HITACHI OIL-FREE SCREW COMPRESSOR

HITACHI
Inspire the Next

OIL FREE SCREW

TWO STAGE

NEXT II series

Air-Cooled, V type 160/240kW

NEW

*The image described on this brochure has been modified.

Enlarged Line-Up of Oil-Free Screw (DSP) Fit to Improve Productivity

Premium Air Quality

True Oil-Free Air at Class 0 Level

Test and analysis of condensation of oil in the discharge air of Hitachi Oil-free Screw Compressor (DSP) are implemented by third party (TÜV) based on ISO8573-1 standard. By the test result, oil contained in the discharge air of Hitachi DSP is proved and certified as the highest level of quality air “Class 0”.

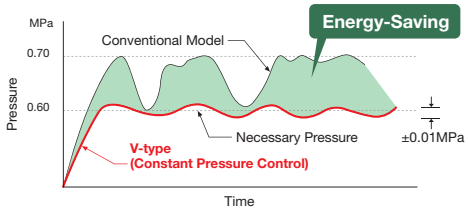
■ ISO 8573-1:2010 [–:–:0]

Energy-Saving due to Variable Speed Drive

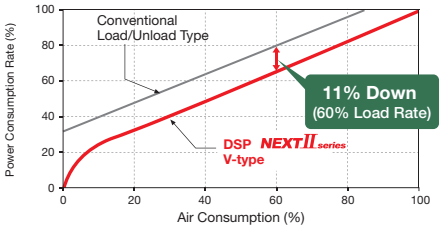
Enlarged Energy-Saving Effect due to Original Capacity Control

For V-type model, variable speed drive and air capacity control are all originally designed by Hitachi. Control system which enables to control the discharge pressure within ±0.01MPa, not only makes high response to the load possible, but also achieve significant effect of Energy-Saving together with outstanding stability.

Significant Energy-Saving due to Constant Pressure Control



Energy-Saving Achieved by Variable Speed Drive



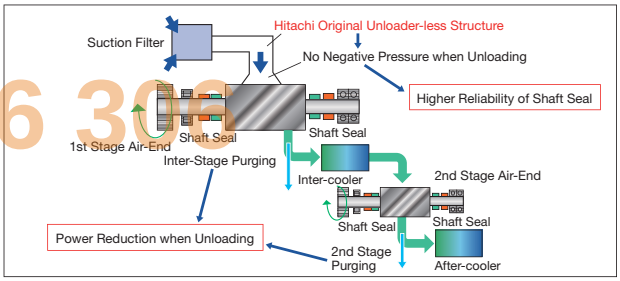
About 220MWh Annual Energy-Saving

Calculation condition:
240kW V-type (0.75MPa SPEC),
0.65MPa 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

Patent
JP 3817420

Significant power reduction and reliability improvement of shaft seal during unload operation are secured due to 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.



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

V-M Combination System

New Energy-Saving operation achieved by the combination of V-type and Fixed Speed type model

More Energy-Saving is demanded based on multi-unit control

Multi-Unit Control with *Single-V type* unit

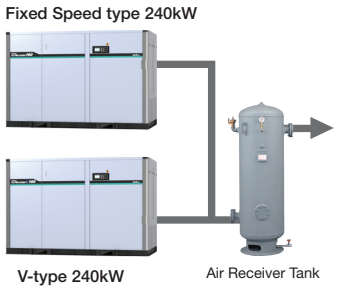
Easy Energy-Saving is possible by multi-unit control with Single V-type unit

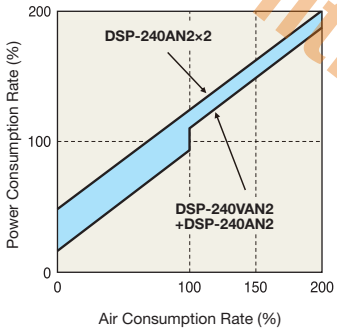
Further Energy-Saving effect and leveling operation hours are demanded

Multi-Unit Control with *Multi-V type* units

Energy-Saving and leveling operation hours are achieved by all V-type units.

