

# Emeraude-ALE

Oil-free Screw Compressor General Catalog

Emeraude-ALE

Emeraude-ALE  
OIL-FREE SCREW COMPRESSOR

KOBELCO COMPRESSORS CORPORATION

Information in this catalog such as values, photographs, evaluation is listed for the purpose of explaining the general features and performance of our products only, and it does not guarantee anything as a result. In addition, the information contained in this catalog is subject to change without notice, so please contact our sales offices above for the latest information.

# "Monozukuri" What makes it KOBELCO

"Monozukuri" literally means Production or Manufacturing in Japanese word. But this "Monozukuri" especially has meaning of integration of prowess, know-how, and spirit of Japanese manufacturing, which include sincere mind, pride for the quality backed by skill, dedication and the pursuit of innovation and perfection.

KOBELCO explores this "Monozukuri" for more than 100 years as a Japanese leading compressor manufacturer, and quality of our products are for the dedication to "Monozukuri" in the world.

Our endeavor for future technology, top quality, and for maximum customer satisfaction will not stop.

For the next 100 years...  
Never ending challenge of KOBELCO just starts here.



Diverse choices for the best of your use.



INVERTER control \*1



IPM motor \*2



IoT cloud service \*3

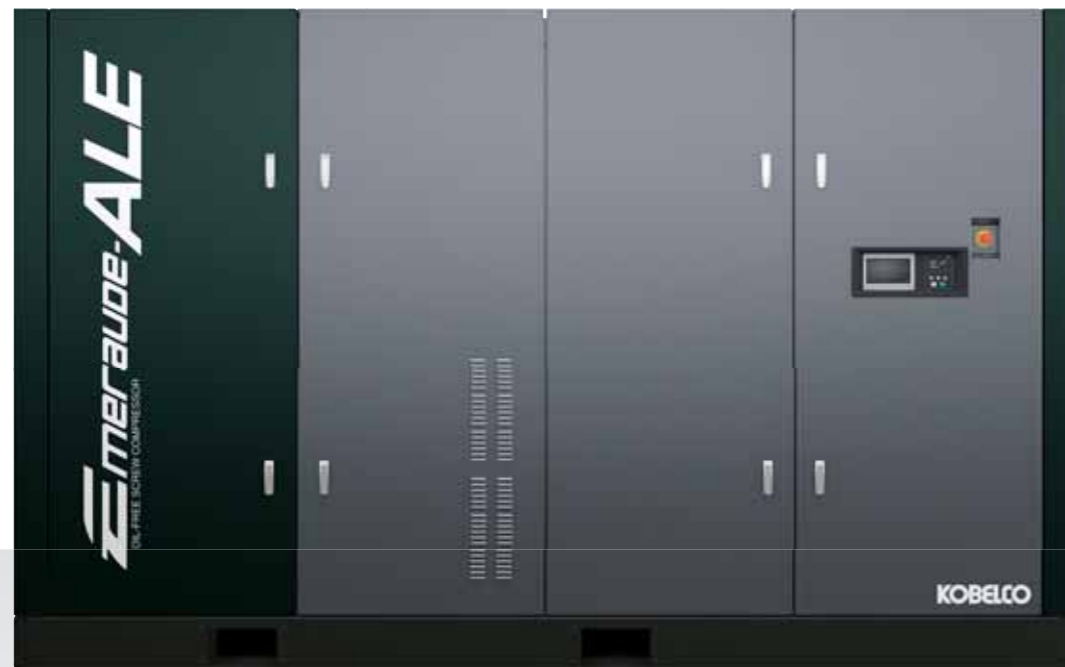


Full color touch monitor



Group control with hard wire \*4

**ALE** Emeraude ALEIV / Two-stage dry screw



Motor output **132-400 kW**

Discharge air flow **18.8-66.8 m<sup>3</sup>/min**



P.9

**ALE** Emeraude ALEIII / Two-stage dry screw



Motor output **55-120 kW**

Discharge air flow **7.5-18.2 m<sup>3</sup>/min**



P.17

**FE·VF·VE** Emeraude FE·VF·VE / Two-stage dry screw



Motor output **22-55 kW**

Discharge air flow **2.0-7.9 m<sup>3</sup>/min**



P.19



## Oil-free Worry-free

What's most essential value for oil-free compressors is to supply pure, clean, oil-free air stably in any running conditions. For critical applications, such as, food and beverages processing, semiconductor and electronics manufacturing, medicines manufacturing and more, even the smallest oil contamination never been accepted.

As a pioneer of oil-free technology with over 60 years of history, Emeraude ALE/FE series assure safe oil-free compressed air and utmost reliability for your production.

### Class 0 certified



KOBELCO has received Class 0 certification (ISO8573-1 [-:-:0]) for <Emeraude ALE> series from international test institute called TÜV which certifies the highest level of purity for quality classifications of compressed air. This is one proof of KOBELCO's supreme oil-free technology.

CLASS	Concentration total oil ( aerosol, liquid, vapor ) mg/m <sup>3</sup>
<b>0</b>	<b>As specified by equipment user or supplier and more stringent than class 1</b>
1	≤ 0.01
2	≤ 0.1
3	≤ 1
4	≤ 5

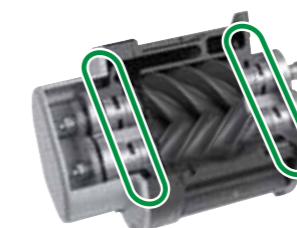
### KOBELCO's unique design to ensure "Oil-free"

#### Dual vent holes design

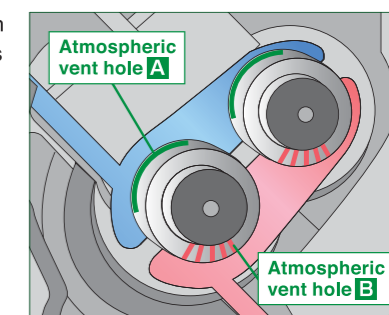
( Common for ALEIV / ALEIII / FE )



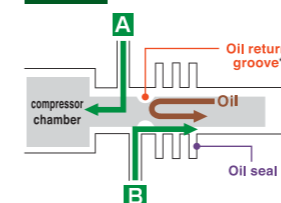
Dual vent holes design



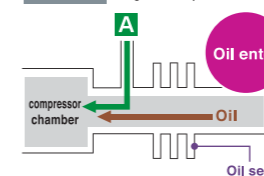
KOBELCO's proven dual vent holes design prevents oil entry in compressor chambers during long unload running.



#### KOBELCO Dual vent holes design



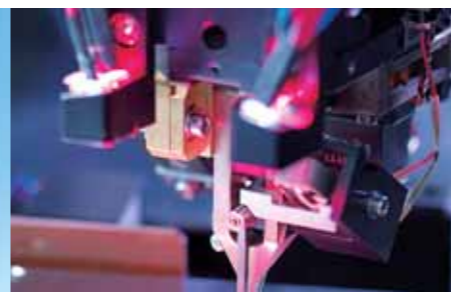
#### Competitors Single atmospheric vent hole



#### 3 steps of reliable shaft seal structure (during unloading)

1. Highly reliable oil seal prevents oil entry .
2. Oil return groove\* pushes back oil even if oil break through oil seal.
3. Oil is exhausted from atmospheric vent hole B even if oil breaks through oil return groove\*. Pressure between vent hole A and B is equal, so oil doesn't enter into compressor chambers.

\* Oil return groove is applicable for ALEIV



**EMERAUDE-ALE**

**KOBELCO**

## Evolution continues, New generation starts

Now, brand-new chapter in the over 60 years history of KOBELCO's oil-free technology has just started, New generation Emeraude ALE debut. With ultimate specific power consumption, supreme silence and outstanding durability, Emeraude ALE reached new stage in the industry. Proudly standing dark green elegance is the result of our never ending challenges for technology innovation and craftsmanship improvement over the long history. Pursuing the perfection, making it a masterpiece.

