

Heart to Heart

The most important needs may not always be seen, may not always be heard. That is precisely what makes them so important. We train the eyes and ears of our heart so as to provide optimum response to all our customers needs.

“Heart to Heart”

our way of saying that we view things from our customers perspective. Through this market-oriented approach to doing business, we want to contribute to society.

Safety precautions

1. Before operating, be sure to read the entire instruction manual and follow all safety directions.
2. Never attempt to perform unauthorized equipment modifications. Doing so could cause accidents resulting in injury.
3. The compressors are designed to compress air. Never use them with other gases. Doing so could result in accidents or breakdowns.
4. Never directly inhale the compressed air or use it for respiration systems of any kind. Doing so could cause pulmonary injury.

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KOBELCO



Oil flooded screw compressors general catalog



New product that retains customers' trust.
It can be created from revolutionary spirit and unsparing injection of supreme level of updated technology and with consideration given to the world's ecology.
We pursue true service with heartfelt sincerity.



Great trust backed up by total reassurance



New revolutionary concept in products, sales, and services.



Further development of distinguished technology



Least impact on the environment

With sincerity
With serious attention to our customers' needs, with quick responsive service
With Kobelco's corporate message "Heart to Heart" in manufacturing products

HISTORY

- 1915 • Started R & D for Japanese Domestic Products of air compressors.
Produced Japan's first high-pressure reciprocating compressors using Kobelco's own technologies.
- 1955 • Technical tie-up with SRM in Sweden.
- 1956 • Delivered Japan's first oil-free screw compressor.
- 1960 • Completed screw compressor plant in Takasago, Hyogo.
- 1961 • Launched standard air compressors (single-stage).
- 1964 • Launched standard air compressors (two-stage).
- 1972 • Launched standard air compressors of package type.
- 1973 • Completed standard compressor plant in Okubo, Hyogo.
- 1975 • Launched oil-free air compressors of package type, B & BT series.
- 1978 • Advanced to the field of compact standard air compressors (7.5 - 11kW).
- 1979 • Achieved the delivered Q'ty of 20,000 units of screw compressors.
- 1980 • Launched standard air compressors of energy-saving type, Super Economy series.
- 1983 • Developing Super Rotor profile with Kobelco's own technologies.
- 1987 • Launched AirMate series (1.5 - 3.7kW).
- 1988 • Completed state-of-the art screw compressor plant in Harima, Hyogo.
- 1991 • Launched AirMate series (7.5 - 11kW) which have Built-In Dryer for all models of the series.
- 1993 • Developed Intelligent Total Control System (ITCS) with a self-diagnosis function.
Launched Handsome series (22 - 75kW).
- 1994 • Launched Sukesan Series (1.5 - 3.7kW).
- 1995 • Launched March Series (5.5 - 11kW).
- 1996 • Launched standard oil-free air compressors, Emeraude Series (15 - 37kW).
- 1997 • Launched standard oil-free air compressors, Emeraude Series (45kW~).
- 1998 • Launched Kobelco Inverter Series adopting Interior Permanent Magnet Motors (IPM Motor).
- 2002 • Launched the next-generation screw compressor Kobelion VX/VS series.
- 2009 • Launched Kobelion II series (15 - 75kW).



- Achieved the maximum level of discharge volume and energy efficiency in this range all over the world
- Increased Reliability & Easy Maintenance backed up by Long-term technical experience & history

Energy saving

Maximum level of Energy Saving in the class all over the world

Kobelion's Inverter Control (V.S.D. control) performing significant Energy Saving efficiency.
'Energy-Saving Logic' control minimizing energy loss and stabilizing air pressure.

Reliability

High technology Original & Unique design backed up by Long-term technical experience

Continuous operation even in tough operating condition.
Maximum 30 items of self-diagnose functions to keep safety & stable operation.
High added performances (low noise, clean air, residual pressure startup).

Easy Maintenance

Absolute reliability & simple daily maintenance

Possible to use Kobelion's screw rotors permanently.
Maximum Overhaul Interval of 6 years.
Simple daily maintenance & regular maintenance.

VS

SERIES

Maximum level of Energy-Saving

Volume Saving & Safety

- Kobelco's Inverter Control (V.S.D. control)
- High Efficiency Interior Permanent Magnet Motors (IPM Motor)
- Large liquid crystal electronic monitor

AG

SERIES

High grade model with advanced functions

Advanced Genuine

- Load/ Unload control+ energy saving logic
- Large liquid crystal electronic monitor

SG

SERIES

Basic model with simple functions

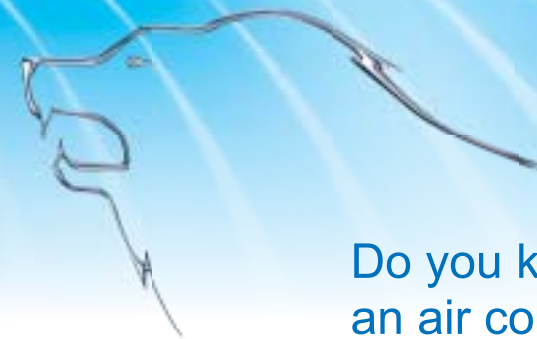
Standard Genuine

- Load/ Unload control
- New type controller



Model Line-Up

Series	Motor Output (kW)						Discharge Pressure (MPa)
	15	22	30	37	55	75	
VS SERIES		○		○	○	○	0.6~0.8 【 Wide range control 】
AG SERIES	○	○	○	○	○	○	0.75/0.85/1.0
SG SERIES	○	○	○	○	○	○	0.75/0.85/1.0



