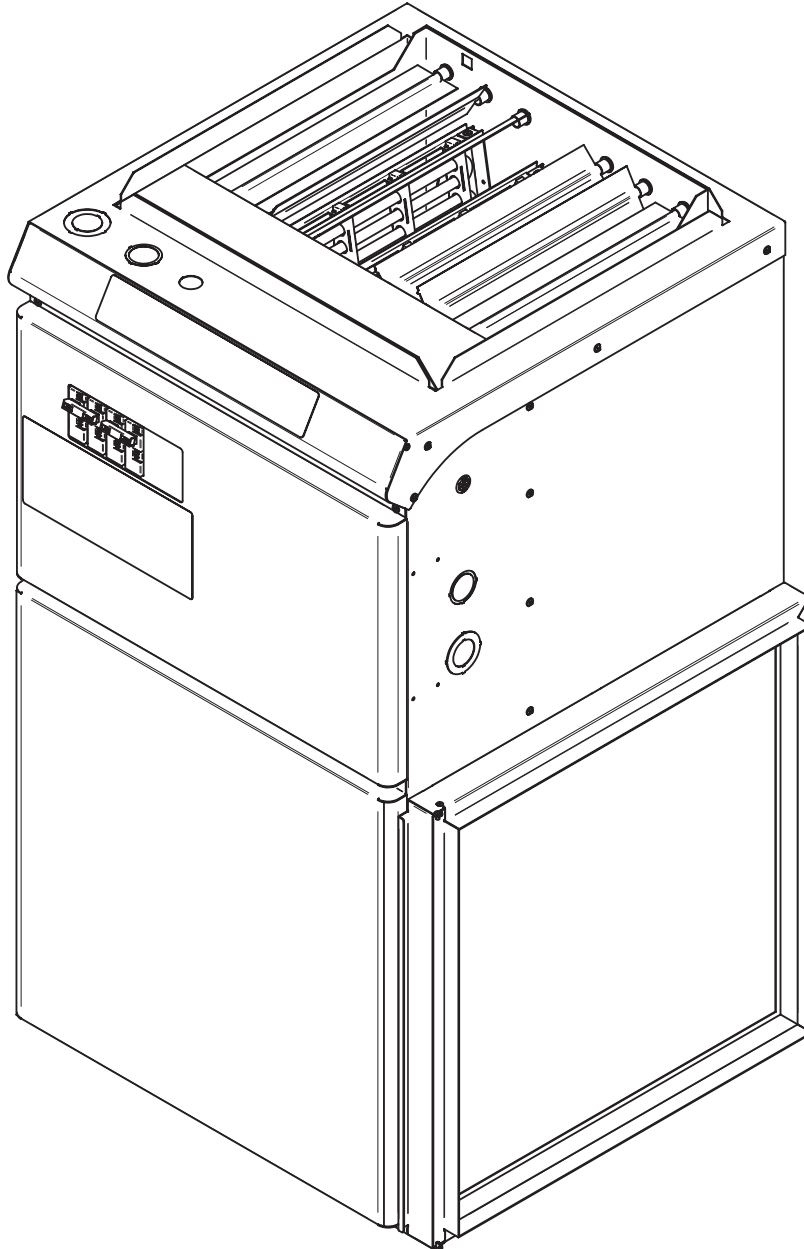




INSTALLATION GUIDE

SEFE SERIES ELECTRIC FURNACE

REPLACEMENT COMPONENT LIST INCLUDED



This unit complies with the CSA and UL standards



This unit is approved according to the Canadian and American manufacturing standards.

**This section must be read carefully by the installer.
The installer must also read the user's guide since it contains other important information.**



WARNING

Before installing and operating this product, the user and/or installer must read, understand and follow these instructions and keep them handy for future reference. If these instructions are not followed, the warranty will be considered null and void and the manufacturer deems no further responsibility for this product.

This product must be installed by a qualified person and connected by a **certified electrician**, according to the **electrical and building codes** effective in your region.

The following instructions must be adhered to in order to avoid personal injuries or property damages, serious injuries and potentially fatal electric shocks.

Make sure that all screws and electrical terminal connections are tightly secured before operating the unit in case they would have loosened during transportation.

Protect the heating unit with the appropriate circuit breaker or fuse, in accordance with the nameplate.

Make sure the line voltage (volt) is consistent with that indicated on the unit's nameplate.

This unit must be **grounded**.

Switch off the power at the circuit breaker/fuse before installing, repairing and cleaning the unit.

Make sure the unit is appropriate for the intended use (if needed, refer to the product catalog or a representative).

If the unit's capacity is insufficient for the size of the house, it will be in operation continuously, and may become prematurely defective.

Respect distances and positions indicated in the installation section.

If the installer or the user modifies the unit, they will be held responsible for any damage resulting from this modification, and the CSA certification could be void.

This unit must not come into contact with a water source and must be protected from splashes (e.g. a wet mop). Do not use it if any part has been immersed. Moreover, do not turn it on or off when standing in water or if your hands are wet.

