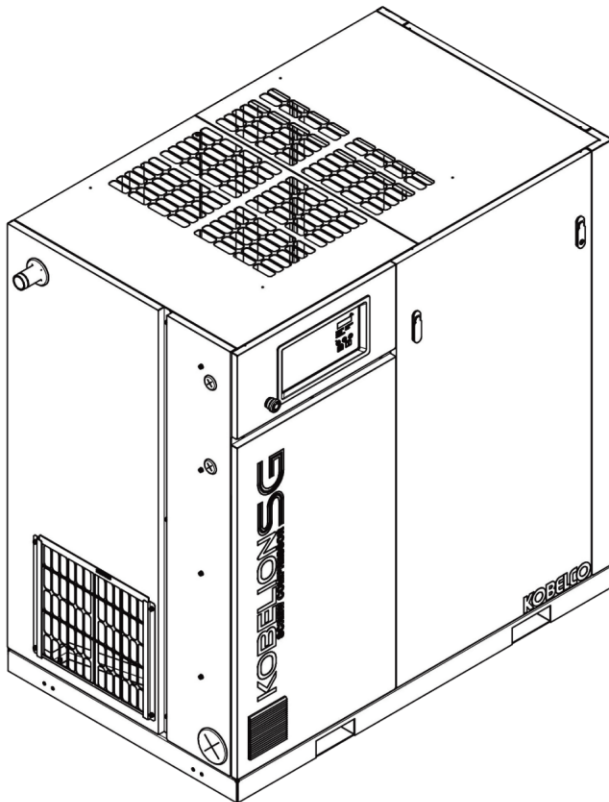


KOBELIONSG

SCREW COMPRESSOR

INSTRUCTION MANUAL



MODEL

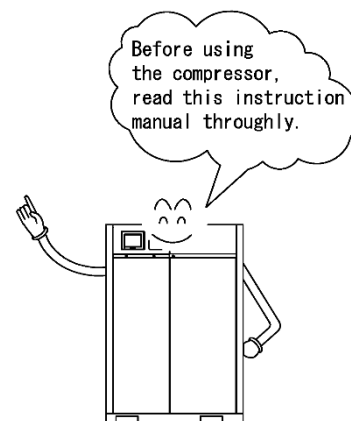
SG30AV
SG37AV

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Preface

Thank you very much for selecting “KOBELION series”, which is package type screw compressor of Kobe Steel, Ltd (hereinafter referred to as KOBELCO)
Read this instruction manual carefully for proper installation, operation, and maintenance.
Keep this manual in a safe place near the unit for quick reference.



■ Model Code

◆ Model Code ◆

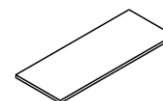
The KOBELION series is identified by the following code :

SG30AIV

SG	• • • KOBELION-SG series	
30	• • • Motor output	30 : 30 kW 37 : 37 kW
A	• • • Cooling system	A : Air cooled
IV	• • • Series type	

Accessories

Model	SG30A IV	SG37A IV
Parts name		
Forklift hole Cover (Magnet Sheet)	4 qty	4 qty



Forklift hole cover
(Magnet Sheet)

1 Safety Information

1.1 General Precautions



- Carrying-in work, installation, operation, maintenance and inspections of the machine must be performed by the well-trained workers.
- We will not be responsible for any injury and failure/damage of the machine caused by modification by customer.
- Strictly follow the local regulations and the safety standard established in the respective region.
- Do not use compressed air for any respiratory equipment.

1.2 Alert and Safety Symbols

For safety and trouble-free operation, the following alert and safety symbols attached to major parts. Be sure to observe them.

Read carefully and well understand the general precautions.

Alert symbols

	Indicates a potentially hazardous situation which can cause the risk of death or serious injury.
	Indicates a potentially hazardous situation that can cause the risk of damage of equipment or minor or moderate injury. Equipment damage means the loss of the machine itself and/or incidental or sequential loss of peripheral equipment and facility.

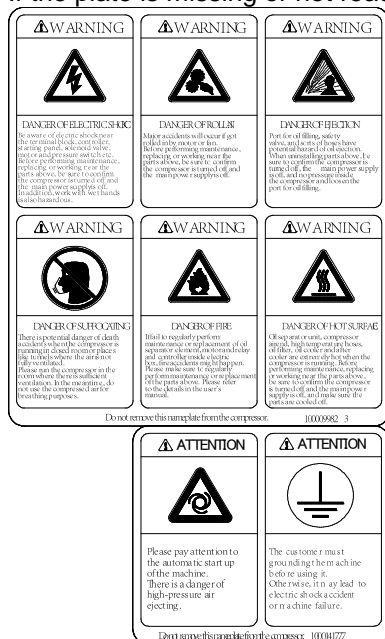
Safety symbols

	Indicates "Prohibited". Description is written near the symbol.
	Indicates "Mandatory". Description is written near the symbol.

1.3 Check on Product Data Plate

Make sure that the product data plate is attached to the machine.

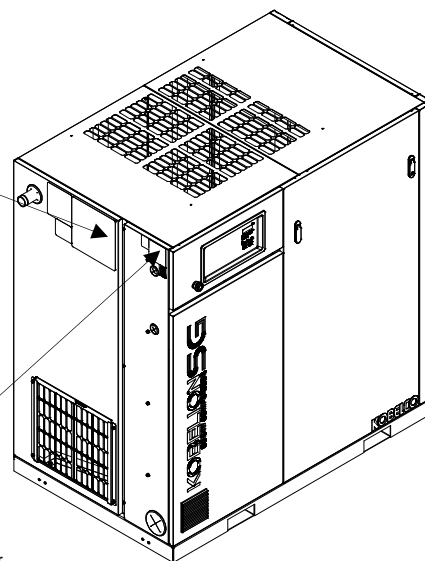
If the plate is missing or not readable, contact us or local dealer to get a new one.



Name plate

KOBELCO SCREW COMPRESSOR	
MODEL	
DISCHARGE / MAX PRESS.	MPa
SPECIFIED PRESS.	
DISCHARGE VOLUME	m ³ /min
MOTOR OUTPUT	kW
DIMENSIONS (D×W×H)	mm
WEIGHT	kg
SERIAL NO.	
MANUFACTURING DATE	
MADE IN CHINA	

Please inform the compressor model and serial number when commissioning repair or ordering spare parts.



1.4 Safety Rules

1.4.1 General Rules for all works



- Carefully read and well understand the instruction manual before operation, maintenance and inspection of the machine.
Only administrators and workers who understand the manual shall operate the machine.



- Before disassembly and repair work, conduct a "risk assessment" meeting, where all workers ensure signs of collaborative work to prevent any injuries.



- Wear appropriate clothes and protectors during work, such as installation, disassembly or assembly of the machine.
Workers must wear a helmet, safety shoes and safety glasses, which protect eyes from pressurized air.
The safety rules are necessary where the machine is operating.

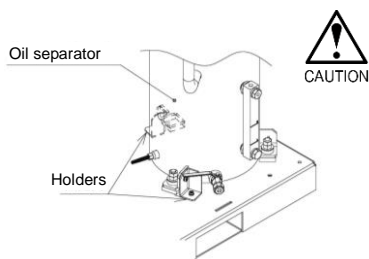


- Authorized technicians must perform inspection and maintenance.
Inexperienced technicians must be supervised by qualified person.



- Use only genuine KOBELCO parts or KOBELCO recommended parts.
Any other parts may cause malfunction and failure.

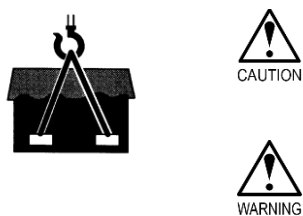
1.4.2 Lifting and carrying in



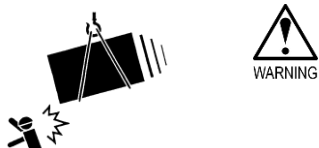
- When moving the unit, attach support and fixtures to the oil separator to prevent piping and anti-vibration rubber from any damages. After installation, the supports and fixtures must be removed.
- Keep the supports and fixtures as required during maintenance.



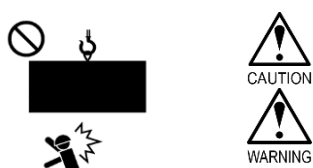
- ◎ Carrying with a forklift
- Insert forks into fork-holes of the base plate.
- Place protector between the unit and the forklift to prevent damage.



- ◎ Lifting with a crane
- Pass slings through fork-holes of the base plate and protect the unit covering with cloths.
- Use appropriate capacity slings and shackles to the weight of the machine. The weight is shown on the product data plate of the machine. (See page 1-1)



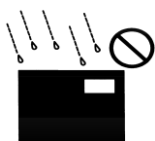
- Perform sling work concerning the center of gravity and weight. Carefully lift up the machine keeping the horizontal level to prevent it from slipping.
- Keep a 45° degree angle between slings and the top side of the unit



- Never stand below the heavy load during lifting work.
- In case of fall accidents, it may cause serious injury.

1.5 Precautions at Installation Site

1.5.1 Installation site



- This machine is designed for indoor use only.
Do not install the machine outdoors or semi-outdoors.
- Do not install in a site where it is exposed to rain or in high humidity area. It can cause electric leaks, drain or rust.



- Do not install in a site that contains toxic gas, it can cause deterioration of lube oil and corrosion in parts.
- Do not install the machine near work places where using flame or the ambient temperature may exceed 45°C.
- Do not hold inflammable materials around the unit.



- Do not install in a site where iron powder or sand is polluting air.
That may cause insulation failures to the electric devices and damages to rotors

1.5.2 Installation



- When installing the unit in a closed room, equip a ventilation system that has an appropriate capacity.
- In case of earthquakes, build a concrete basement and secure the unit with anchor bolts.
The concrete basement and the bolts shall be installed according to the latest seismic design method.

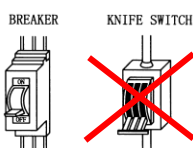
1.6 Electric Wiring

1.6.1 Electric Wiring



- Qualified electricians must conduct electric wiring work.
- Cable leading from the power source should be protected by suitable cover.
All electric cables in the unit shall be protected by attaching protective bushings to the holes through which cables are passed .
- Electrical leakage, insulation deterioration, overcurrent, short circuit, open phase operation, protection device failures may cause sparking from the motor, wiring and electric circuit.
- Make sure to check all electric wiring before the first operation. Make a maintenance plan and conduct periodical inspection for electric wiring.

1.6.2 Breaker



- Install an earth leakage breaker for the power source appropriate to the model.
- Do not install knife switch alone. It is insufficient for protection.

1.6.3 Earth cable



- Connect the earth cable to the earth terminal (marked E) on the compressor terminal board. The grounding work shall be of 10 Ω or less.
- Qualified electricians must perform grounding work.
Be sure to connect the earth cable directly to the ground. Operation without grounding work may cause electric shocks and failure in the compressor.

1.6.4 Safety device



- Do not remove or modify safety devices. Do not change any setting of the safety devices. It may cause accidents or failure in the machine.

1.7 Operation

1.7.1 Operation



- Do not hold any inflammable materials around the machine. Never use flame near the machine.
- Do not perform welding work around the machine. The compressor may catch a fire from spark.



- Do not touch exhaust outlet and the peripheral area, which are heated up during the operation.



- Keep terminal boxes close during operation to prevent electric shocks.
- At the first operation after overhauling, check settings of the safety devices and the timer.



- Operate the machine within the specified limits mentioned in this manual.
Conduct inspections and preventive maintenance to keep the machine in good condition.



- Do not compress inflammable, poisonous or corrosive gas by the compressor.



- If any abnormalities are found, stop the machine immediately to prevent any injuries and damages.

1.7.2 Rotating parts



- Do not touch any rotating parts during the operation or even the compressor has stopped.



- Turn off the main power when you need to touch any rotating parts, such as a ventilating fan.



- Be noted that the compressor automatically start when the pressure drops to the recovery value.

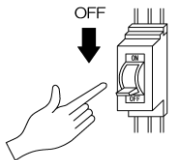
1.8 Shutdown

1.8.1 Parallel operation



- Stop the compressor, close the discharge valve and allow it drain.

1.8.2 Long-term shutdown



- Turn off the main power and close the discharge valve of the compressor.
- Be sure to run compressor for 20 minutes, once a week without fail. It will help to prevent rust in the compressor.

1.8.3 Inspection during shutdown (Pressure)



- For inspecting the compressor unit and refilling lube oil, press the stop button on the control panel to stop the compressor. Turn off the earth breaker and check "Oil Separator pressure" is "0 MPa" indicated on the touch screen.

1.8.4 Inspection during shutdown (Power supply)



- For inspecting the operating panel, turn off all the power sources.

1.8.5 Inspection during shutdown (Safety valve)



- Do not disassemble the safety valves, which have been installed after strict performance tests. If any problems occur, contact us.

1.8.6 Inspection during shutdown (Oil separator element cover)



- Ask our certified technician to remove and install the oil separator element cover.
- If you want to do it yourself, make sure to tighten all bolts of cover, to appropriate torque values, by using torque wrench. Torque values are mentioned on the data plate attached to the element cover.

1.9 Lubricant

1.9.1 Lube oil



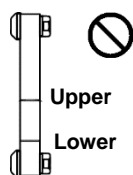
- Be sure to use “KOBELCO GENUINE SCREW OIL” or “KOBELCO EXTRA OIL”.
- Never mix different brand oils or different grade oils.
- The poor circulations by downgraded oil, insufficient lubricant and high viscosity occur. It causes abnormally high temperature and may cause a fire.
- Do visual check on oil conditions once a month. Refill or change the oil as required.

1.9.2 Oil change



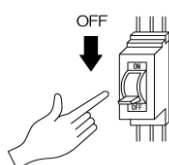
- Under normal operational conditions, the service life of “KOBELCO GENUINE SCREW OIL” is 3000 hours, or the service life of “KOBELCO EXTRA OIL” is 6000hours. Be sure to change the full amount of oil after the running hours.
- Once the compressor operated with deteriorated oil, overhauling of airend will be required. Do not neglect oil change.
- Deteriorated oil contains deteriorated carbon, which is filtered through the separator element. The deteriorated carbon may be partially heated up by oxidation heat, and it can ignite or explode. Replace the oil separator element as well, at oil change.

1.9.3 Refill

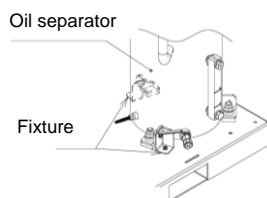


- Refill oil when the oil level is below the low limit in the unit running.
- Press the stop button on the controller panel to stop the compressor.
- Turn off the breaker. Check “Oil Separator pressure” is “0 MPa” indicated on the touch screen.
- Note that the pressure remains in the oil separator for two minutes after the compressor unit is stopped.
- Refill oil after making sure that the internal pressure is released.

