

Established in 1986

SC Series

Oil-Free Scroll Compressors

SC.15 SC.20 SC.25

User Manual

You've grown to love the power, efficiency & dependability of our dry vacuum systems. Now it's time to see how we have brought that engineering to our oil-free compressors. Our engineers have designed our compressors for years of reliable service with performance you can trust.



Section One: Introduction

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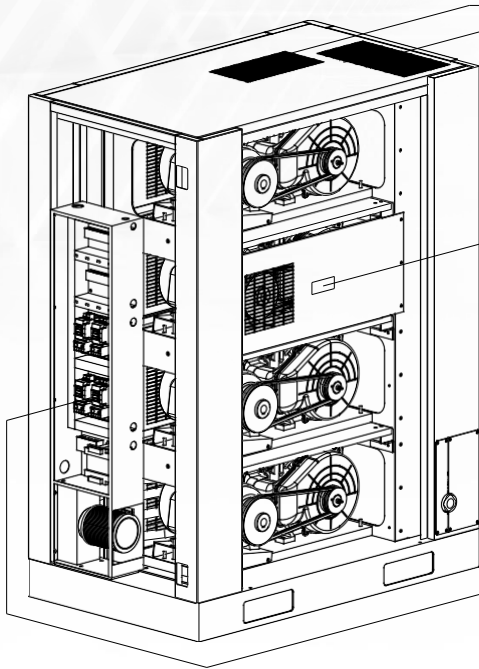
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Section One: Introduction

Product Cautionaries

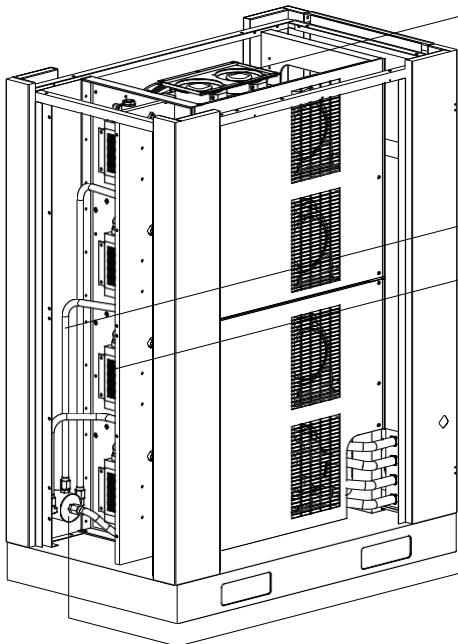


	WARNING
	WILL CAUSE INJURY.

	DANGER
	Keep hands, feet and clothing away from driven parts. Will cause injury or death.

	WARNING
	Check The Rotation

	DANGER
	Hazardous voltage inside. Shut off power. Will shock, cause injury or death.



	DANGER
	Keep hands, feet and clothing away from driven parts. Will cause injury or death.

	WARNING
	Check The Rotation

	WARNING
	Do not touch! Hot. Will cause injury or death.

	DANGER
	High pressure. Safely depressure the compressed air. Flying parts from compressed air can cause injury or death.

	DANGER
	Compressed air from this machine contains oil mist which may cause severe nausea, injury or death. Never use air from this machine to supply breathing air and keep unit in a well-ventilated area.

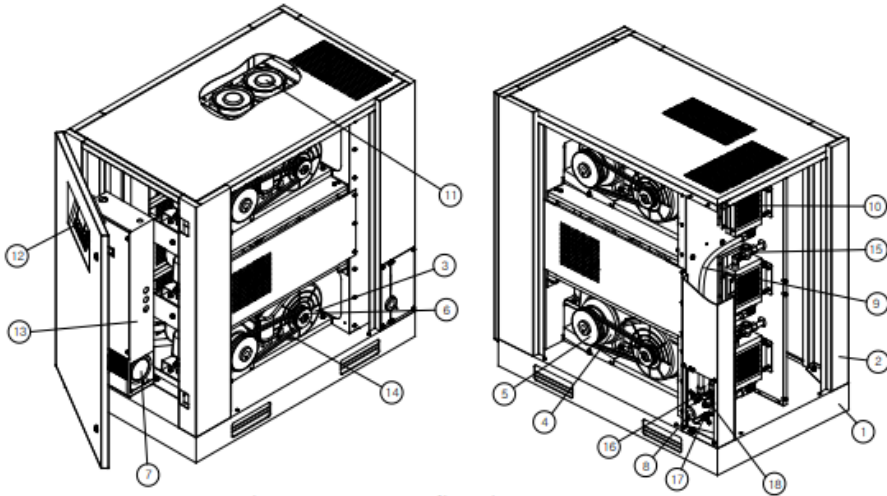
Section Two: Product Information

Product Specifications

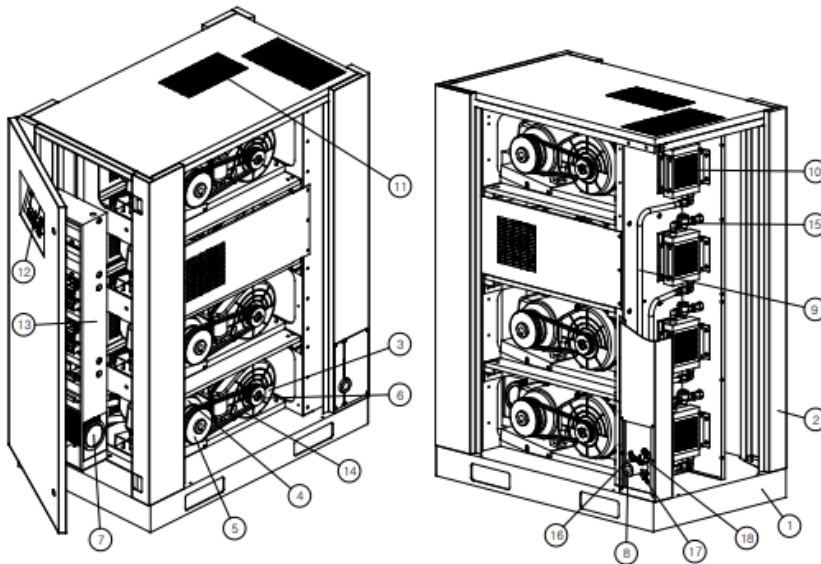
Model		SC.15 (DES-2880178)	SC.20 (DES-2880180)	SC.25 (DES-2880182)	
UNIT	Type	Single Stage Oil free Scroll Air Compressor			
	Air Delivery (cfm)	115 psi	42.3	56.5	70.6
		140 psi	36	48	60
	Driving Method	Belt	3V-405x6EA	3V-405x8EA	3V-405x10EA
	High temp. stop (°F)	176			
MOTOR	Output (kW/HP)	3.7/5 x 3SET	3.7/5 x 4SET	3.7/5 x 5SET	
	Voltage (V)	208-230, 460			
	Frequency (Hz)	60			
	Poles	4			
	Starting Method	DIRECT ON LINE			
GENERAL	Air Outlet (Inch)	1"			
	Required minimum receiver tank (gal)	Over 31.7 (Option)	Over 42.3 (Option)	Over 52.8 (Option)	
	Cooling Type	Air Cooled			
	Service air temp. (°F)	Intake air temperature +45			
	Ambient temp. (°F)	Max. 104			
	Noise Level [dB(A)]	56±5	58±5	59±5	
DIMENSION	Length (Inch)	29.5"	29.5"	29.5"	
	Width (Inch)	50.4"	50.4"	50.4"	
	Height (Inch)	49.6"	64"	80.3"	
	Weight (Lbs)	1003	1169	1334	

Section Two: Product Information

Key System Parts



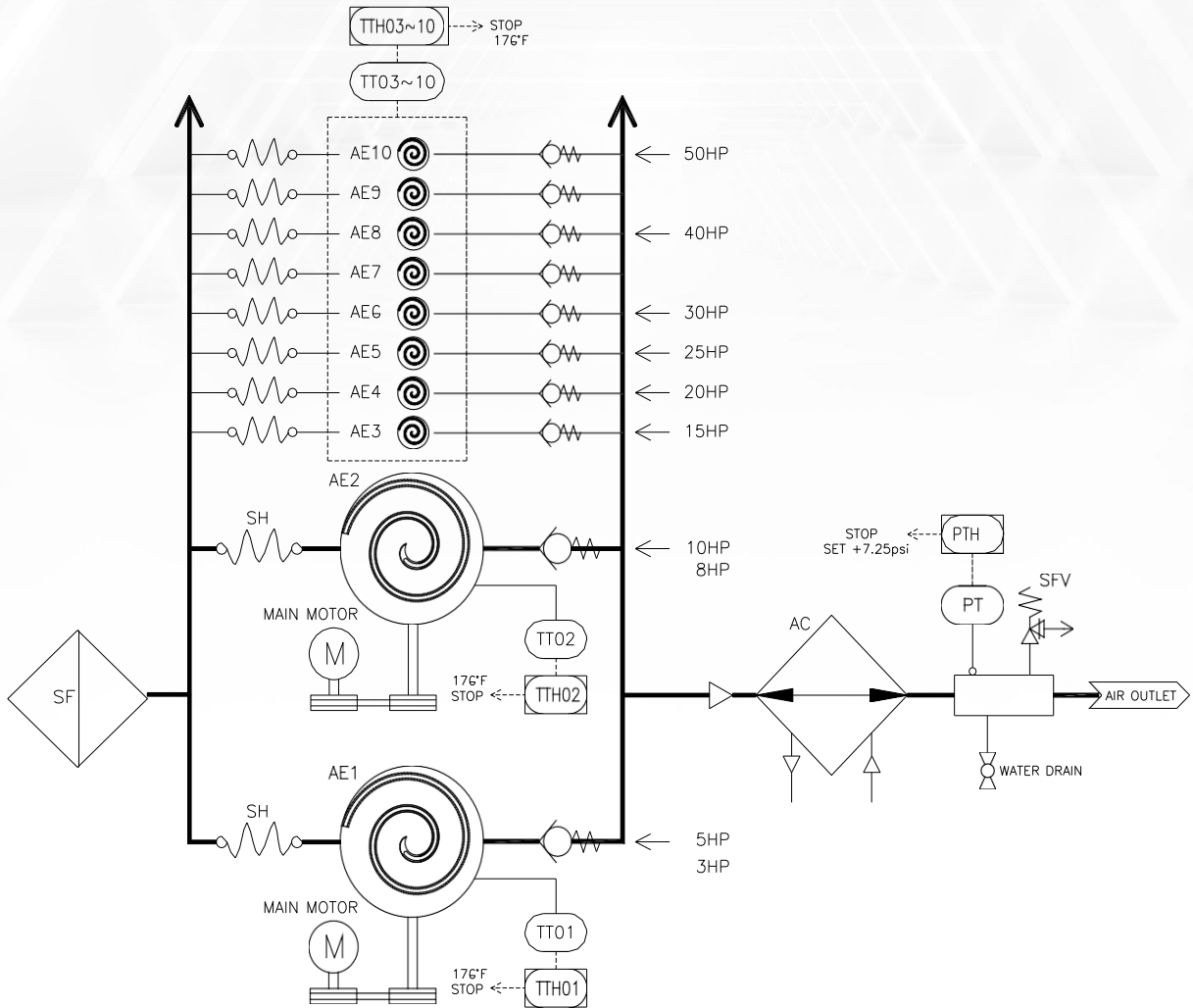
[Fig.3-1] 615322 Outline View



- | | | | |
|------------------|------------------------|-----------------|--------------------------|
| 1. COMMON BASE | 6. AIREND PULLEY | 11. COOLING FAN | 16. SAFETY VALVE |
| 2. COVER & FRAME | 7. SUCTION FILTER | 12. CONTROLLER | 17. DRAIN VALVE |
| 3. AIREND | 8. AIR DELIVERY SOCKET | 13. CONTROL BOX | 18. PRESSURE TRANSMITTER |
| 4. MOTOR | 9. AIR DELIVERY PIPE | 14. V-BELT | |
| 5. MOTOR PULLEY | 10. AIR COOLER | 15. CHECK VALVE | |

Section Two: Product Information

Diagram



ABBREVIATION

- SF SUCTION FILTER
- SH SUCTION HOSE
- AE AIREND
- SFV SAFETY VALVE
- AC AIR COOLER

SIMBOL LIST

- | | | | |
|--|------------------------------|--|-----------------|
| | TEMPERATURE TRANSMITTER | | CHECK VALVE |
| | PRESSURE TRANSMITTER | | SUPPLY AIR LINE |
| | TEMPERATURE TRANSMITTER HIGH | | AIR LINE |
| | PRESSURE TRANSMITTER HIGH | | BALL VALVE |

Section Three: Installation

Inspection and Handling

When you receive the compressor please inspect it closely. Upon delivery, carefully check the compressor for damage during transportation.