When cutting a piece of steel for the installation of the return duct, do not damage electrical wiring of the unit.

Because this unit is hot when in use, it may pose risks even in normal operation. Therefore, be **careful and responsible** when using it. To avoid burns, do not let bare skin touch hot surfaces. Let the unit cool down for a few minutes before handling it (it stays warm for some time after shut-down).

Never block air vents. This obstruction could lead to overheating, which could result in a fire.

Do not insert or allow foreign objects to enter any air vent as this may cause electric shocks, fires, or damages to the unit.

This unit has hot and arcing or sparking parts inside. It is not designed to be used or stored in wet areas or areas containing flammable liquids, combustible materials or corrosive, abrasive, chemical, explosive and flammable substances such as, but not limited to, gasoline, paint, chlorine and cleaning products.

Some areas are dustier than others. Thus, it is the user's responsibility to evaluate if the **filter must be changed** based on it. Accumulated dirt can lead to a component malfunction or discoloration (yellowing). It may cause a fire hazard if not installed and maintained in accordance with these instructions.

Thermal protection activation indicates that the unit has been subjected to abnormal operating conditions. If the thermal protection remains activated or activates and deactivates repeatedly, it is recommended that a qualified electrician or a certified repair centre examine the unit in order to make sure it is not damaged. (Refer to the limited warranty).

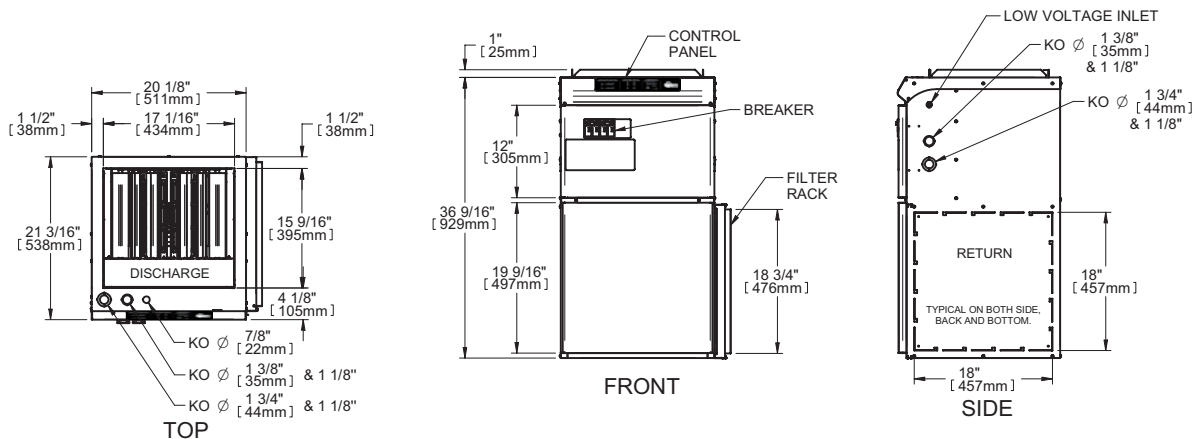
If the unit is damaged or defective, cut off power supply at circuit breaker/fuse and call a certified repair centre. (Refer to the limited warranty).

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.



Note: When a part of the product specification must be changed to improve operability or other functions, priority is given to the product specification itself. In such instances, the instruction manual may not entirely match all the functions of the actual product. Therefore, the actual product and packaging, as well as the name and illustration, may differ from the manual.

TECHNICAL DRAWINGS



SPECIFICATIONS

ELECTRIC FURNACE									
TYPE	VOLTS	KW	AMP	HP	LENGTH (IN.)	WIDTH (IN.)	DEPTH (IN.)	LB	KG
SEFE1021B	240/208	10/7.5	44/38	1/3	36 9/16	20 1/8	21 3/16	100	45
SEFE1521B	240/208	15/11.2	65/56	1/3	36 9/16	20 1/8	21 3/16	100	45
SEFE1821B	240/208	18/13.5	78/67	1/3	36 9/16	20 1/8	21 3/16	100	45
SEFE2021B	240/208	20/15	86/75	1/3	36 9/16	20 1/8	21 3/16	100	45
SEFE2321B	240/208	23/17.2	98/85	1/3	36 9/16	20 1/8	21 3/16	100	45
SEFE2721B	240/208	27/20.2	118/102	1	36 9/16	20 1/8	21 3/16	105	48
SEFE3021B	240/208	30/22.5	130/113	1	36 9/16	20 1/8	21 3/16	105	48