1.10 Overhaul



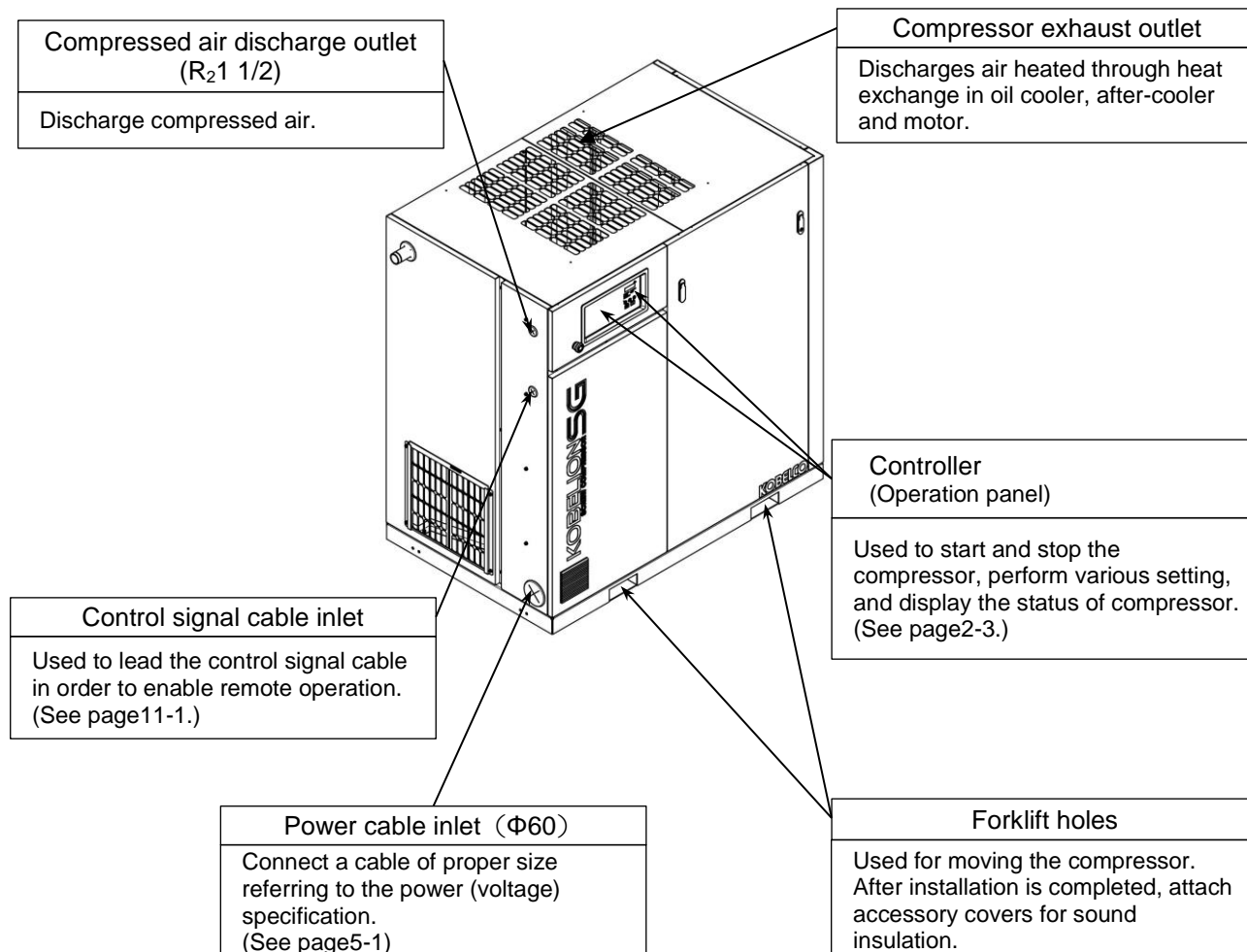
- Overhaul shall be performed after every six years (except 1.05 Mpa model after every four years), regardless of operating hours.
- Replace the main motor bearings and clean the motor coils.
- Turn off the power before overhaul the compressor.



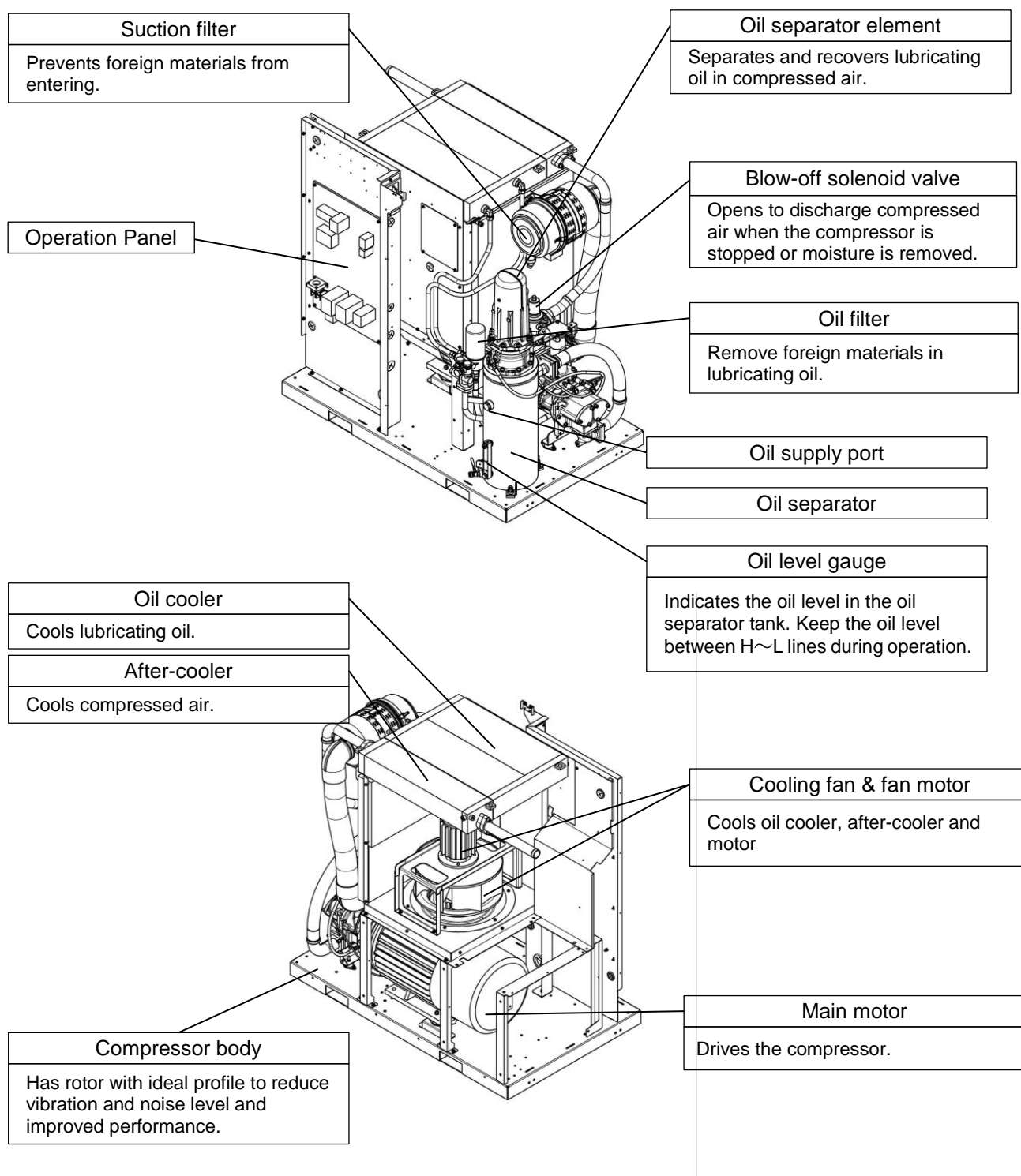
- For maintenance (O/S element replacement), install fixtures the oil separator to prevent piping and anti-vibration rubber from damaging.
- Keep the fixtures for next maintenance.

2 Nomenclature

2.1 Overview



2.2 Main Parts

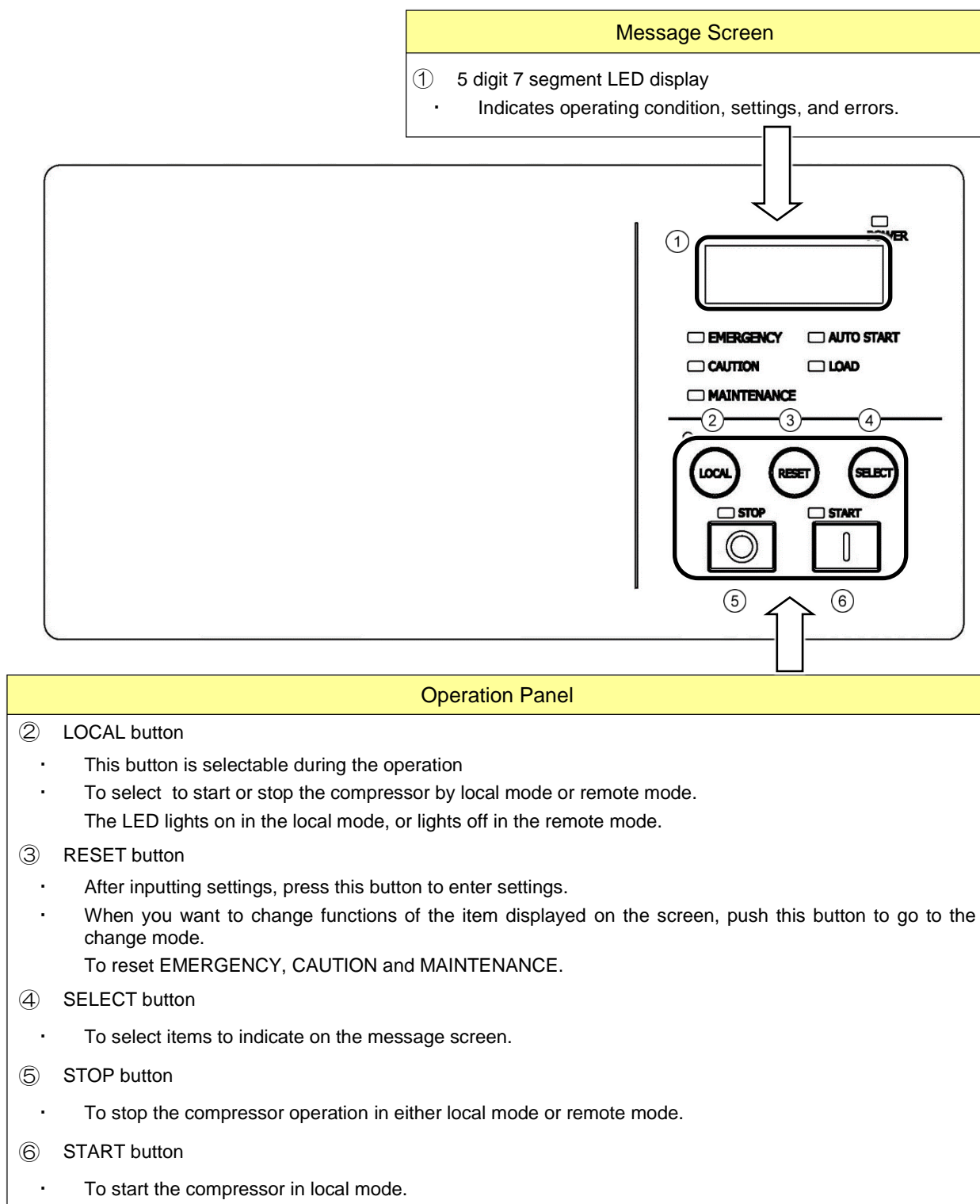


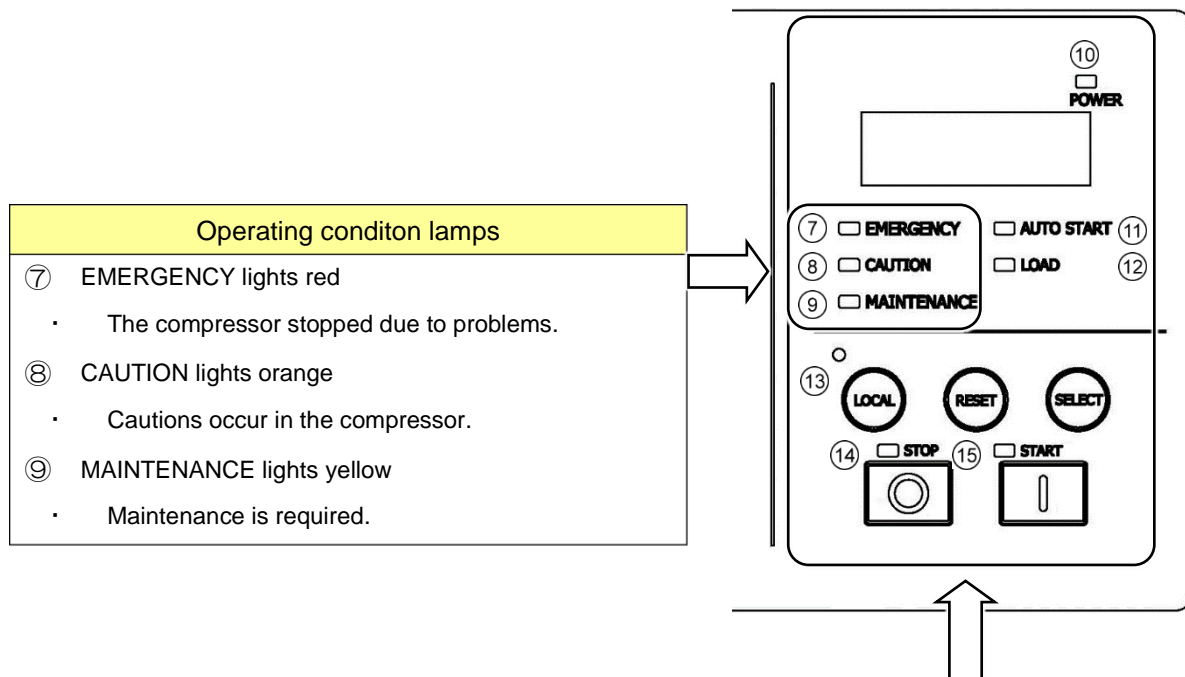
WARNING

Any modification without prior permission must invalidate the warranty even within the warranty period. Contact us whenever modification is required.

2.3 Controller

The controller consist of display panel, operation panel and buttons, message lamps and running condition lamps, which are organized according to their functions for simple and accurate settings.





Message lamp	
⑩	POWER lamp lights green <ul style="list-style-type: none"> The controller power is on.
⑪	AUTO START lights green <ul style="list-style-type: none"> Blinking when the compressor stopped by auto stop for capacity control because discharge pressure exceeds the pressure setting of the auto stop.
⑫	LOAD lamp lights green. <ul style="list-style-type: none"> Lighting while the motor is running. Blinking while condensate drain is in process.
⑬	LOCAL lamp lights green <ul style="list-style-type: none"> Lighting at the local mode operation
⑭	STOP lamp lights red <ul style="list-style-type: none"> Indicates that the compressor has stopped operating.
⑮	START lamp lights green <ul style="list-style-type: none"> Indicates that the compressor is operating.

3 Installation Conditions

3.1 Place to be installed

Refer to the following points to select an installation location.

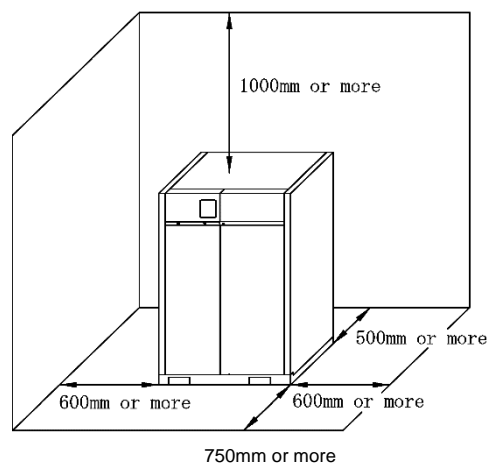
- This machine is designed for indoor use only. Do not install it outdoors.
- Install this machine at an altitude below 1,000 m. Contact us if installing the machine higher than 1,000 m.
- This machine is equipped with the precision electronic components. Never expose the machine to the rain water. Avoid installation in high humidity areas.
- Do not install the machine at a place that contains a lot of dust and harmful gases such as chlorine gas, hydrogen sulfide gas, sulfur dioxide, ozone of high density, etc.
- Do not install the compressor unit at a place where it may inhale oil mist and coolant mist from the machining center, smoke from the boiler or gas of decomposing plastics. It may cause clogging in the oil separator and an emergency stop. Do not install the machine where the ambient temperature exceeds 45°C.
It may cause severe accidents such as fire and burning of the machine.
- Install the machine horizontally. Do not place blocks or any other things under the machine, this may cause improper functioning of the compressor.
- Install the machine in a place that does not create vibrations.
- Please note that the noise level may vary with building structure or where the machine is installed.

