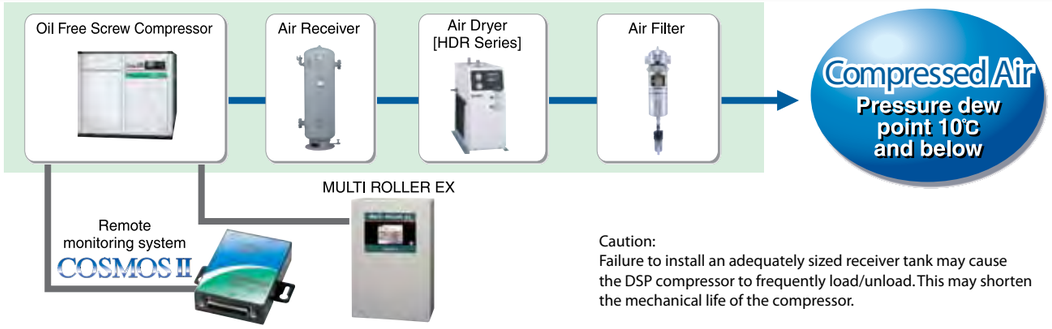
Following Energy-Saving effect can be achieved due to the V-M Combination

Energy-Saving of 100MWh can be achieved in case of air consumption at 150%.



Auxiliary Equipment to Enhance Air Quality

Oil Free Screw Compressed Air System



Caution:
Failure to install an adequately sized receiver tank may cause the DSP compressor to frequently load/unload. This may shorten the mechanical life of the compressor.

Multi Unit Controller (MULTI ROLLER EX)

Standard Specification

Item \ Model		MR26-4E	MR26-8E	MR26-12E
Power Supply		Single-phase AC100/200V (Common)		
Frequency		50/60Hz (Common)		
Controlled Units		4	8	12
Input	Discharge Pressure	0 to 1 MPa (145 PSIG) (Digital Display)		
Input	Control	Operation Answer, Shutdown		
Input	External	Start, Stop, External Forced Start-up, Flow Volume		
Output	Control	Start, Stop, Load, PID Command		
Output	External	Start, Shutdown, Auto		
Dimensions (WxDxH)		400×200×600	500×200×900	500×200×1,200
Weight		19kg	32kg	37kg

Beware of Ventilation in The Compressor Room

DSP cannot be used in a closed room. Install DSP in a facility that can ventilate the heat from DSP.

(1) Whole Ventilation (Figure A)

When the whole compressor room is ventilated, the ventilating fan capacity shall be larger than **recommended fan capacity** ① in the table on following page. (This value is calculated under the condition when the room temperature rise is 5ºC or below. Other than this temperature rise change, the calculating formula for required capacity is specified on the following page overleaf). Install the ventillating fan as high as possible on the wall.

(2) Ventilation with Exhaust Duct (Figure B)

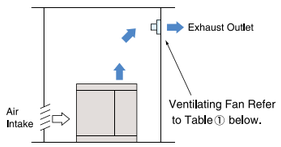
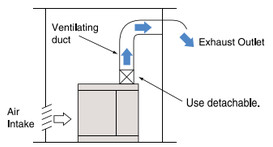
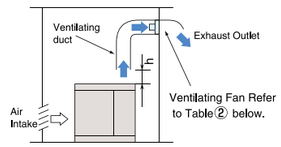
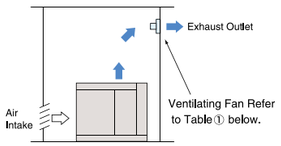
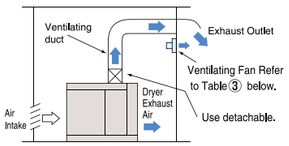
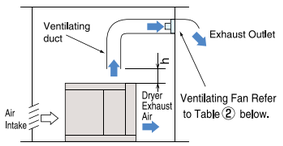
● If the pressure loss is within **20Pa {2mmAq},** ventilating fan in the duct is not required. In this case, install the removal duct on the compressor exhaust port and set it up as removable for maintenance.

Also, to ventilate dryer exhaust, set up suitable fan with capacity larger than recommended fan capacity ③ in the table on the following page.