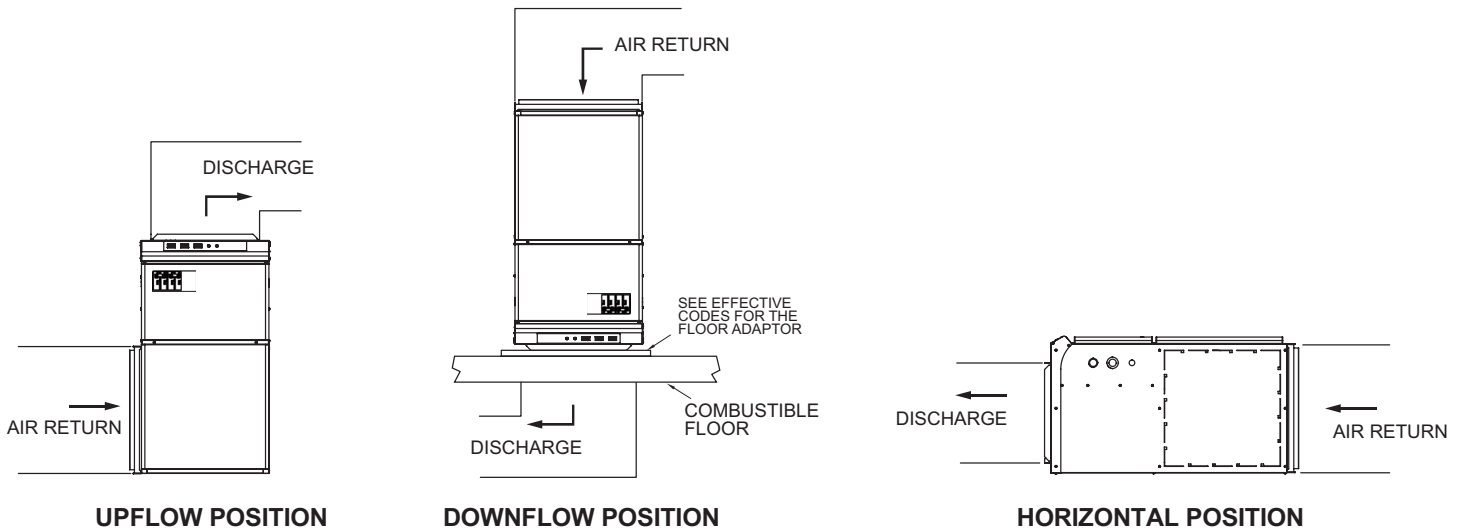
N.B. Please consult CFM/SPEED TABLE for more technical specifications

INSTALLATION

N.B. Cut off power supply at circuit breaker/fuse before proceeding to the installation.

Please note that each furnace is factory inspected before shipping in order to ensure that every component is operating efficiently.

The "SEFE" series electric furnace is available in several models of various heating capacity (from 10 to 30 kW). All these models adapt easily to many applications and are suitable for horizontal, upflow and downflow operations (see the figures below). When installed in vertical downflow position, use only "L" or "T" shaped plenum without openings or registers directly below the unit.



LOCATION

You must install the furnace on a dry and solid base, in an area free of flammable liquids or vapors and combustible materials. You must indicate to the furnace user the location of the switches and disconnects. He must be able to quickly identify them in case of an emergency. Moreover, the furnace should be located as centrally as possible in the area to heat in order to optimize air dissipation in all the rooms.

CLEARANCE

This furnace is approved for "zero inch" clearance. Meaning that you can install it directly against a wall. Ducts for models of 23 kW and less can also be installed with a zero inch clearance (0 inch). However, ducts for models of 27 kW and more must have a 1-inch clearance for the first 36 inches of duct. From 37 inches, this clearance can be reduced to 0 inch. Please refer to the codes effective in your region if you have any questions concerning clearances.

Since it is necessary to open the door in the front to perform the furnace maintenance inspection, you must leave at least a 24-inch clearance in front of this door.