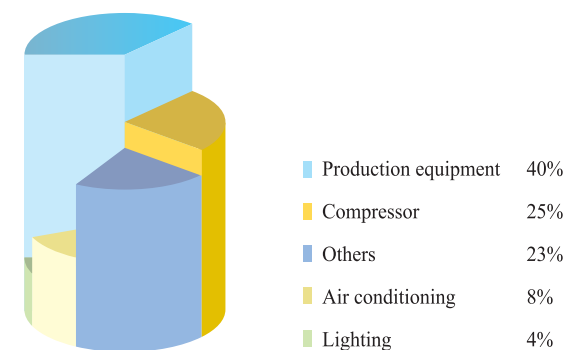
Do you know how much is the electricity cost of an air compressor?

Air compressor is a big source of energy consumption.

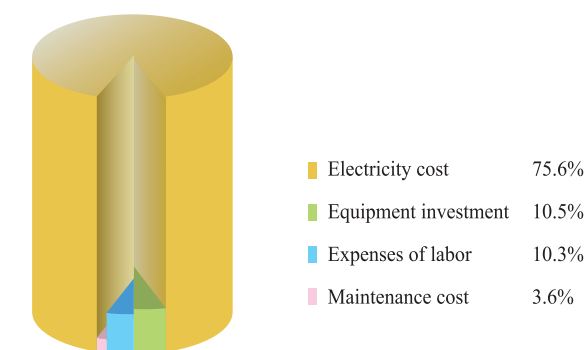
Generally, the electricity consumption of air compressor accounts for about 25% of the whole factory.

The energy efficiency improvement of air compressor plays an important role in reducing energy consumption of the whole factory.

Electricity Cost ratio in a factory

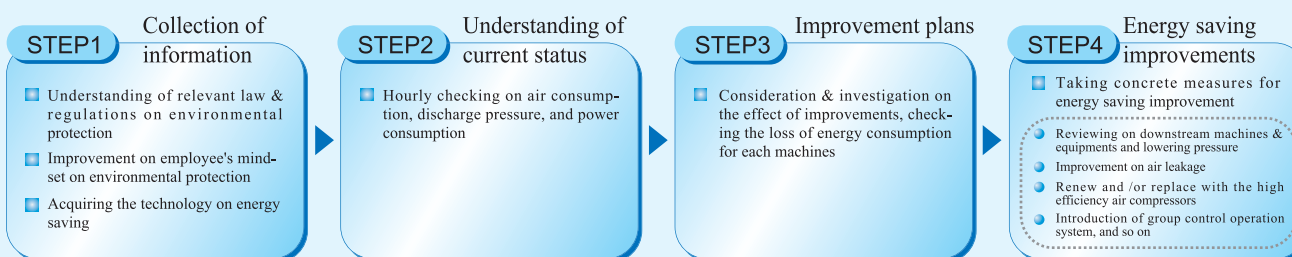


Life cycle cost of air compressor



For the choice of most suitable air compressors, it is more important to consider not only its size & power, but also the usage and the working condition of the factory. Possible to get not only a return exceeding the initial purchasing cost but also an improvement on energy consumption by adopting the most suitable air compressors based on the usage, the air consumption pattern, and the loading condition. As a manufacturer specialized in air compressors, Kobelco could meet customer's needs of energy saving.

★ Key points of improvements on air compressor energy saving



Energy saving

Features

- Maximum level of discharge volume in the class all over the world
- Maximum level of energy efficiency in the class all over the world
- New type of Kobelion's screw unit installed
- Kobelion's Inverter Control (V.S.D. control)
- High Efficiency Interior Permanent Magnet Motors (IPM Motor)
- Built-In overhang direct-coupling construction
- Wide range control
- Inverter cooling fan
- Energy saving design of built-in dryer's drain solenoid valve
- Two-unit alternate operation function of new type of electronic monitor
- Electric terminal for group control operation

VS SERIES

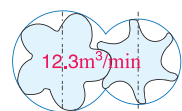


The Society's Prize awarded by The Japan Society of Mechanical Engineers
The President's Prize awarded by The Japan Machinery Federation

Maximum level of discharge volume in the class all over the world

Achieved the Maximum level of discharge volume in the class all over the world by enlarging the size of screw rotors and optimizing the rotor profile under the R & D of new Kobelion's screw rotors.