(3) Ventilation with Exhaust Duct and Ventilating Fan (Figure C)

● If the pressure loss is **larger than 20Pa {2mmAq},** install ventilating fan with capacity larger than **recommended fan capacity** ② in the table on following page. (Keep in mind the temperature rise for selecting the fan). In this case, set up hood on the duct inlet port and make sure to take a distance **h**, which is longer than the duct diameter.

● Do not use the duct installed ventillating fan for dryer exhaust. It may cause freezing of the dryer aftercooler by enforced exhaust.

	Fig. A	Fig. B	Fig. C
yer excluded			
ryer built-in			

Ventilation Data

Ventilation Data

■ Air-cooled (Without Built-in Dryer)

15—55kW (Single-stage and Two-stage)

Item・Unit \ Model		DSP-15A Ⅱ	DSP-22A Ⅱ / DSP-22VA Ⅰ	DSP-37A Ⅲ / DSP-37VA Ⅱ	DSP-55A Ⅱ / DSP-55VA Ⅰ	DSP-22AT Ⅰ	DSP-30AT Ⅰ	DSP-37AT Ⅰ / DSP-37VAT
Heat Generation	MJ/h	77	117	166	225	118	145	158
	(kcal/h)	18,400	28,000	39,600	53,800	28,100	34,600	37,800
Air Exhaust (air compressor)	m³/min	65		100	120	100		
	CFM	2321		3571	4285	3571		
Approx. Temp. Rise (exhaust air)	℃	18	27	25	28	18	22	23
Maximum Pressure Loss (exhaust duct)	Pa (mmAq)	20 (2)						
Recommended Fan Capacity ①	m³/min	204	311	440	600	310	380	410
	CFM	7285	11106	15712	21426	11070	13570	14641
Recommended Fan Capacity ②	m³/min	86	95	130	150	130		
	CFM	3071	3392	4642	5357	4642		

45—120kW (Two-stage)

Item・Unit \ Model		DSP-45ATN	DSP-55ATN / DSP-55VATN	DSP-75ATN / DSP-75VATN	DSP-90AN	DSP-100AN	DSP-120AN	DSP-100VAN
Heat Generation	MJ/h	198	246	333	387	430	498	440
	(kcal/h)	(47,300)	(58,700)	(79,700)	(92,500)	(102,800)	(118,900)	(105,000)
Air Exhaust (air compressor)	m³/min	150		200	250		270	
	CFM	5357		7142	8928		9642	
Approx. Temp. Rise (exhaust air)	℃	20	25	25	24	26	28	25
Maximum Pressure Loss (exhaust duct)	Pa (mmAq)				20 (2)			
Recommended Fan Capacity ①	m³/min	530	650	890	1,030	1,140	1,320	1,170
	CFM	18926	23212	31782	36781	40709	47137	41781
Recommended Fan Capacity ②	m³/min	180		230	280		300	
	CFM	6428		8213	9999		10713	

132—240kW (Two-stage)

Item・Unit \ Model		DSP-132A	DSP-145A	DSP-160A	DSP-200A	DSP-240A
Heat Generation	MJ/h	522	566	636	830	948
	(kcal/h)	(125,000)	(135,000)	(152,000)	(198,000)	(226,000)
Air Exhaust (air compressor)	m³/min	400 〈200×2〉		440 〈220×2〉	500 〈250×2〉	
	CFM	14284		15712	17856	
Approx. Temp. Rise (exhaust air)	℃	20	21	22	25	29
Maximum Pressure Loss (exhaust duct)	Pa (mmAq)	20 (2)				
Recommended Fan Capacity ①	m³/min	1,400	1,500	1,700	2,200	2,500
	CFM	49,994	53,565	60,707	78,562	89,275
Recommended Fan Capacity ②	m³/min	480 〈240×2〉		520 〈260×2〉	600 〈300×2〉	
	CFM	17,170		18,570	21,426	

■ Air-cooled (With Built-in Dryer)

15—75kW (Single-stage and Two-stage)