3.2 Installation space for safe operation

Refer to the following instructions to install the machine.

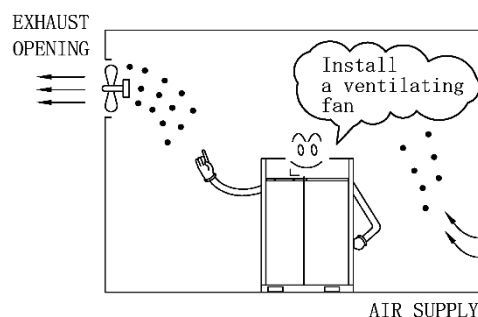
3.2.1 Recommended space

- Keep a vacant space around the unit, 600 mm for the left side, 600 mm for the right side, 750 mm for the front side, 500 mm for the rear side and 1,000 mm for the top side.
- Keep a space 200 mm from the top side for changing the oil separator element.
- To ensure proper functions and maintenance, suitable space is required for suction air inlets on the left and rear side along with exhaust air outlet on the top side.
- Keep enough space for opening the door and maintenance.



3.2.2 Installing a ventilating fan

- Install a ventilating fan to provide fresh air into the closed room.



- Provide a suitable area so as not to create negative pressure in the room.
- Select a ventilating fan that is bigger than the air volume in the following table.
- In case of low ceiling, exhaust heat circulates to the suction side and it may cause ambient temperature rise.
- The machine power may alarm at the ambient temperature of 47°C or higher.

■ Ventilating fan specifications

Model	Heat generation	Compressor cooling air	
		Quantity of exhaust air	Exhaust duct allowable pressure loss
	[MJ/hr]	[m ³ /min]	[Pa] (mmH ₂ O)
SG30A IV	135	90	20 (2)
SG37A IV	161		

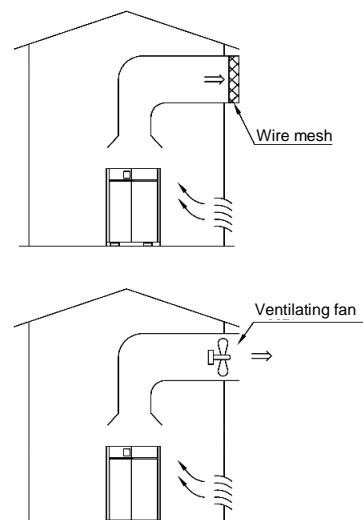
Model	Volume of ventilation (Note:2)			
	Entire ventilation		Ventilating duct	Ventilating duct & fan
	[m ³ /min]	Local ventilation (Note:1) [m ³ /min]		
SG30A IV	374 or more	189 or more	37 or more	127 or more
SG37A IV	447 or more	215 or more	45 or more	135 or more

(Note:1) Local ventilation method is to install a ventilating fan near the compressor exhaust air outlet and to directly exhaust 1/3 to 1/2 of emission air from the compressor.

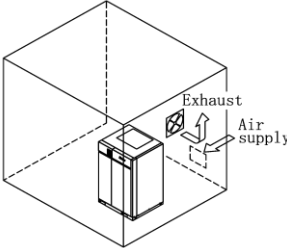
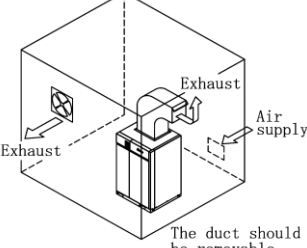
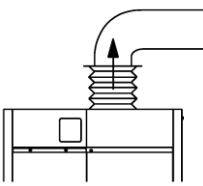
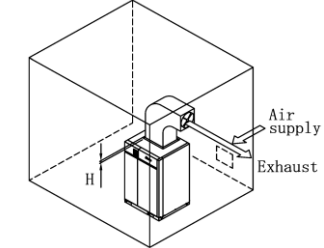
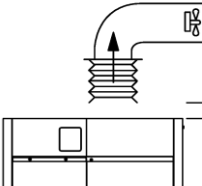

(Note:2) The volume of the ventilation determines the flow volume when allowable-temperature range is set as 5°C (9°F) above ambient temperature.

3.2.3 Installation of ventilating exhaust duct

- Be sure to install an exhaust duct when a ventilating fan cannot be installed to a fully-closed room
- Do not connect the duct to the compressor with screws. For inspection, the duct should be easily removed.
- Attach a wire mesh cover to the duct outlet to keep out birds, dust or other foreign matter.
- Prevent rain water from entering into the duct.
- Minimize bends in the duct (maximum tolerance of 20 Pa) to avoid pressure loss.
- Maximize a radius when bending the duct.
- Install a ventilating fan to the duct outlet if the exhaust duct has a pressure loss of more than 20 Pa (2 mmH₂O).
- When installing a ventilating fan in the duct, select a heat resistant one [80°C (176°F)] and keep a space of 300-400 mm between the ventilating duct and the exhaust air outlet of the compressor.



3.2.4 Installing a ventilating system and a ventilating duct

① Entire ventilation / Local ventilation (*1)	② Ventilating Duct	③ Ventilating Duct and Fan
	 	  <div style="border: 1px solid black; padding: 5px; text-align: center;"> CAUTION H: 300~400mm </div>
<p>The volume of the ventilation determines the flow volume when allowable-temperature range is set as 5°C (9°F) above ambient temperature.</p> <ul style="list-style-type: none"> The opening area of air inlet shall be adjusted to keep the flow rate of 2 m/s or less. <p>(*1) Local ventilation method is to install a ventilating fan near the compressor exhaust outlet and to directly exhaust 1/3 to 1/2 of emission air from the compressor.</p>	<ul style="list-style-type: none"> Calculate the pressure loss (resistance) in the ventilating duct based on the exhaust air volume of the compressor. If the result is not more than 20 Pa (2 mmH₂O) for air cooling type, the exhaust from the compressor exhaust outlet through the duct will be possible. Connect the ventilating duct referring to the duct installation mark at the top of the compressor. The duct should be removable. Do not fix the duct with screws. It may hinder repair and maintenance work. Minimize bends in the duct to avoid resistance. When installing the duct, provide a full radius. Duct resistance over 20 Pa (2 mmH₂O) could reduce the exhaust volume, causing temperature rise and may stop the compressor. Even if the duct is connected directly to the compressor, the temperature will rise. In such a case, install a ventilating fan mentioned on previous page when allowable temperature range is set as 5°C (9°F) above ambient temperature. Prevent rain water from entering the duct outlet. If the pressure loss in the ventilating duct is over 20 Pa (2 mmH₂O), install a ventilating fan at the duct outlet. (See method ③.) Follow the same installation procedure to install a ventilating fan and air inlet as that of entire ventilation. The opening area for air supply shall be adjusted to keep the flow rate of 2 m/s or less. 	<ul style="list-style-type: none"> If the pressure loss (resistance) in the ventilating duct is over 20 Pa (2 mmH₂O), install a ventilating fan with the specified capacity inside the duct taking the pressure loss into consideration. <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <div style="text-align: center;">  Caution </div> <p>Clearance "H" must be secured 300 mm to 400 mm between the ventilating duct inlet and the compressor exhaust outlet</p> </div> <ul style="list-style-type: none"> Turn on the ventilating fan while the compressor is running, and turn it off when the compressor stops. The opening area of air inlet shall be adjusted to keep the flow rate of 2 m/s or less.

3.3 Location of Installation to be avoided

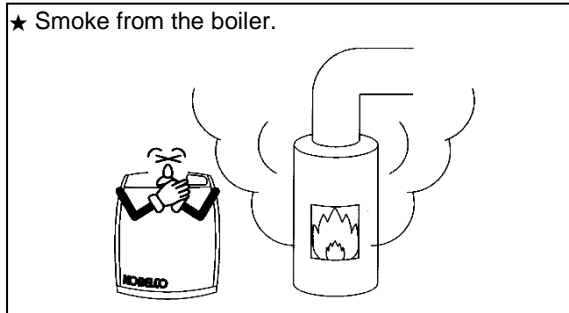
When installing the compressor in the places shown below, the compressor may inhale mist, gas or smoke, which will be compounded with moist in the oil and then deteriorate. This may cause clogging and damage to the oil separator element. If location of the installation site cannot be avoided, lube oil and oil separator element will be replaced more frequently than regular maintenance. Read the instruction manual for further details.

3.3.1 Locations to be avoided

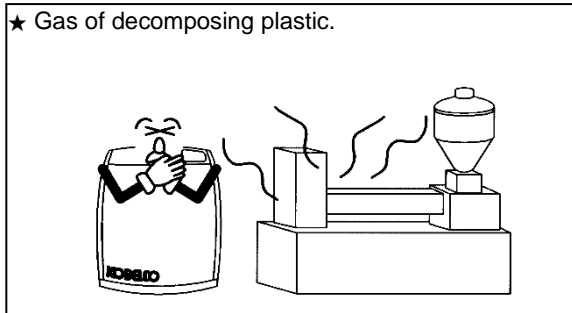
★ Coolant mist from machining tools.



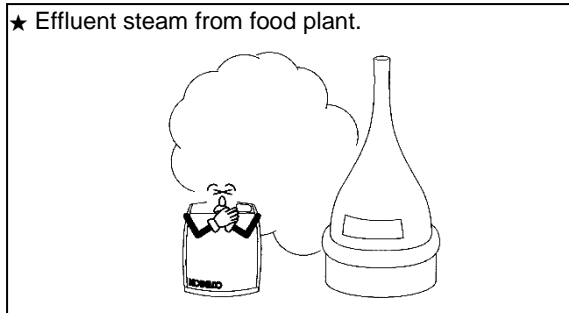
★ Smoke from the boiler.



★ Gas of decomposing plastic.



★ Effluent steam from food plant.

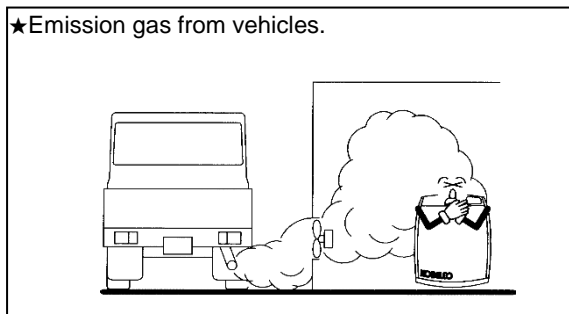


Caution

Do not install the compressor in places where it may inhale coolant mist from the machining tools, gas from decomposing plastic, effluent steam from food plant, smoke from the boiler, and emission gas from vehicles.

Intake of these toxic gases or mist will cause clogging of the oil separator element. This also may cause an emergency stop of the compressor.

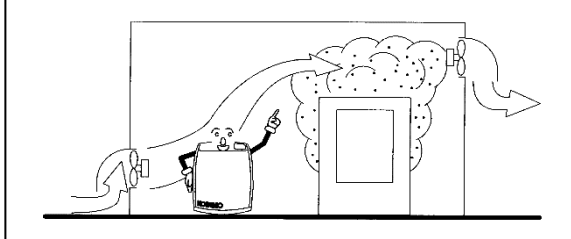
★ Emission gas from vehicles.



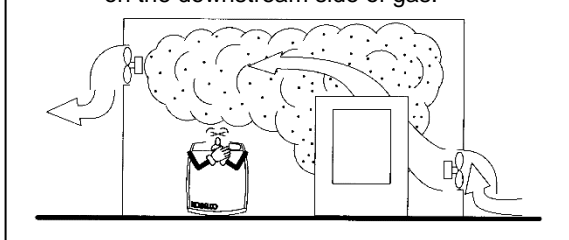
3.3.2 Ventilation method to avoid suction of toxic gas or mist



Install a suction fan and an exhaust fan, or a suction duct.



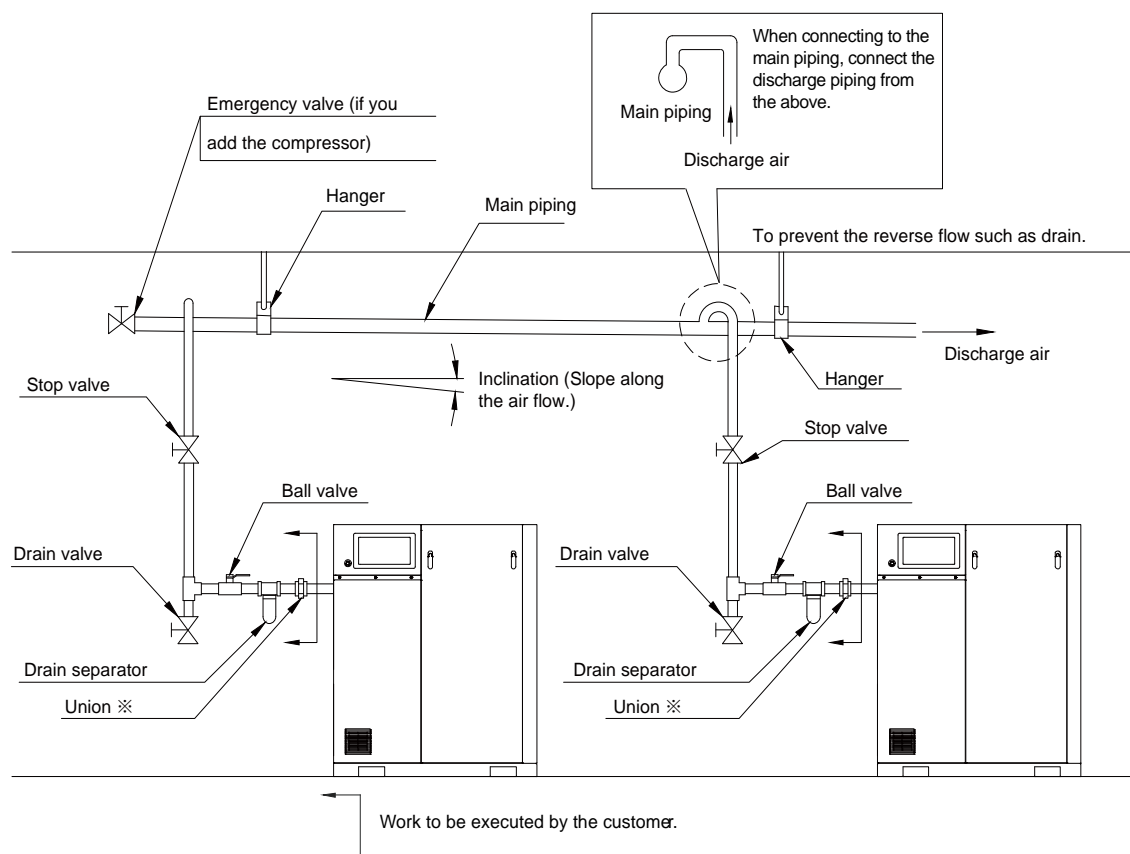
Do not install the compressor on the downstream side of gas.



4 Piping

4.1 Piping installation

- Unsupported long piping may cause vibrations and could cause damages to devices connected with piping. The piping must be properly supported using hangers, fasteners, columns, etc.
- When more than two units of compressors are installed and their discharge piping is connected to the same main header, be sure to provide the stop valves before the main header so that they can be closed when any of compressors stop.
- Incline the main piping toward the discharge air flow to drain through the pipe smoothly.
- Provide drain valve at the bottom of the piping if there is a concave or riser piping.
- To prevent condensate reverse flow, connect a discharge piping at the top of the main piping.
- When installing riser piping, provide a riser piping at least 600 mm away from the discharge outlet for the maintenance.



Note: Be sure to connect the compressor to user's piping and with flanges or unions, in order to separate piping from the compressor for maintenance.