DUCTS AND FILTERS

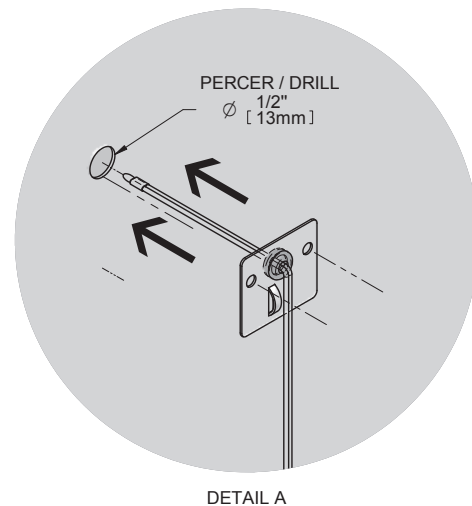
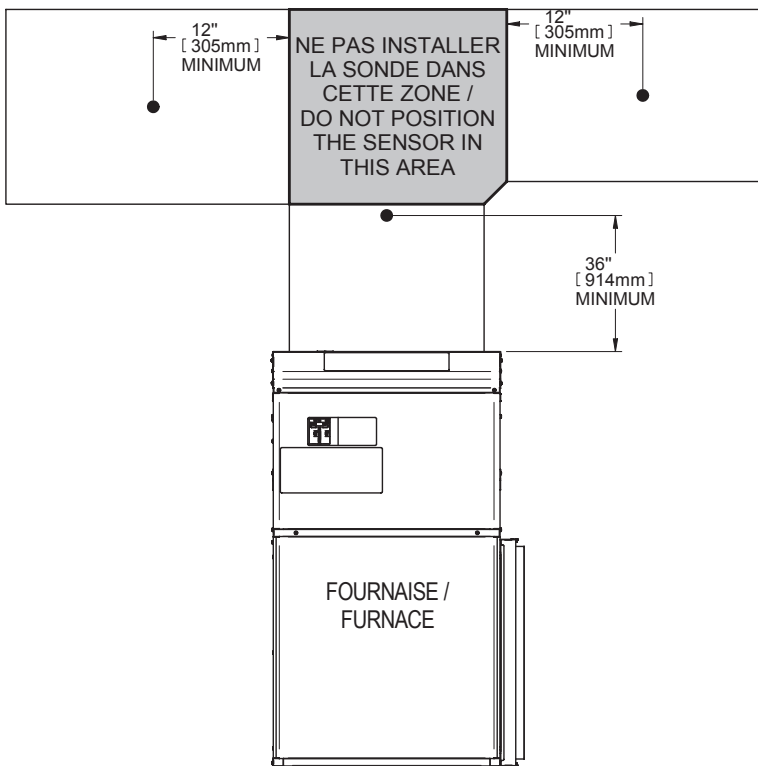
Ducts must be designed to deliver the correct airflow at the specified external static pressure. You should insulate the ducts crossing non-heated areas. Moreover, use flexible return and supply connectors in order to avoid vibrations as much as possible. To make your furnace even quieter, follow these instructions:

1. Cover the vertical return and supply ducts with soundproofing material;
2. Install at most one or two elbows between registers and the return and supply connectors;
3. Install flexible hangers to suspend the ducts;
4. Install baffles in elbows with a small curvature radius.

All "SEFE" series models are equipped with a filter rack (including the filter) that you will find on top of the furnace. You can install this rack on one of the three external sides of the furnace or at its bottom. Using snips, cut the selected rack opening following the slots and holes, and screw the filter rack on it.

PLENUM TEMPERATURE SENSOR

A plenum temperature sensor is included with the furnace. It is up to you to install it or not. However, if you choose to not install the sensor, you must disconnect it from the control card. The furnace will operate even if the sensor is not connected (see the OPERATION section). You can use the plenum temperature regulation function if you install the sensor and you connect it to the control card. This function is explained in the OPERATION section. Refer to the illustration below to properly install the plenum temperature sensor.



PLENUM TEMPERATURE CONTROL POTENTIOMETER

When you install the plenum temperature sensor, you can select the plenum temperature set point with a potentiometer installed on the control card. The default factory set point is 60°C (140°F). You can select the set point from a temperature range between 40°C (104°F) and 70°C (158°F).

OPTIONAL ACCESSORIES

The furnace is equipped with all the devices required for the addition of an air-conditioner or a heat pump (except the heat-cool thermostat). The refrigerant and drainage pipes must be installed either in the furnace supply or return duct and should not prevent you from removing the door in front of the furnace.

You can also install a thermostat with an outdoor sensor or a two-stage thermostat to control your furnace. To do so, you must refer to the instructions supplied with the thermostat (see also the illustrations on following page) as well as the furnace wiring diagram.

When the electric furnace is used in combination with a wood heating unit, you must connect the thermostat of the wood heating unit across low voltage terminals R and G of the furnace. This thermostat will automatically turn the blower of the furnace on.

N.B. Please note that if one of these accessories is installed, you must refer to the appropriate guide.

ELECTRICAL CONNECTIONS OF THE FURNACE

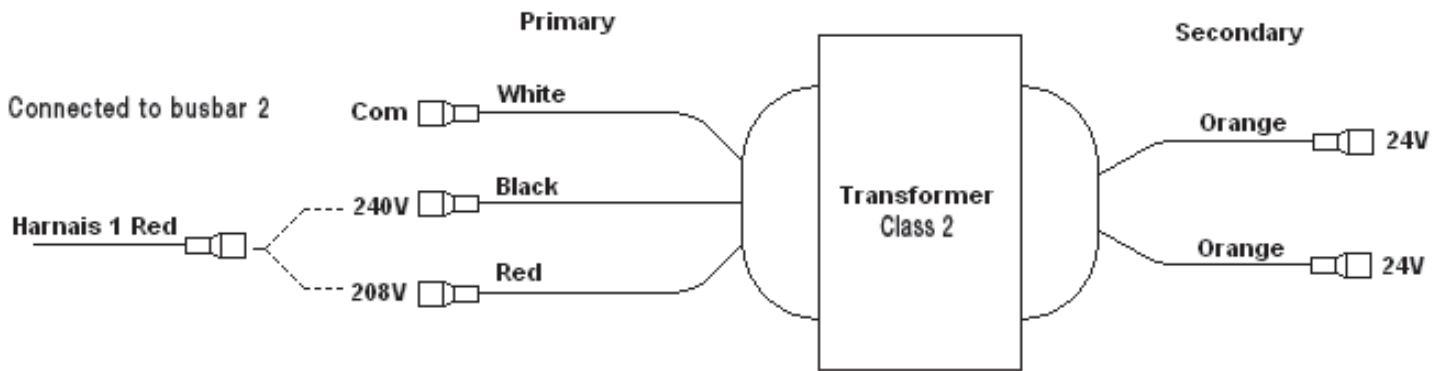
Note that this product must be connected by a qualified electrician according to the electrical and building codes effective in your region. For 240 VAC connection, you can use copper or aluminum wire (75°C (165°F)), except for 27 kw and 30 kw models where only copper wire is allowed.