Conventional unit 75kW



Increase up by 22%

VS1500A-75



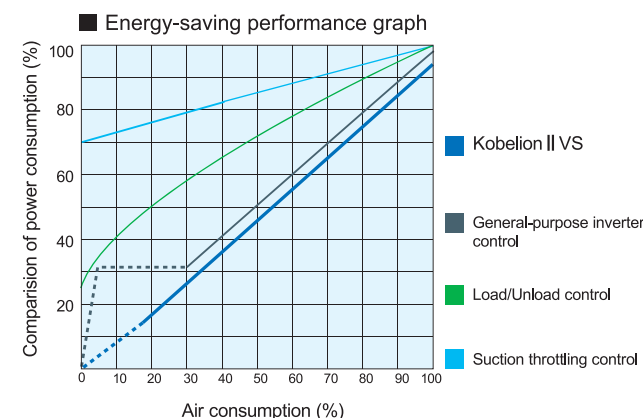
New type Kobelion screw rotor

Maximum level of energy efficiency in the class all over the world

Increased discharge volume in thorough pursuit of energy efficiency in Kobelion II series. Especially in 22kW machine range, achieved much better performance than the ones of other manufacturer's machine.

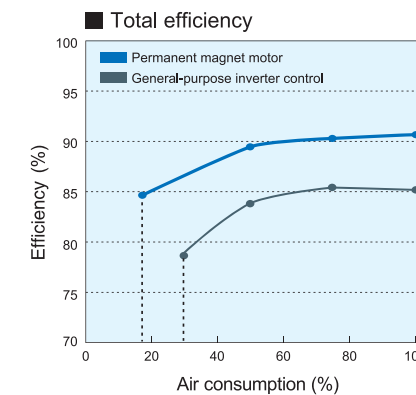
Wide range & optimal capacity control by Kobelion's inverter

Possible to perform better energy saving efficiency at lower loading by doing V.S.D. control according to air demands in Kobelion's inverter series. VS series, which have High Efficiency Interior Permanent Magnet Motors (IPM Motor), could perform better energy saving features especially because of the difference of mechanical structure and V.S.D. control range, comparing with other compressors having general-purpose inverter. Achieved more energy saving effect by 44% than conventional units in Kobelion's inverter series which could perform supreme level of energy saving effects in wide range.



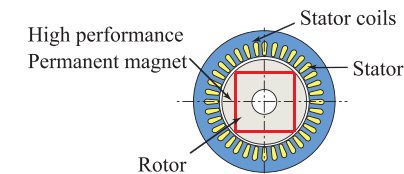
More energy saving effect by 7% thanks to High Efficiency Interior Permanent Magnet Motors (IPM Motor)

Adoption of High Efficiency Interior Permanent Magnet Motors (IPM Motor) than the ones of other inverter compressors having normal induction motor. Possible to perform much better energy saving effects by using IPM high-speed motor + specifically designed inverter than the ones of other compressors having normal induction motor. Higher efficiency by minimizing energy loss thanks to adoption of built-In overhang direct-coupling construction between screw unit & motor.



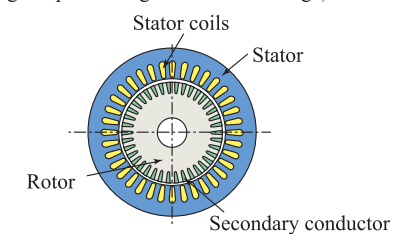
Interior Permanent Magnet Motor (IPM Motor)

Motor generating rotating force by magnetic force of rotor magnetic field and magnetic field generated by AC voltage for stator coils.



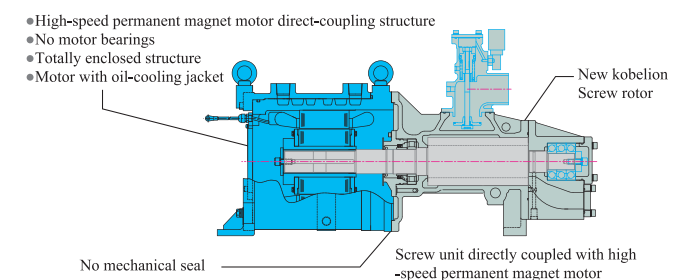
Induction Motor (IM)

Motor generating rotating force by making use of the character of AC voltage for stator coils (Alternate change of plus voltage and minus voltage).



Built-In overhang direct-coupling construction

Adoption of built-In overhang direct-coupling construction to minimize energy loss. Energy loss is minimized by eliminating mechanical loss at power transmission components, such as belts and gears. And, the built-In overhang direct-coupling construction & totally enclosed structure of IPM high-speed oil-proof motor do not need to have mechanical seal, thus that could also lead to the reduction of mechanical loss.



Energy saving by about 50% thanks to inverter control of cooling fan

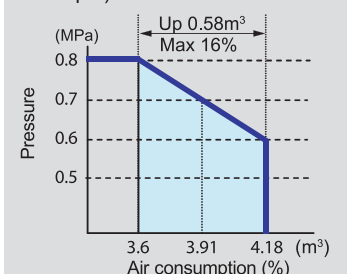
Wasteful energy consumption is minimized by the control of fan speed in proportion to the discharge air temperature. And, the durability is improved by stabilizing the temperature inside the compressor unit. Moreover, further noise reduction could be achieved by inverter control of cooling fan.