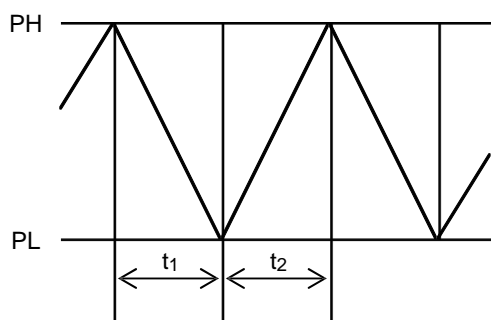
4.2 Air tank installation

- In order to reduce pressure fluctuations, be sure to maintain the capacity of the air receiver tank to be larger than the minimum capacity at discharge piping.
- Install a stand-alone dryer, a line filter, and check valves on the leeward side of the air tank. In addition, reduce the piping from the compressor to the air tank as short as possible.
- * If piping pressure loss from the compressor to the air tank becomes high, the cycle of load/unload becomes too frequent, and the life of parts becomes shorter.

4.2.1 Air tank capacity

Model	Air tank capacity [m ³]
SG30 AIV	Min. 0.8
SG37 AIV	Min. 1.0

Note: The above capacity is based on 50% of load rate, difference of higher and lower limit pressure at 0.1 MPa and a cycle time (load → unload → load) of 30 seconds.



$$V_R = \frac{(t_1 + t_2) \times Q_s \times P_a L_R (1 - L_R)}{D}$$

V_R : Air tank capacity (m³)

t_1 : Unload time (mins.)

t_2 : Load time (mins.)

$t_1 + t_2 \geq 0.5$ mins. (more than 30 secs.)

Q_s : Air discharge volume (m³/min)

P_a : Suction pressure (MPa)

D : Difference of higher and lower limit pressure (MPa)

L_R : Load rate (the rate of consumed air to air discharge volume Q_s)

《SG37AIV model formulas》 Air tank capacity is determined at load rate of 50%.

$$t_1 + t_2 = 0.5 \text{ mins.}$$

$$Q_s = 7.0 \text{ m}^3/\text{min}$$

$$P_a = 0.101 \text{ MPa}$$

$$D = 0.70 - 0.60 = 0.10 \text{ MPa}$$

$$L_R = 50\%$$

$$V_R = \frac{0.5 \times 7.0 \times 0.101 \times 0.5 \times (1 - 0.5)}{0.10} \approx 0.9 \text{ m}^3$$

5 Electric Power Supply

Power supply of 380/415 V/50 Hz (3 ϕ or 3 phase) is supplied to the unit. Remove the front cover and pass the power cable through the opening on the left side. Then connect each cable correctly to the terminal panel in the starter box. For normal operation, a suitable power source is required. Secure $\pm 5\%$ of rated voltage during operation. In order to suppress the imbalance of the current, imbalance of the voltage between phases shall be less than 2% is required.

5.1 Selection of the earth leakage breaker

Install an earth leakage breaker to prevent motor burnout, grounding fault, and electric shock.

(Sensitive current: 100 ~ 200 mA)

Model	Voltage (V)	Motor max.rated current (A)	Star-delta Current (A)	Surge current (value)	Recommend Breaker (Mitsubishi)
SG30AIV	380	71	201	1208	NV250-SV/125A
	415	66	186	1118	
SG37AIV	380	88	247	1483	NV250-SV/150A
	415	80	226	1357	

5.2 Selection of the power cables

For the power cables, select EV or CV or VV cables for 600 V insulated by the polyvinyl chloride.

Model	Voltage [V]	Power cable diameter (mm ²)					
		With electric conduit pipe			Without electric conduit pipe		
		5m or less	10m or less	20m or less	5m or less	10m or less	20m or less
SG30AIV	380/415	35	35	35	25	25	35
SG37AIV		35	35	35	25	25	35

Note: If a power cable is longer than 20 m, the diameter shall be bigger than the cables in the above table. Conduct wiring work that can arrange the cables to be the above size by the side of the compressor unit, using the relay terminals and others.

Model	Voltage [V]	Power cable terminal size (mm)			
		Power cable		Earth cable	
		Screw size	Terminal block width	Screw size	Terminal block width
SG30AIV	380/415	M 6	22	M 6	-
SG37AIV		M 8	25	M 6	-

Note: For details of the terminal block size, refer to electric wiring diagram.

5.3 Selection of earth cables

Connect the earth cable to the earth terminal of the controller panel.

Apply the grounding work of 10 Ω (380/415 V) or less.

Ground the earth cable directly from the compressor.

Failure of grounding may cause electric shocks or accidents, and malfunctions of the compressor.

Model	Voltage [V]	Earth cable size(mm ²)
SG30AIV	380/415	25
SG37AIV		

5.4 Selection of the power transformer

When the capacity of the transformer is too small, and/or the power cable is thin and long, the voltage may drop sharply at startup, and the motor may not accelerate properly or cannot start. Therefore, select an appropriate transformer for the motor capacity.

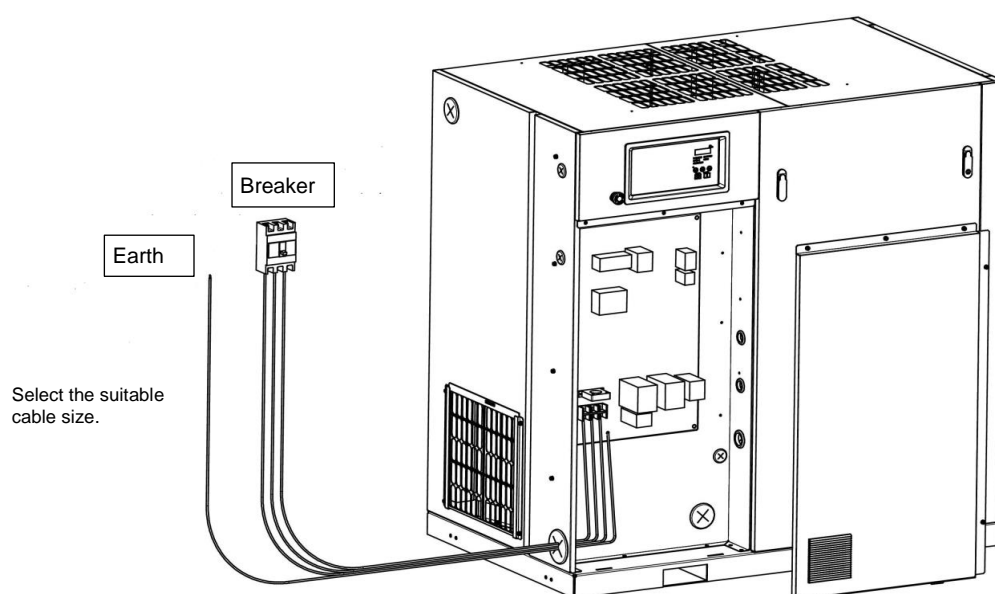
Model	Capacity of transformer (kVA)
SG30AIV	75 or more
SG37AIV	

Note: Use appropriate cables and a breaker as listed above. Use of any wrong size cable may cause overheating or burning the motor and cables. Do not drive the motor with inverter power.

5.5 The Connection of the Power Cable

Remove the front cover and connect the cables to the terminal block [L1/R, L2/S, L3/T] . Do not connect to a wrong phase.

Connect the earth cable to the earth terminal [E] . Be sure to protect cables in the terminal area not to apply mechanical stress to them.



6 Lube Oil

6.1 Cautions for lube oil



- Lubricating oil drained from a compressor at the factory.
- Use the genuine oil or recommended oil by KOBELCO for refilling or replacing lubricant, (contact us to purchase).

Definition of Genuine Oil

	Brand	Intervals(hr)	size	Part number
GENUINE LUBRICATING OIL	KOBELCO GENUINE SCREW OIL	3000	20 L	1000095875
	KOBELCO EXTRA OIL	6000	4L	1000094619
			20 L	1000094625

- Never mix different brands/different grade oils.

If the compressed air is expected to be used for food production, use food application oil "Anderol FGC 32". This oil shall be replaced every 3,000 hours of running.

For further information, contact us.



■ Definition of food application oil "Anderol FGC32"

Size	Part number	Recommended change cycle
20 L	1000118851	3,000 hours or six months whichever comes first

- Keep the oil level between the high limit and the low limit during operation.
- Do not operate beyond the high limit. It will cause oil leaking into the discharge air and other problems.
Note: when the compressor stops, the oil level will exceed the higher limit because oil return from the parts to the oil separator. This is a normal operation.
- Refill oil, when oil level drops below the low limit during operation. We recommend refilling the oil when the oil level is around the center between the low limit and the high limit because the oil level could vary depending on the load condition.

If the oil level rises much higher than the previous operation, stop the compressor immediately and inspect it after removal of oil.

■ Approximate amount of supply

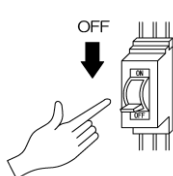
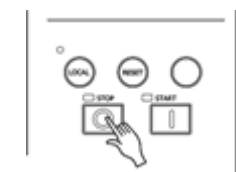
Before	Amount of supply		After
 High limit Low limit	SG30AIV	2.7 L →	 High limit Low limit
	SG37AIV	2.7 L →	

Note:

In nominal pressure condition, if compressor running (especially high blast running) for a long term, it will caused more oil consumption and shorter lubricate period.



6.2 How to refill lube oil



1. Press the stop button to stop the compressor and confirm that the [oil separator pressure 0 Mpa] displays on the touch screen.

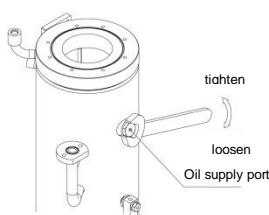
2. Turn off the earth leakage breaker

3. Remove the front cover of the unit and loosen the plug of the oil separator with a wrench, and then open the oil supply port.
4. Refill the oil. Wipe the spilled oil completely.
5. Securely tighten the plug to close the oil supply port.

The amount of oil at maintenance shown below.

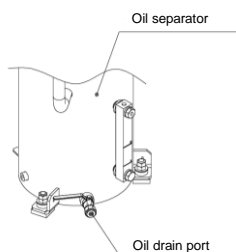
Model	Amount of Oil
SG30A IV	18 L(20 L)
SG37A IV	

() for the required amount of replacement oil during an overhaul.



- **Within one minute after the compressor stopped, the pressure remains in the oil separator. Wait until pressure drop for two minutes or more, and then refill the oil.**
- **If refill the oil from any other inlets than the oil supply port, you cannot check the oil level. Refill the oil from the oil supply port only.**
- **Do not turn off the breaker within one minute after the compressor is stopped. Because the pressure in the oil separator is being removed by regulating with the blow-off solenoid valve.**

6.3 How to drain oil



1. Press the stop button to stop the compressor and confirm that the [oil separator pressure 0 Mpa] displays on the touch screen.
2. Turn off the earth leakage breaker.
3. Open the oil drain port to drain the oil. You can use other drain plugs that are installed in the oil cooler and the discharge pipe of the compressor as well.

7 Operation

7.1 Procedures of Operation

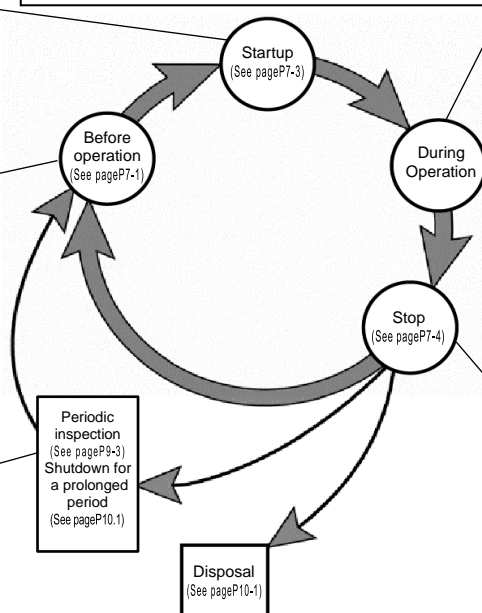
- Read carefully before starting compressor operation.

Ensure the safety around the compressor and its peripheral before start the compressor. Inform an "All Clear" sign to people working around.

Surely perform a "pre-operation inspection" whenever to start operation.

Perform inspection and maintenance of each part according to running hours or operating time. In case of storage for a prolonged period, store the compressor indoors and keep it dry.

- Do not touch any rotating parts or heated parts during the compressor operation or right after the compressor stopped, it is extremely dangerous. For safety and noise prevention, all unit covers must be closed.
- When an alert lamp lights on, inspect errors.
- Check the running hours. Inspect each part accordingly.
- Check the oil level, alarms and cautions on the controller display, abnormal sound and so on.

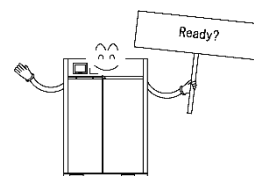
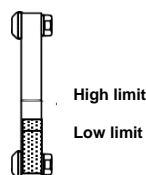
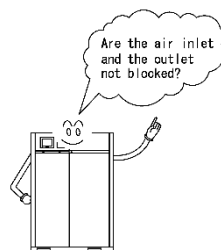


Right after the compressor is stopped, the pressure remains in it, and the inverter still has the voltage. For inspections and maintenance, turn off the breaker after check the pressure 0 Mpa and make sure the voltage 0 in the inverter to prevent any electrical accidents.

7.2 Pre-operation Inspection

- ① Are anything covering or blocking the air inlets of the right side, the left side and the exhaust outlet on the top side of the compressor?
- ② Is the oil level proper?
If the oil level is lower than the low limit when the compressor stops, refill the oil up to the high limit, referring to the following quantity.

When the compressor is operating, the oil, which circulates through the oil cooler and piping, is proper level between upper limit and lower limit in the oil separator.



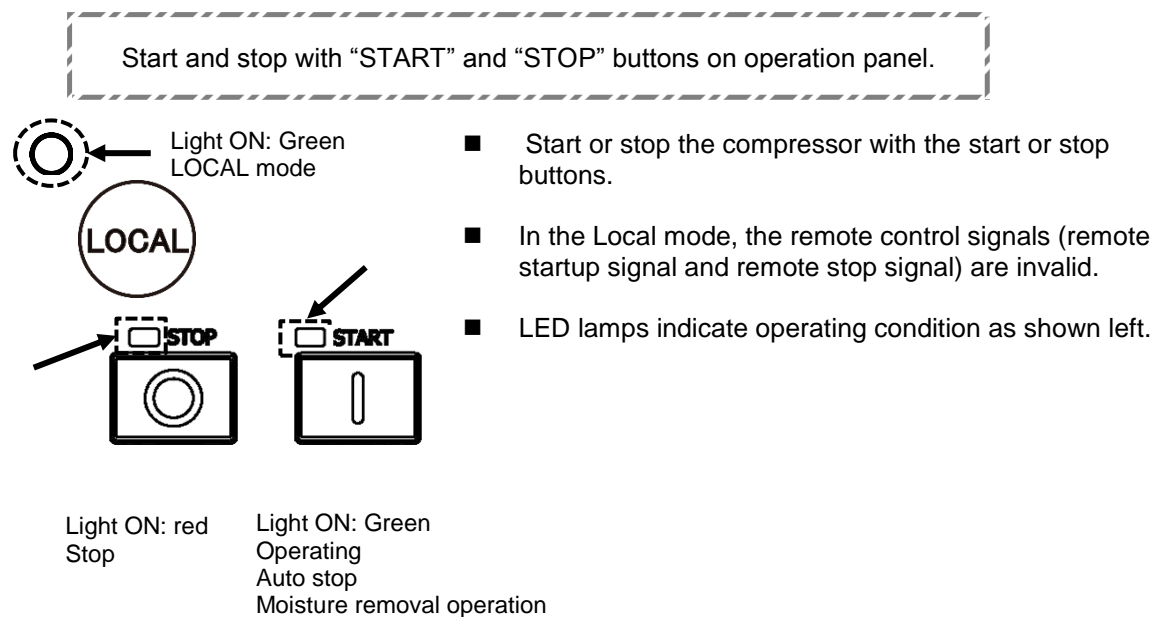
Note: During stop operation, the oil level in the tank is changing because the amount of the return oil flow back from the oil cooler and other parts will vary due to the running condition before the stop. Make sure the oil level to be between high limit and lower limit at the compressor startup. Do not overfill, it may cause poor performance of the oil return and large oil consumption.