If goods are received in damaged condition, it is important that you notify the carrier and insist on a notation of loss or damage across the freight bill.

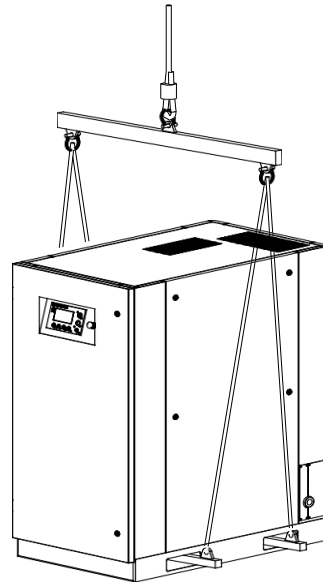
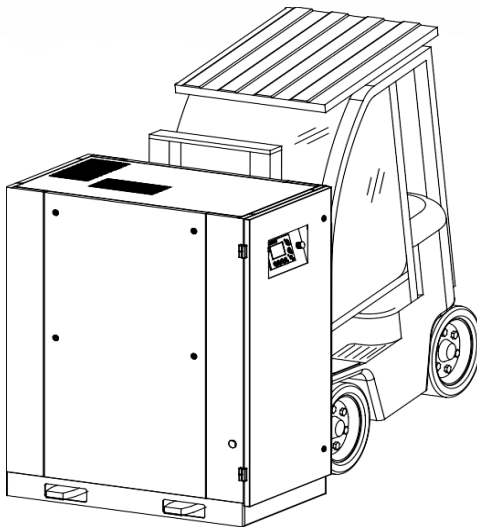
AIR COMPRESSOR	
TYPE :	
MODEL NO. :	
SERIAL NO. :	
MAX. WORKING PRESSURE :	
MOTOR :	
8740 Pioneer Blvd., Santa Fe Springs, CA 90670 PHONE:(562)463-3935	

Handling by a forklift

When handling by a forklift, make sure that forks completely extend through the width of the unit.

Handling by a shop crane

When handling by a shop crane, use the openings provided on common base where slings or steel wire ropes can be use for lifting.

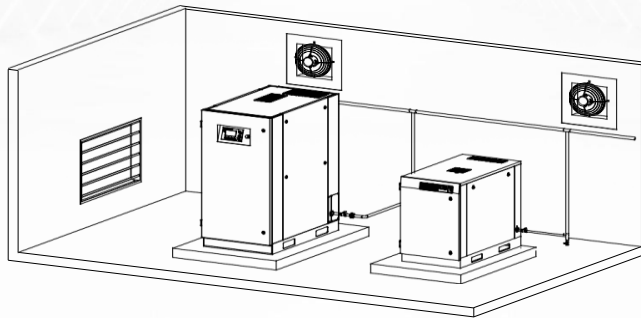


Section Three: Installation

Inspection and Handling

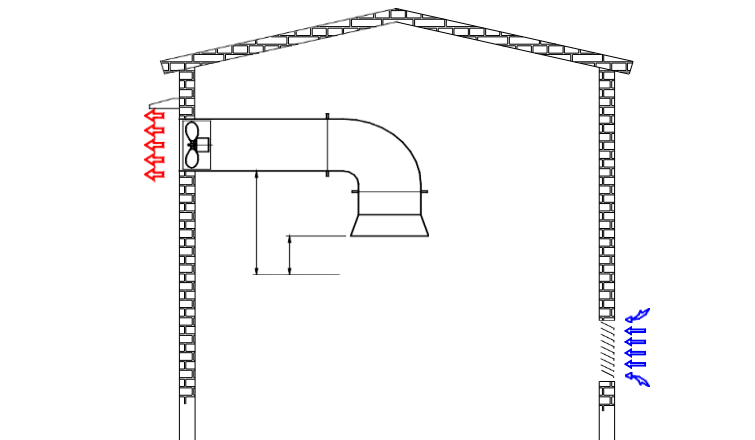
Where to Install?

BaseVac air compressors are designed for the indoor use. The ventilation facility and piping affect the performance and the service life of the compressor. Please follow the instructions in the user's manual.



Ventilation

Poor ventilation in the compressor room may raise the temperature of the air discharged. If the Room temperature exceeds 18°F more than the outside temperature, sufficiently ventilate the air in the room (see Table 4-1), and install the exhaust duct, if necessary.



Section Three: Installation

Installation Conditions

Model	Air Volume [ft ³ /min = CFM]	Hood Size [Inch x Inch]
SC.15 (DES-2880178)	3532	19.7" x 39.4"
SC.20 (DES-2880180)	5298	23.6" x 47.2"
SC.25 (DES-2880182)	7063	27.55" x 55.1"

Item	Description
Place	<ul style="list-style-type: none"> - Do not install the compressor unit on the outside. - Please keep warm during the winter season, if you have to install on the outside.
Space	<ul style="list-style-type: none"> - Keep the space of more than 31.5inch from the wall to facilitate the repair and maintenance of the compressor - Do not place any object in front of the door.
Floor and Foundation	<ul style="list-style-type: none"> - The floor shall sufficiently holds the weight of the compressor. - The floor surface shall be flat with a gradient less than 1 degree to minimize the vibration. - It is recommended to install the compressor 4inch above the floor, though BaseVac Dental air compressor generates an insignificant amount of vibration.
Room Temperature	<ul style="list-style-type: none"> - Optimal ambient temperature is 32~104°F during the operation. - Install the compressor at low temperature and moisture, if possible. ※ Each 10°C increase of the inlet temperature reduces the efficiency of the compressor by 3-4%.
Hazardous Substances	<ul style="list-style-type: none"> - Install the compressor at the place where there is the least noxious gas, hazardous substance and dust. Those foreign substances may cause the damage of the air compressor.
Electricity	<ul style="list-style-type: none"> - The electric power shall have at least 150% of the reference margin. - The range of fluctuation in voltage shall be within $\pm 10\%$.
Ventilation	<ul style="list-style-type: none"> - A ventilation fan shall be installed to forcedly ventilate the room, if the room temperature exceeds 10°C more than the outside temperature in the summer. - For an exhaust duct, set the velocity at 5 m/s, and the static pressure at less than 5 mmAq. - Install a protective net on the exhaust outlet to prevent birds, rodents and foreign substances from entering.. - Place the inlet as low as possible.

Section Three: Installation

Installation Conditions

Requirements for the Piping

- 1) Use a larger diameter and install the pipe without an excessive bending to reduce the pressure drop.
- 2) Always place a branch pipe on the top of a main pipe to reduce the discharge of oil or water.
- 3) For the compressed air pipes, reduce the number of sections bending and connecting, and the number of valves installed to reduce the pressure loss.
- 4) The increased pressure loss requires a high discharge pressure of the air compressor. Consequently, it causes the power loss. The water stays wherever the pipe is sagging to increase the pipe resistance, which may cause winter-sowing. Thus, consider the pipe straightness when installing the pipes.
- 5) Install a bypass piping on each equipment for a maintenance.
- 6) A scroll air compressor has a check valve in the system. Installing more check valves between the compressor and the air receiver tank may cause a malfunction of the compressor.
- 7) Always install a drain valve on the bottom of a vertical pipe for the prevention of a winter-sowing.

Wiring

- 1) Extremely low or high voltage power supply may cause the failure of the compressor. Low power capacity also causes significant voltage drop when starting up the compressor. The compressor requires at least 85% of the rated voltage for a start-up, which shall be maintained within $\pm 10\%$ of the rated voltage during the operation. The inter-phase voltage imbalance shall be within 2%, not exceeding 3% even in a special case.
- 2) Features and Capacity
See Table 4-4 Electrical Specification for an appropriate electric power, an operating current and a starting current. Considering that the discharge air pressure abnormally exceeding the rated operating pressure increases the operating current, wiring shall allow about 120% of the rated capacity of a main transformer.
- 3) See Table 4-4 Electrical Specification for the electric power [kW] and the power factor [%].
- 4) Minimum Capacity of Transformer [kVA] = {Electric Power [kW] / Power Factor [%]} x 100 x 1.2
- 5) Longer lead-in wiring of the main power may cause the compressor failed or tripped during the start-up due to the voltage drop in the line. Select the thickness of the cable so that it maintains at least minimum starting voltage.

Section Three: Installation

Installation Conditions

- 7) It is recommended that the thickness of the cable shall allow more than the minimum requirement specified for a power condenser, and the length of the cable shall be within 1.5 m. No wiring is necessary if there is a power condenser with a sufficient capacity in the bus conductor.
- 8) Leave intact the factory specification of the overcurrent protection device. If the change is unavoidable, keep the set values within the range specified in the user's manual. The cable shall allow more than the minimum requirement specified.
- 9) As the operating current varies depending on a given condition, it is recommended to allow about 20% extra.
- 10) Install a circuit breaker in the main power to protect the motor. The circuit breaker shall have a built-in electric leak breaker.
- 11) Use the ground terminal on a motor or a control box to earth the equipment.

Type	Ground Resistance	Thickness of Grounding Conductor	Application
1st-Class Grounding	10Ω	2.6 mm ² or above	High Voltage Equipment
2nd-Class Grounding	150Ω/1-Line Ground Current or below	2.6 mm ² or above	Neutral Point of Transformer
3rd-Class Grounding	100Ω	1.6 mm ² or above	Equipment with Low Voltage Less than 400 V
Special 3rd-Class Grounding	10Ω	1.6 mm ² or above	Equipment with Low Voltage More than 400V

Caution

- 1) As the grounding on a steel structure of the building may cause the failure of the operation, always earth on the ground. The maximum allowable length of the grounding conductor is 20 m.
- 2) If there is a risk of inductive interference on an electronic calculator or a telecommunication equipment, install a surge killer on the magnetic switch used.
- 3) The compressor has a complete wiring inside, and no separate wiring or maintenance is necessary. If any maintenance is needed, see the circuit diagram in the user's manual provided with the compressor.