Increase by maximum 16% thanks to wide range control

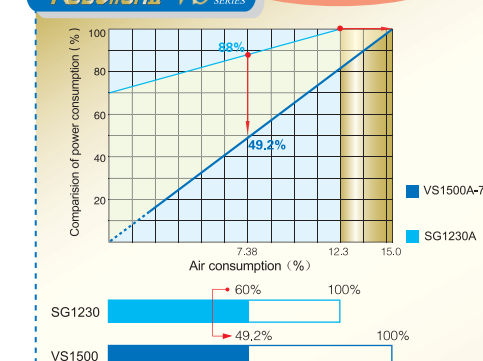
Possible to supply the maximum discharge volume according to operating discharge pressure by wide range control (Constant power control & Constant pressure control).

■ Wide Range Control

Example) VS420A-22



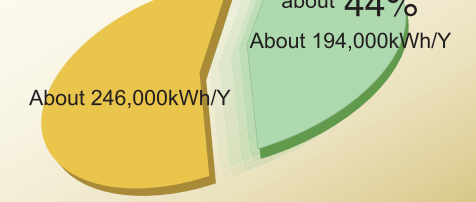
Energy saving about 44%



Conventional unit



Kobelion II-VS SERIES



Computational condition: 75kW.average load rate60%.The running time 6,000 hours.



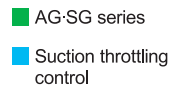
- AG**_{SERIES} **SG**_{SERIES}

- | | |
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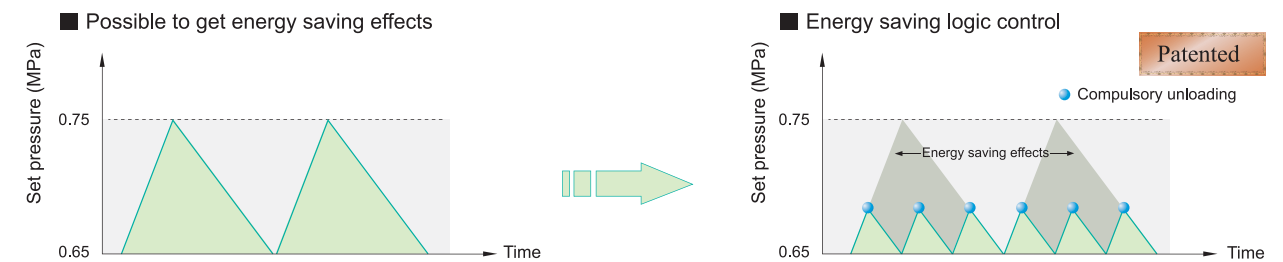
Achieved the Discharge Volume overcoming the ones of competitors in all models in the class by installing New type of Kobelion's screw unit under thorough & fundamental design.

- Load / Unload control in pursuit of reduction of energy loss

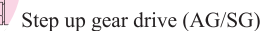
Stable air supply & energy saving backed up by reliable Load/Unload control thanks to the capacity control valve processed by a special anodized aluminum (Alumite).



Possible to get maximum 6% of energy saving effect by Energy saving logic function, which could minimize excessive load operation for optimal control according to air usage status, installed in AG series.

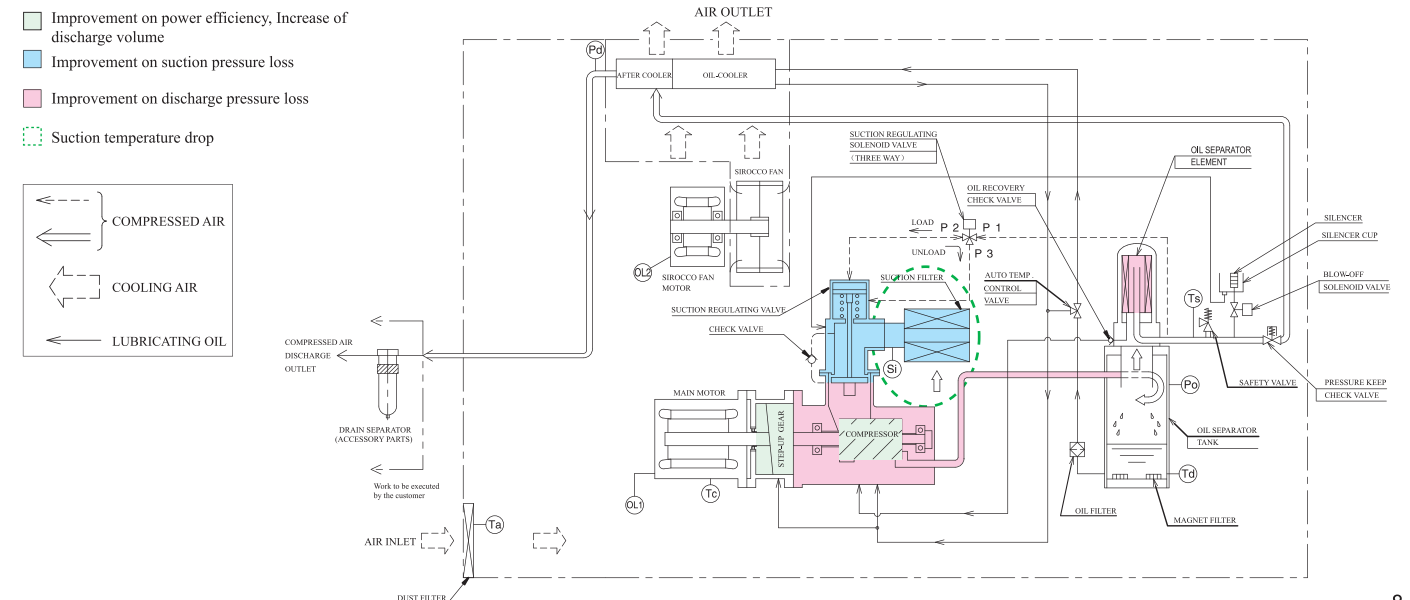
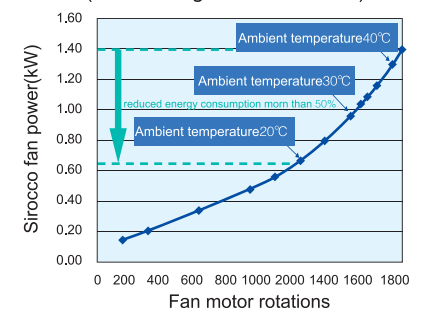