7.3 Default Settings

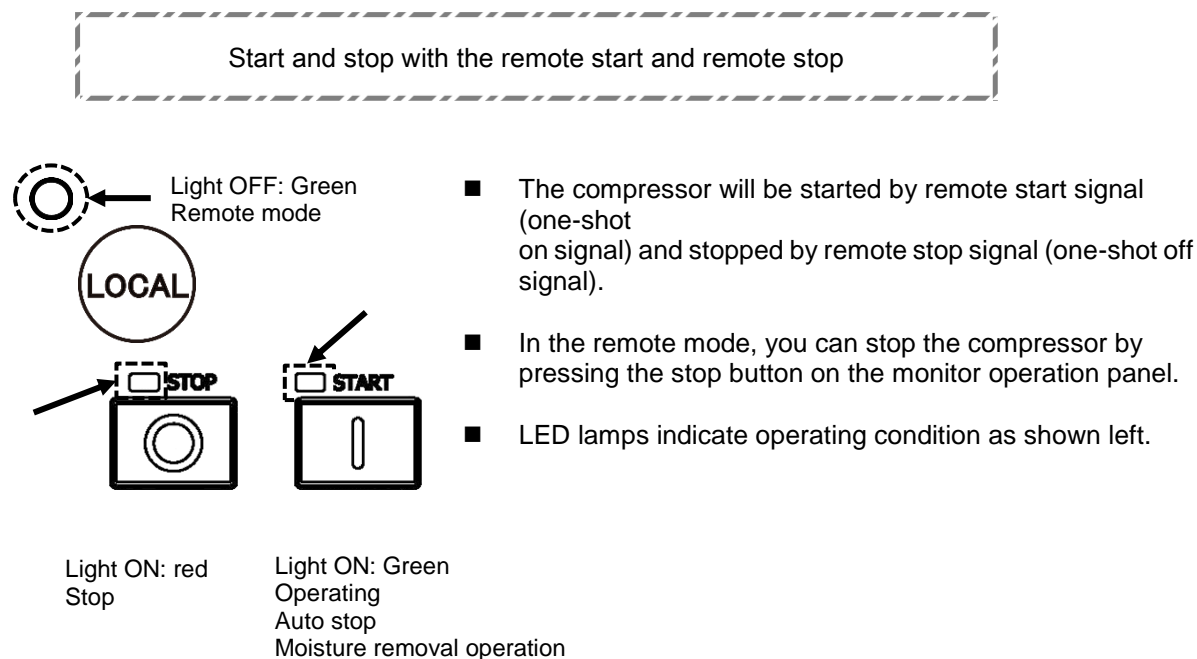
Screen	Items		Default
Compressor setting 1	Unload running pressure	0.75 MPa spec	0.70
		0.85 MPa spec	0.80
		1.05 MPa spec	1.00
	Load running pressure	0.75 MPa spec	0.55
		0.85 MPa spec	0.65
		1.05 MPa spec	0.85
	Auto restart pressure	0.75 MPa spec	0.50
		0.85 MPa spec	0.60
		1.05 MPa spec	0.80
	Auto mode		ON
	Pressure switch		OFF
Compressor setting 2	Group control		OFF
	Communication mode		LINK
	Communication address		1
	100Hr passed after maintenance caution		ON
	Energy saving running		OFF
Maintenance Info. screen	Suction filter replacement		6000 hrs.
	Oil filter replacement		6000 hrs.
	Oil replacement		6000 hrs.
	O/S element replacement		6000 hrs.
	Cooler inspection		6000 hrs.
	Annual inspection		6000 hrs.
	Dust filter cleaning		500 hrs.

7.4 Operation Procedure

7.4.1 Local mode



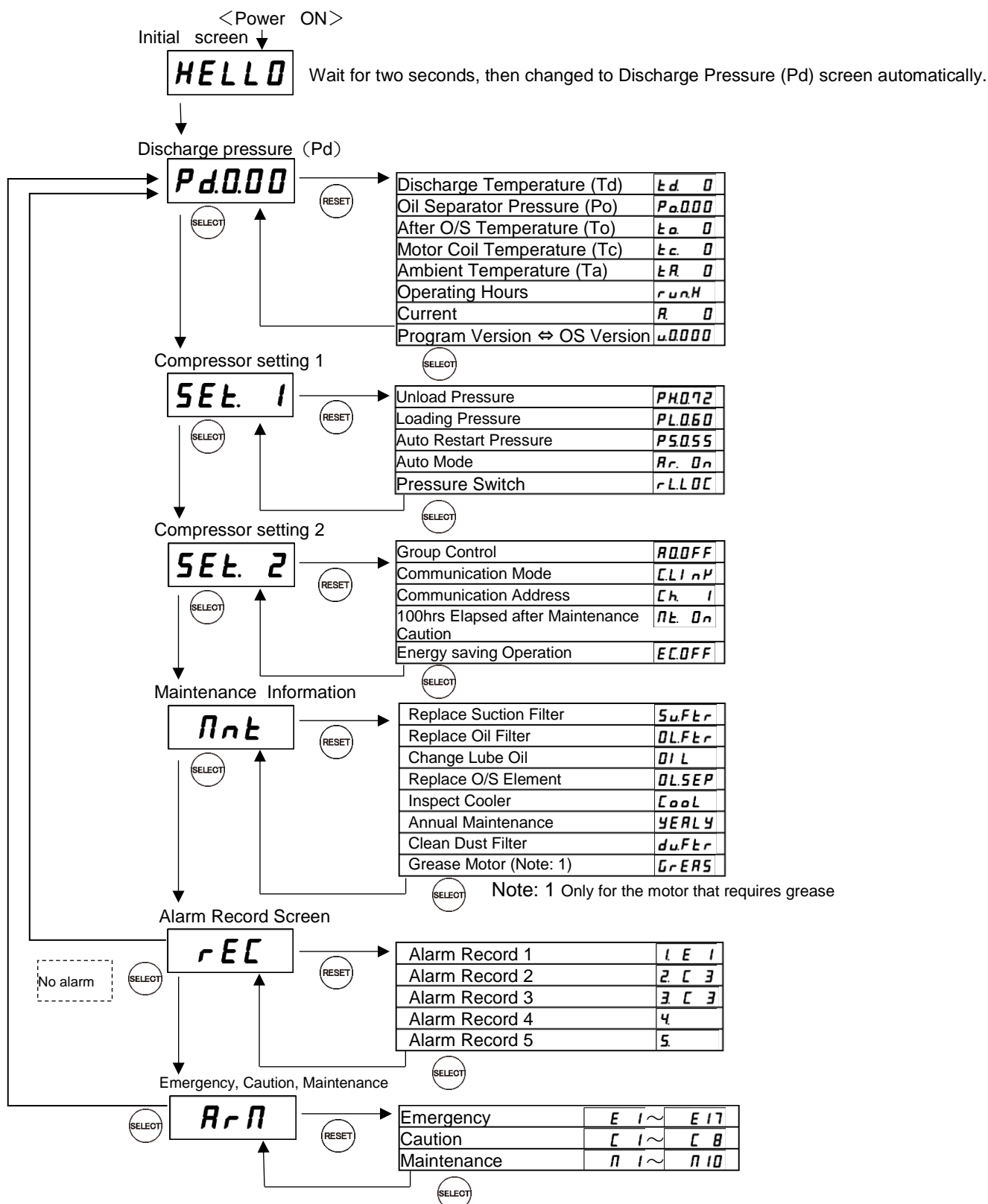
7.4.2 Remote mode



7.5 Controller Operation

7.5.1 Menu screen flow

The screen has a layered structure as shown in the following diagram. press RESET button and SELECT button on the controller to move from one screen to another.



7.6 Pressure Setting

The setting values can be changed on the "Pressure setting" screen.

Pd.0.00

↓ (SELECT)
[Compressor Setting 1]

SEt. 1

- Press the SELECT button on the discharge pressure screen to proceed to the [Compressor setting 1] screen.

- Check or alter all kinds of settings of compressor by pressing RESET button on the [Compressor setting 1] screen.

↓ (RESET)
[Unloading Pressure Setting]

PH.0.72

↓ (SELECT)

[Mode Select Screen]

← (RESET) →
Long Press

PH.0.7_

SELECT button: Up counter

RESET button: to change digits

- Check the Unloading pressure setting

[Loading Pressure Setting]

PL.0.60

↓ (SELECT)

[Mode Select Screen]

← (RESET) →
Long Press

PL.0.6_

- Check the [Load running pressure setting]

[Auto restart pressure setting]

PS.0.55

↓ (SELECT)

[Mode Select Screen]

← (RESET) →
Long Press

PS.0.5_

- Check the [Auto restart pressure setting]

Each pressure setting can be altered on [Mode Select Screen].
After changing the value, press RESET button for two seconds or more to register.
The acceptable range of pressure setting is as follows.

[0.75 MPa specifications]

	Default	Min.	Max.
Unloading	0.70	0.56	0.75
Loading	0.55	0.55	0.74
Auto restart	0.50	0.30	0.73

[0.85 MPa specifications]

	Default	Min.	Max.
Unloading	0.80	0.56	0.85
Loading	0.65	0.55	0.84
Auto Restart	0.60	0.30	0.83

[1.05 MPa specifications]

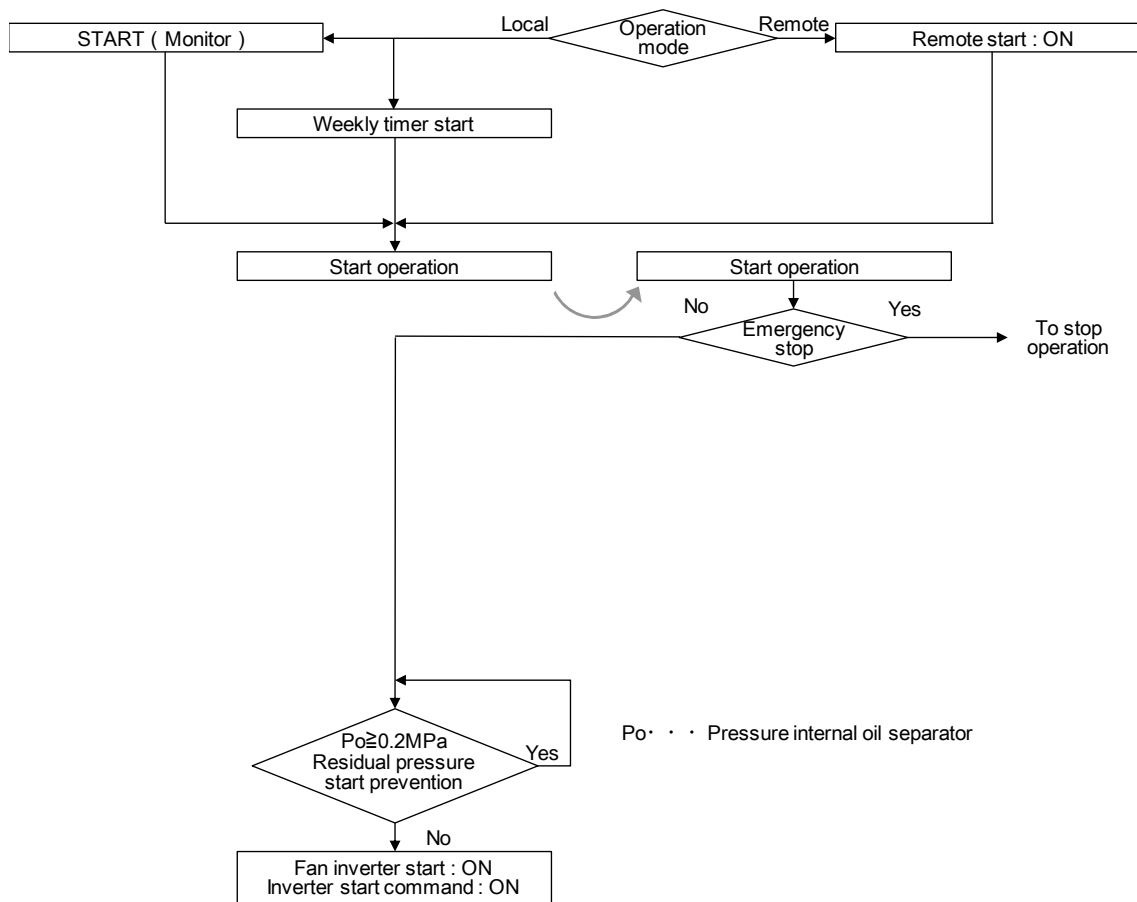
	Default	Min.	Max.
Unloading	1.00	0.56	1.05
Loading	0.85	0.55	1.04
Auto Restart	0.80	0.30	1.03

Unloading pressure > Loading pressure > Auto restart pressure

difference: 0.01 MPa

7.7 Operational Logic

◆Operation◆

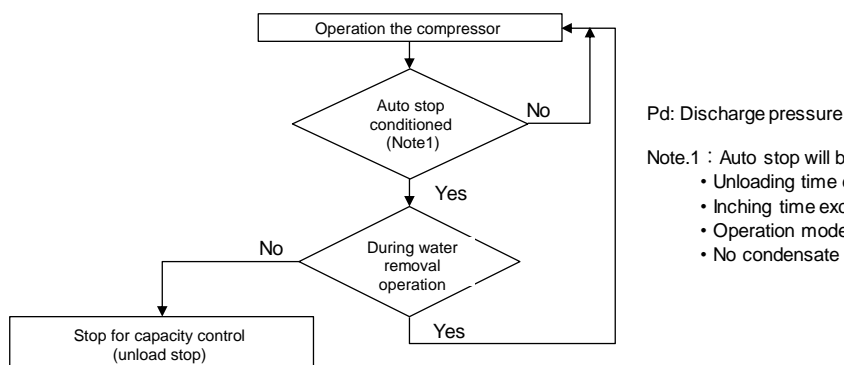


◆Moisture purging operation◆

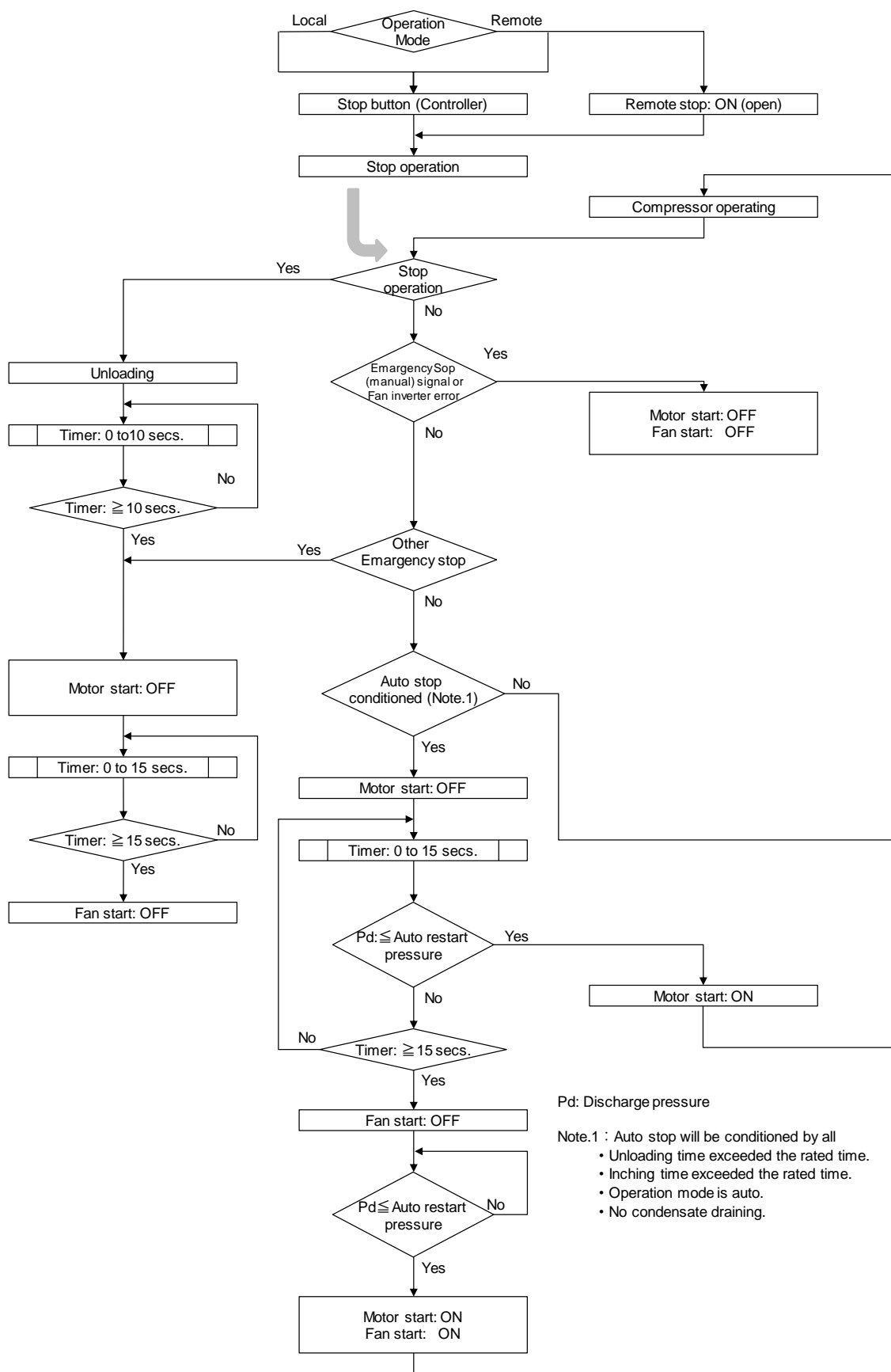
The water removal operation is the operation in which the drain is discharged by performing the purging operation (Blow-off solenoid valve : open).