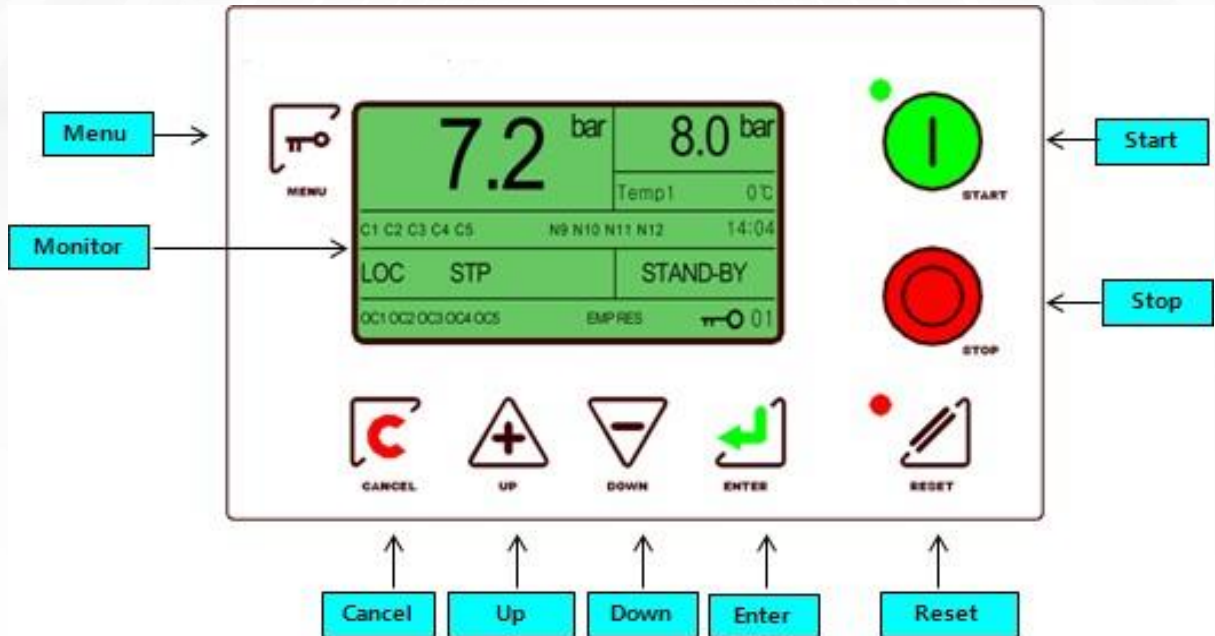
Section Three: Installation

Installation Conditions

Model (Poles)	Voltage	Output	Input	Driving Current	Starting Current	MCCB		OCR	Main Power Cable	Ground
	[V]	[kW]	[kW]	[A]	[A]	AF [A]	TRIP [A]	SET [A]	AGW	GV [mm ²]
SC.15 2880178	208-230	3.7 X 3EA	4.53 X 3EA	14-13.2 X 3EA	93.8 X 3EA	60	50	15.8 X 3EA	7	6
	460			6.6 X 3EA	44.8 X 3EA	50	30	7.9 X 3EA	11	4
SC.20 2880180	208-230	3.7 X 4EA	4.53 X 4EA	14-13.2 X 4EA	93.8 X 4EA	100	75	15.8 X 4EA	5	6
	460			6.6 X 4EA	44.8 X 4EA	50	40	7.9 X 4EA	9	4
SC.25 2880182	208-230	3.7 X 5EA	4.53 X 5EA	14-13.2 X 5EA	93.8 X 5EA	100	100	15.8 X 5EA	3	6
	460			6.6 X 5EA	44.8 X 5EA	60	50	7.9 X 5EA	7	4

Section Four: Operation

Structure of the Controller



Checklists before the Commissioning

- 1) Check if the voltage of the main power is within a normal range specified.
- 2) Cut the main power to connect the power line to the control panel.
- 3) Check the connection of pipes, a power supply and a grounding.
- 4) Fully open a stop valve on the discharge pipe of the compressed air.

Commissioning

- 1) Push the "START" button on the controller to check the direction of rotation. If it is operated in a negative phase, immediately push the emergency stop button, turn the main power off, and then convert "R" into "T" before restarting. When the compressor starts, the pressure is increased in the air end to start the compression.
- 2) With the discharge valve closed on the discharge side of the air tank, check if the compressor is automatically stopped, when the pressure reaches the set value.
- 3) Check if there is any abnormal vibration, noise and leakage.
- 4) Push the "STOP" button on the controller.

Section Four Operation

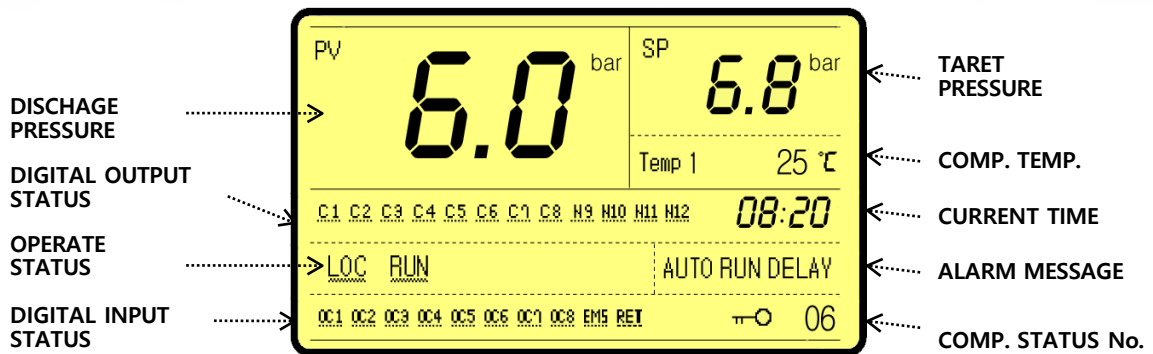
Structure of the Controller

Controller

BaseVac Dental air compressor uses a controller based on a microprocessor for an optimal operation of the compressor. The controller is a system that precisely determines the time to adjust the capacity to save the energy, gives an alarm to prevent the accident before happens, and notifies the information necessary for repair and maintenance. The system ensures the best automatic operation optimized by the set conditions and the machine conditions.

1 Operating Conditions

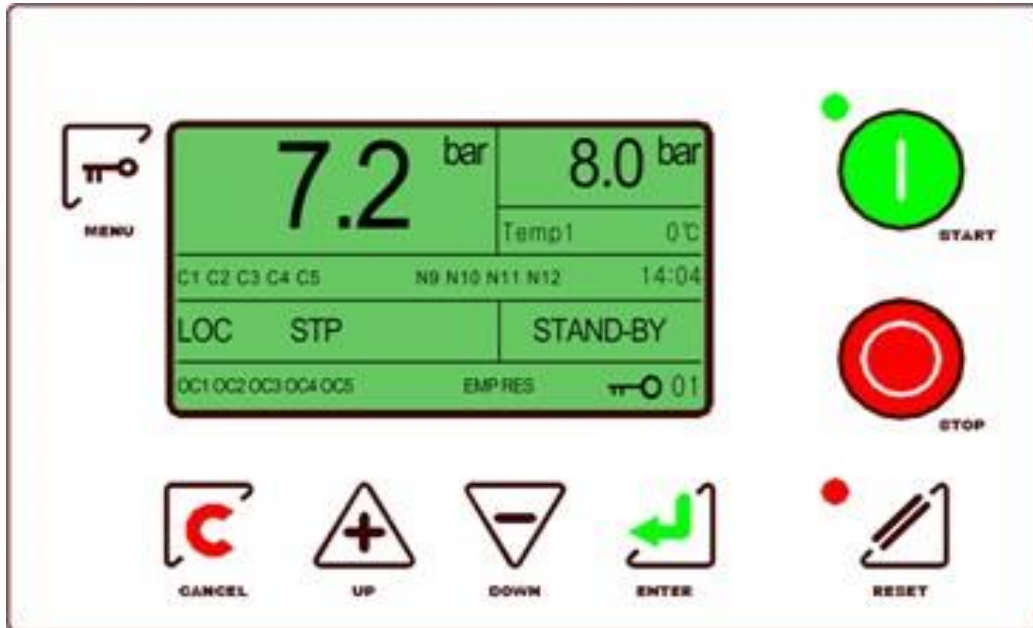
- 1) Power Supply : AC24V \pm 15% 50/60Hz 40W
- 2) Transformer Capacity : Min. 50[VA]
- 3) Operating Temperature : 14°F ~ 140°F
- 4) Operating Moisture : 95% @104°F
- 5) Storage Temperature : -22°F ~ 176°F











[Fig.7-1] Display of the Controller

Section Four Operation

Routine Operation




STRAT / STOP	 	Enter started condition/Exit started condition
RESET		Reset and clear fault condition
MENU		Enter to Menu table
ENTER		Confirm selection of value adjustment
UP / DOWN	 	Scroll up/down through menu, menu item options or increment/decrement value
CANCEL		Step back one menu navigation level

Section Four Operation

Startup and Testing

- 1) ON : illuminated continuously
- 2) SF : slow flash on/off once per second
- 3) FF : fast flash on/off five times per second
- 4) IF : Intermittent Flash on/off every four seconds
- 5) OFF : Extinguished continuously

STATUS LED	Green	Display working status along ON / OFF
FAULT, ALARM LED	Red	Display fault or alarm status along ON / OFF

Machine state Number	Machine state	Status(Green) 	Fault (Red) 
00	Initialization	OFF	Normal: OFF Trip: FF Alarm: SF Maintenance: IF Start Inhibit: IF
01	Start Inhibit Check	OFF	
02	Ready to Start	OFF	
03	Start Delay	IF	
		if load request : FF	
04	Standby	IF	
06	Start Motor in star Delta	IF	
		if load request : FF	
07	Load Delay	IF	
		if load request : FF	
08	Load	ON	
09	Reload Delay	IF	
		if load request : FF	
10	Auto stop delay	IF	
11	Manual stop delay	SF	
99	Shut down	OFF	

Section Four Operation

Equipment Status Display

<p>1. START/STOP REQUEST SOURCE DISPLAY</p> <p>LOC : Controller keyboard</p> <p>NET : Communication request</p> <p>REM : Digital inputs</p>
<p>2. LOAD REQUEST SOURCE DISPLAY</p> <p>PRE : Pressure sensor</p> <p>NET : Communication request (Option)</p> <p>REM : Digital inputs</p>
<p>3. STOP STATUS DISPLAY</p> <p>Display while compressor stopped.</p> <p>LOC STP : Stopped by controller keyboard</p> <p>REM STP : Stopped by digital inputs</p> <p>NET STP : Stopped by communication request (Option)</p> <p>S.D STP : Stopped by fault condition</p>
<p>4. START STATUS DISPLAY</p> <p>Display while compressor started.</p> <p>LOC RUN : Started by controller keyboard</p> <p>REM RUN : Started by digital inputs</p> <p>NET RUN : Started by communication request (Option)</p>
<p>5. COMPRESSOR STATUS DISPLAY</p> <p>GOOD : Normal condition</p> <p>MAINTEN : Maintenance required</p> <p>ALARM : Alarm condition</p> <p>S-DOWN : Trip condition</p> <p>INHIBIT : Start inhibit condition</p>

Section Four Operation

Input and Output Symbols

Input

Symbol	Description	Symbol	Description
OC1	Over current Motor #1	OC6	Over current Motor #6
OC2	Over current Motor #2	OC7	Over current Motor #7
OC3	Over current Motor #3	OC8	Over current Motor #8
OC4	Over current Motor #4	EMS	Emergency Switch
OC5	Over current Motor #5	RET	Remote Start/Stop Control

Output

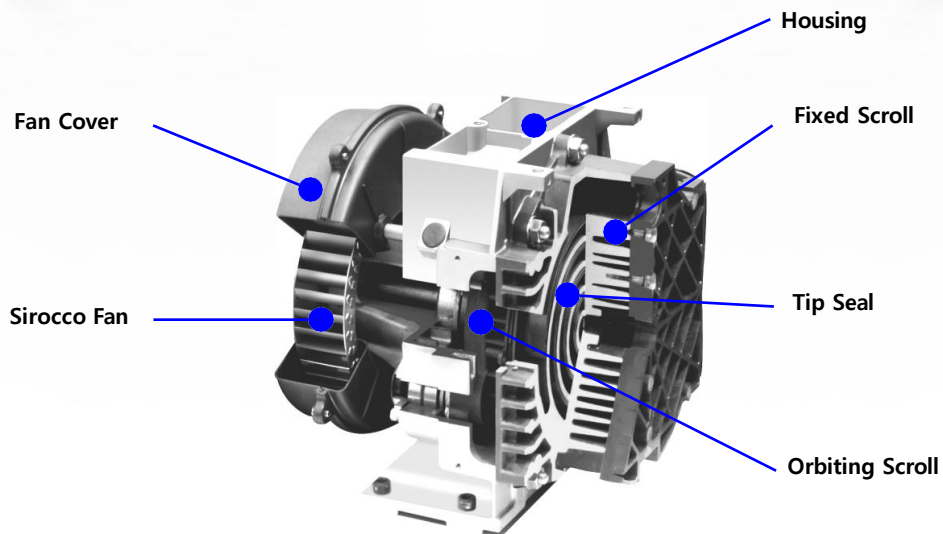
Symbol	Description	Symbol	Description
C1	Comp #1 On/Off Control	C7	Comp #7 On/Off Control
C2	Comp #2 On/Off Control	C8	Comp #8 On/Off Control
C3	Comp #3 On/Off Control	N9	Multi Function Port N9
C4	Comp #4 On/Off Control	N10	Multi Function Port N10
C5	Comp #5 On/Off Control	N11	Multi Function Port N11
C6	Comp #6 On/Off Control	N12	Multi Function Port N12

Section Four: Operation

Airend & Motor

Airend parts

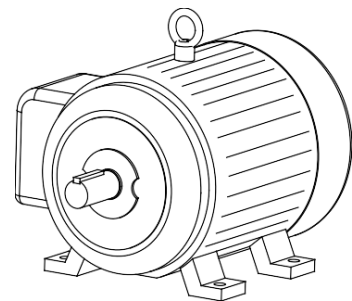
An oil free scroll airend is the most important part in the compressor. In any case, the oil is not entered into the compression chamber. As the inside of the compression chamber is delicate, entering the dusts or foreign substances results in a serious damage to the compressor. The airend consists of precision parts, and needs a special jig for a repair and maintenance. It shall only be disassembled by our qualified engineer or a comparable person.