### Key Features



#### Best in class specific power consumption

With newly developed air-ends and optimized package design, achieved best in class specific power consumption.



#### Class 0 certified

KOBELCO's oil-free technology is proven by Class 0 certification (ISO8573-1[-:-:0]) which certifies the highest level of purity for quality classifications of compressed air.



#### Long overhaul cycle

Thanks to long life cycle bearing and optimized design of air-ends, long overhaul cycle can be achieved. (1st stage : 9years/ 2nd stage : 6years)



#### Outstanding quietness

The insulation materials, flow of unit ventilation air, and frequency of noise were all reviewed and optimised for outstanding quietness.



#### IoT cloud service "Kobelink"

Anytime, anywhere, you can check compressor's running conditions with it. This can support sustainable operation.

\*Conditions apply



#### Full color touch monitor

Newly developed sophisticated LCD interface enables you to figure out necessary information at a glance.

# Emeraude-ALE ALEIV

Motor power	Discharge air flow	Specification
132 - 400 kW	18.8 - 66.8 m <sup>3</sup> /min	P.20



## Ultimate Energy Efficient KOBELCO's Flagship.

By developing state-of-the-art air-ends and optimized package design, we achieved best in class specific power consumption as well as utmost durability. Here, new standard of oil-free compressors starts.

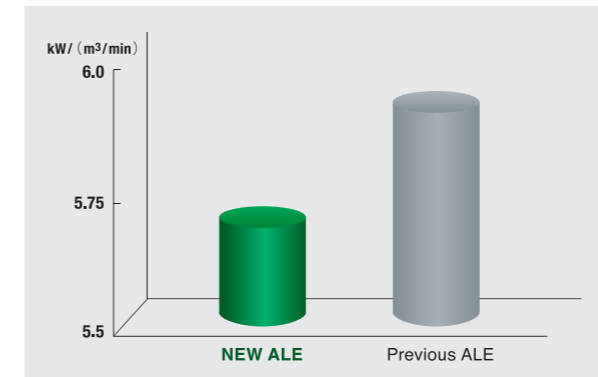
Best in class specific power consumption	Class 0 certified
Long overhaul cycle	Outstanding quietness
Sophisticated full color touch monitor	Kobelink compatible

## Energy saving

Supreme energy efficiency for the lowest possible ownership cost.

### Class-leading specific power consumption

#### ■ Comparison of specific power consumption



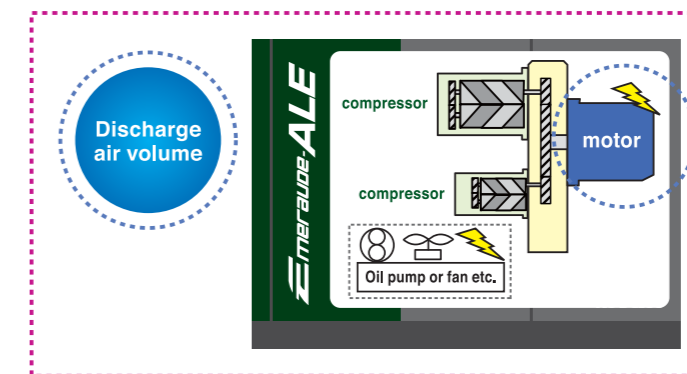
New ALE's performance is evaluated by specific power consumption as per JIS B 8341:2008 (ISO1217 Edition3 equivalent). KOBELCO places an importance on not only shaft power but also compressor's total input power including energy loss in the compressor because electricity consumption for customers is not shaft power and rated motor power but compressor's total input power.

Compared with Previous ALE **3% Performance improvement**

\*Comparison of 132kW models

### Why "Specific power consumption" ?

Specific power consumption is the new valuation standard based on compressor's total input power and discharge air volume. It shows the actual customer's energy use.



Previous valuation standard	New valuation standard
① Discharge air volume	① Discharge air volume
② Shaft power	② Compressor input power

$$\frac{\text{Compressor input power (Motor input power + auxi-motor input power)}}{\text{Discharge air volume}}$$

Previous valuation standard evaluated discharge air volume and shaft power separately. New valuation standard evaluate "specific power consumption" which shows energy consumption to create compressed air of 1m<sup>3</sup>/min in addition to discharge air volume. This means an actual compressor performance including fan motors and an oil pump.

KOBELCO has achieved class-leading performance with specific power consumption because of newly designed rotors, reduction of energy loss and selection of high efficient components.

## Newly designed high efficiency rotors



A new rotor profile has been designed using advanced analysis technology that KOBELCO has fostered in their long history since developing the first oil free screw compressor in Japan in 1956. KOBELCO has achieved class-leading specific energy consumption thanks to the new rotors which have been designed superior performance.

### [ Improved Points ]

- Optimization of the inter stage pressure
- Optimization of rotor clearance
- Improvement of shaft sealing structure

## Package design for no wasted energy

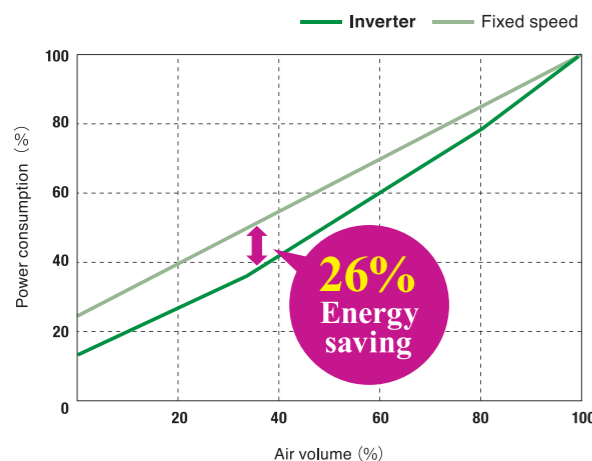
Internal piping design, high efficiency motors and fans contribute to energy savings. Moreover, gas coolers' optimization decreases the discharge temperature and downsizes auxiliary equipment such as dryers. This leads energy saving of not only compressors but also clean air systems.



## Partial-load performance of Inverter model

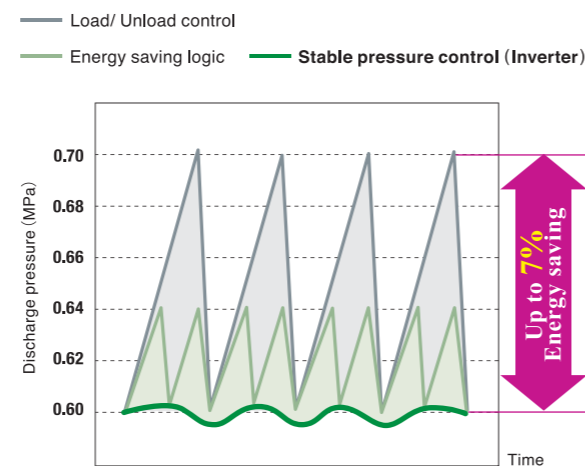
Inverter model's partial load performance has been improved thanks to IPM motor and superior rotor design. Inverter model supplies required air volume in appropriate power consumption.

### ■ Performance curve of KOBELCO Inverter model



## Stable pressure control of Inverter model Energy saving logic of Fixed speed model

Stable pressure control of Inverter model keeps the line pressure lower. And the pressure fluctuation is kept within 0.01MPa. Energy saving logic of Fixed speed model forcibly switch loading to unloading at every capacity control cycle (min 23sec). Excessive pressure rise is eliminated and energy loss is minimized.