Adoption of step up gear as drive system to minimize energy loss caused by belt drive system. Replacement & Adjustment of the belt is no need.



In AG/SG series, the Inverter cooling fan is available only for 55 - 75kW machine.

Achieved the Maximum level of discharge volume and high efficiency in this range all over the world by improving all parts of components of screw unit in Kobelion II.





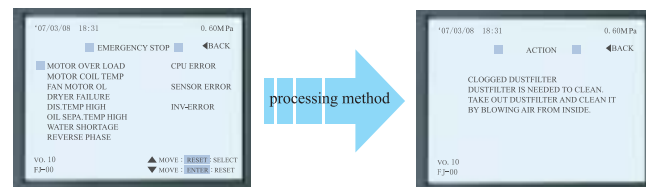
Features

- Maximum 30 items of self-diagnose functions
- IP55 & tropical treatments motor
- Improvement on cooling performance by motor with oil-cooling jacket
- TEFC motor
- Detecting function of motor coil temperature, protection function
- Design basis allowable for the operation even under ambient temperature of 45°C
- Large scale Dust Filter installed
- Water-Removal operation function installed
- No need oil recycling structure
- Built-in DC reactor for removing high harmonic
- Momentary interruption, Power outage protection with automatic reset
- Surge killer against 12000V lightning and noise filter
- Low noise & mild operating sound
- Clean air
- Residual-pressure start up

VS SERIES	AG SERIES	SG SERIES
○	○	—
—	○	○
○	—	—
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○
○	—	—
○	○	—
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○	○	○
○	○	○
○	○	—

Self diagnose function to prevent sudden stop

Electronic monitor having preventive warning system with self-diagnosis function display by 3 stages, Maintenance, Caution, and Emergency-stop. Possible to take quick and accurate countermeasures against emergency-stop case.



- Maintenance 10 items, to call user's attention for necessary maintenance.
- Caution 9 items, to call user's attention for necessary & quick maintenance.
- Emergency 11 items, Possible to take quick and accurate countermeasures.



Oil cooling type shelled motor

Higher Grade Main Motor

More durability against a tough operation condition thanks to the main motor with the protection grade of IP55 & tropical treatments for AG/SG type.
Possible to minimize critical troubles of main motor by the protection functions; Klixon Thermal Relay for SG type and thermocouple (thermometer) for VS/AG type.

Improvement on durability against ambient temperature

Design basis of cooling line allowable for the operation even under ambient temperature of 45°C.
Moreover, achieved stable cooling effects by the motor with oil-cooling jacket installed in VS series.
Stable operation backed up by clean air passing large scale dust filter and preventing performance drop, which is caused by dust on motor and coolers.

Water-Removal operation function to prevent the troubles caused by drain-water

Possible to operate in frequent low loading which easily cause drain-water.
Reduction of the time and the labor to remove drain-water from oil reclaim tank; Preventing the troubles caused by lubricating oil including lots of drain-water.
Preventing the rust troubles caused by drain-water inside oil reclaim tank.

Momentary interruption, Power outage protection with automatic reset installed

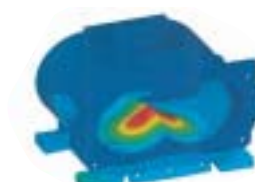
- Momentary interruption: 0.1~0.5s (variable) The operation to be stopped, if the time exceeds 0.5s, the operation could be continued by 0.2s for AG. On the contrary, the operation should be stopped if the power off time exceeds 0.5s.
- Automatic reset: 0.1~20s (variable) If the power is recovered in 20s after power off, it could be restarted.

Low noise

Achieved excellent noise reduction & vibration reduction by advanced FEM analysis, new designed unit, suitable sound absorber, and so on.
And, achieved further noise reduction for Low noise & mild operating sound by Inverter cooling fan.