Motor

Some models of the scroll air compressor are equipped with several motors for an automatic operation based on the amount of air used. The motor is a 3-phase induction motor that has a service factor higher than a general motor, and is designed to generate a high efficiency suitable for an air compressor.

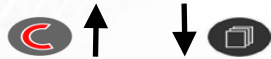
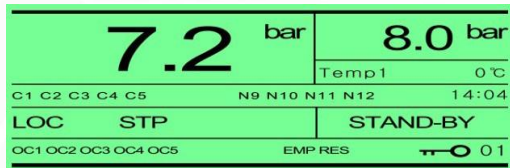
The motor plays an important role for the operation of the air compressor, and needs maintenance on a regular basis.



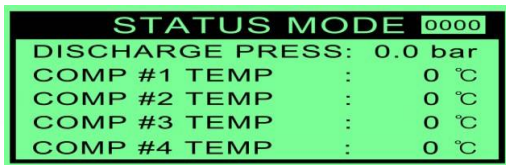
Motor

Section Four: Operation

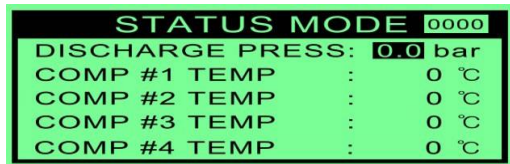
Menu Structure and Navigation



Main Menu Select



Sub Menu Select

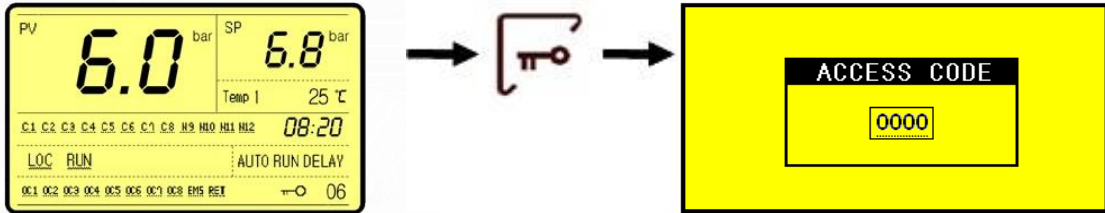


Parameter Adjustment

ACCESS LEVEL	USER (CODE = 0000)	SERVICE 1 (CODE = 0100)
ACCESS-ABLE MENU	<ol style="list-style-type: none"> STATUS MODE PRESSURE MODE SCHEDULE MODE TRIP LOG MODE TRIP SET OPERATION SET COMP SET CONFIG MODE 	<ol style="list-style-type: none"> STATUS MODE PRESSURE MODE SCHEDULE MODE TRIP LOG MODE TRIP SET OPERATION SET COMP SET CONFIG MODE FACTORY SET
TIMEOUT PERIOD	1 MINUTE	10 MINUTE

Section Four: Operation

Display Entry Codes



- 1) When access level is "SERVICE 1", [Equipment Environment Setup] menu cannot be adjusted.
- 2) Press "CANCEL" button for three seconds at any time to return to the system locked condition.

7-3-9 DIGITAL OUTPUT

ACCESS CODE (0100)		Editable
M E N U S T R U C T U R E	1. . STATUS MODE	×
	2. . PRESSURE MODE	
	- TARGET PRESSURE	○
	- STEP#1~STEP#8 START PRESS	×
	- STEP#1~STEP#8 STOP PRESS	×
	- LCD LIGHT MODE	×
	3. SCHEDULE MODE	×
	4. TRIP LOG MODE	×
5. TRIP SET	×	
6. OPERATION SET	×	
7. COMP SET	×	
8. CONFIG MODE	×	

Section Four: Operation

Output - Trip/Alarm Messages

Item	Description	Detect condition
1	System Error	Parameter Error
2	Emergency stop	Push the emergency stop switch
3	Press. Sensor Fault	Low Resistance, Short Circuit, Short Circuit to Earth
4	Delivery Pressure High	Detection Pressure \geq [DIS. PRESS LIMIT] Reset Pressure $<$ [DIS. PRESS LIMIT -7.25psi]
5	Comp #1 Fault	Detection [Digital Input :ID1] OPEN Reset [Digital Input : ID1] CLOSE
6	Comp #2 Fault	Detection [Digital Input :ID2] OPEN Reset [Digital Input : ID2] CLOSE
7	Comp #3 Fault	Detection [Digital Input :ID3] OPEN Reset [Digital Input : ID3] CLOSE
8	Comp #4 Fault	Detection [Digital Input :ID4] OPEN Reset [Digital Input : ID4] CLOSE
9	Comp #5 Fault	Detection [Digital Input :ID5] OPEN Reset [Digital Input : ID5] CLOSE
10	Comp #6 Fault	Detection [Digital Input :ID6] OPEN Reset [Digital Input : ID6] CLOSE
11	Comp #7 Fault	Detection [Digital Input :ID7] OPEN Reset [Digital Input : ID7] CLOSE
12	Comp #8 Fault	Detection [Digital Input :ID8] OPEN Reset [Digital Input : ID8] CLOSE
13	Comp #1 Temp.	Detection Comp#1 Temp. \geq [COMP TEMP LIMIT] Reset Temp. \geq [COMP TEMP LIMIT] -9°F Comp#1
14	Comp #2 Temp.	Detection Comp#2 Temp. \geq [COMP TEMP LIMIT] Reset Temp. \geq [COMP TEMP LIMIT] -9°F Comp#2
15	Comp #3 Temp.	Detection Comp#3 Temp. \geq [COMP TEMP LIMIT] Reset Temp. \geq [COMP TEMP LIMIT] -9°F Comp#3
16	Comp #4 Temp.	Detection Comp#4 Temp. \geq [COMP TEMP LIMIT] Reset Temp. \geq [COMP TEMP LIMIT] -9°F Comp#4
17	Comp #5 Temp.	Detection Comp#5 Temp. \geq [COMP TEMP LIMIT] Reset Temp. \geq [COMP TEMP LIMIT] -9°F Comp#5
18	Comp #6 Temp.	Detection Comp#6 Temp. \geq [COMP TEMP LIMIT] Reset Temp. \geq [COMP TEMP LIMIT] -9°F Comp#6
19	Comp #7 Temp.	Detection Comp#7 Temp. \geq [COMP TEMP LIMIT] Reset Temp. \geq [COMP TEMP LIMIT] -9°F Comp#7
20	Comp #8 Temp.	Detection Comp#8 Temp. \geq [COMP TEMP LIMIT] Reset Temp. \geq [COMP TEMP LIMIT] -9°F Comp#8

Section Five: Maintenance

Routine Maintenance

○ : Check, repair ● : Replace

Scheduled Maintenance - Low pressure 115 psi Maintenance should be followed below criteria A,B,C

- Criteria A: Under 2,500 working hours (annually)
- Criteria B: Between 2,500 ~ 5,000 working hours (annually)
- Criteria C: Over 5,000 working hours (annually)

Section	Action Taken	Every day	Times Interval					Remarks	
			Criteria A	2 month	1 year	2 years	4 years		8 years
			Criteria B	1 month	6 month	1 years	2 years		4 years
			Criteria C	0.5 month	3 month	6 month	1 years		2 years
Water Drain	Drain out	○							
Suction Filter	Clean, Replace		○ (500hr)	●				exchange in case of pollution	
Air end fan	Clean				○	○			
Air end Bearing	Clean					○	●		
Air end grease	Re-grease				○	○	○		
Tip seal	Replace			○		●			
Dust seal	Replace			○		●			
Belt	Check, Replace		○ (first)	○		●		Looseness makes noise	
Temp sensor	Check operation				○			Replace case of abnormal	
Pressure Sensor	Check operation				○			Replace case of abnormal	
Safety V/V	Check operation		○						
Check V/V	Check, Replace			○		●			
Ventilation fan	Check	○		○					
Motor pulley	Check groove					○			
Motor	Check insulation, bearing				○		●		
Suction hose	Replace				○	●			
After cooler	Clean				○			Clean case of abnormal	
Control panel	Check monitor	○							
Piping	Check leak			○					
Air end	Overhaul					○	●		

Section Five: Maintenance

Routine Maintenance

Scheduled Maintenance - High pressure 140 psi Maintenance should be followed below criteria A,B,C

- Criteria A: Under 2,500 working hours (annually)
- Criteria B: Between 2,500 ~ 5,000 working hours (annually)
- Criteria C: Over 5,000 working hours (annually)

○ : Check, repair ● : Replace

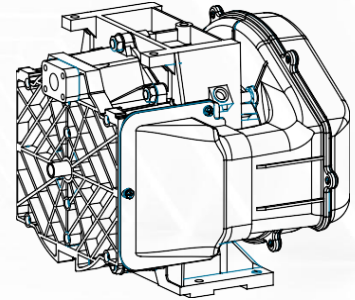
Section	Action Taken	Times Interval						Remarks
		Every day	2 month	1 year	2 years	3 years	6 years	
			1 month	6 month	1 years	2 years	3 years	
			0.5 month	3 month	6 month	1 years	2 years	
Water Drain	Drain out	○						
Suction Filter	Clean, Replace		○ (500hr)	●				exchange in case of pollution
Air end fan	Clean				○	○		
Air end Bearing	Clean					○	●	
Air end grease	Re-grease				○	○	○	
Tip seal	Replace			○		●		
Dust seal	Replace			○		●		
Belt	Check, Replace		○ (first)	○		●		Looseness makes noise
Temp sensor	Check operation				○			Replace case of abnormal
Pressure Sensor	Check operation				○			Replace case of abnormal
Safety V/V	Check operation		○					
Check V/V	Check, Replace			○		●		
Ventilation fan	Check	○		○				
Motor pulley	Check groove					○		
Motor	Check insulation, bearing				○		●	
Suction hose	Replace				○	●		
After cooler	Clean				○			Clean case of abnormal
Control panel	Check monitor	○						
Piping	Check leak			○				
Air end	Overhaul					○	●	

Section Five: Maintenance

Routine Maintenance

Regular Maintenance of the Airend

- 1) Check if there is any abnormal vibration or noise during a routine operation, and contact the nearest distributor, if necessary.
- 2) There are two types of the scroll airend: Low Pressure (115 psi) and High Pressure (140 psi). The maintenance period is different by type specified in the identification plate attached on an airend. The standard specification of BaseVac Dental airend is a low pressure type.
- 3) Periodically lubricate an airend with grease. See the maintenance schedule for when the lubrication is needed.