This furnace must be connected to a 240/208 volt power source. For 240VAC power supply, either copper or aluminum wires can be used, except for 27 and 30 kW models where only copper wire can be used (see the power connection illustration below). If you want to energize the furnace at 208 VAC, you must change a connection on the primary side of the transformer (see the illustration below). Refer to the local and national electrical codes to know which wire size, fuses and circuit breakers are required.

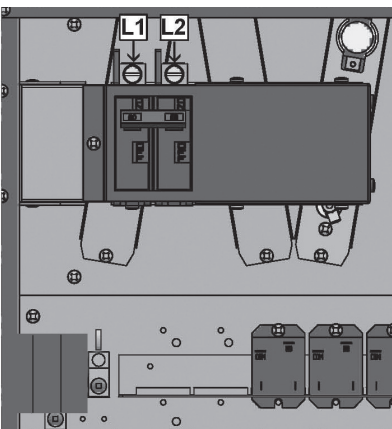
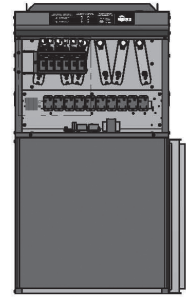
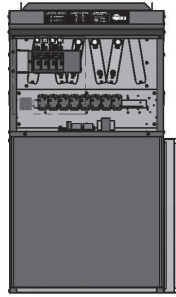
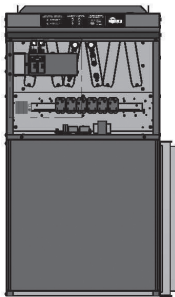
A neutral terminal junction is installed in the electrical compartment of the furnace. It is used to connect a neutral line conductor at the entrance. Some auxiliary devices, like a dehumidifier, are supplied by a 120 VAC power source. The neutral connector allows to supply auxiliary devices with a 120 VAC power source from the furnace.

TRANSFORMER PRIMARY VOLTAGE SELECTION

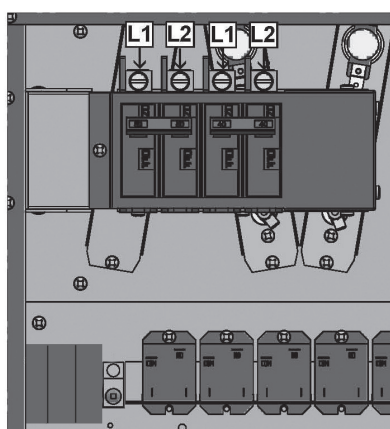
The transformer primary is connected in factory to operate on 240 VAC (black and white wires)



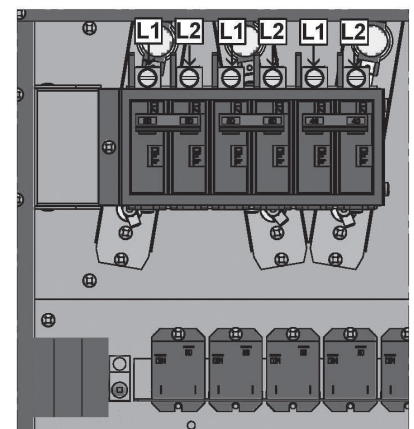
POWER CONNECTION DRAWINGS (MECHANICAL)



10 kW



15, 18 & 20 kW



23, 27 & 30 kW

ELECTRICAL CONNECTION OF THE THERMOSTAT

The thermostat must be mounted to a connection box, at around 1.5 m (5 feet) above the floor level, on a section of the wall exempt from pipes or air ducts.