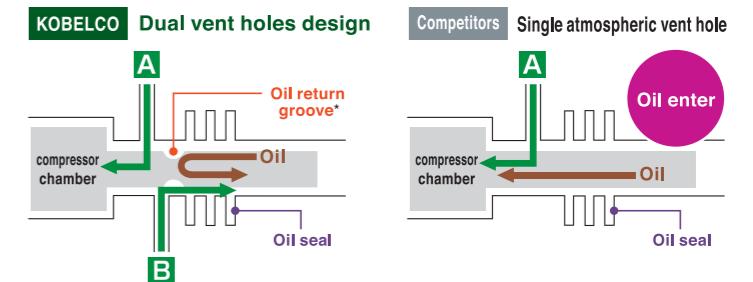


## Reliability

Reliability does matter, as used in critical applications.

## Unique design to ensure "Oil-free"

KOBELCO's proven dual vent holes design prevents oil entry in compressor chambers during unload running. (Please see page6 for more detail)



## Class 0 certified

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3	≤ 1
4	≤ 5

## Long life cycle

Long Overhaul cycle has been achieved thanks to long life cycle bearings.

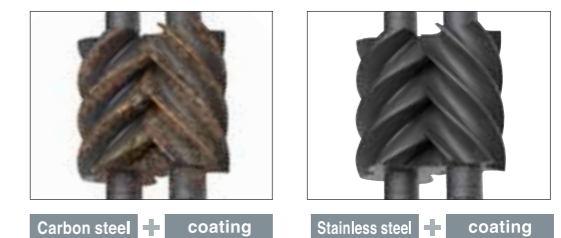
### ■ Standard Overhaul cycle



## Superior Anti-corrosion performance

Proven Teflon coating and 2nd stage's Stainless steel rotors secure high durability against drain attack and prevent performance deterioration due to corrosion.

### ■ Anti-corrosion test results



\*Picture may vary from actual products

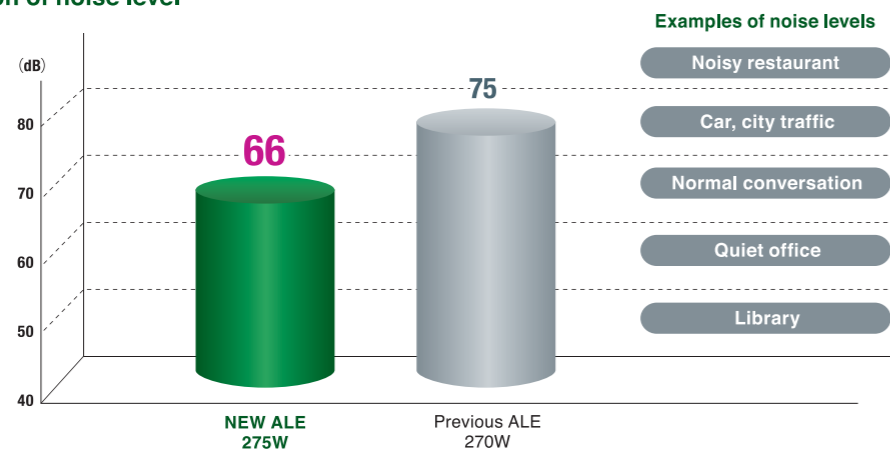
## Usability

Advanced usability for your comfortable daily operations.

### Outstanding quietness

Various noise control techniques has drastically reduced sound level. Making the working environment more comfortable.

#### Comparison of noise level



#### Package structure for noise reduction

Cooling air inlet points have been put into one place to reduce noise.

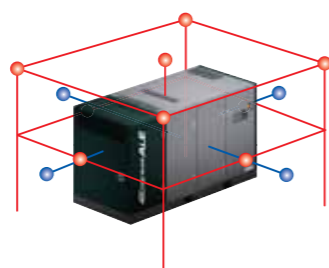
#### Panel design

Noise absorbing material and high sealing ability against abrasive noise reduce noise leakage.

#### Silencer

Newly designed suction and discharge silencers reduce noise level.

New measurement standard is more stringent than previous one because of 9point average and 1m around the unit.



- New measurement standard**  
9 point average measured at a distance of 1m around the unit or 1m above the unit
- Previous measurement standard (as per manufacturer's standard)**  
4 point average measured at 1m height and 1.5m around the unit

### Easy maintenance

Easy access to key service parts for maintenance thanks to large panels and reduction of internal piping.



### Exhaust cleaner without power source or instrument air

Filter type and compact exhaust cleaner has over 99% of oil mist separation performance and keeps inside of unit clean. Moreover, pressure resistance doesn't increase for long time because oil mist is separated itself.



## User-friendly controller with 7 inch large size touch screen panel

It's easy to check and set running conditions.

- Running condition 1**
- Setting 1**  
● Discharge pressure setting : set and choose 3 patterns
- Setting 2**  
● Weekly timer setting  
● Maintenance timer setting  
● Output contact setting  
● Language
- Running condition 2**
- Trouble shooting**
- Alarm records**  
● Show estimated causes of each alarm
- Running records**  
● Show running records of every 5sec & 1hr and daily & weekly reports
- Others**  
● Show graphs of discharge pressure, load rate and motor current

### Protection features

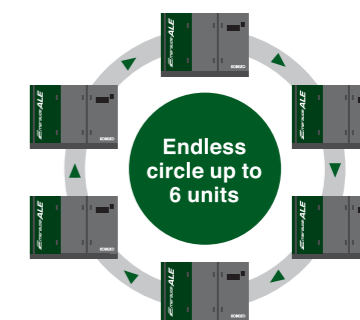
- 7500V surge protector
- Water flow switch (for water cooled model)
- Emergency stop button
- Motor winding temperature detection
- Password protection

### Data logging with USB

Running data (CSV file) can be output from monitor to USB memory stick.

### Group control

Max. 6 units can be automatically operated without a group control panel.





Key components

Key components for high performance.

Plate fin gas cooler (water cooled)



80% of pressure drop has been cut compared with shell & tube type. Additionally, because discharge air temperature has been reduced by optimization of cooler size, auxiliary equipments are downsized.

Capacity control valve



Proven pneumatic capacity control valve having quick response and high durability. Maintenance parts have been reduced thanks to built-in blow-off silencer.

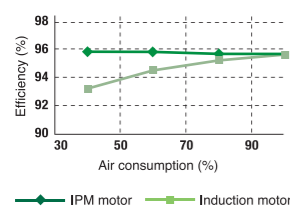
Main motor



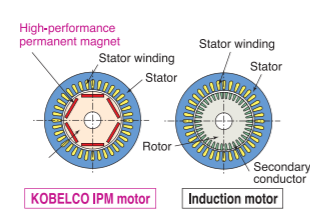
● IPM motor for Inverter model

Heat loss is small and high efficiency is kept even during low load condition.

● Comparison of motor efficiency (for reference)



● Comparison of structure (for reference)



● IE3 motor for fixed speed model

Fixed speed model (380-460V) has IE3 high efficiency induction motor.

Discharge silencer



KOBELCO Patented Expansion & Porous Silencer reduces noise level in broad frequency band.

\*Expansion Silencer for 200kW and above

Oil pump



Oil pump attached to gear box is driven by a high efficiency main motor. The risk of oil leakage is reduced by no-piping design.



Green, Clean, Emeraude.

Emeraude ALE IV

# EMERAUDE-ALE ALE III

Motor power	Discharge air flow	Specification
55-120 kW	7.5-18.2 m <sup>3</sup> /min	P.22



Supreme energy efficiency,  
Utmost reliability for air quality.

- Superior specific power consumption
- Class 0 certified
- Long overhaul cycle

## Reliable Air-ends

- Reliability and efficiency backed by over 60 year history of oil-free technology.
- Teflon coated Air-ends and 2nd stage's Stainless steel enhance anti-corrosion.