When the drain becomes more than a certain amount, the water removal operation starts.

During the water removal operation, the message "Water removal operation" is displayed on the lower left of the screen and the LOAD lamp blinks.



◆Shutdown◆



8 In Case of Emergency

8.1 Troubleshooting

8.1.1 Emergency stop


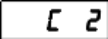
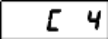
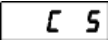

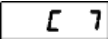
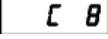
When problem occurs, the emergency LED lamp will light red on the controller panel. The display indicates error message. Compressor can not be started even if you press the start button. Resolve the problems first, and then press the reset button to restart.

Error table

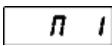
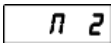
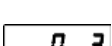
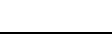
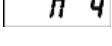
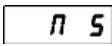
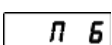
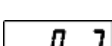
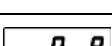
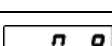
	Status	Troubleshooting
E 1	Main motor coil temperature high	Power supply error Motor error Dust filter is clogged
E 2	Fan motor error	Power supply error Motor error
E 4	Discharge temperature high	Ambient temperature is high Pressure setting is defective Oil cooler is clogged Cooling water error (water-cooled model only) Dust filter is clogged
E 5	After O/S temperature high	Stop compressor and turn off the power supply. Release internal pressure and replace the oil separator element at pressure 0 Mpa..
E 6	Discharge temperature sensor error	Contact KOBELCO service division.
E 7	After O/S temperature sensor error	Contact KOBELCO service division.
E 8	Main motor coil temperature sensor error	Contact KOBELCO service division.
E 9	Discharge pressure sensor error	Contact KOBELCO service division.
E 10	O/S pressure sensor error	Contact KOBELCO service division.
E 11	Reverse phase	Turn off the power and check the wiring of power supply.
E 12	Minimum pressure error	O/S minimum pressure is not maintained.
E 14	Main motor overload	Frequent starts and stops Power supply error Motor error
E 15	SW input error	Contact KOBELCO service division.
E 16	Emergency stop	Emergency stop signal occurred.
E 17	Discharge pressure high	Check piping and valve for failures, and resolve the problems.

8.1.2 Cautions

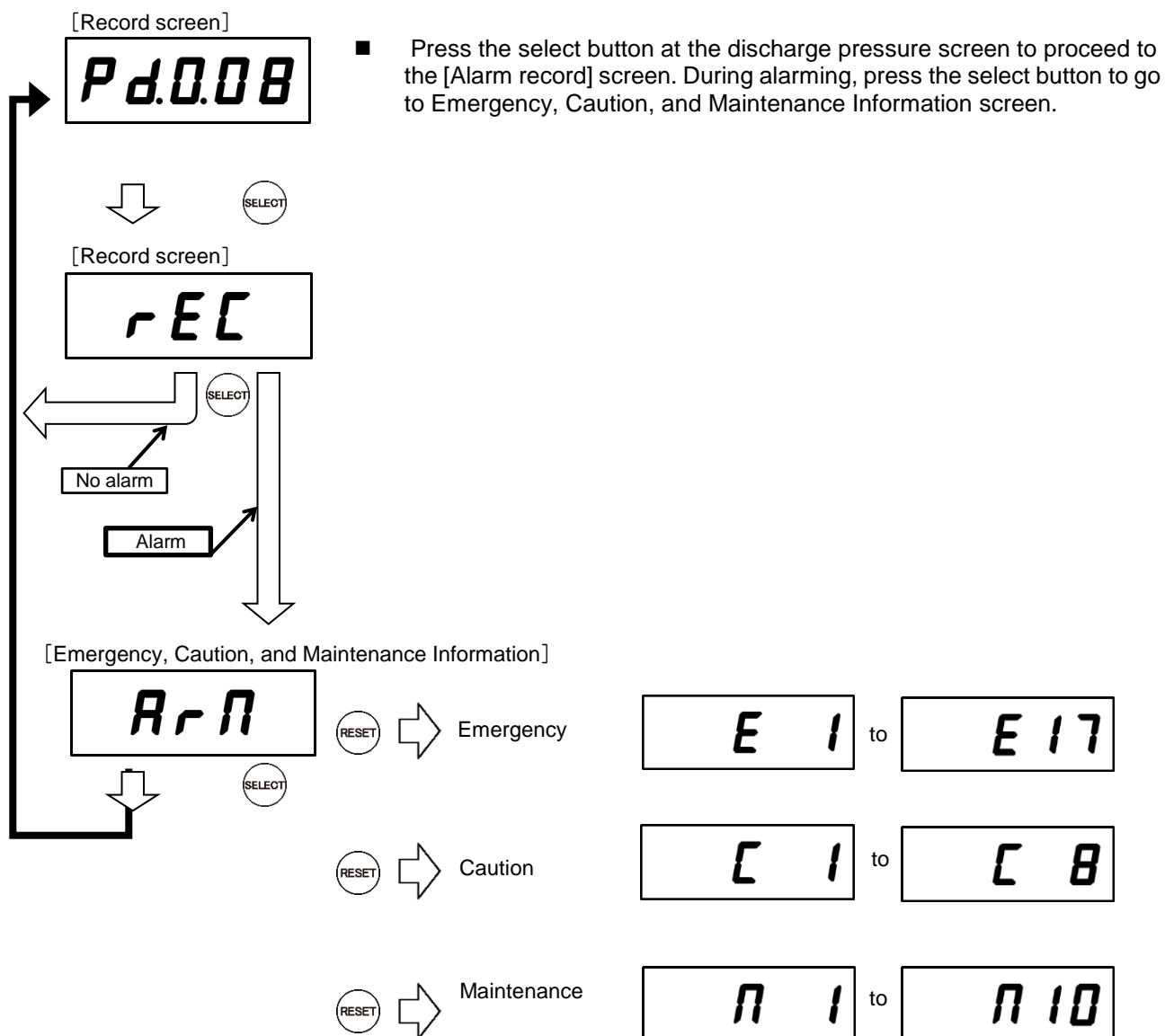
When caution alarms occur, the caution LED lamp will light orange on the panel. The display indicates caution message. Compressor can not be started even if you press the start button. Resolve the problems first, and then press the reset button to restart.

	Status	Cause and Troubleshooting
 1	Discharge temperature high	Ambient temperature is high Pressure setting is defective Oil cooler is clogged Oil filter is clogged Cooling water error. (water-cooled model only) Dust filter is clogged
 2	After O/S temperature high	Stop compressor and turn off the power supply. Release internal pressure and replace the O/S element at pressure 0 Mpa.
 4	100 hrs. elapsed after maintenance cautions	Contact KOBELCO service division.
 5	Main motor coil temperature high	Power supply error Motor error Dust filter is clogged
 6	Discharge pressure rise	Check piping and valve for failures, and resolve the problems.
 7	O/S element clogged	Replace the oil separator element. Stop the compressor and replace the oil separator element after internal pressure decrease to 0.
 8	Ambient temperature. high	The ambient temperature shall be below 45°C. Cool down the ambient temperature by ensuring adequate ventilation.

8.1.3 Maintenance

	Maintenance	
	Replace suction filter	Clean suction filter from inside by air blower. Replace it if too dirty to clean
	Replace Oil Filter	Stop compressor and turn off the power supply. Release internal pressure and replace the oil filter at the pressure 0 Mpa.
	Change Lube Oil	Stop the compressor and replace the oil separator element after internal pressure decrease to 0. Check the oil level and refill oil, if the oil level is below minimum level.
	Replace O/S Element	Stop compressor and turn off the power supply. Release internal pressure and replace the oil separator element at the pressure 0 Mpa.
	Inspect Cooler	Cooler inspection required. Inspect the cooler after stopping the compressor, make sure the cooling fan stopped completely.
	Annual Maintenance	Cooler inspection and maintenance required. Contact KOBELCO service division.
	Clean Dust Filter	Dust filter clogged. Remove the dust filter and clean by vacuum or water-wash.
	Grease Motor	Regrease the motor. (grease required motor only)
	Ambient temperature sensor error	Contact KOBELCO service division.
	Moisture condensation	The drain is accumulated. Keep the compressor loading Do not stop the compressor until complete maintenance caution reset, which can be reset when the drain volume is lower than the rated volume.

8.1.4 Emergency, Caution and Maintenance Information screen



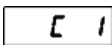
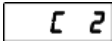
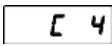
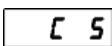
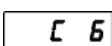

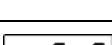
8.2 Interlock List

The KOBELION-SG series have the protection devices as follows, which can detect any abnormalities to prevent failures..

8.2.1 Emergency stop

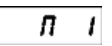
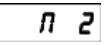
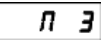
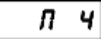
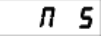
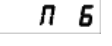

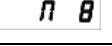
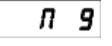
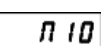
	Item	Location	Detector	Condition1	Condition2
E 1	Main motor coil temperature high	Main motor coil	Thermocouple	Over 155°C,3min	Over 165°C,3secs.
E 2	Fan motor error	Fan motor	Thermal	SW input	
E 4	Discharge temperature high	Inside of the oil separator	Thermocouple	Over 110°C	
E 5	After O/S temperature high	After O/S	Thermocouple	Over 110°C	
E 6	Discharge temperature sensor error	Discharge temperature thermocouple	Controller	Break	
E 7	After O/S temperature sensor error	After O/S temperature thermocouple	Controller	Break	
E 8	motor coil temperature sensor error	Motor coil thermocouple	Controller	Break	
E 9	Discharge pressure sensor error	Discharge pressure sensor	Controller	Break	
E 10	O/S pressure sensor error	O/S pressure sensor	Controller	Break	
E 11	Reverse phase	controller	Controller		
E 12	Pressure keep error	Inside of the oil separator	Pressure sensor	Less than 0.3MPa	
E 14	Main motor overcurrent	Main motor	Thermal	SW operate	
E 15	SW input error	Controller	Controller	20s passed after pressing START button	20s passed after pressing STOP button
E 16	Emergency stop	Controller	Controller	Emergency stop input	
E 17	Discharge pressure high	After A/C	Pressure sensor	Pd > setting pressure (for service only)	"Discharge pressure high Alarm : ON" is selected (for service only)

8.2.2 Caution

	Item	Location	Detector	Condition1	Condition2
	Discharge temperature high	Inside of the oil separator	Thermocouple	Over 105°C	
	After O/S temperature high	After O/S	Thermocouple	Over 105°C	
	100 hrs passed after maint. alarm	Controller	Controller	100 hrs passed after maint. alarm	
	Motor coil temperature high	Main motor	Thermocouple	Over 155°C, 3min	
	Discharge pressure high	After A/C	Pressure sensor	Pd > setting pressure	"Discharge pressure high alarm : ON" is selected (For service only)
	O/S element clogged	Pressure difference between the oil separator and the after after cooler	Pressure sensor	Over 0.12MPa	
	Ambient temperature high	Compressor suction inlet	Thermocouple	Over 47°C	

8.2.3 Maintenance

(※1 : Only for the unit needing grease replenishment)

	Item	Location	Detector	Condition1	Condition2
	Suction filter replacement	Running hour, pressure difference	Controller, indicator	Running 6000Hr	SW input
	Oil filter replacement	Running hour	Controller	Running 6000Hr	
	Oil replacement	Running hour	Controller	Running 6000Hr	
	O/S element replacement	Running hour, pressure difference	Controller	Running 6000Hr	Over 0.11MPa
	Cooler inspection	Running hour	Controller	Running 6000Hr	
	Annual inspection	Running hour	Controller	Running 6000Hr	
	Dust filter cleaning	Running hour	Controller	Running 6000Hr	
	Motor grease replenishment ※1	Running hour	Controller	Running 6000Hr	
	Ambient temperature sensor error	Ambient temperature thermocouple	Controller	break	
	Moisture condensation	Controller	Controller	Amount of drain > Amount of oil replenishment 3.5%	"Auto mode : ON" is selected

8.3 Before Calling for Service

When the compressor doesn't work properly, check to resolve problems following the below instructions before calling a repair service.

For **[call]** indicated problems, contact a specified service shop, dealer or KOBELCO service division.

Problems		Causes	Troubleshooting [call]
No rotating	No sound from Motor	Cut off cable	Replace the cable.
		Circuit board failure. Relay failure. Blown fuse Transformer failure	Replace defective parts.
		Motor failure	Repair or replace the motor after insulation resistance check.
	Motor is humming only	Low voltage	For low capacity power supply, change the capacity of the transformer.
		Wrong cable	Replace the cable with the specified size.
		Motor failure	Repair or replace the motor. [call]
		Rotor is not rotating	Overhaul the compressor [call]
Discharge pressure drop		Blow-off solenoid valve failure	Adjust or replace the solenoid valve. [call]
		Leakage from piping	Tighten the fitting or replace the packing.
		Suction filter clogged	Clean or replace the element.
		Oil separator element clogged	Replace the O/S element.
Blow-off from safety valve		Pressure higher than the specified value	Select an air reservoir with proper capacity.
		Safety valve failure	Replace the safety valve. [call]
Capacity control failure		Too short load cycle	Increase the capacity of piping (air reservoir).
		Improper pressure setting	Reset the pressure setting.
Lube oil deterioration in a short running		Different brand oil used, not KOBELCO genuine oil. (KOBELCO GENUINE SCREW OIL or KOBELCO EXTRA OIL) or not specified oil used.	Change lube oil with KOBELCO GENUINE SCREW OIL or KOBELCO EXTRA OIL or specified oil.
		High ambient temperature	Lower the temperature by ensuring adequate ventilation.
		Mixture of water	Inspect the air inlet and drain the oil.
		Deteriorated lube oil remains	Perform flushing before changing the lube oil. [call]
Abnormal sound in the aircend.		Foreign material entered in the compressor	Overhaul and repair. [call]
		Worn or damaged bearings	Replace the bearing. [call]
Other abnormal sound		Loosen bolts or screws	Tighten the bolt or screw.
		Improper installation	Fill mortar and level the compressor horizontally.
Excessive vibration		Loosen bolts or screws	Tighten the bolt or screw.
		Improper installation	Fill mortar and level the compressor horizontally.
		Unbalance of cooling fan by being contaminated	Clean the blades.