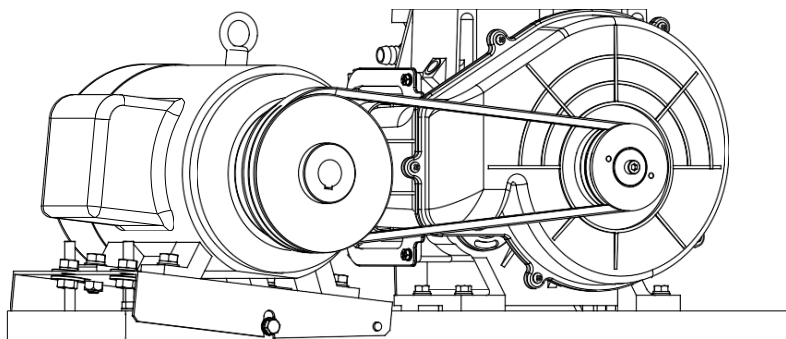


Caution

The airend consists of precision parts, and needs special tool and jig for a repair and maintenance. It shall only be disassembled by our qualified engineer. Contact the nearest distributor, if necessary.

8-3-2 Rotation of the Driving Part

If the motor is not started up or generates an abnormal noise, stop the compressor, turn the main power off, and then manually rotate the motor pulley. If it does not rotate smoothly, contact the nearest distributor for a service. It is mostly due to the damage on the motor bearing or when the airend is stuck.



Warning

An air compressor is automatically operated. Do not come near the parts until the compressor is stopped and the main power is turned off. It may cause a serious personal injury, if hair or clothes is caught in the rotating parts.

Section Five: Maintenance

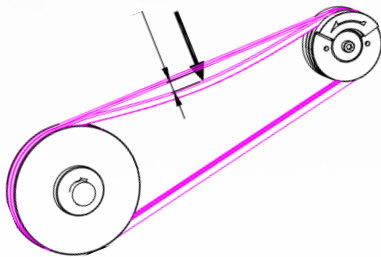
Routine Maintenance

Adjustment of the Belt Tension

Adjust the belt tension in first 500 hrs after the purchase, and every 3,000 hrs (6 months) thereafter in the following procedures.

- 1) Use a tensionmeter to measure the displacement of each belt.
- 2) Loose the anchor bolt on the motor base, and use the tension adjusting bolt to adjust the tension with reference to the [Table 8-1].
- 3) Align the motor, and tighten the anchor bolt on the motor base.

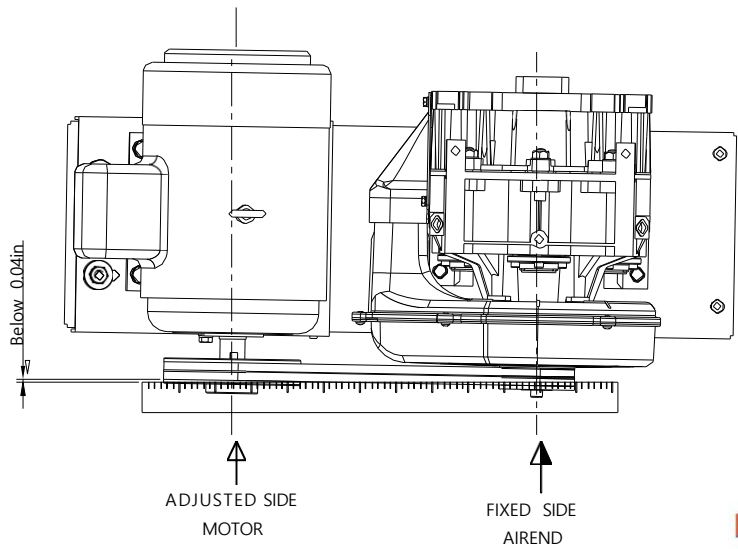
Looseness = δ [in] P [kg]



Model	New		Displace	
	P kg	δ in	P kg	δ in
SC.15 2880178	1.7	0.24	1.6	0.23
SC.20 2880180				
SC.25 2880182				

8-3-4 Alignment of the Belt

Off-centered pulleys generate the noise and vibration, and accelerate the process of wearing the belt and pulley to cause the damage to the belt. Align the center of the pulley during the replacement of a belt and the adjustment of the belt tension. With the compressor fixed, loose the anchor bolt on the motor, and place an iron rule between the pulleys as shown in the following fig. Gradually tighten the anchor bolt on the motor and check the center is aligned between the pulleys. Completely tighten the bolt, recheck the alignment, and then rotate the pulley to check if the belt moves smoothly.



Section Five: Maintenance

Routine Maintenance

Caution

- 1) An air compressor is automatically operated. Do not check and replace the belt until the compressor is stopped and the main power is turned off.
- 2) Only use the belt specified by BaseVac Dental for a replacement. Do not use old and new belts mixed, and replace the entire set of belts all at once.
- 3) The shaft is damaged and the service life of the bearing is shorten at a high tension of the belt, while the belt is slippery at a low tension of the belt. Always keep the optimal tension value with reference to the [Table 8-1].

Cleaning the Suction Filter

- 1) Check the contamination level every 500 hrs.
- 2) Replace the heavily contaminated filter even before the replacement period.
- 3) Blow the element with the compressed air outward, and then by the side.
- 4) Keep dust and foreign substances out of the compressor during the assembly.



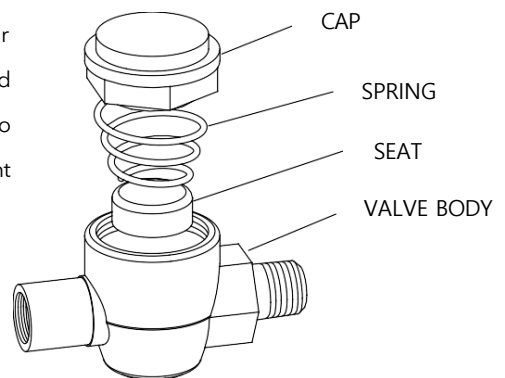
Caution

A suction filter significantly affects the service life of an airend. Make sure to use only the genuine BaseVac Dental suction filter. BaseVac Dental cannot be responsible for any damage caused by an improper replacement.

Check valve

Compressed air leakage may come from suction filter originated from check valve leakage. In severe case, airend backlash occurred. This case may cause severe damage to airend because of foreign objects from outside. To prevent possible defect, check valve every 2,500hours

- 1) Screw CAP open .
- 2) Check spring tension and SEAT of Check valve
- 3) Replace valve when it has been damaged.

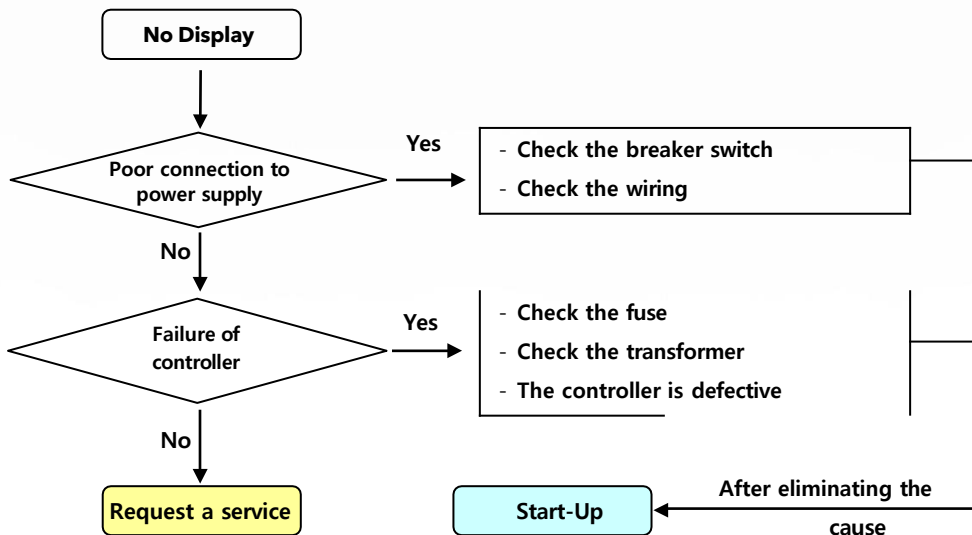


Section Six: Troubleshooting

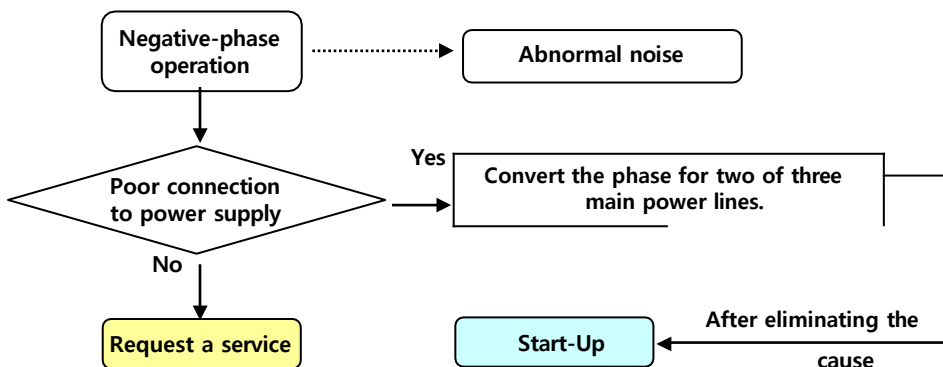
Troubleshooting Flow Diagram

Overview

The following flow diagrams show the procedures to repair the typical failures. If the alarm is on and the compressor is stopped, do not restart the operation until the cause is clearly addressed and eliminated. Always turn the main power off, and remove the pressure from the compressor prior to a repair and maintenance.