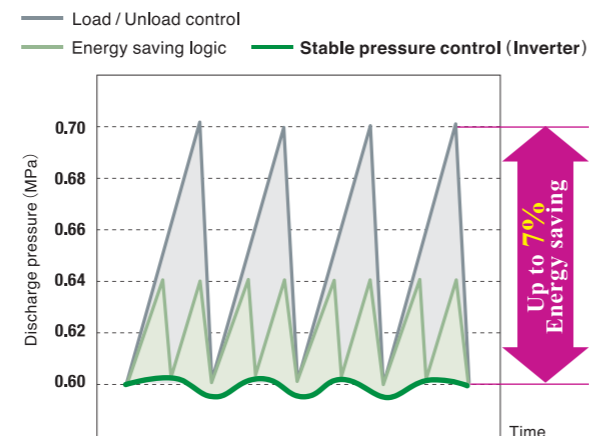
## Energy saving Plate fin cooler (water cooled)

- Water-in-tube design Plate-Fin-Tube Cooler can reduce pressure loss at cooler portion 1/5 compare to usual Shell & Tube type cooler.
- Less accumulation of Silica in water chamber.



## Stable pressure control for Inverter model Energy saving logic for Fixed speed model (Common to FE)

Stable pressure control of Inverter model keeps the line pressure lower. And the pressure fluctuation is kept within 0.01MPa. Energy saving logic of Fixed speed model forcibly switch loading to unloading at every capacity control cycle (min 23sec). Excessive pressure rise is eliminated and energy loss is minimized.



## Class 0 certified

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CLASS	Concentration total oil (aerosol, liquid, vapor) mg/m <sup>3</sup>
0	As specified by equipment user or supplier and more stringent than class 1
1	≤ 0.01
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3	≤ 1
4	≤ 5

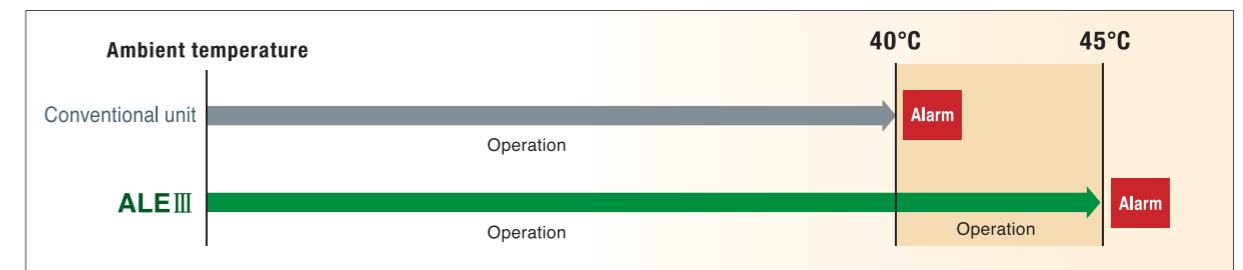
## Long life cycle

Long Overhaul cycle has been achieved thanks to long life cycle bearings.



## Durable for high ambient temperature (Common to FE)

Reviewing the total cooling system including design of coolers and cooling fan with safety margin, the compressor can operate even under ambient temperature of 45°C.



\*Long-time continuous operation at ambient temperatures of 40°C or higher may shorten lifetime of components such as electric equipment and O-rings comparing with normal operation.

## User friendly LCD controller (Common to FE)



This monitor can be used not only to keep track of the operating conditions but also to set the discharging pressure, etc. The operating records, graphic displays, weekly timers, daily reports and weekly report management, can be conducted.

- Operation data can be output through "Modbus" (optional).
- The front control panel of the controller is complete with a waterproof specification equivalent to IP65.

### Principal features and displays

#### Maintenance information

#### Caution information

#### Emergency stop information

#### Graphic display

- Weekly timer
- Compressor Setting
- Running condition
- Running record

# Emeraude-FE·VF·VE

Motor power	Discharge air flow	Specification
22 - 55 kW	2.0 - 7.9 m <sup>3</sup> /min	P.23

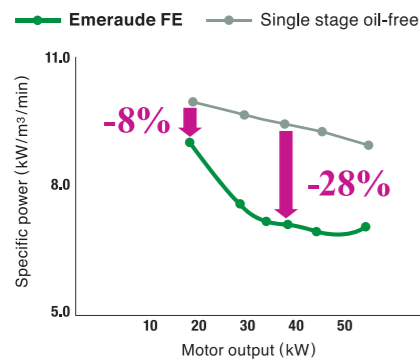


Energy saver with Two-stage compression.

- Supreme specific power consumption
- Highly efficient two stages compression
- Ultimate clean air

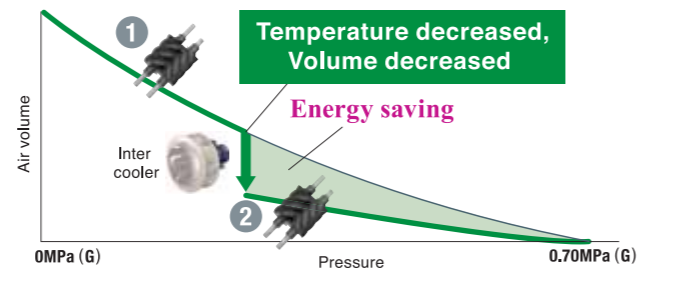
## Highly efficient Two-stage compression

Emeraude FE's Two-stage compression is 8~28% more efficient than typical single stage oil-free screw type. Also, it can decrease discharge temperature which leads to reliability.



### Why Energy saving ?

- Less power is required because discharge air from 1st stage is cooled by inter cooler and air volume for 2nd stage can be decreased accordingly.
- Less air leakage in each compression chamber with less compression rate for each stage.



## Proven reliability

- KOBELCO's unique dual vent holes design prevents oil entry in compressor chamber and ensure "Oil-free". (Please see page6 for more detail).
- State-of-the-art "Gamma Profile" Rotor and Casing with advanced FEM analysis enhances reliability of heart of compressor.
- MoS2 coated Air-ends and 2nd stage's stainless steel improve anti-corrosion.
- Designed for continuous operation under 40°C ambient condition with +5°C allowance.



# Emeraude-ALEIV

Emeraude ALEIV / Two-stage dry screw

### Inverter / Water cooled model

Model	Max. Discharge Pressure MPa	Free Air Delivery		Main motor kW	Discharge Connection	Dimensions		Noise Level dB(A)	Voltage	Weight kg
		50/60Hz				W × D × H mm				
		m <sup>3</sup> /min	cfm							
ALE132WV IV	0.75	24.9	879	132	JIS10k 65A FF	2,705 × 1,545 × 1,845	66	380-440	3,700	
	0.86	22.0	777							
	1.04	19.7	696							
ALE160WV IV	0.75	29.4	1,038	160	JIS10k 65A FF	2,705 × 1,545 × 1,845	66	380-440	3,800	
	0.86	26.9	950							
	1.04	24.9	879							
ALE250WV IV	0.75	45.4	1,603	250	JIS10k 80A FF	3,150 × 1,600 × 2,180	66	380-440	5,350	
	0.86	41.7	1,473							
	1.04	38.5	1,360							

### Inverter / Air cooled model

Model	Max. Discharge Pressure MPa	Free Air Delivery		Main motor kW	Discharge Connection	Dimensions		Noise Level dB(A)	Voltage	Weight kg
		50/60Hz				W × D × H mm				
		m <sup>3</sup> /min	cfm							
ALE132AV IV	0.75	24.1	851	132	JIS10k 65A FF	3,730 × 1,700 × 1,995	71	380-440	4,300	
	0.86	21.3	752							
ALE160AV IV	0.75	28.4	1,003	160	JIS10k 65A FF	3,730 × 1,700 × 1,995	73	380-440	4,300	
	0.86	25.9	915							
ALE250AV IV	0.75	44.4	1,568	250	JIS10k 80A FF	4,300 × 1,900 × 2,180	76	380-440	5,600	
	0.86	40.8	1,441							

Motor specifications : IPM motor, 4-pole totally enclosed fan-cooled, Insulation class F, Rated for continuous use Drive system : Step-up gear.