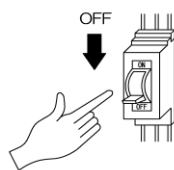
8.3.1 When motor does not rotate

This machine is equipped with the reversed-phase relay. The motor will not rotate if wiring connection is made reversed-phase.

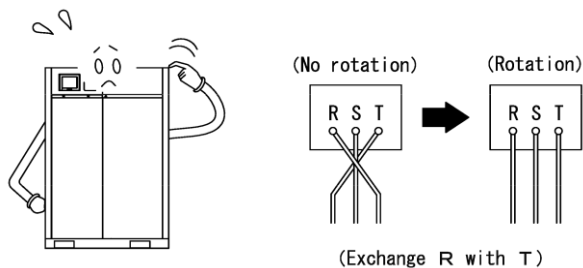
"E11" appears on the alarm screen when power supply has reversed-phase.

[Alarm Menu (Emergency Stop)]

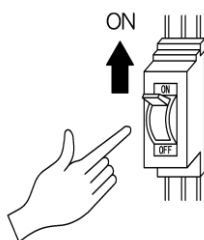
1. First, turn off the breaker.



2. Connect power cables accurately as per wiring diagram.



3. Turn on the breaker again and push the **Reset** button on the control panel. .
Check the motor rotates properly.



9 Maintenance and Parts Replacement

9.1 Guideline for Maintenance and Parts Replacement

Inspection intervals and part replacement depend on the installation site as well as operating conditions.

Refer the below table for your trouble-free operation.

●:necessary ○:suggestion △:Inspection/ cleaning ☆:visual check

	Components	0.75/0.85/1.05MPa			0.75/0.85MPa		1.05MPa
		Daily	Every year	Every 2 years	Every 4 years	Every 6 yrs. O/H	Every 4 years
			6,000 hrs.	12,000 hrs.	24,000 hrs.	36,000 hrs.	24,000 hrs.
Compressor	Screw compressor						
	Bearings					●	●
	O-rings					●	●
	C snap rings					●	●
	Double Lip Seal					●	●
	Sleeve					●	●
	O-rings					●	●
	Anti-vibration rubber					●	●
Filters	Suction filter assembly						
	Filter element		●	●	●	●	●
	Indicator		△	△	△	○	○
	Oil separator element Note:1						
	KOBELCO EXTRA OIL		●	●	●	●	●
	KOBELCO GENUINE SCREW OIL		Every 3,000 hrs. (3,000, 6,000, 9,000...)				
	ANDEROL FGC32		Every 3,000 hrs. (3,000, 6,000, 9,000...)				
	O-rings						
	Element		●	●	●	●	●
	Case		●	●	●	●	●
	Tank					●	●
	Base					●	●
	Flange					●	●
	Seal washers		●	●	●	●	●
	Oil filter element Note:1						
	KOBELCO EXTRA OIL		●	●	●	●	●
	KOBELCO GENUINE SCREW OIL		Every 3,000 hrs. (3,000, 6,000, 9,000...)				
	ANDEROL FGC32		Every 3,000 hrs. (3,000, 6,000, 9,000...)				
	Dust filter	☆					
	Magnet filter					●	●
Electric parts	Touch screen battery				●		●
	Pressure sensor		☆ (*A)	☆ (*A)	☆ (*A)	○	○
	Temperature sensor		☆ (*A)	☆ (*A)	☆ (*A)	○	○
Motor • Inverter	Main motor			△ (*B)	△ (*B)		△ (*B)
	Bearings (load side/unload side)					●	●
	V-rings					●	●
	Fan motor						
	Bearings (load side/unload side)					●	●

*A: Difference check

*B: Insulation check

Continued to the next page

Continued from the previous page

	Components	0.75/0.85/1.05MPa			0.75/0.85MPa		1.05MPa
		Daily	Every year	Every 2 years	Every 4 years	Every 6 yrs. O/H	Every 4 years
			6,000 hrs.	12,000 hrs.	24,000 hrs.	36,000 hrs.	24,000 hrs.
Valves	Capacity control valve						
	valve body			●	●	●	●
	O-rings			●	●	●	●
	Seal Ring			●	●	●	●
	Springs			●	●	●	●
	Minimum pressure valve						
	Inner parts			●	●	●	●
	Solenoid Valve				○		○
	Thermo valve						
	Element				●		●
	O-rings				●		●
Coolers	Safety Valve		△	△	△	△	△
	Stop valve for oil receiver			○	○	●	●
	Oil cooler		△	△	△	△	△
Others	After cooler		△	△	△	△	△
	KOBELCO EXTRA OIL		●	●	●	●	●
	KOBELCO GENUINE SCREW OIL		Every 3,000 hrs. (3,000, 6,000, 9,000...)				
	ANDEROL FGC32		Every 3,000 hrs. (3,000, 6,000, 9,000...)				
	Oil level gauge	☆ check oil level		○	○	●	●
	Air exhaust silencer						
	silencer		●	●	●	●	●
	Cap		●	●	●	●	●
	Filter		●	●	●	●	●
	Rubber tube						
	Rubber tube (discharge line)			○	○	○	○
	Rubber tube (others)					○	○
	Rubber tube (oil supply line)			●	●	●	●
	Synflex Hose					○	○
	Anti-vibration rubber					●	●
	Suction duct			○	○	○	○
	O-rings						
	Oil inlet (KOBELCO EXTRA OIL)		●	●	●	●	●
	Oil inlet (KOBELCO GENUINE SCREW OIL)		Every 3,000 hrs. (3,000, 6,000, 9,000...)				
	Oil inlet (ANDEROL FGC32)		Every 3,000 hrs. (3,000, 6,000, 9,000...)				
	Others					●	●
	N2 tube					○	○

Note:1 Oil separator element and oil filter element shall be replaced

- ◇ every year (6,000 hrs.) if KOBELCO EXTRA OIL used.
- ◇ every six months (3,000 hrs.) if KOBELCO GENUINE SCREW OIL used.
- ◇ every six months (3,000 hrs.) if ANDEROL FGC32 used.

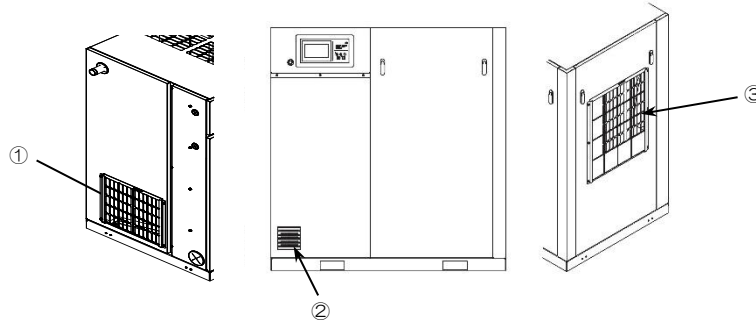
- This guideline doesn't define warranty period.
- Replacement intervals can be shortened depend on how to use or where to install.
- Replacement timings are determined based on 6,000 running hours per year, not exceed highest temperature setting, and yearly average temperature of 30°C or below.

9.2 Daily Maintenance

9.2.1 Cleaning dust filter (Option)

- Remove the dust filter cover and remove the filter.
- The dust filter should be cleaned either with vacuum or water.

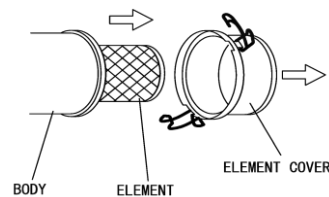
《Dust filter locations》



9.2.2 Cleaning of suction filter

- Open front cover and remove an element, and then clean the element from inside by air blower. Replace the element, if too dirty to clean.
- After cleaning, attach the element into the body firmly and attach the cover.
- The suction filter may be clogged early under operating environments where the dust filter is clogged early. In such cases, early replacement is recommended.
- Operation continued without replacing or cleaning the suction filter may cause damage to the duct hose

Model	Part No.
SG30AIV	1000085237
SG37AIV	



9.3 Insulation Test Procedures for Compressor Unit

- This compressor has a controller, which consists of electronic parts. Various kinds of surge absorbers are also equipped for noise prevention. Therefore, if insulation tests are made on the unit at the voltage beyond the setting for the surge absorbers, it could cause wrong test results and damage on the controller.

Perform insulation tests, following the procedures shown below.

Test voltage :
DC 500 V or less

Criteria for evaluation
(at normal temperature) :
R—FG 500 V DC 10 MΩ or more
S—FG 500 V DC 10 MΩ or more
T—FG 500 V DC 10 MΩ or more

【Insulation test for motor】

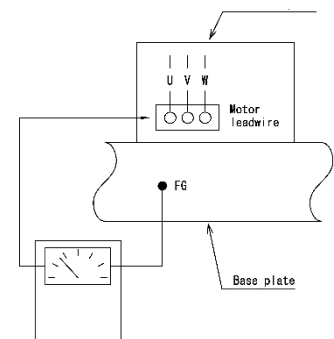
【Insulation test for motor】

1. Measure the insulation of terminals for the motor lead wires and the base plate (FG: frame ground).

【Insulation test for control circuit】

1. Remove all the connectors inserted into the controller.
2. Measure the insulation of terminals on the terminal block of control panel and the base plate (FG: frame ground).

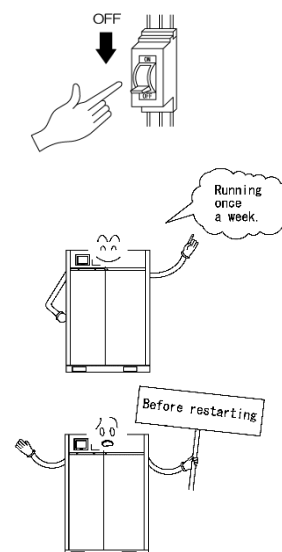
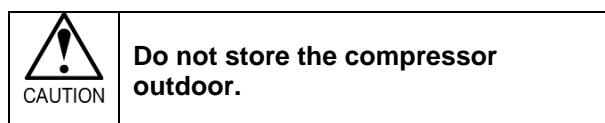
The insulation test procedures mentioned above conform to the local law about electrical appliance and material control.



10 Long Term Shutdown, Transfer and Disposal

10.1 Long Term Shutdown

- Be sure to switch off the short circuit breaker.
- Be sure to close the discharge valve.
- To maintain good conditions of the unit, operate it once a week for 20 minutes according to chapter 7 "Operation".
- When any problem is found, resolve it for your trouble free operation.
- Before restarting the compressor, see chapter 7 "Operation".
- Compressor unit must be stored inside.



10.2 Transfer and Disposal

10.2.1 Transfer

- For further information, contact the designated service shop, distributor, or KOBELCO service division.

10.2.2 Disposal

- Drain the lube oil, before disposing KOBELION-SG series compressor.
- In case of disposal of consumable supplies such as elements, contact with an industrial waste disposal contractor.
- Dispose the motor as general industrial waste. The rotor must be disposed after demagnetization at temperature of 500°C (932 °F) or more with a gas burner or in a furnace.
- For further instruction, contact the designated service shop, distributor, or KOBELCO service division.

11 Remote Control

11.1 Handling External Signals

- The following external signals are provided.
(See the electric wiring diagram on page 12-2.)

《Input signals to compressor》

- Remote • Start
- Remote • Stop
- Remote • Load

(Terminal X5-COM1 → Closed : Start)

(Terminal X6-COM1 → Open : STOP)

(Terminal X7-COM1)

* Only for KOBELCO group control panel

《Output signals from compressor》

- Emergency stop Output
- Caution Output
- Remote Output
- Running Output

(Terminal Y29-COM4 → Closed : EMERGENCY)

(Terminal Y2A-COM4 → Closed : Caution)

(Terminal Y2B-COM4 → Closed : REMOTE)

(Terminal Y2C-COM4 → Closed : RUNNING)

Model	Screw size	Terminal block width
SG30AIV	M3.5	7.5 mm
SG37AIV		



CAUTION

1. Input signals should be no-voltage contact input.
Electric current of 24 V is supplied from the controller side.
2. The allowable contact capacity of output signal is AC 250 V / 3 A, DC 30 V / 3 A.
The minimum load is DC 5 V / 100 mA.
3. The terminal X9-COM2 has been short-circuited at the factory.
Remove this terminal in the remote control mode.
4. Remote (input signal to controller) should be input by one shot at 500 ms or more.
Shorter pulse signals may not be recognized.



CAUTION

Any modification without prior permission of KOBELCO shall invalidate the warranty even within.

✓ : active — : inactive

Mode	Start button	Stop button	Remote ON	Remote OFF
Local	✓	✓	—	—
Remote	—	✓	✓	✓

12 Specifications

12.1 Products Specifications

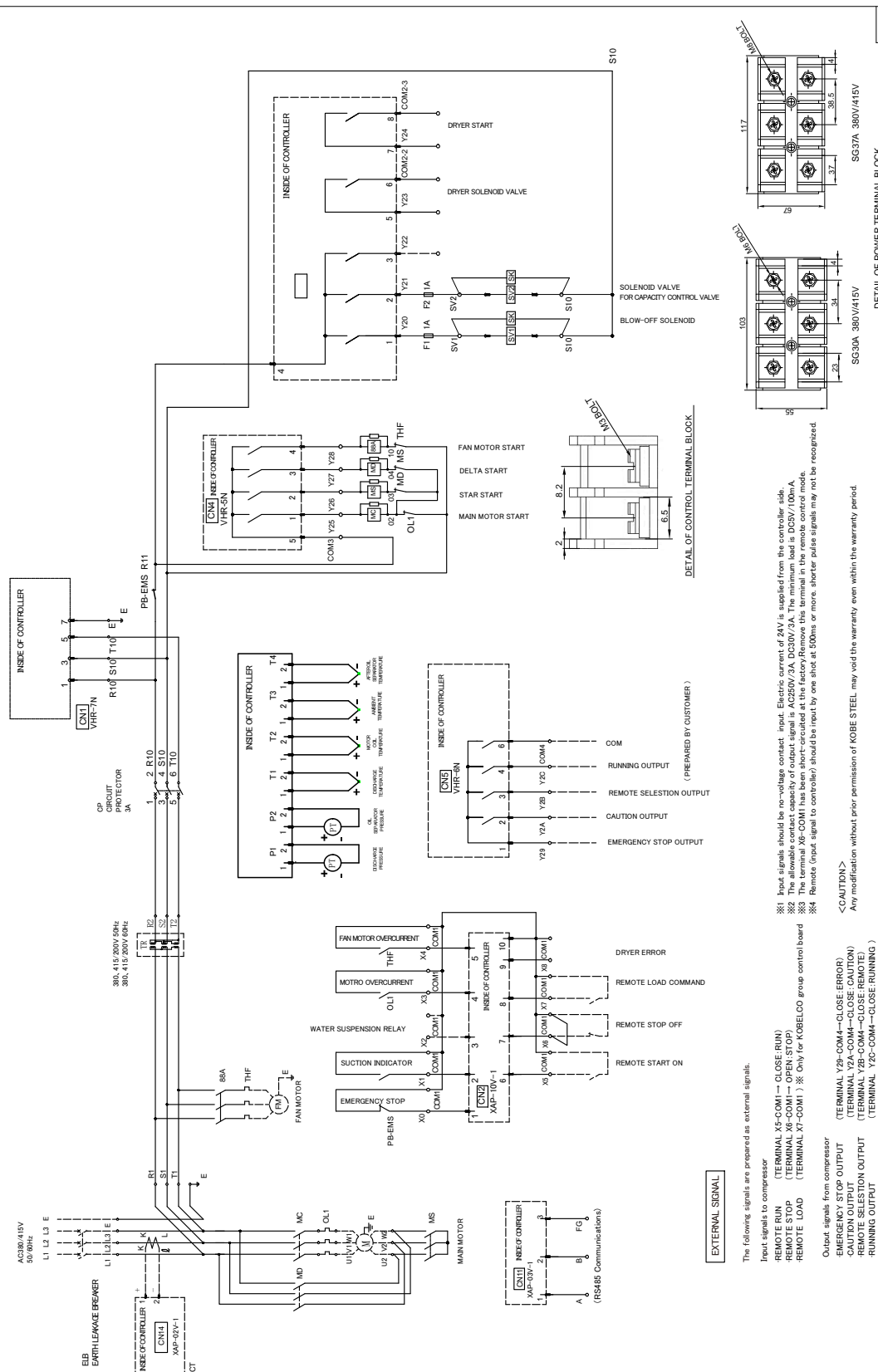
Model				SG30AⅣ		SG37AⅣ	
Item							
Voltage (V)				380/415			
Frequency (Hz)				50			
Air discharge volume	0.75 MPa		(m³/min)	5.9		7.0	
	0.85 MPa	H	(m³/min)	5.4		6.4	
	1.05 MPa	X	(m³/min)	4.75		5.7	
Suction condition	Pressure			Atmospheric pressure (1 bar)			
	Temperature (°C)			2- 45 (36-113 °F)			
	Altitude (m)			< 1000m			
Discharge condition				Rated pressure / Maximum pressure			
	0.75 MPa		(MPa)	0.70 / 0.75			
	0.85 MPa	H	(MPa)	0.80 / 0.85			
	1.05 MPa	X	(MPa)	1.0 / 1.05			
	Temperature (°C)			below 45℃ (ambient temperature: 30℃)			
Pressure control system				Load/Unload system			
Main motor	Normal output (kW)			30		37	
	Service factor			1.3		1.3	
	Type			3-phase squirrel-cage induction, totally enclosed (IE3)			
	Voltage (V)			380/415			
	Number of poles			2P			
	Protection system			IP55			
	Cooling system			Air cooled			
	Starter system			Star-delta			
	Insulation class			F			
Fan motor	Output (kW)			1.1			
	Type			3-phase squirrel-cage induction, totally enclosed (IE3)			
	Number of poles			4 P			
	Insulation class			F			
Discharge pipe size				R ₂ 1 1/2			
Lubricating oil (L)				18(20)			
Dimensions (W × D × H) (mm)				1550x950x1600			
Weight (kgs)				940		970	
Noise level (dB 【A】)				58		58	