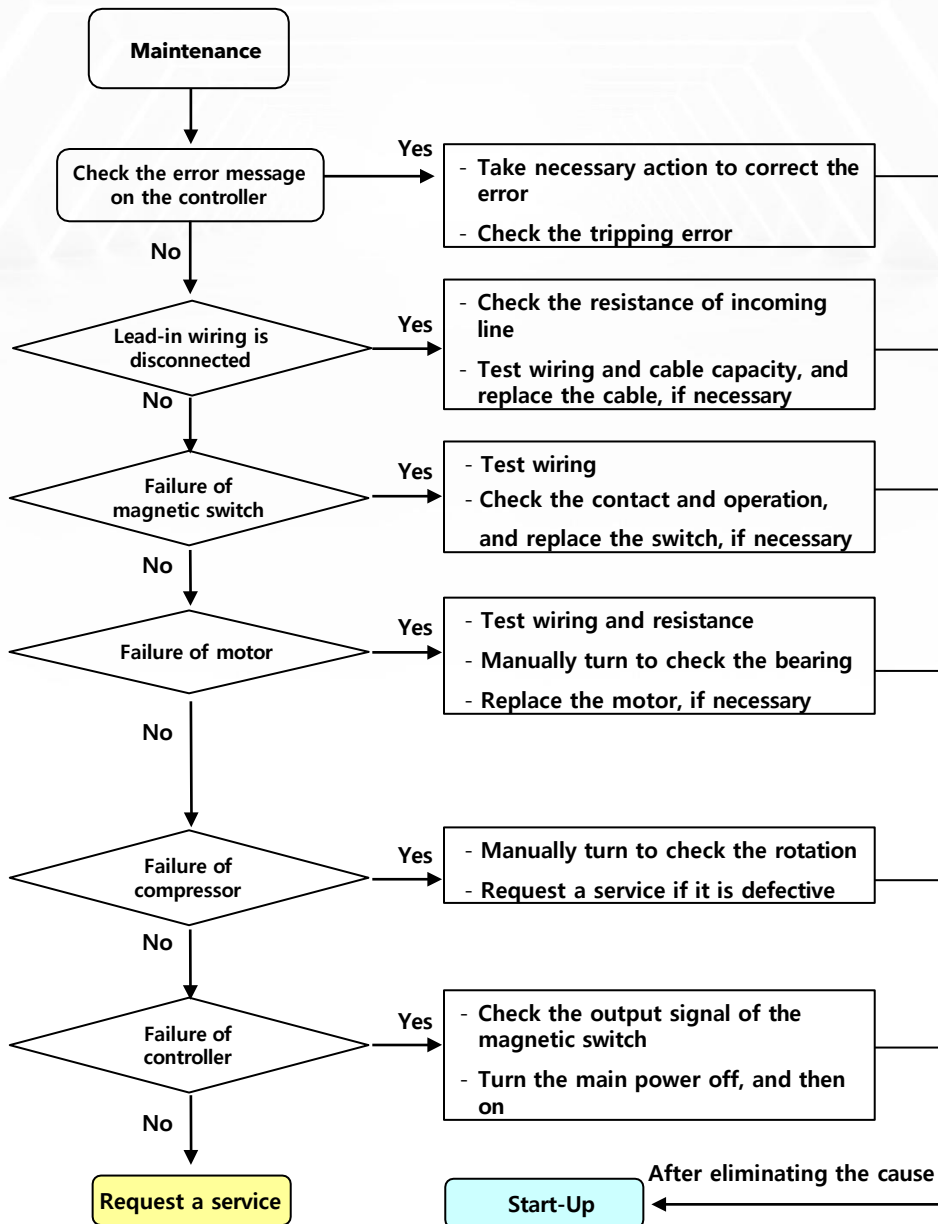


9-2- 2 Negative-Phase Operation



Section Six: Troubleshooting

Troubleshooting Flow Diagram

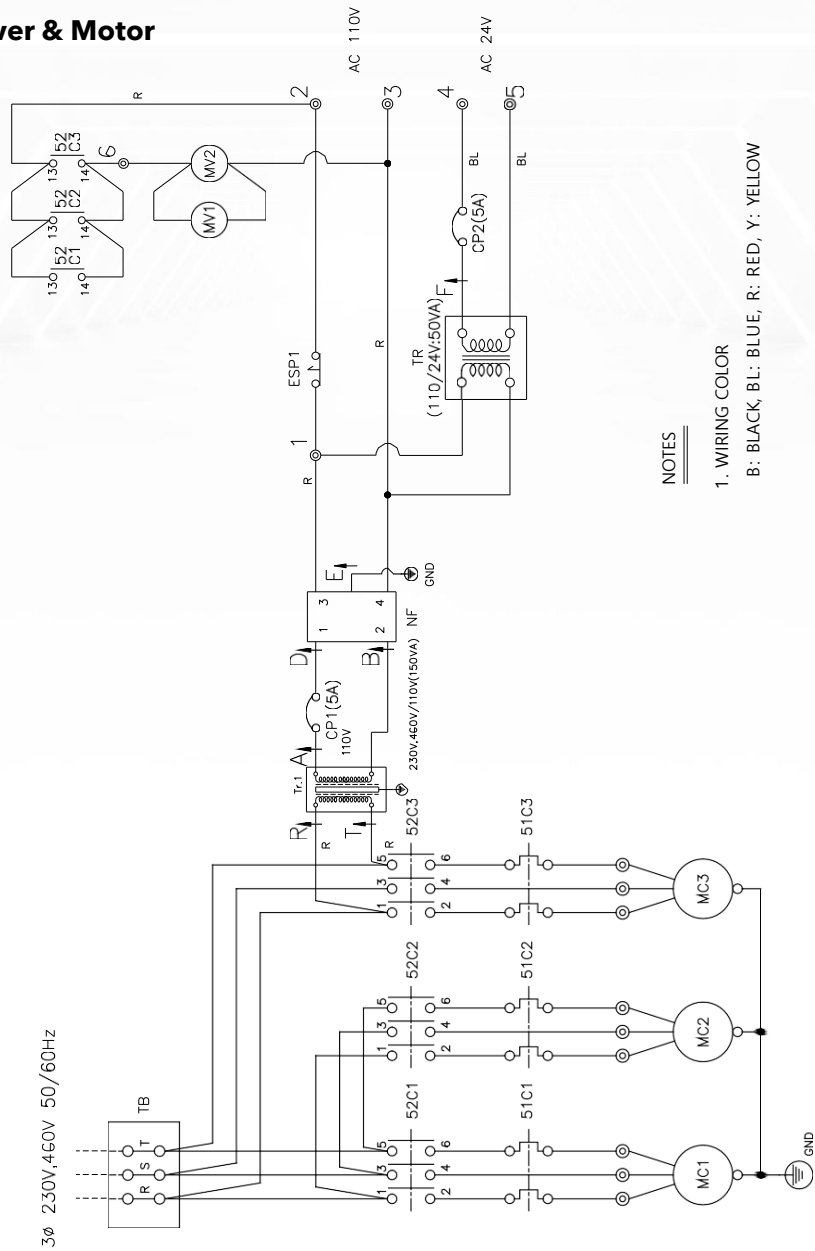


Danger

- 1) An air compressor is automatically operated. Take necessary safety precaution to ensure that the compressor is not unintentionally operated during the maintenance.
- 2) Make sure to turn the main power off prior to the rotation test.
- 3) Make sure to turn the main power off prior to the wiring test, except for the measurement of the voltage.

Section Seven: Electrical Outlines

SC.15 - Power & Motor



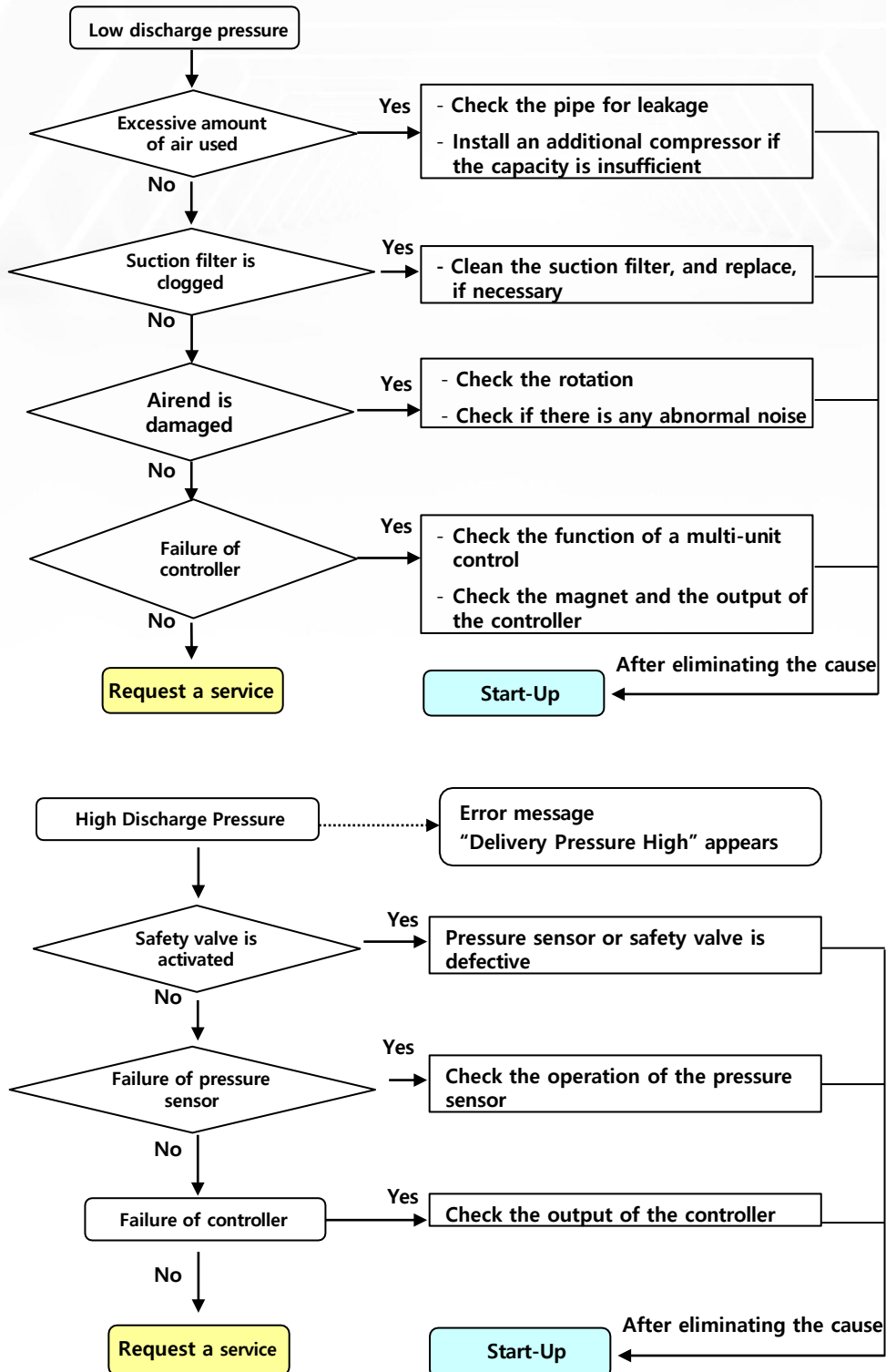
NOTES
1. WIRING COLOR
B: BLACK, BL: BLUE, R: RED, Y: YELLOW

SYMBOL INDEX

No.	SYMBOL	DESCRIPTION	No.	SYMBOL	DESCRIPTION
1	51C	OVER CURRENT RELAY FOR COMPRESSOR MOTOR	9	PT	PRESSURE TRANSMITTER
2	52C	MAGNETIC CONTACTOR FOR COMPRESSOR MOTOR	10	SK	SURGE KILLER
3	ESP	EMERGENCY STOP PUSH BUTTON SWITCH	11	TB	TERMINAL BLOCK FOR INPUT POWER SOURCE
4	F	FUSE	12	TH	THERMISTOR
5	GND	GROUND CONNECTION	13	TR	TRANSFORMER
6	MC	MOTOR FOR AIR COMPRESSOR	14	Ⓞ	TERMINAL BLOCK NUMBER FOR CONTROL WIRE
7	MV	MOTOR FOR VENT FAN	15	TEXT	WIRING NUMBER
8	NF	NOISE FILTER			