### Fixed speed / Water cooled model

Model	Max. Discharge Pressure MPa	Free Air Delivery				Main motor kW	Discharge Connection	Dimensions		Noise Level dB(A)	Weight		
		50Hz		60Hz				W × D × H mm	Voltage		Star-Delta	Reactor*	
		m <sup>3</sup> /min	cfm	m <sup>3</sup> /min	cfm								kg
ALE132W IV	0.75	24.8	876	24.7	872	132	JIS10k 65A FF	2,705 × 1,545 × 1,845 ( 3,095 × 1,545 × 1,845 )	66	380-440	4,100	4,050	
	0.86	21.6	763	21.8	770								
	1.04	20.0	706	19.5	689								
ALE145W IV	0.75	26.6	939	26.6	939	145	JIS10k 65A FF	2,705 × 1,545 × 1,845 ( 3,095 × 1,545 × 1,845 )	66	380-440	4,200	4,150	
	0.86	24.8	876	24.7	872								
	1.04	21.6	763	21.7	766								
ALE160W IV	0.75	29.2	1,031	29.1	1,028	160	JIS10k 65A FF	2,705 × 1,545 × 1,845 ( 3,095 × 1,545 × 1,845 )	66	380-440	4,200	4,150	
	0.86	26.5	936	26.6	939								
	1.04	24.8	876	24.6	869								
ALE200W IV	0.75	37.4	1,321	37.4	1,321	200	JIS10k 80A FF	3,150 × 1,600 × 2,180 ( 3,350 × 1,600 × 2,180 )	66	380-440	5,950	5,950	
	0.86	33.7	1,190	33.5	1,183								
	1.04	30.3	1,070	30.2	1,067								
ALE250W IV	0.75	45.0	1,589	45.0	1,589	250	JIS10k 80A FF	3,150 × 1,600 × 2,180 ( 3,350 × 1,600 × 2,180 )	66	380-440	5,950	5,950	
	0.86	41.4	1,462	41.3	1,458								
	1.04	38.1	1,345	38.1	1,345								
ALE275W IV	0.75	48.6	1,716	48.6	1,716	275	JIS10k 80A FF	3,150 × 1,600 × 2,180 ( 3,350 × 1,600 × 2,180 )	66	380-440	6,000	6,000	
	0.86	44.9	1,586	45.0	1,589								
	1.04	41.3	1,458	41.3	1,458								
ALE315W IV	0.75	54.6	1,928	54.7	1,932	315	JIS10k 100A FF	3,850 × 2,000 × 2,400	70	380-440	-	-	
	0.86	51.5	1,819	51.2	1,808								
	1.04	48.0	1,695	48.0	1,695								
ALE355W IV	0.75	63.1	2,228	63.0	2,225	355	JIS10k 100A FF	3,850 × 2,000 × 2,400	70	380-440	-	-	
	0.86	58.7	2,073	58.9	2,080								
	1.04	54.5	1,925	54.6	1,928								
ALE400W IV	0.75	66.8	2,359	66.6	2,352	400	JIS10k 100A FF	3,850 × 2,000 × 2,400	75	380-440	-	-	
	0.86	63.0	2,225	62.9	2,221								
	1.04	58.7	2,073	58.8	2,077								

Motor specifications : Induction motor, 2-pole totally enclosed fan-cooled, Insulation class F, Rated for continuous use Drive system : Step-up gear.  
( ) are for 3k/3.3k, 6k/6.6k specification.

\*Reactor starter panel is separated. Power sources for main and auxiliary motors are separately needed. Consult us regarding the size and weight of separate starter panel.

Fixed speed / Air cooled model

Model	Max. Discharge Pressure MPa	Free Air Delivery				Main motor kW	Discharge Connection	Dimensions		Noise Level dB(A)	Weight		
		50Hz		60Hz				W × D × H mm	Voltage		Star-Delta	Reactor*	
		m³/min	cfm	m³/min	cfm								kg
ALE132A IV	0.75	24.0	848	23.8	840	132	JIS10k 65A FF	3,730 × 1,700 × 1,995 ( 4,120 × 1,700 × 1,995 )	71	380-440	4,700	4,700	
	0.86	20.9	738	21.0	742					3k,3.3k	-	4,600	
	1.04	19.3	682	18.8	664					6k,6.6k	-	4,650	
ALE145A IV	0.75	25.7	908	25.7	908	145	JIS10k 65A FF	3,730 × 1,700 × 1,995 ( 4,120 × 1,700 × 1,995 )	71	380-440	4,700	4,700	
	0.86	23.9	844	23.8	840					3k,3.3k	-	4,600	
	1.04	20.9	738	21.0	742					6k,6.6k	-	4,650	
ALE160A IV	0.75	28.3	999	28.1	992	160	JIS10k 65A FF	3,730 × 1,700 × 1,995 ( 4,120 × 1,700 × 1,995 )	73	380-440	4,700	4,700	
	0.86	25.6	904	25.6	904					3k,3.3k	-	4,650	
	1.04	23.9	844	23.8	840					6k,6.6k	-	4,900	
ALE200A IV	0.75	35.4	1,250	35.4	1,250	200	JIS10k 80A FF	4,300 × 1,900 × 2,180 ( 4,535 × 1,900 × 2,180 )	76	380-440	6,200	6,200	
	0.86	33.0	1,165	32.8	1,158					3k,3.3k	-	6,050	
	1.04	29.8	1,052	29.6	1,045					6k,6.6k	-	6,050	
ALE250A IV	0.75	44.0	1,554	44.0	1,554	250	JIS10k 80A FF	4,300 × 1,900 × 2,180 ( 4,535 × 1,900 × 2,180 )	76	380-440	6,200	6,200	
	0.86	40.5	1,430	40.4	1,427					3k,3.3k	-	6,050	
	1.04	37.3	1,317	37.3	1,317					6k,6.6k	-	6,550	
ALE275A IV	0.75	47.6	1,681	47.6	1,681	275	JIS10k 80A FF	4,300 × 1,900 × 2,180 ( 4,535 × 1,900 × 2,180 )	76	380-440	6,250	6,250	
	0.86	43.9	1,550	44.0	1,554					3k,3.3k	-	6,450	
	1.04	40.4	1,427	40.4	1,427					6k,6.6k	-	6,650	

Motor specifications : Induction motor, 2-pole totally enclosed fan-cooled, Insulation class F, Rated for continuous use Drive system: Step-up gear.  
( ) are for 3k/3.3k, 6k/6.6k specification.

\*Reactor starter panel is separated. Power sources for main and auxiliary motors are separately needed.  
Consult us regarding the size and weight of separate starter panel.

Water cooled model

Model	Cooling water quantity L/min	ΔT °C	Water inlet temperature °C	Water inlet/outlet connection	Initial lubricant charge L
ALE145W IV	261				
ALE160WV IV ALE160W IV	288				
ALE200W IV	355				
ALE250WV IV ALE250W IV	443	JIS10k 65A FF	30		
ALE275W IV	487				
ALE315W IV	492	JIS10k 80A FF	50		
ALE355W IV	555				
ALE400W IV	625				

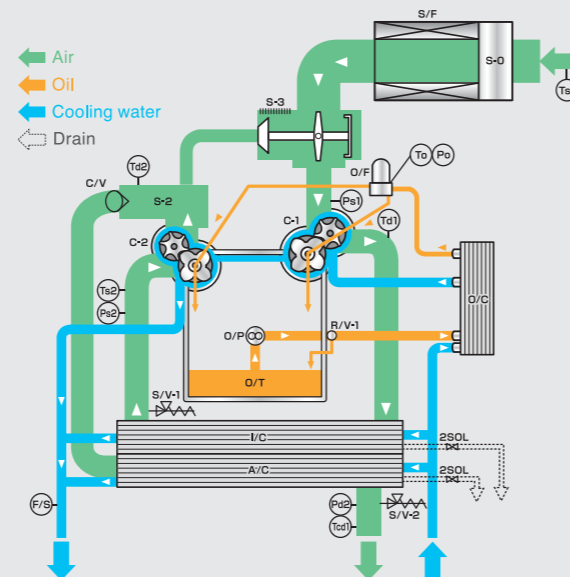
\*Keep the water temperature below 40°C for water cooled model.  
\*Please refer to standard specification manual for water quality.