■ Basic Example of V-M Combination System
(240kW×2units)

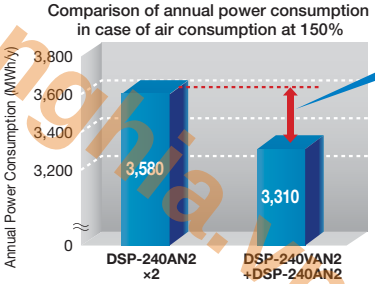




Following Energy-Saving effect can be achieved due to the *V-M Combination*

Energy-Saving of 270MWh can be achieved in case of air consumption at 150%.

Comparison of annual power consumption in case of air consumption at 150%



270MWh Energy-Saving Effect

Calculation Condition:
· 8,000h/year operation
Control pressure
240AN2×2: 0.75MPa
240VAN2+240AN2: 0.65MPa

IPC Control (Intelligent Pressure Control)

By estimating use point pressure in accordance with air consumption, IPC control decreases discharge pressure during low load operation, which enables Energy-Saving.

Patent JP4425768 and others

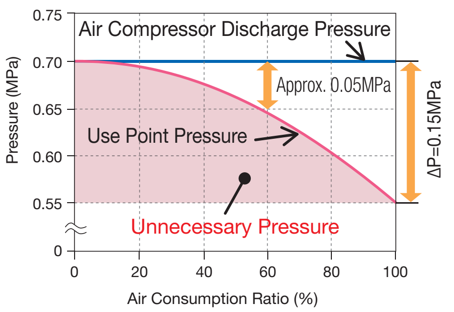
Example of effect by IPC

Conditions
- Air compressor: DSP-160VAN2
- Control pressure setting: 0.70MPa
- Use point pressure during full load: 0.55MPa
- Piping pressure loss during full load: 0.15MPa

Graph of pressure change (Theoretical values)

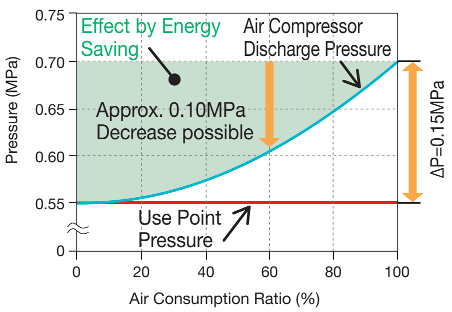
① IPC-OFF

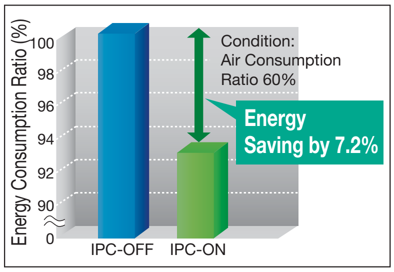
- Control the air compressor discharge pressure at 0.70MPa