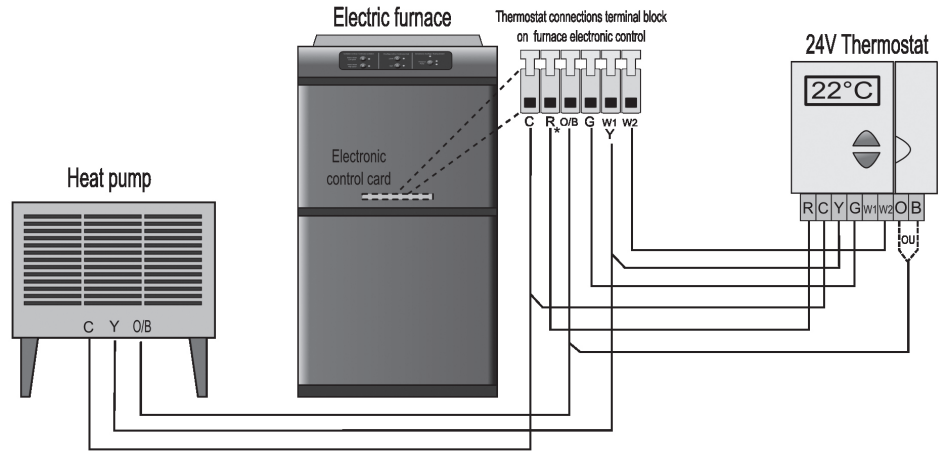
Do not install the thermostat in a location where temperature measurements could be altered. For example:

- close to a window, on an external wall, or close to a door leading outside;
- exposed directly to the light or heat of the sun, a lamp, a fireplace or any other heat source;
- close or in front of an air outlet;
- close to concealed ducts or a chimney; and
- in a location with poor air flow (e.g. behind a door), or with frequent air draft conditions (e.g. head of stairs).

Seal the wall openings in order to minimize the drafts which can alter temperature measurements. Read the user's guide of the thermostat carefully and refer to the following illustrations to connect the thermostat.

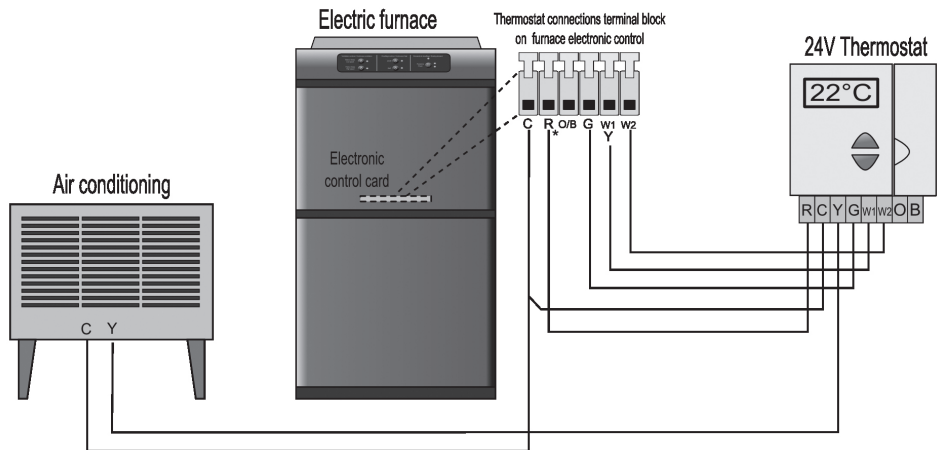
FURNACE TO 24 V THERMOSTAT CONNECTIONS WITH HEAT PUMP