- \*Suction conditions Absolute suction pressure : 0.10MPa, Suction temperature : 30°C, Humidity : 75%RH
- \*Discharge air volumes is converted to suction conditions.
- \*Discharge pressures are measured after gas coolers.
- \*Air produced by compressors should not be used in respiratory equipment furnishing air for direct inhalation.
- \*Nominal working pressure ;  
[ 0.75MPa model : 0.70MPa, 0.86MPa model : 0.80MPa, 1.04MPa model : 0.90MPa ]
- \*Since the cooling for the compressed air & the inside of the compressor unit depends on the surrounding air condition, the surrounding air must be properly ventilated to prevent the ambient temperature from rising above 45°C.  
(For air-cooled 1.04MPa model, the surrounding air temperature should not exceed 40°C)
- \*Please be sure to use the lubricating oil recommended by KOBELCO.
- \*Appearance and specifications are subject to change without notice.
- \*Consult us individually, regarding guaranteed performance values.
- \*For other voltage variants, please consult us.

Air cooled model

Model	Cooling fan motor output kW	Initial lubricant charge L
ALE145A IV		
ALE160AV IV ALE160A IV		
ALE200A IV	11 (5.5kW×2)	51
ALE250AV IV ALE250A IV		
ALE275A IV		

Internal flow (Water cooled model)



\*Sample schematic is for 132-160kW.



Emeraude ALE III / Two-stage dry screw

Inverter / Air cooled model

Model	Max. Discharge Pressure MPa	Free Air Delivery		Main motor kW	Discharge Connection	Dimensions		Noise Level dB(A)	Voltage	Weight kg	Cooling fan motor kW	Initial lubricant L
		50/60Hz				W × D × H mm						
		m³/min	cfm									
ALE65A III-V [H]	0.75 [0.88]	10.5 [9.2]	371 [325]	65	JIS10k 40A RF	2,250 × 1,450 × 1,780	65 [67]	200/200-220 (400/400-440)	2,000	2.2	30	
ALE75A III-V [H]		13.0 [10.4]	459 [367]	75	67 [68]		2,410 [2,000]					
ALE100A III-V [H]		17.2 [15.6]	607 [551]	100	JIS10k 50A RF							66 [68]

\*Nominal working pressure of 0.75MPa is 0.70MPa. \*Nominal working pressure of 0.88MPa is 0.83MPa.

Inverter / Water cooled model

Model	Max. Discharge Pressure MPa	Free Air Delivery		Main motor kW	Discharge Connection	Dimensions		Noise Level dB(A)	Voltage	Weight kg	Cooling water quantity L/min	ΔT °C	Water inlet temperature °C	Water inlet/outlet connection	Initial lubricant L
		50/60Hz				W × D × H mm									
		m³/min	cfm												
ALE65W III-V [H]	0.75 [0.93]	10.6 [9.3]	374 [328]	65	JIS10k 40A RF	2,120 × 1,170 × 1,680	64 [67]	200/200-220 (400/400-440)	2,070	95	10	32	JIS10k 32A	20	
ALE75W III-V [H]		13.2 [10.6]	466 [374]	75	64 [68]		2,710 [2,070]								
ALE100W III-V [H]		17.4 [16.0]	614 [565]	100	JIS10k 50A RF										66 [68]

\*Nominal working pressure of 0.75MPa is 0.70MPa. \*Nominal working pressure of 0.93MPa is 0.88MPa.

Fixed Speed / Air cooled model

Model	Max. Discharge Pressure MPa	Free Air Delivery				Main motor kW	Discharge Connection	Dimensions		Noise Level dB(A)	Voltage	Weight kg	Cooling fan motor kW	Initial lubricant L
		50Hz		60Hz				W × D × H mm						
		m³/min	cfm	m³/min	cfm									
ALE55A III-5/6 [H]	0.75 [0.88]	8.9 [7.6]	314 [268]	9.0 [7.5]	318 [265]	55	JIS10k 50A RF	1,880×1,450×1,780	64 [66]	200/200-220 (400/400-440)	1,880	2.2	30	
ALE65A III-5/6 [H]		10.3 [9.2]	364 [325]	10.5 [9.2]	371 [325]	65			65 [67]					2,010
ALE75A III-5/6 [H]		12.9 [10.2]	456 [360]	13.0 [10.4]	459 [367]	75			67 [68]					
ALE90A III-5/6 [H]		15.9 [13.1]	562 [463]	15.9 [13.2]	562 [466]	90			65 [67]					3,090
ALE100A III-5/6		17.2	607	17.2	607	100			66					

\*Nominal working pressure of 0.75MPa is 0.70MPa. \*Nominal working pressure of 0.88MPa is 0.88MPa.

Fixed Speed / Water cooled model

Model	Max. Discharge Pressure MPa	Free Air Delivery				Main motor kW	Discharge Connection	Dimensions		Noise Level dB(A)	Voltage	Weight kg	Cooling water quantity L/min	ΔT °C	Water inlet temperature °C	Water inlet/outlet connection	Initial lubricant L
		50Hz		60Hz				W × D × H mm									
		m³/min	cfm	m³/min	cfm												
ALE55W III-5/6 [H]	0.75 [0.93]	9.1 [7.7]	321 [272]	9.2 [7.8]	325 [275]	55	JIS10k 50A RF	1,780×1,170×1,680	63 [65]	200/200-220 (400/400-440)	1,980	80	10	32	JIS10k 32A	20	
ALE65W III-5/6 [H]		10.6 [9.3]	374 [328]	10.6 [9.3]	374 [328]	65			64 [66]								2,110
ALE75W III-5/6 [H]		13.2 [10.5]	466 [371]	13.2 [10.6]	466 [374]	75			65 [67]								
ALE90W III-5/6 [H]		16.2 [13.8]	572 [487]	16.2 [14.0]	572 [494]	90			65 [67]								2,770
ALE100W III-5/6		17.4	614	17.4	614	100			66								
ALE110W III-5/6H		17.0	600	17.1	604	110			68								2,910
ALE120W III-5/6H	18.0	636	18.2	643	120	69	2,950										

\*Nominal working pressure of 0.75MPa is 0.70MPa. \*Nominal working pressure of 0.93MPa is 0.88MPa.

- Starting system of fixed speed model is Star-Delta.
- \*Discharge air volumes is converted to suction conditions (30°C).
- \*Discharge pressure are measured after the check valve of compressor.
- \*Noise values is measured at 1.5m away from the machine front and 1m from the floor in the anechoic room, with the machine being operated at its full load.
- \*Air produced by compressors should not be used in respiratory equipment furnishing air for direct inhalation.

- \*Since the cooling for the compressed air & the inside of the compressor unit depends on the surrounding air condition, the surrounding air must be properly ventilated to prevent the ambient temperature from rising above 45°C.
- \*Please be sure to use the lubricating oil recommended by KOBELCO.
- \*Keep the water temperature below 35°C for water cooled model.
- \*Please refer to standard specification manual for water quality.
- \*Specifications and appearances are subject to change without notice. Contact us if guaranteed values of performance is needed.