② IPC-ON

- Control the use point pressure at 0.55MPa

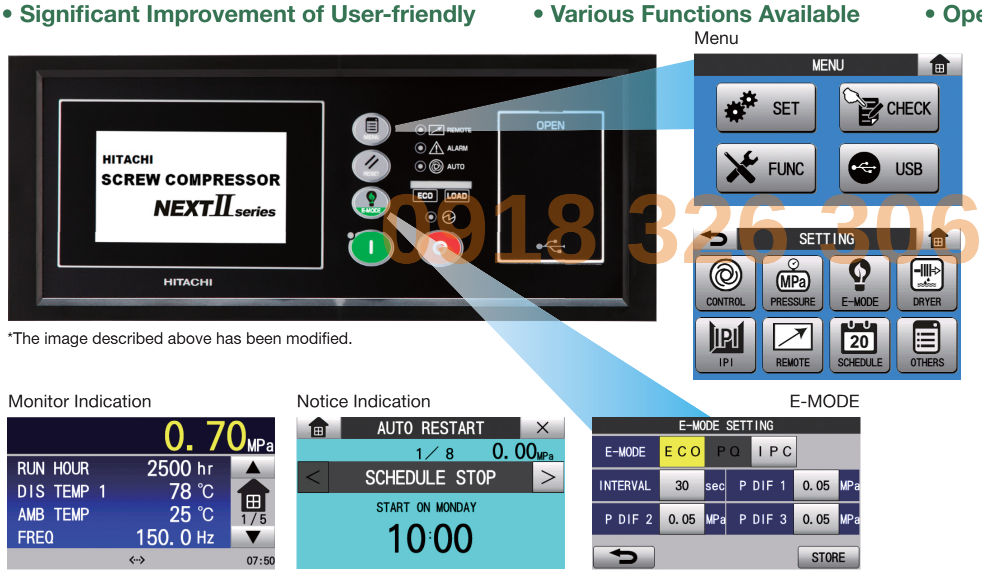




*Due to estimation control, use point pressure varies in accordance with use conditions.

Multi-Function Touch Panel

- **Significant Improvement of User-friendly**
- **Various Functions Available**
- **Operation Data Logging**



*The image described above has been modified.

Main Functions

1. ① Schedule Operation (Weekly Timer)
2. ② Instantaneous Power Interruption (IPI) Restart Function
3. ③ Alternate Operation (Option)
4. ④ Multi-unit Control (Option)
5. ⑤ AUTO Operation
6. ⑥ Communication Function
7. ⑦ Web Server Function
8. ⑧ Display/Store of Operation Data
9. ⑨ Store/Load of Settings
10. ⑩ Maintenance Time Notification
11. ⑪ Operation Data Memory, Display in Graph
12. ⑫ Display of Shutdown and Alarm History

IT Communication Functions

- **USB Flash Memory Possible for Data Logging**

*Necessary to prepare a USB flash memory device (5.5 cm or smaller) on user's side.
*Operation data for one day is approximately 400kB. (For reference)

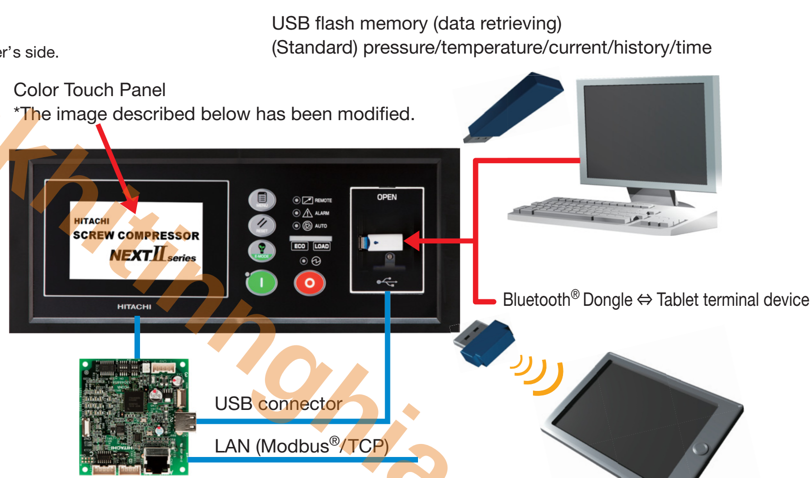
- **Web Server Function via Bluetooth®**

*Necessary to prepare a Bluetooth® USB dongle on your side.
*For setting changes, part of the items are applicable.

- **Modbus® Communication**

Open network serial communication Modbus®/RTU is supported as standard

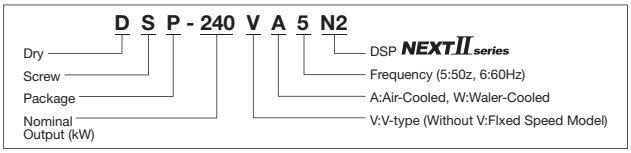
*Modbus®/TCP support is optional.