* R terminal : 1A maximum

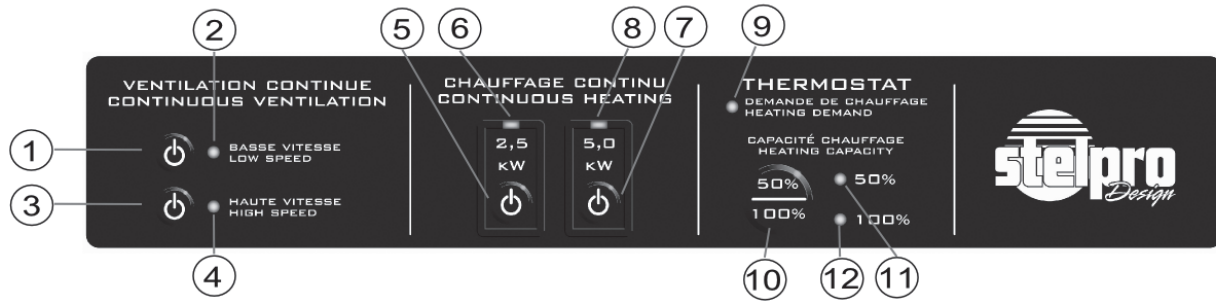


FURNACE TO 24 V THERMOSTAT CONNECTIONS WITH AIR CONDITIONING

* R terminal : 1A maximum



CONTROL PANEL

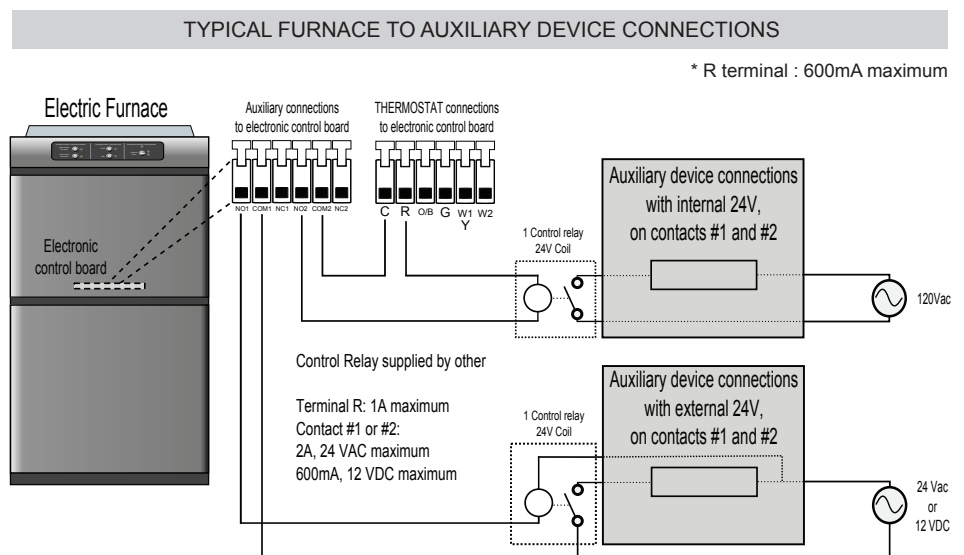


LEGEND

- LOW SPEED CONTINUOUS VENTILATION** button: provides the selection of the low speed continuous ventilation mode.
- LOW SPEED CONTINUOUS VENTILATION** pilot light: indicates that the low speed continuous ventilation mode is activated.
- HIGH SPEED CONTINUOUS VENTILATION** button: provides the selection of the high speed continuous ventilation mode.
- HIGH SPEED CONTINUOUS VENTILATION** pilot light: indicates that the high speed continuous ventilation mode is activated.
- 2.5 kW CONTINUOUS HEATING** button: provides the selection of the 2.5 kW continuous heating mode.
- 2.5 kW CONTINUOUS HEATING** pilot light: indicates that the 2.5 kW continuous heating mode is activated. This mode is pending if the pilot light is blinking (see CONTINUOUS HEATING section on following page).
- 5 kW CONTINUOUS HEATING** button: provides the selection of the 5 kW continuous heating mode.
- 5 kW CONTINUOUS HEATING** pilot light: indicates that the 5 kW continuous heating mode is activated. This mode is pending if the pilot light is blinking (see CONTINUOUS HEATING section on following page).
- THERMOSTAT** pilot light: indicates that the furnace is receiving a heating demand from the thermostat.
- 50% or 100% HEATING CAPACITY** buttons: allow to choose the heating capacity of the furnace in case of a heating demand from the thermostat. Two possible capacities: 50% or 100%.
- 50%** pilot light: indicates that the selected heating capacity is 50%.
- 100%** pilot light: indicates that the selected heating capacity is 100%.

ELECTRICAL CONNECTION OF AN ELECTRONIC FILTER AND A HUMIDIFIER

A humidifier and an electronic filter can be controlled directly from the furnace. There is a terminal block for this purpose on the control card. The terminal block is equipped with six terminals connected to two DPDT that allow to switch the command of the auxiliary devices when the blower of the furnace is in operation.



OPERATION

HEATING DEMAND WITHOUT PLENUM TEMPERATURE SENSOR

ONE-STAGE THERMOSTAT

1. The thermostat closes the R-W1 circuit, which activates the first stage of the heating sequence. The blower starts-up at low speed and half of the furnace elements are activated one by one.

2. If the heating capacity selector is set at 50%, the sequence is ended and only half of the furnace capacity is used. However, if the selector is set at 100%, the sequence continues as follows:

3. The blower switches to heating speed and the remaining furnace elements are activated one by one.

TWO-STAGE THERMOSTAT

Please note that if you install a two-stage thermostat, it is necessary to set the heating capacity selector at 50% to rely on the benefit from this type of thermostat.

1. The thermostat closes the R-W1 circuit, which activates the first stage of the heating sequence. The blower starts-up at low speed and half of the furnace elements are activated one by one.
2. If the thermostat does not close the R-W2 circuit, the sequence is ended and only half of the furnace capacity is used. However, if the thermostat closes the W2 circuit, the sequence continues as follows:
3. The blower switches to heating speed and the remaining furnace elements are activated one by one.

HEATING DEMAND WITH A PLENUM TEMPERATURE SENSOR

ONE-STAGE THERMOSTAT

1. The thermostat closes the R-W1 circuit, which activates the first stage of the heating sequence. The blower starts-up at low speed and the furnace elements are activated one by one to reach the temperature programmed by the potentiometer on the furnace control card.
2. If the heating capacity selector is set at 50%, the sequence is ended and only half of the furnace capacity is used until the thermostat stops the heating demand. When the capacity is set at 50%, the furnace tries to maintain the plenum temperature at the programmed temperature, but it is limited to 50%. So, it may not reach the programmed temperature.
3. If the capacity selector is set at 100%, the sequence continues as follows: the blower switches to the heating speed and the furnace set the plenum temperature at the temperature programmed by the potentiometer, with the possibility to activate the 100% capacity.