Item・Unit \ Model		DSP-15AR Ⅱ	DSP-22AR Ⅱ / DSP-22VAR Ⅰ	DSP-37AR Ⅲ / DSP-37VAR Ⅱ	DSP-55AR Ⅱ / DSP-55VAR Ⅰ	DSP-22ATR Ⅰ	DSP-30ATR Ⅰ	DSP-37ATR Ⅰ / DSP-37VATR	DSP-45ATRN	DSP-55ATRN / DSP-55VATRN	DSP-75ATRN / DSP-75VATRN
Heat Generation	MJ/h	84	127	177	238	129	157	171	223	271	379
	(kcal/h)	(20,100)	(30,400)	(42,200)	(57,000)	(30,600)	(37,400)	(40,800)	(53,300)	(64,700)	(90,700)
Air Exhaust (air compressor)	m³/min	65		100	120	100			150		200
	CFM	2,321		3,571	4,285	3,571			5,357		7,142
Air Exhaust (air dryer)	m³/min	18	20	30					60		70
	CFM	643	714	1071					2,143		2,500
Approx. Temp. Rise (exhaust air)	℃	18	27	25	28	18	22	23	20	25	
Maximum Pressure Loss (exhaust duct)	Pa (mmAq)	20 (2)									
Recommended Fan Capacity ①	m³/min	223	338	470	630	340	420	450	600	720	1,020
	CFM	7,963	12,070	16,784	22,497	12,141	14,998	16,070	21,426	25,711	36,424
Recommended Fan Capacity ②	m³/min	106	122	140	160		162	166	250		360
	CFM	3,785	4,357	4,999	5,714		5,785	5,928	8,928		12,856
Recommended Fan Capacity ③	m³/min	20	27	30	36	30	32	36	70		130
	CFM	714	964	1,071	1,286	1,071	1,143	1,286	2,500		4,620

Ventilation Data

■ Water-cooled (Without Built-in Dryer)

15—75kW (Single-stage and Two-stage)

Item・Unit \ Model		DSP-15W Ⅰ	DSP-22W Ⅰ	DSP-37W Ⅲ / DSP-37VW	DSP-45W Ⅲ	DSP-55W Ⅲ / DSP-55VW	DSP-45WTN	DSP-55WTN / DSP-55VWTN	DSP-75WTN / DSP-75VWTN
Heat Generation	MJ/h	8	12	15	18	22	27	28	37
	(kcal/h)	(1,900)	(2,800)	(3,600)	(4,300)	(5,300)	(6,400)	(6,800)	(8,800)
Recommended Fan Capacity ①	m³/min	21	31	40	50	60	75	80	100
	CFM	750	1,107	1,428	1,786	2,143	2,678	2,857	3,571

90—240kW (Two-stage)

Item・Unit \ Model		DSP-90WN	DSP-100WN / DSP-100VWN	DSP-120WN	DSP-132WN	DSP-145WN	DSP-160WN / DSP-160VWN	DSP-200WN	DSP-240WN / DSP-240VWN
Heat Generation	MJ/h	44	49	56	57	60	67	90	98
	(kcal/h)	(10,400)	(11,600)	(13,400)	(13,400)	(14,400)	(16,000)	(21,500)	(23,500)
Recommended Fan Capacity ①	m³/min	120	130	150		160	180	240	260
	CFM	4,285	4,642	5,357		5,714	6,428	8,570	9,285

■ Water-cooled (With Built-in Dryer)

15—75kW (Single-stage and Two-stage)

Item・Unit \ Model		DSP-45WTRN	DSP-55WTRN / DSP-55VWTRN	DSP-75WTRN / DSP-75VWTRN
Heat Generation	MJ/h	52	53	83
	(kcal/h)	(12,300)	(12,700)	(19,800)
Recommended Fan Capacity ①	m³/min	140	145	230
	CFM	4,999	5,178	8,213

● Required Ventilation Capacity

$$Q = \frac{n \times H}{0.00126 \times \triangle T \times 60}$$

Q : Required ventilation capacity m³/min
H : Heat generation per unit MJ/h
n : The number of installed units
△T : Tolerable temperature rise ℃
(The highest tolerable temperature of the compressor − annually highest ambient temperature)

Required Power Transformer Capacity

Select an appropriate power transformer to secure required power source for a compressor.

Model (kW)	Min. Capacity of Transformer (kVA)
15	30
22	50
30	75
37	
45	100
55	
75	150
90	200
100	
120	250

Model (kW)	Min. Capacity of Transformer (kVA)
132	350
145	
160	
200	500
240	

Note:
The capacity of transformer changes dependent on the specs of power cable.

⚠ 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. 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.

MEMO