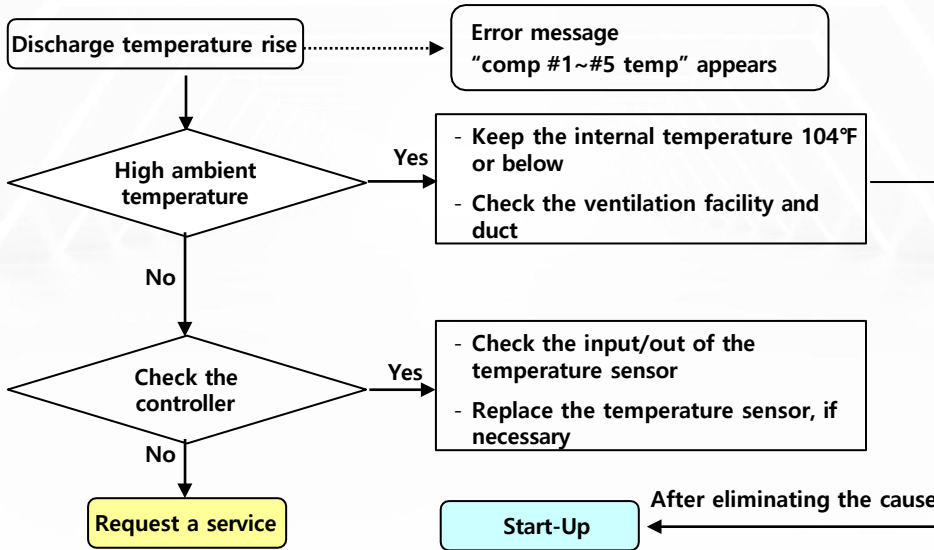
Section Six: Troubleshooting

Troubleshooting Flow Diagram



Section Six: Troubleshooting

Troubleshooting Flow Diagram

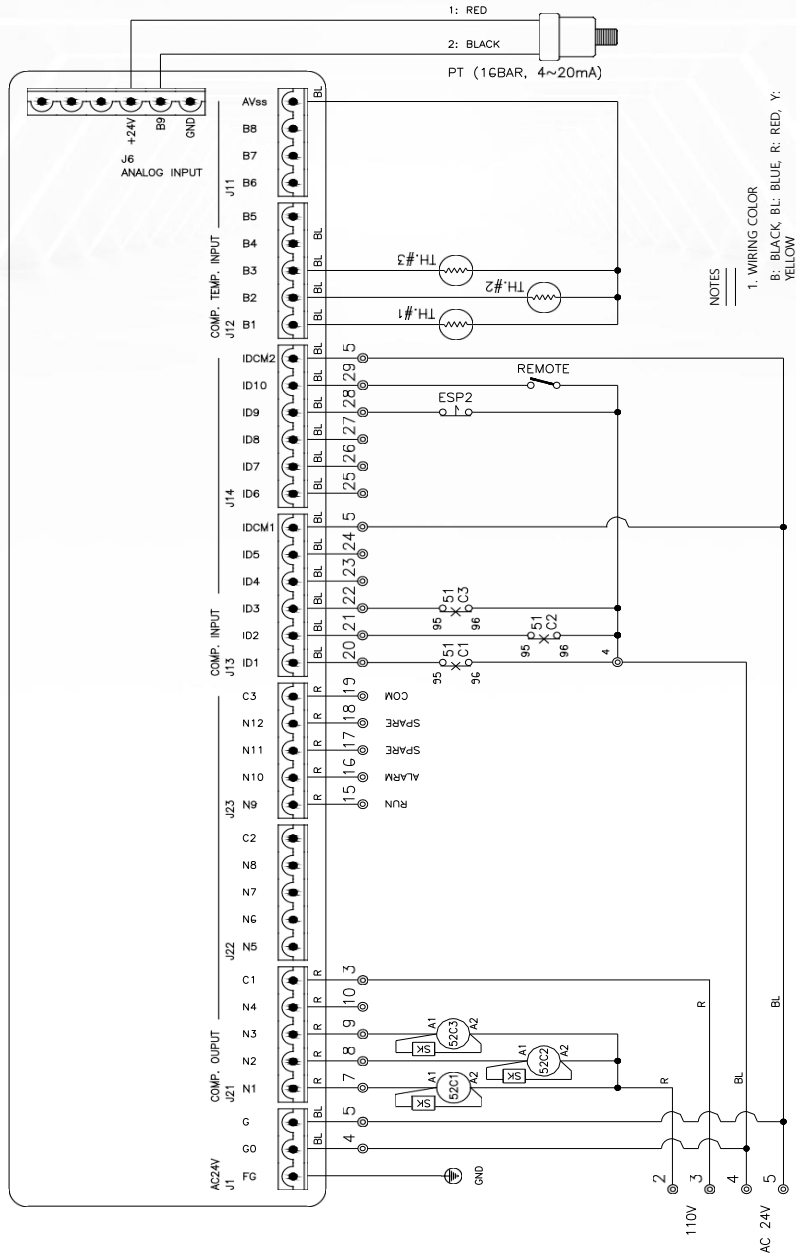


- 1) An appropriate temperature of an airend is 158°F or below at the operating temperature 104°F or below.
- 2) Always take necessary action if the temperature of the airend is sharply increased with no change in ambient temperature.

Trouble	Cause	Action
1. Tripped due to the over current in motor	1) Compressor is tripped. - Foreign substance in the compressor - Damage to the wrap of the compressor - Low voltage 2) Open-phase/Unbalanced power supply 3) Deteriorated coil in the motor 4) Failure of EOCR	1) Contact the distributor. - Improve the power supply. 2) Improve the power supply. 3) Check the motor. 4) Readjust or replace.
2. Noise and Vibration	1) Fixing bolts are loose. 2) Noise from the compressor - Bearing is worn out or damaged. - Foreign substance in the compressor 3) Improper belt tension and the damage to the parts 4) Inadequate installation of the compressor 5) Failure of cooling fan (dust or damaged)	1) Readjust. 2) Contact the distributor. 3) Realign or replace the belt. 4) Reinstall the compressor. 5) Clean or replace the fan.

Section Seven: Electrical Outlines

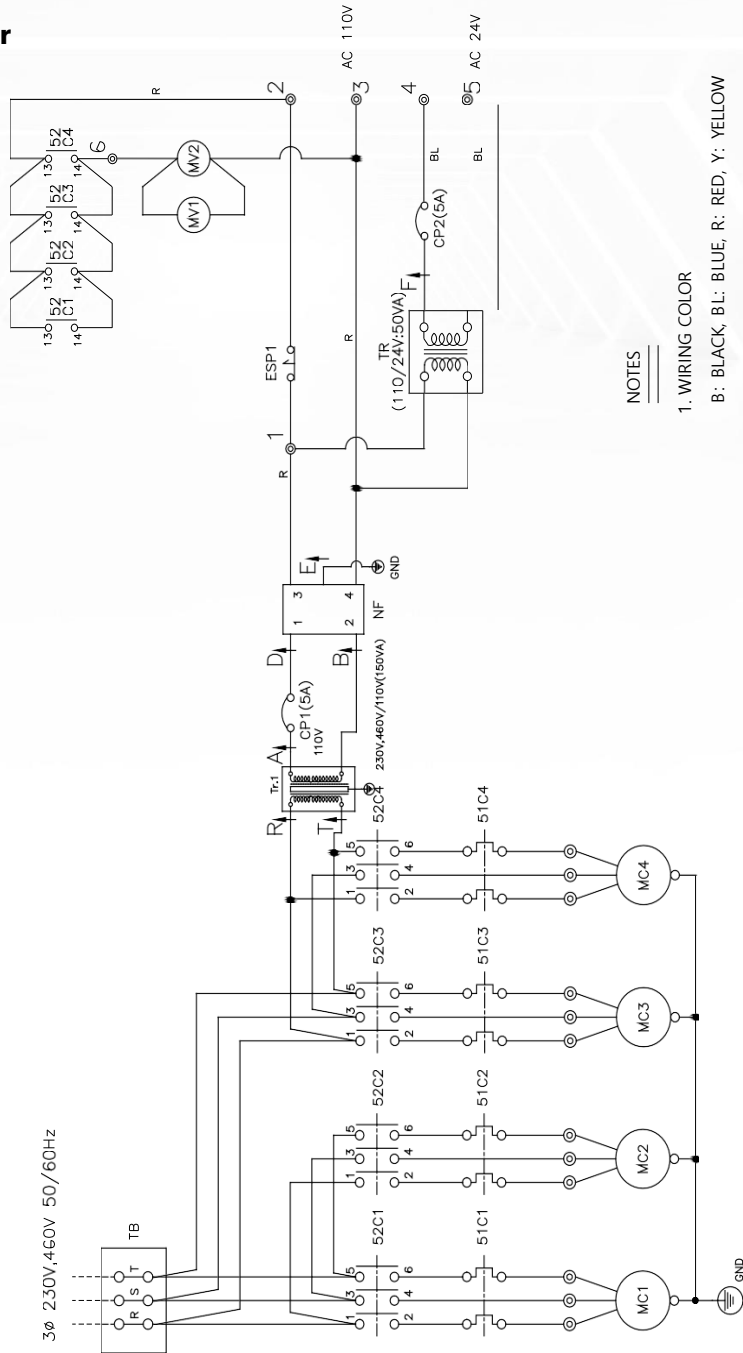
SC.15 - Control Line



SYMBOL INDEX					
No.	SYMBOL	DESCRIPTION	No.	SYMBOL	DESCRIPTION
1	51C	OVER CURRENT REFRAY FOR COMPRESSOR MOTOR	9	PT	PRESSURE TRANSMITTER
2	52C	MAGNETIC CONTACTOR FOR COMPRESSOR MOTOR	10	SK	SURGE KILLER
3	ESP	EMERGENCY STOP PUSH BUTTON SWITCH	11	TB	TERMINAL BLOCK FOR INPUT POWER SOURCE
4	F	FUSE	12	TH	THERMISTOR
5	GND	GROUND CONNECTION	13	TR	TRANSFORMER
6	MC	MOTOR FOR AIR COMPRESSOR	14	⊙	TERMINAL BLOCK NUMBER FOR CONTROL WIRE
7	MV	MOTOR FOR VENTILATION FAN	15	TEXT↑	WIRING NUMBER
8	NF	NOISE FILTER			

Section Seven: Electrical Outlines

SC.20 - Power & Motor



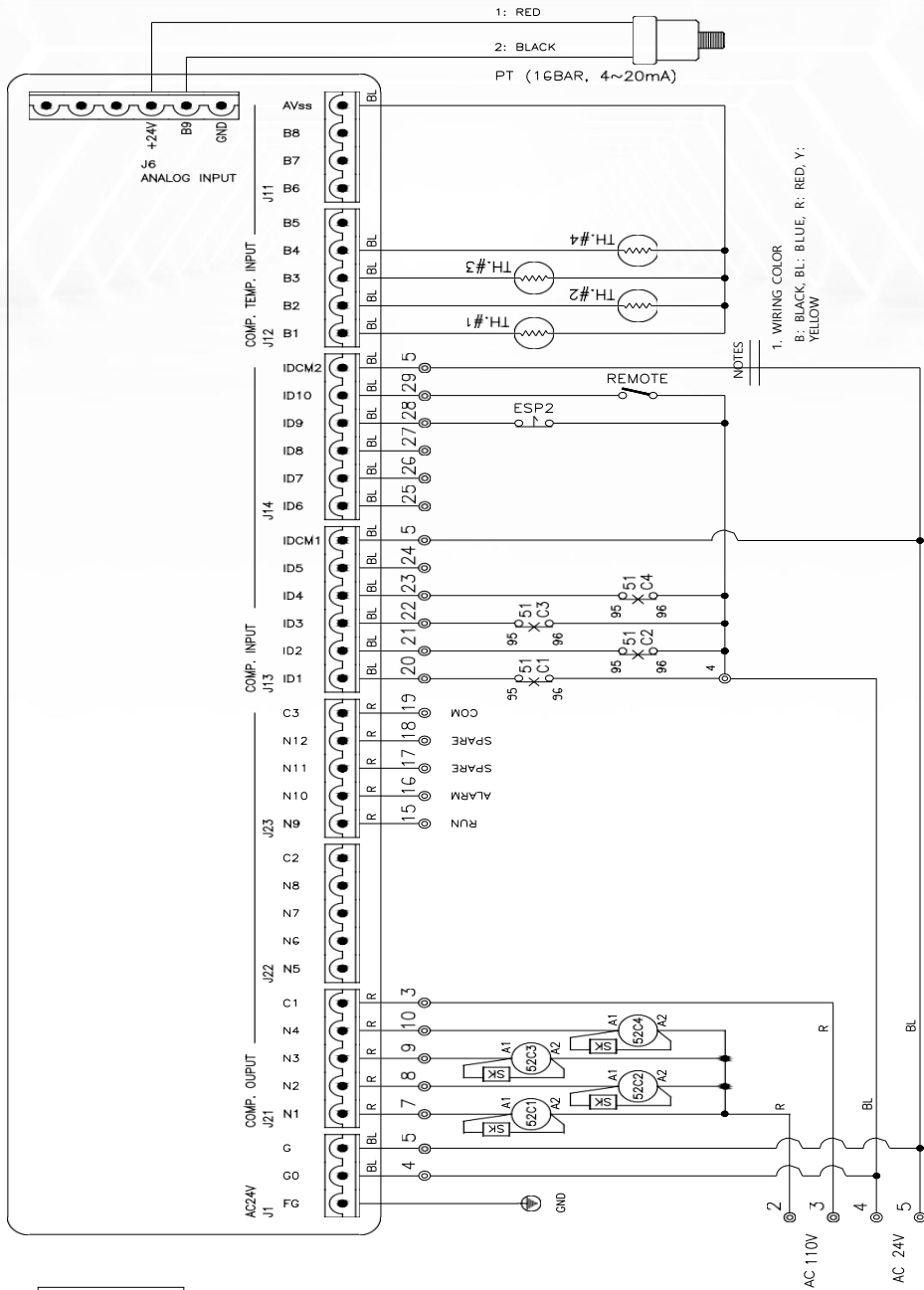
NOTES
 1. WIRING COLOR
 B: BLACK, BL: BLUE, R: RED, Y: YELLOW