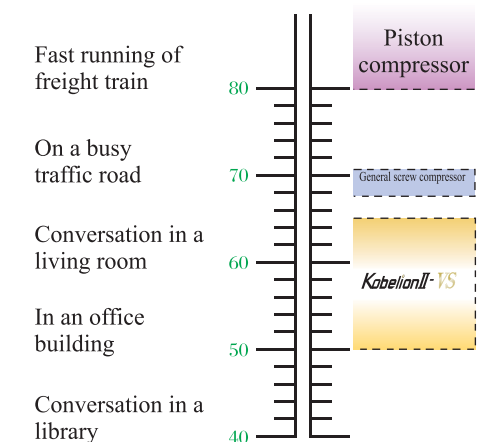
FEM analyze



New FEM analyze

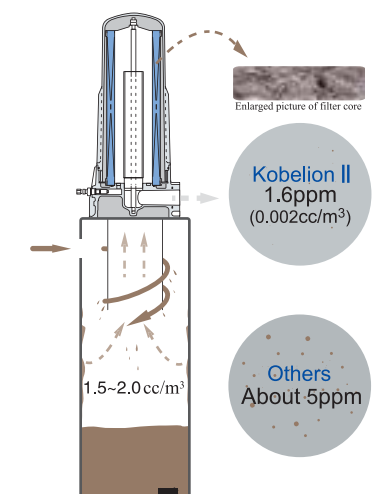
※FEM analysis: To analyze overall vibration and noise by dividing objects, which have complex shape and qualities, into small parts.
For Kobelion II, taking higher level of countermeasures for noise reduction & vibration reduction, based on "New FEM analysis" which analyze thoroughly even the surface of objects in the case that internal pressure vibration is given when compressing.

Basis of Noise level (dB)



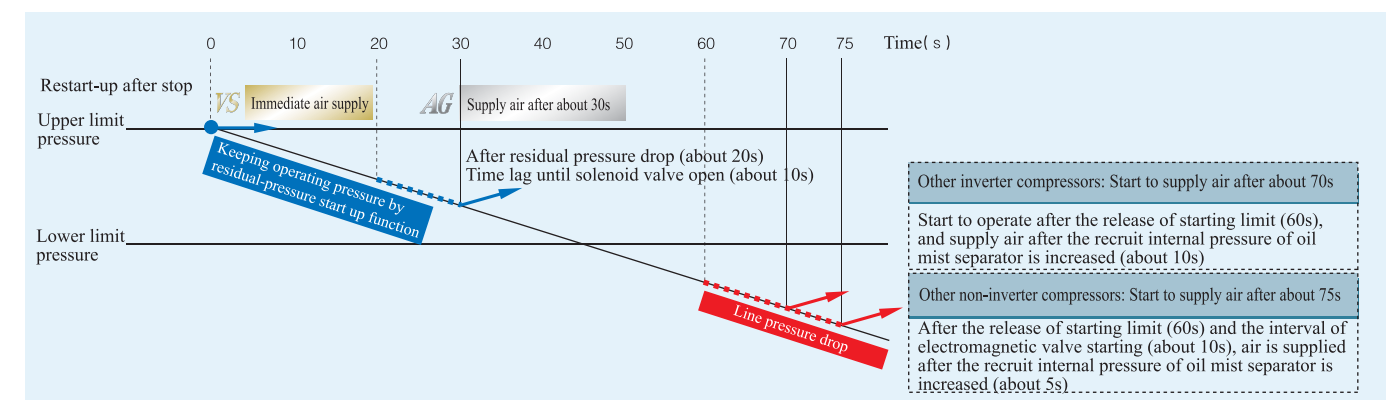
Pursuit of Clean Air

Acquiring clean air by two stage's filtration which is Dust Filter's filtration & Suction Filter's filtration, and suppressing deterioration of lubricating oil quality that could be a main factor of the efficiency drop of oil separation.
Achieved 1.6ppm or less of residual oil mist in the discharge air by three stage's oil separation which is centrifugal force separation, gravity force separation, and filtration.



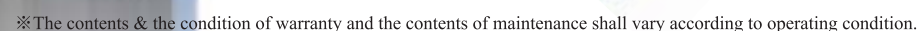
Residual-pressure start up

In spite of internal residual pressure, possible to start up immediately after motor stop by superior motor torque control in VS series.
Possible to do quick air supply by detection of inside residual pressure in AG series.
Possible to prevent the pressure drop in emergency case because of no blow-off time of 1 min.. That is different from others.



<i>VS</i> SERIES	<i>AG</i> SERIES	<i>SG</i> SERIES
○	○	○
○	○	○
○	○	○
○	○	○
○	—	—
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—	—	○

- Long service life, High separation efficiency of oil/water, and Less carbon black.
Better performance not only for the service life of the lubricating oil itself, but also for the discharge air & the internal system of the unit.