- (1) The air discharge volumes are converted to the suction condition (20°C, 1bar, 0%RH) of compressor. Measurement guidelines for air discharge volume in accordance with ISO1217 Appendix C equivalent.
- (2) Discharge pressure measured at the outlet of the after cooler.
- (3) Lubricating oil drained from a compressor at the factory. Be sure to use "KOBELCO GENUINE SCREW OIL" or "KOBELCO EXTRA OIL" at the time of exchange.
- (4) The noise data is measured in an anechoic room, at a point which is 1.0 meter from the floor and 1.5 meter from all directions of the unit (Noise level ±3dB(A)). The noise value will be larger than the mentioned value when the unit is installed in a room that creates echoes.
- (5) The compressed air must not be used for any respiratory equipment.
- (6) As for the guaranteed values, contact us.
- (7) Anchor bolts and mounting brackets for the base plate are not provided with standard unit.
- (8) The quantity of lubricating oil is for the required amount during maintenance. The quantity in bracket is for the required amount of oil during an overhaul.
- (9) The volume of air discharged is the value at the pressure shown below.
0.75MPa ver.: 0.7MPa 0.85MPa ver.: 0.8MPa 1.05MPa ver.: 1.0MPa
- (10) Please contact our distributor if you will use compressors above 1000 meters of sea level.

12.2 Wiring Diagram

12.2.1 SG30A IV, SG37A IV

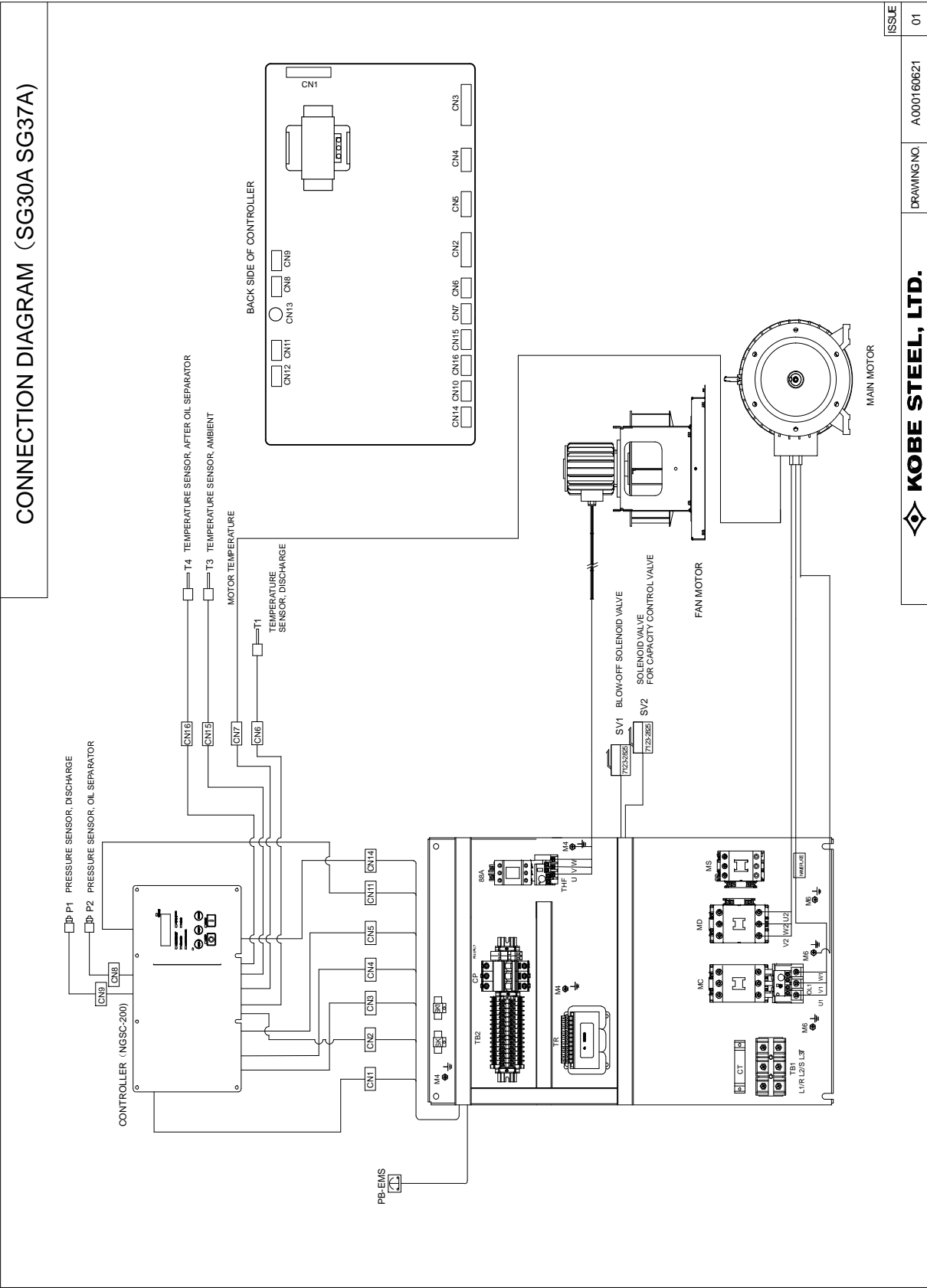
WIRING DIAGRAM (SG30A SG37A)



 KOBE STEEL, LTD.	DRAWING NO.	A000149894	01

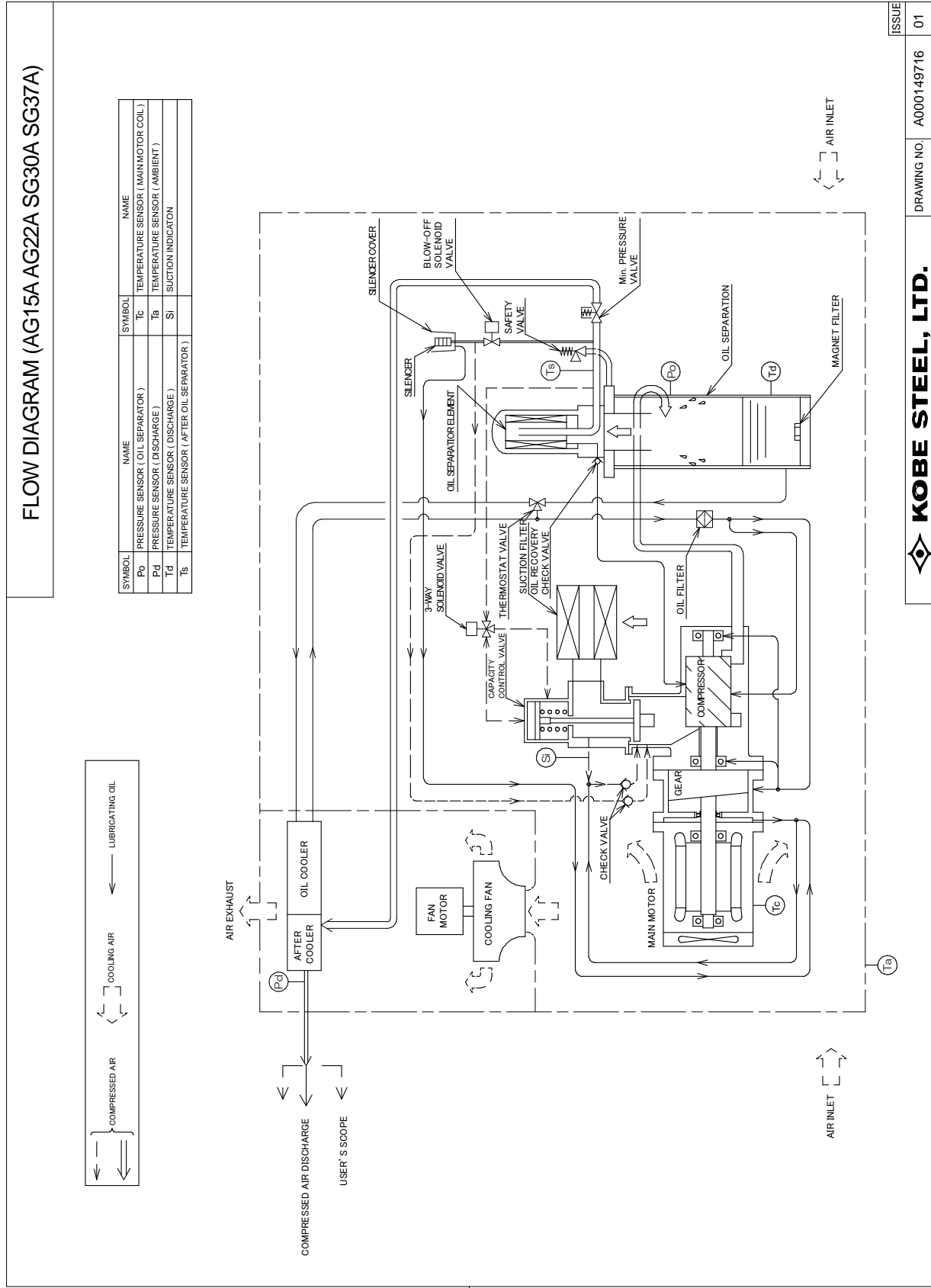
12.3 Connection Diagram

12.3.1 SG30A IV, SG37A IV



12.4 System Diagram

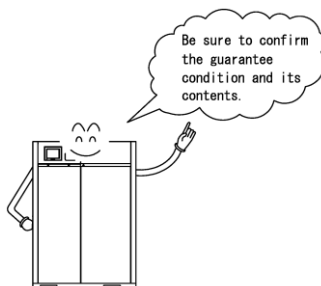
12.4.1 SG30A IV, SG37A IV



13 Warranty / Indemnity

13.1 Warranty

- In case failure occur during the normal use as per the instruction manual and other precautions has been followed correctly, we will repair it free of charge under certain conditions and for a certain period. Contact your local dealer.



13.2 Warranty Period

- The warranty period of this machine shall be 12 months from the date of the test run completion or 18 months from the date of shipment, whichever comes first.

Note: "After the test run completion" means; at the time when the test run (procedure and activities of receiving materials test) is completed.

- In case problems occur within the warranty period and when it is determined that the problems are caused clearly by our defective design or manufacturing work, we will repair or replace the parts free of charge without delay.
- Even within the warranty period of this machine, the warranty does not cover the following cases:

- Failure and damage caused by the natural disasters or accidents beyond human control.
- Failure and damage caused by materials selected or supplied by customer, or caused by defects of specifications (design, materials and others) required by customer..
- Failure and damage caused by repair or modification conducted by customer without notifying us first.
- Failure and damage caused by not adhering to the operating procedures, periodical inspections, maintenance and storage described in the specification sheets and instruction manuals issued by KOBELCO.
- Failure and damage caused by defective foundation, building and/or equipment other than this machine.

13.3 Indemnity

- Under no circumstances, including any illegality, KOBELCO is not liable for indirect, incidental, consequential or any kind of damages, including, but not limited to, loss of production, loss of anticipated profits, loss of operational profits, loss of materials and products, or indirect losses, however same shall be caused by any other similar responsibility.

【SINGAPORE】

KOBELCO MACHINERY ASIA PTE. LTD.

20 Pioneer Crescent #04-01 West Park Bizcentral, 628555 SINGAPORE

Tel : +65-6261-9621 Fax : +65-6261-3719

【THAILAND】

KOBELCO COMPRESSORS (THAILAND) LTD.

2170 Bangkok Tower, Room No.1102, 11th Floor, New Petchburi Road, Bangkok, Huaykwang, Bangkok 10310

Tel: (66) 2 308 0211, Fax: (66) 2 308 0214

【MALAYSIA】

KOBELCO COMPRESSORS MALAYSIA SDN . BHD.

No 9, Jalan Sepadu 25/123A, Seksyen 25, 40400 Shah Alam Selangor, Malaysia

Tel : +60-3-5525-2757 Fax : +60-3-5525-3596

【VIETNAM】

KOBELCO COMPRESSORS VIETNAM CO., LTD.

43-45 Lam Ha Street, Bo De Ward, Long Bien District, Hanoi, Vietnam

Tel : +84-4-3944-7781 Fax : +84-24-3944-7780

【INDONESIA】

PT KOBELINDO COMPRESSORS

JL. RAYA TANJUNG BARAT NO. 85. TANJUNG BARAT, JAGAKARSA JAKARTA SELATAN, 12530, INDONESIA.

Tel : +62-21-782-7002 Fax : +62-21-782-7025

【PHILIPPINES】

KOBELCO COMPRESSORS AND MACHINERY PHILIPPINES CORPORATION

19th Floor Panorama Tower, 34th Street Corner Lane A, Bonifacio Global City, Taguig City

Tel : +632-897-8736 +632-899-1997 Fax : +632-897-8737

【INDIA】

KOBELCO COMPRESSORS INDIA PVT.LTD.

249G, 3rd Floor AIHP TOWER Udyog Vihar, Phase IV, Near India Bulls Building, 122015 Gurgaon

Tel +91-124-4380750 Fax +91-124 438 0770



Compressor Division, Machinery Business.

Standard Compressor Administration Department. Global Operations Section

9-12, Kita-shinagawa 5-chome, Shinagawa-ku, Tokyo 141-8688, Japan

Tel : +81-3-5739-5342 Fax : +81-3-5739-5345

www.kobelco-comp.co.jp

Address inquiries to.....