SYMBOL INDEX

No.	SYMBOL	DESCRIPTION	No.	SYMBOL	DESCRIPTION
1	51C	OVER CURRENT RELAY FOR COMPRESSOR MOTOR	9	PT	PRESSURE TRANSMITTER
2	52C	MAGNETIC CONTACTOR FOR COMPRESSOR MOTOR	10	SK	SURGE KILLER
3	ESP	EMERGENCY STOP PUSH BUTTON SWITCH	11	TB	TERMINAL BLOCK FOR INPUT POWER SOURCE
4	F	FUSE	12	TH	THERMISTOR
5	GND	GROUND CONNECTION	13	TR	TRANSFORMER
6	MC	MOTOR FOR AIR COMPRESSOR	14	Ⓞ	TERMINAL BLOCK NUMBER FOR CONTROL WIRE
7	MV	MOTOR FOR VENT FAN	15	TEXT	WIRING NUMBER
8	NF	NOISE FILTER			

Section Seven: Electrical Outlines

SC.20 - Control Line

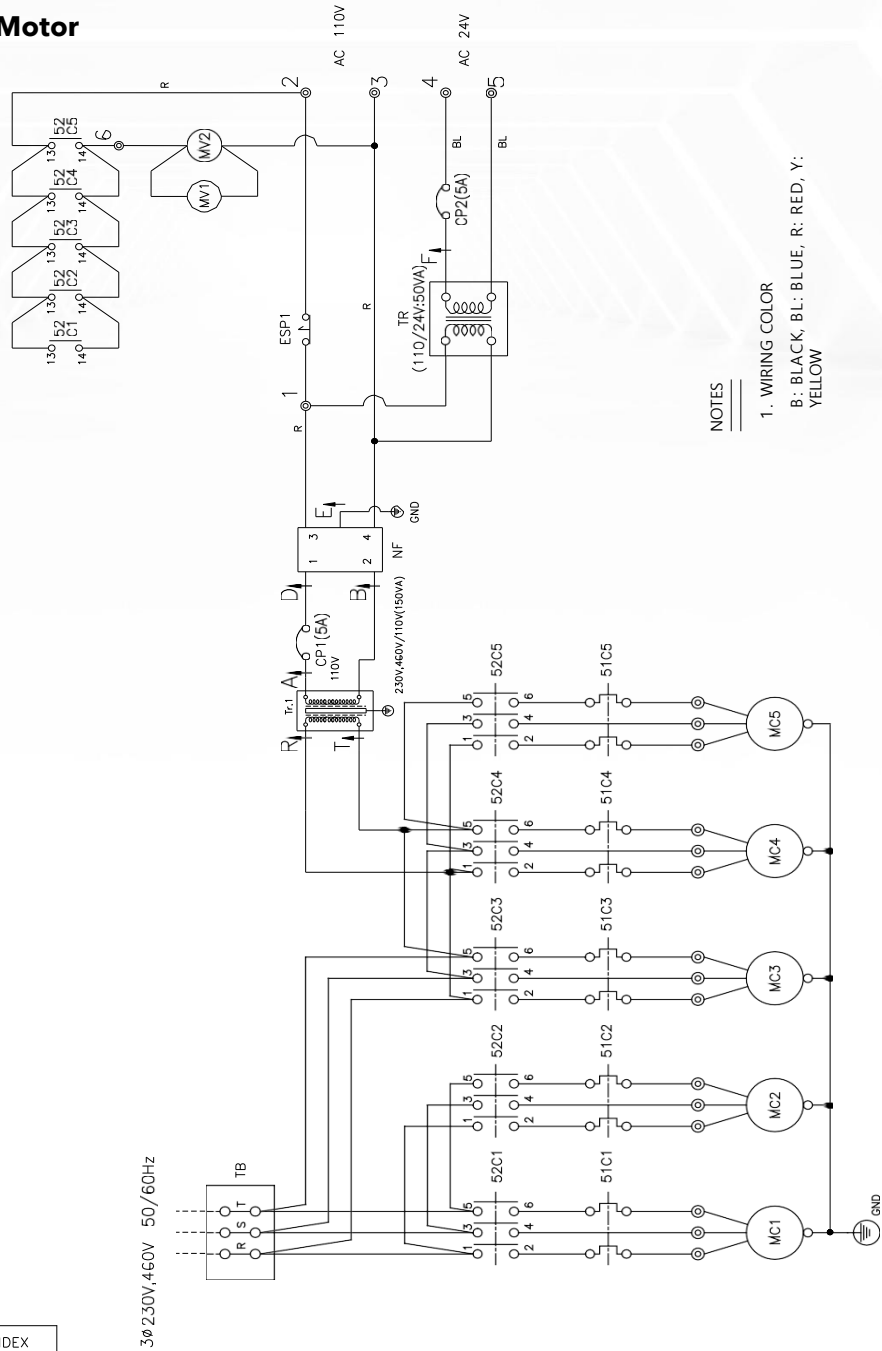


SYMBOL INDEX

No.	SYMBOL	DESCRIPTION	No.	SYMBOL	DESCRIPTION
1	51C	OVER CURRENT RELAY FOR COMPRESSOR MOTOR	9	PT	PRESSURE TRANSMITTER
2	52C	MAGNETIC CONTACTOR FOR COMPRESSOR MOTOR	10	SK	SURGE KILLER
3	ESP	EMERGENCY STOP PUSH BUTTON SWITCH	11	TB	TERMINAL BLOCK FOR INPUT POWER SOURCE
4	F	FUSE	12	TH	THERMISTOR
5	GND	GROUND CONNECTION	13	TR	TRANSFORMER
6	MC	MOTOR FOR AIR COMPRESSOR	14	⊙	TERMINAL BLOCK NUMBER FOR CONTROL WIRE
7	MV	MOTOR FOR VENT FAN	15	TEXT	WIRING NUMBER
8	NF	NOISE FILTER			

Section Seven: Electrical Outlines

SC.25 - Power & Motor



NOTES

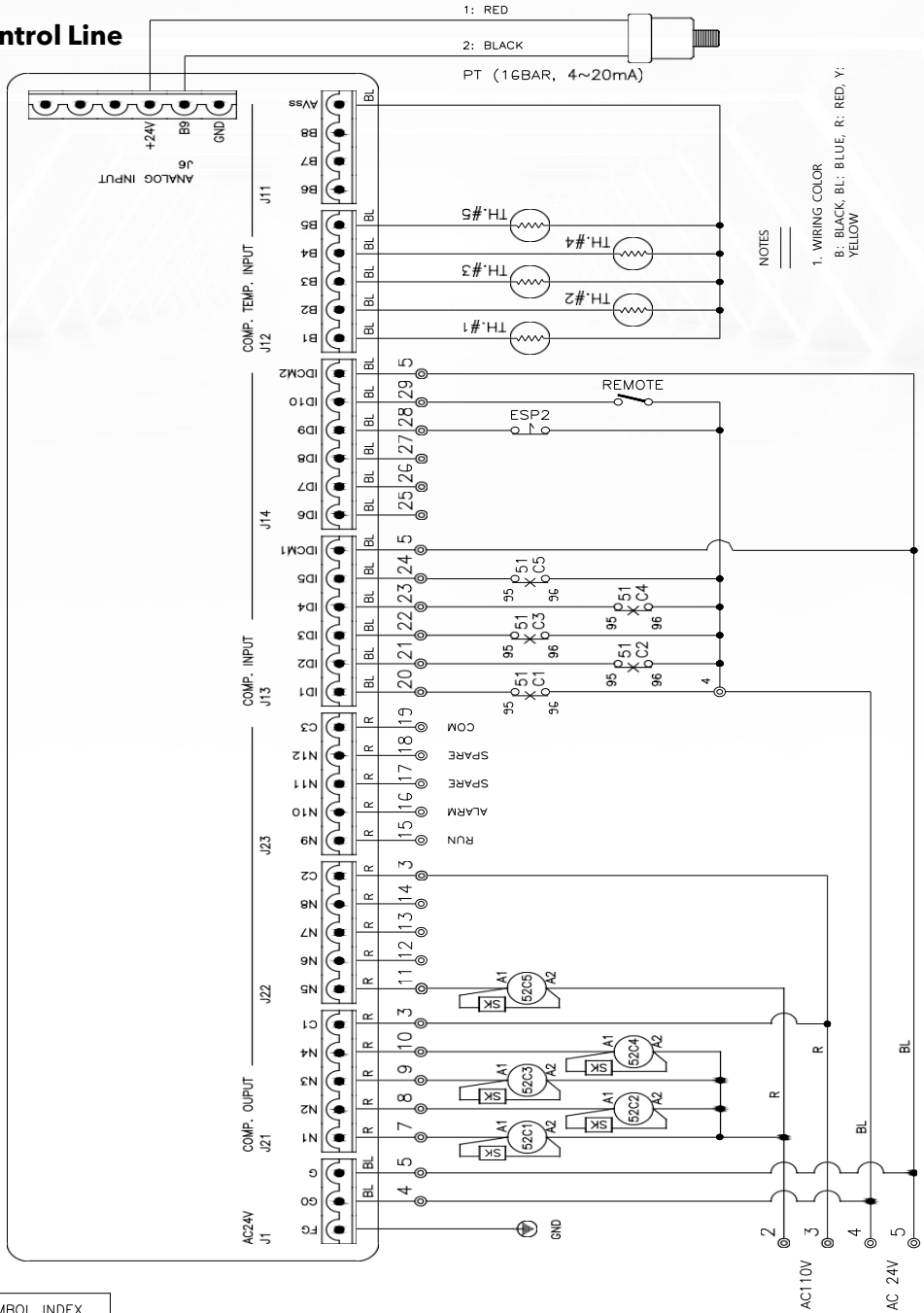
- 1. WIRING COLOR
- B: BLACK, BL: BLUE, R: RED, Y: YELLOW

SYMBOL INDEX

No.	SYMBOL	DESCRIPTION	No.	SYMBOL	DESCRIPTION
1	51C	OVER CURRENT RELAY FOR COMPRESSOR MOTOR	9	PT	PRESSURE TRANSMITTER
2	52C	MAGNETIC CONTACTOR FOR COMPRESSOR MOTOR	10	SK	SURGE KILLER
3	ESP	EMERGENCY STOP PUSH BUTTON SWITCH	11	TB	TERMINAL BLOCK FOR INPUT POWER SOURCE
4	F	FUSE	12	TH	THERMISTOR
5	GND	GROUND CONNECTION	13	TR	TRANSFORMER
6	MC	MOTOR FOR AIR COMPRESSOR	14	@	TERMINAL BLOCK NUMBER FOR CONTROL WIRE
7	/ MV	MOTOR FOR VENT FAN	15	TEXT	WIRING NUMBER
8	NF	NOISE FILTER			

Section Seven: Electrical Outlines

SC.25 - Control Line



SYMBOL INDEX

No.	SYMBOL	DESCRIPTION	No.	SYMBOL	DESCRIPTION
1	51C	OVER CURRENT RELAY FOR COMPRESSOR MOTOR	9	PT	PRESSURE TRANSMITTER
2	52C	MAGNETIC CONTACTOR FOR COMPRESSOR MOTOR	10	SK	SURGE KILLER
3	ESP	EMERGENCY STOP PUSH BUTTON SWITCH	11	TB	TERMINAL BLOCK FOR INPUT POWER SOURCE
4	F	FUSE	12	TH	THERMISTOR
5	GND	GROUND CONNECTION	13	TR	TRANSFORMER
6	MC	MOTOR FOR AIR COMPRESSOR	14	Ⓞ	TERMINAL BLOCK NUMBER FOR CONTROL WIRE
7	MV	MOTOR FOR VENT FAN	15	TEXT	WIRING NUMBER
8	NF	NOISE FILTER			