The diagram shows a rectangular remote control panel for a KOBELCO screw compressor. On the left is a large liquid crystal display (LCD) showing the KOBELCO logo and a screw compressor icon. To the right of the LCD is a control area with several buttons and indicators. Labels with leader lines point to the following components:

- Liquid crystal display (LCD)**: Translucent-type (backlight type) with easy view in the dark
- Emergency stop button**: A red button with a stop symbol.
- E/C/M Lamp**: [E:Emergency stop; C:Caution; M:Maintenance]
- AUTO STOP Lamp**: [Light on:when the weekly time is set; Flashing:unload stop]
- LOAD Lamp**: [light on:in operation (loading)]
- POWER Lamp**
- RESET button**: [Reset,change]
- ENTER button**: [execution]
- STOP button**: A red button with a stop symbol.
- START button**: A green button with a play symbol.
- Load/Remote selecting button**: [Local:Local operation; Remote:Remote operation]

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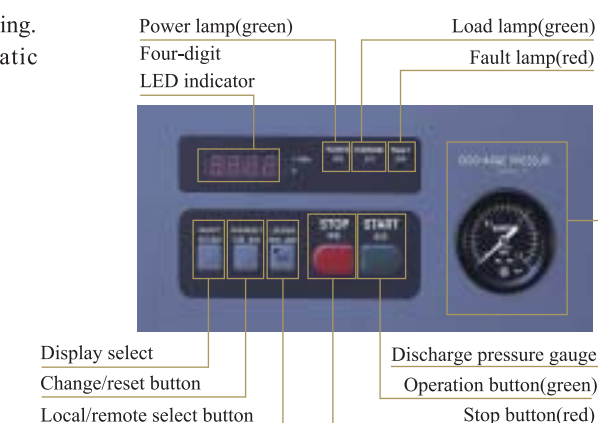
SETUP OF WEEKLY TIMER ◀BACK

STEP	START	STOP
01	MON. AM5:00	MON. PM1:00
02	MON. PM2:00	MON. PM9:00
03	WED. AM7:00	NONE
04	TUE. PM1:30	TUE. AM6:30
05		
06	NONE	THU. PM7:00
07		

VO.10 ▶BACK ▲MOVE: + RESET: EDIT
JJ42 ▼MOVE: - ENTER: SEL

Figure 10 is a line graph showing the relationship between Air consumption ratio (%) on the x-axis and Power consumption ratio (%) on the y-axis. The x-axis ranges from 0 to 100, and the y-axis ranges from 0 to 200. A blue line starts at (0,0) and increases linearly to (100,100), labeled 'VS (Main unit)'. At x=100, the line jumps to (100,125) and continues linearly upwards, also labeled 'VS (Main unit)'. A purple shaded region below the jump is labeled 'AG (Auxiliary unit)'.

- Main motor overcurrent
- Discharge temperature rise
- Discharge temperature sensor failure
- Dryer fault
- Fan motor overcurrent or reverse phase
- Temperature rise after oil separator
- Sensor fault after oil separator



KobelionII- VS SERIES

Items		Unit	VS420A-22	VS730A-37	VS1020A-55	VS1500A-75
Discharge air volume at	0.6MPa/6Bar	m³/min	0.66~4.18	1.19~7.30	1.69~10.20	2.55~15.00
	0.7MPa/7Bar	m³/min	0.66~3.91	1.19~6.80	1.69~9.50	2.55~13.90
	0.8MPa/8Bar	m³/min	0.66~3.60	1.19~6.33	1.69~8.83	2.55~13.00
Capacity control			Constant pressure,variable output with variable shaft power			
Motor	Nominal output	kW	22	37	55	75
	Type		Interral Permanent Magnet			
	No of poles		6P	4P		
	Insulation		F class			
	Protection		IP 44			
	Voltage	V	380/415, 50HZ			
	Starting system		Inverter			
Lubricant(oil)inital volume		L	14	25	45	51
Noise		dB(A)	58[60]	61[64]	64[66]	65[66]
Discharge pipe size		A	R1	R1.1/2	R2	R2
Dimensions	Width	mm	1350	1650	2050	2050
	Depth	mm	850	950	1200	1200
	Height	mm	1350	1500	1550	1550
Weight		kg	665	1060	1420	1870

KobelionII- AG·SG SERIES

Items		Added	Unit	AG280A-15 SG280A-15	AG390A-22 SG390A-22	AG580A-30 SG580A-30	AG720A-37 SG720A-37	AG1070A-55 SG1070A-55	AG1490A-75 SG1490A-75
Discharge air volume at	0.75MPa/7.5Bar		m³/min	2.75	3.91	5.8	7.2	10.7	14.9
	0.85MPa/8.5Bar	H	m³/min	2.47	3.67	5.3	6.9	10.1	13.8
	1.0MPa/10Bar	GH	m³/min	2.05	3.1	4.5	5.8	8.7	12.2
Capacity control				load/unload					
Motor	Nominal output		kW	15	22	30	37	55	75
	Type			TEFC induction motor					
	No of poles			4P	2P				
	Insulation			F class					
	Protection			IP 55					
	Voltage		V	380/415, 50HZ					
	Starting system			Star Delta					
Lubricant(oil)initial volume			L	11	12	18	20	40	46
Noise			dB(A)	61[65]	62[66]	65[66]	64[66]	64[68]	68[69]
Discharge pipe size			A	R1	R1	R1.1/2	R1.1/2	R2	R2
Dimensions	Width		mm	1350	1350	1650	1650	2050	2050
	Depth		mm	850	850	950	950	1200	1200
	Height		mm	1350	1350	1500	1500	1550	1550
Weight			kg	620	685	915	1020	1660	1890

- (1) The discharge air volume is measured at suction temperature of 30°C and 75% RH.
 (2) The permissible operating ambient temperature is 2~40°C.
 (3) Noise levels are measured in an anechoic chamber at 1 meter height, 1.5 meter from the front. [] are for values for sides and rear.