Specifications

Item·Unit		Model	DSP-160VA5N2 DSP-160VA6N2			DSP-240VA5N2 DSP-240VA6N2		
Discharge Pressure		MPa	0.75	0.93	1.0	0.75	0.93	1.0
Discharge Air Capacity		m³/min	27.5	23.9	22.5	40.0	35.0	32.5
Nominal Motor Output		kW	160			240		
Motor Type		–	4-Pole TEFC flange motor					
Intake Air Pressure/Temperature		℃	Atmospheric pressure / 0-45					
Discharge Air Temperature		℃	Ambient temperature+15 or below					
Discharge Air Pipe Connection		B	2-1/2 (Flange)			3 (Flange)		
Starting Method		–	Inverter					
Driving Method		–	Direct connection with motor+Gear-Driven					
Oil Quantity		L	50 (Not filled)			60 (Not filled)		
Cooling Fan Motor Output		kW	4.4 (1.1 × 4)			6.0 (1.5 × 4)		
Weight	Compressor	kg	3,960			5,000		
	Inverter Panel	kg	400			540		
Dimensions (W×D×H)	Compressor	mm	2,900 × 1,700 × 1,925			3,200 × 1,880 × 1,950		
	Inverter Panel	mm	690 × 1,175 × 1,760			810 × 1,360 × 1,760		
Sound Level (1.5m from front side)		dB(A)	74	75		77	78	

NOTE:
1. Capacity is measured according to ISO 1217, fourth edition, Annex C.
2. Sound level is the equivalent value at 1.5m in front and 1m height in an anechoic room, under full load operation with no auto drain function. It may vary in different operation conditions or environments.
3. In case of dust-proof filter option, maximum ambient temperature is limited up to 40 degree C, and discharge air temperature of air-cooled models is atmospheric temperature +18 degree C or less.
4. Earth leakage circuit breaker is out of supply scope from Hitachi.
5. These air compressors are not designed, intended or approved for breathing air applications.
6. Pressures are indicated as the gauge pressure.
7. Install the air compressor 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.
9. Protruding objects such as discharge pipe are not included in Dimension.
10. Inverter panel is installed separately.



HITACHI FOOD GRADE ROTARY COMPRESSOR OIL

HITACHI Genuine Lubricating Oil for Hitachi Air Compressor Used in Food Industry

Features

- Comply with the international hygiene control method for food safety, HACCP*1
- Consist of ONLY prescript substances specified by the US FDA*2
- Approved and registered as H1 grade*4 by the US NSF International*3
- Applicable for both HITACHI Rotary Screw Compressor (HISCREW/DSP)

*1 Hazard Analysis Critical Control Point
*2 Food and Drug Administration
*3 National Sanitation Foundation International
*4 The OIL can be used in places where it can make occasional contact with foods.
The materials must be prescript substances regulated in the US Food and Drug Law: FDA21 CFR178.3570.

NSF
Nonfood Compounds Program Listed H1 NSF-Reg.No. 150658

Specifications

Item	Unit	Content
ISO Viscosity Grade	–	32
Color Phase	–	Colorless and Transparent
Density @15℃	kg/L	0.84
Viscosity @40℃	mm²/s	32.8
Flash Point	℃	200
Pour Point	℃	-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.

Hitachi Industrial Equipment Systems Co., Ltd.

For further information, please contact your nearest sales representative.

JAB CM021 | ISO 14001 EC97J1107 | UKAS MANAGEMENT SYSTEMS 051 | JQA QUALITY SYSTEM

ISO14001 EC97J1107
ISO9001 JQA-QM3443

Hitachi Screw Compressor is manufactured at a factory approved by Environmental Standard (ISO 14001) and Quality Standard (ISO9001) of International Organization for Standardization.

Printed in Japan(H) **HC-E199** 0418