# EMERAUDE FE·VF·VE

Emeraude FE·VF·VE / Two-stage dry screw

### Inverter / Air cooled model

Model	Max. Discharge Pressure MPa	Free Air Delivery 50/60Hz		Main motor kW	Discharge Connection	Dimensions	Noise Level dB(A)	Voltage	Weight kg	Cooling fan motor kW	Initial lubricant L
		m³/min	cfm			W × D × H mm					
VF640A/AD III	0.69	6.4-5.4	226-191	37	40A (R1·1/2)	1,780 × 1,200 × 1,500 (2,080 × 1,200 × 1,500)	68	200-220 (380-440)	1,275 (1,360)	2.2	13
VE790A/AD III		7.9	279	55	50A (R2)	2,080 × 1,200 × 1,500 (2,580 × 1,200 × 1,500)	67				

\*Nominal working pressure is 0.64MPa.

### Inverter / Water cooled model

Model	Max. Discharge Pressure MPa	Free Air Delivery 50/60Hz		Main motor kW	Discharge Connection	Dimensions	Noise Level dB(A)	Voltage	Weight kg	Cooling water quantity L/min	ΔT °C	Water inlet temperature °C	Water inlet/outlet connection	Initial lubricant L
		m³/min	cfm			W × D × H mm								
VF640W/WD	0.69	6.4-5.4	226-191	37	40A (R1·1/2)	1,780 × 1,200 × 1,500 (2,080 × 1,200 × 1,500)	64	200-220 (380-440)	1,250 (1,335)	55	10	32	25A (R1) 32A (R1·1/4)	13
VE790W/WD		7.9	279	55	50A (R2)	2,080 × 1,200 × 1,500 (2,580 × 1,200 × 1,500)	65							

\*Nominal working pressure is 0.64MPa.

### Fixed Speed / Air cooled model (0.69MPa)

Model	Max. Discharge Pressure MPa	Free Air Delivery 50/60Hz		Main motor kW	Discharge Connection	Dimensions	Noise Level dB(A)	Voltage	Weight kg	Cooling fan motor kW	Initial lubricant L
		m³/min	cfm			W × D × H mm					
FE200A/AD III-5/6	0.69	2.05	72	22	25A (R1)	1,650 × 900 × 1,500	63	200-220 (380-440)	870 (925)	2.2	13
FE370A/AD III-5/6		3.7	131	30			64		940 (1,005)		
FE480A/AD III-5/6		4.8	170	37	40A (R1·1/2)	1,950 × 1,100 × 1,500	67		1,170 (1,225)		
FE540A/AD III-5/6		5.4	191	45			68		1,180 (1,265)		
FE640A/AD III-5/6		6.4	226	45			65		1,350 (1,510)		
FE770A/AD III-5/6		7.7	272	55			50A (R2)		1,510 (1,710)		

\*Nominal working pressure is 0.69MPa.

### Fixed Speed / Water cooled model (0.69MPa)

Model	Max. Discharge Pressure MPa	Free Air Delivery 50/60Hz		Main motor kW	Discharge Connection	Dimensions	Noise Level dB(A)	Voltage	Weight kg	Cooling water quantity L/min	ΔT °C	Water inlet temperature °C	Water inlet/outlet connection	Initial lubricant L
		m³/min	cfm			W × D × H mm								
FE370W/WD III-5/6	0.69	3.7	131	30	25A (R1)	1,650 × 900 × 1,500	61	200-220 (380-440)	930 (995)	10	32	25A (R1) 32A (R1·1/4)	13	
FE480W/WD III-5/6		4.8	170	37	40A (R1·1/2)		1,950 × 1,100 × 1,500		63					1,145 (1,230)
FE540W/WD III-5/6		5.4	191	45		64			1,155 (1,240)					
FE640W/WD III-5/6		6.4	226	45		63			1,340 (1,500)					
FE770W/WD III-5/6		7.7	272	55		50A (R2)			1,495 (1,685)					

\*Nominal working pressure is 0.69MPa.

### Fixed Speed / Air cooled model (0.88MPa)

Model	Max. Discharge Pressure MPa	Free Air Delivery 50/60Hz		Main motor kW	Discharge Connection	Dimensions	Noise Level dB(A)	Voltage	Weight kg	Cooling fan motor kW	Initial lubricant L
		m³/min	cfm			W × D × H mm					
FE200HA/AD-5/6	0.88	2.0	71	22	25A (R1)	1,650 × 900 × 1,500	63	200-220 (380-440)	870 (925)	2.2	13
FE260HA/AD III-5/6		2.6	92	30			64		910 (975)		
FE400HA/AD III-5/6		4.0	141	37	40A (R1·1/2)	1,950 × 1,100 × 1,500	67		1,170 (1,250)		
FE530HA/AD III-5/6		5.3	187	45			68		1,180 (1,260)		
FE630HA/AD III-5/6		6.3	222	55			66		1,510 (1,670)		

\*Nominal working pressure is 0.88MPa.

### Fixed Speed / Water cooled model (0.88MPa)

Model	Max. Discharge Pressure MPa	Free Air Delivery 50/60Hz		Main motor kW	Discharge Connection	Dimensions	Noise Level dB(A)	Voltage	Weight kg	Cooling water quantity L/min	ΔT °C	Water inlet temperature °C	Water inlet/outlet connection	Initial lubricant L
		m³/min	cfm			W × D × H mm								
FE400HW/WD III-5/6	0.88	4.0	141	37	40A (R1·1/2)	1,950 × 1,100 × 1,500	63	200-220 (380-440)	1,145 (1,230)	10	32	25A (R1) 32A (R1·1/4)	13	
FE530HW/WD III-5/6		5.3	187	45			64		1,155 (1,240)					
FE630HW/WD III-5/6		6.3	222	55			64		1,495 (1,655)					

\*Nominal working pressure is 0.88MPa.

Starting system of fixed speed model is Star-Delta.

( ) for built-in dryer type.

\*Discharge air volumes is converted to suction conditions (30°C).

\*Discharge pressure are measured after gas coolers.

\*Noise values is measured at 1.5m away from the machine front and 1m from the floor

in the anechoic room, with the machine being operated at its full load.

\*Air produced by compressors should not be used in respiratory equipment furnishing air for direct inhalation.

\*Since the cooling for the compressed air & the inside of the compressor unit depends on the surrounding air condition, the surrounding air must be properly ventilated to prevent the ambient temperature from rising above 40°C.  
\*Please be sure to use the lubricating oil recommended by KOBELCO.  
\*Specifications and appearances are subject to change without notice  
Contact us if guaranteed values of performance is needed.

## ED series-Rotary drum desiccant dryer

ED series is a desiccant type compressed dryer achieving low dew point without consuming power or compressed air for regeneration of desiccant.

### Why ED dryer ?

#### High efficiency

- No requirement of external power for regeneration because hot air from compressor is used for regeneration of desiccant. Only 15-40W for rotary system needed.
- No purge air loss\* unlike heatless desiccant type. \*Max 0.3% for water drain

#### Low dew point

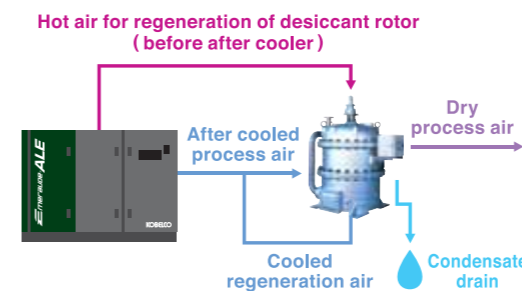
- Lower dew point compared to refrigeration type.
- No worry for condensate in winter time.

#### Eco friendly

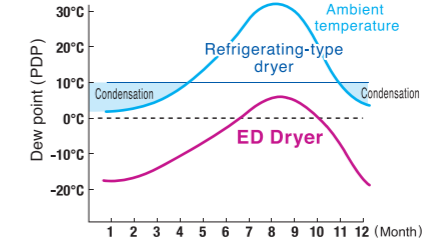
- No Freon required unlike refrigeration type.