Model

AG 720 A-37 H
 ① ② ③ ④ ⑤
 — Pressure
 — Output
 — Cooling method
 — Discharge air volume
 — Series

NO, H, GH
 15, 22, 30, 37, 55, 75
 A
 420, 730, 1020, 1500 (VS)
 280, 390, 580, 720, 1070, 1490 (AG·SG)
 VS, AG, SG

ECONOMILD II (Total Control System)

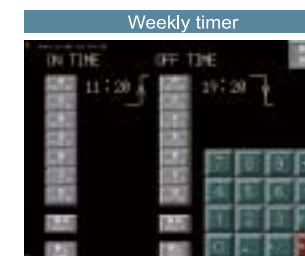
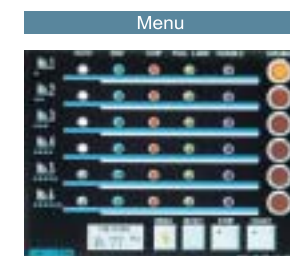
When using multiple compressors, the system ensures efficient energy-saving control

The system automatically selects and controls the optimum number of units in accordance with airflow needs. Two to six compressors can be connected to the system..
 The system supports multiple-unit operation including a Kobelco inverter-equipped compressor.
 Momentary interruption protection(with 0.5 second), automatic recovery from power failure.



Operability is enhanced by a touch panel color LCD monitor

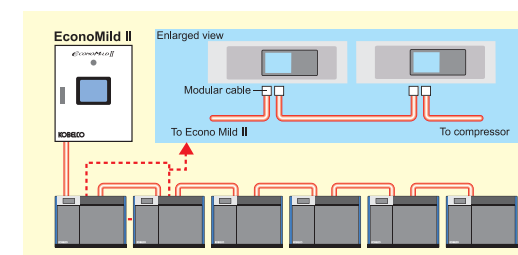
An easy-to-view and easy-to-use, touch panel full color LCD
 Just touch the screen to select the number of units and make settings



Easy connection with a modular cable

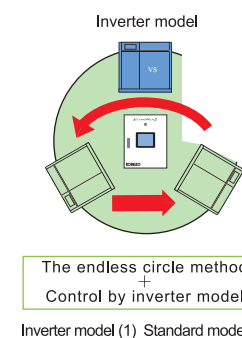
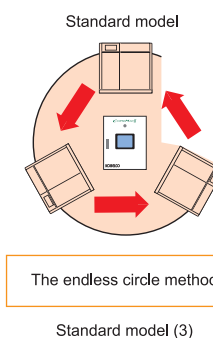
The Econo Mild II and compressors can be connected with a modular cable.
 The compressors can be connected with each other in a multi-drop configuration.
 ※Units with a new monitor or conventional units must be connected with a plug.

Conventional connection

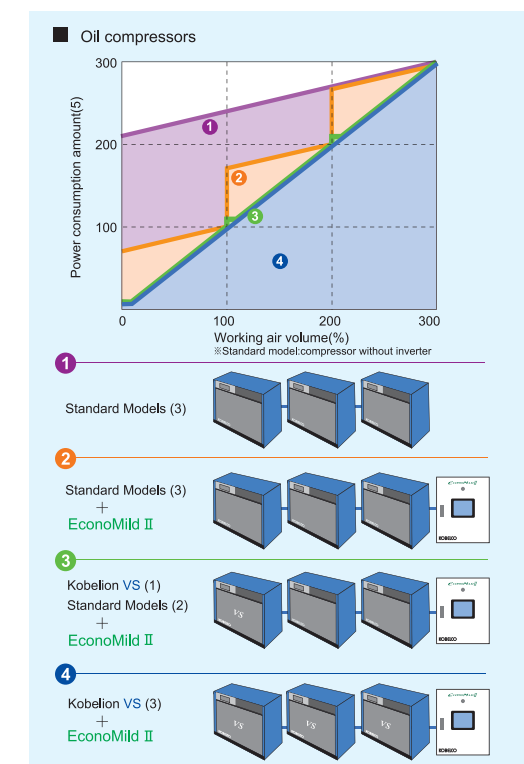


Optimum control for all combinations

Support for standard model (Kobelco compressors without inverter) only, a combination of standard model and a Kobelco inverter model, and Kobelco inverter model only.



Precise control for different model types



When using standard models, the endless circle method is used to balance operating hours and numbers of compressor starts for all models.

When using inverter models, units are operated for load control, to achieve ideal working conditions in air consumption maintaining a stable level of air pressure.