### System Flow (compressor-ED series)



### Dew point characteristics



NOTE : this is a suggested image of dryer pressure dew point (at air = pressure 0.69 MPa).

### Applicable model

ED dryer	Applicable compressor
ED160W	ALE 120~160
ED250W	ALE 200~250
ED370W	ALE 275~400

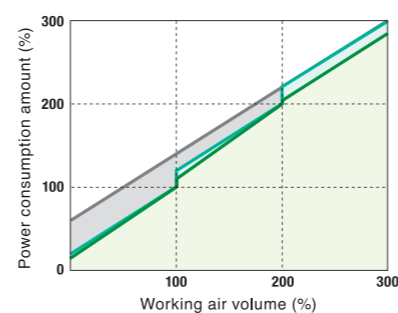
\*Selection based on discharge pressure of 0.69MPa.

## Group Controller Model EM

Efficient utilization of multiple compressors and accessories with energy saving.

### Your merits are ;

- Saving electricity consumption by optimizing the number of running compressor.
- Minimizing pressure band compare with conventional cascade pressure setting.
- Maximizing energy saving merit of variable speed compressor.
- Equalizing compressor running hours.
- Integrating auxiliary equipment control for further energy saving.



Standard Models (3)

Standard Models (3) + EM

Emeraude ALE (1) + Standard Models (2) + EM

\*Standard model : compressor without inverter.

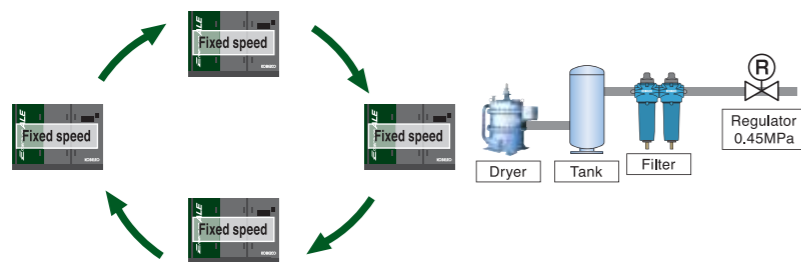
### Specification

Model	EM 42	EM 44	EM 48
Max No. of compressor	2	4	8
Display	4.3 inch	7 inch	7 inch
Dimensions (mm)	Width	500	600
	Depth	200	200
	Height	600	900
Control pressure	0~1.5MPa		
Installation style	Wall mount		
Weight (kg)	30	50	70
Power supply	AC 100V to 240V 50/60Hz 1Φ		

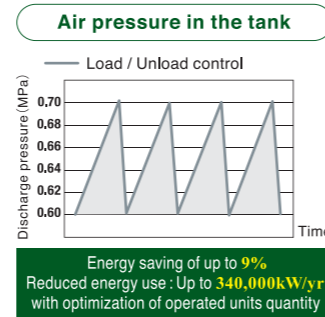
## KOBELCO provides advanced total solution.

KOBELCO, a pioneer of Compressor technologies in Japan, always explores the front-line with its proven history and advanced technology. KOBELCO proposes suitable air system to meet customer's various requests such as clean air system, high efficiency and automation.

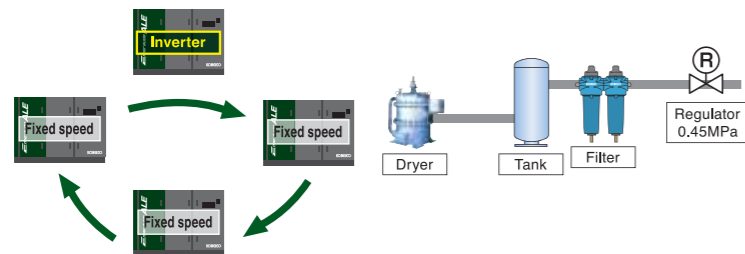
### ① Group control



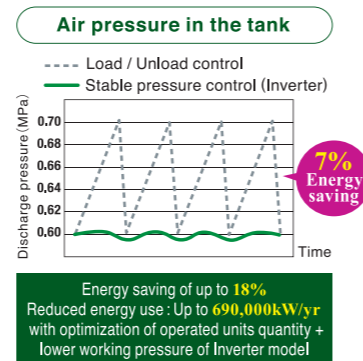
Max 6 units can be operated without a group control panel in case of new ALE.



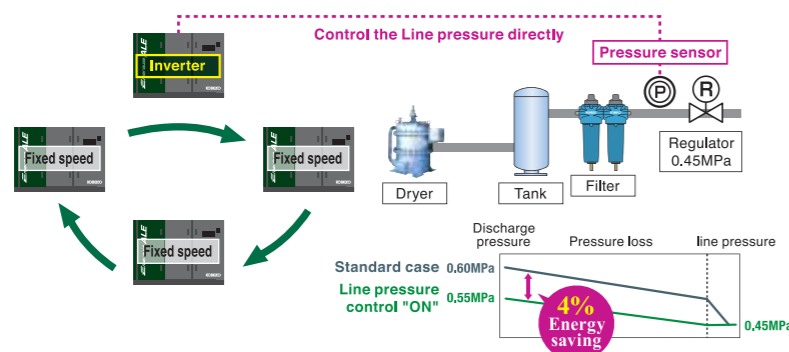
### ② Stable pressure control of Inverter model + Group control



Because Stable pressure control of Inverter model leads to lower down the parallel fixed speed models' discharge pressure, a lot of energy use is saved.

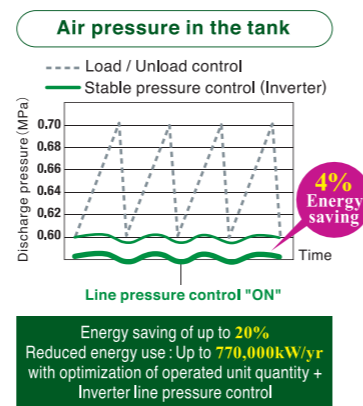


### ③ Line pressure control (Option) + Stable pressure control of Inverter model + Group control



Line pressure control optimizes the discharge pressure which has excessive margin. It's possible to reduce energy loss with excessive pressure rise by monitoring of line pressure and pressure drop.

\*Assumptions : 160kW. \*4units, average load ratio: 62.5%, running time : 8,000hr, Comparison to Load/unload control without group control.



## The strong partnership with our customers is producing fruitful results throughout the world.

KOBELCO COMPRESSOR sales and production locations are based in the regions of Asia and North America, in response to expanding demand overseas. Domestically KOBELCO responds to customer requirements in a meticulous manner through sales offices and service centers nationwide, which provide support for customers in a coordinated manner, covering all their needs ranging from daily support work to proposals for the implementation of new technologies.



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KOBELCO COMPRESSORS CORPORATION [KCC]

#### China

KOBELCO COMPRESSORS MANUFACTURING (SHANGHAI) CORPORATION [KCMS]

< Beijing > KOBELCO COMPRESSORS (SHANGHAI) CORPORATION BEIJING BRANCH [KCSB]

< Shanghai > KOBELCO COMPRESSORS (SHANGHAI) CORPORATION [KCS]

< Guangzhou > KOBELCO COMPRESSORS (SHANGHAI) CORPORATION Guangdong Office [KCSG]

#### Singapore

KOBELCO MACHINERY ASIA PTE. LTD. [KMA]

#### Vietnam

KOBELCO COMPRESSORS VIETNAM CO., LTD. [KCV]

#### Thailand

KOBELCO COMPRESSORS (THAILAND) LTD. [KCTH]

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KOBELCO COMPRESSORS (CAMBODIA) CO., LTD. [KCCP]

#### India

KOBELCO COMPRESSORS INDIA PVT. LTD. [KCI]

#### America

KOBELCO COMPRESSORS MANUFACTURING INDIANA, INC. [KCI]

### 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.