TWO-STAGE THERMOSTAT

Please note that if you install a two-stage thermostat, it is necessary to set the heating capacity selector at 50% to rely on the benefit from this type of thermostat.

1. The thermostat closes the R-W1 circuit, which activates the first stage of the heating sequence. The blower starts-up at low speed and the furnace elements are activated one by one to reach the temperature programmed by the potentiometer on the furnace control card.
2. If the thermostat does not close the R-W2 circuit, the sequence is ended and only half of the furnace capacity is used until the thermostat stops the heating demand. When the capacity is set at 50%, the furnace tries to maintain the plenum temperature to the programmed temperature, but it is limited to 50%. So, it is possible that it can not reach the programmed temperature.
3. If the thermostat closes the R-W2 circuit, the sequence continues as follows: the blower switches to the heating speed and the furnace set the plenum temperature at the temperature programmed by the potentiometer, with the possibility to activate the 100% capacity.

CONTINUOUS VENTILATION

Two ventilation speeds can be selected on the furnace control panel: LOW SPEED CONTINUOUS VENTILATION or HIGH SPEED CONTINUOUS VENTILATION. If the pilot lights are blinking, this means that the selected mode was on stand-by when a heating or a conditioning demand occurred.

CONTINUOUS HEATING

The continuous heating mode allows a 2.5 kw or 5 kw element to operate continuously. This mode is always supported by high or low speed continuous ventilation.

The continuous heating mode is useful from the beginning to the end of the heating season since it reduces the temperature variations into the house.

If the 2.5 or 5 kw continuous heating mode is activated by the user, the furnace will deactivate it when the heating season will end (more than two hours without any heating demand). Moreover, it will activate it again when a new heating season will arrive. Note that the pilot light indicating the selected heating mode will blink if the furnace deactivates this mode because the heating season is over. This indicates that the continuous heating will be activated again at the next heating season.

AIR CONDITIONING

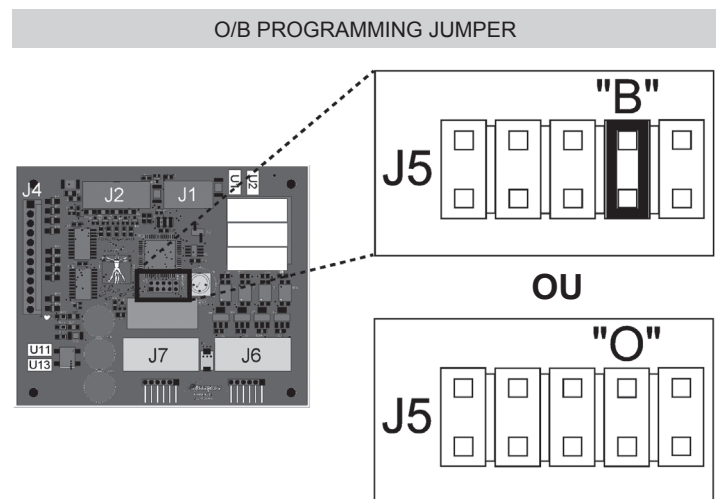
The furnace supplies the necessary 24 V power to allow the thermostat relay (R-Y terminals) to command the air-conditioner compressor relay. See the connection diagrams.

HEAT PUMP

If a heat pump is installed on your central heating system, it can be in operation all year and it allows you to make energy savings thanks to the plenum temperature regulation function (exclusive to Stelpro). This function ensures a constant temperature into the plenum and the ducts. When it is cold, the heating capacity of the heat pump is reduced, although it remains more economical than electric heating.

The furnace will compensate for the capacity loss of the heat pump. Even when the defrosting mode of the heat pump is activated and it tends to cool the air, the furnace will quickly increase the heating capacity in order to offset the cooling effect due to the defrosting mode of the heat pump. The heat exchanger of the heat pump must be installed on the return side of the furnace to ensure that it operates properly. The temperature sensor must be properly connected and installed in the plenum to ensure the proper operation of the furnace combined with a heat pump. Please refer to the thermostat connection diagram.

A programming jumper located on the furnace control card allows the user to program which type of changeover valve is installed on the heat pump. The jumper must be used if the valve is set on B (heating) or it must be removed if the valve is set on O (cooling).



START-UP PROCEDURE

Please make sure the operating sequence has been duly followed and that all the electric elements operate efficiently.

The blower motor of the SEFE series has 4 speeds (the 27 and 30 kW models have 3 speeds). They are factory adjusted according to the desired airflow. (Please refer to the table on the following page for more details). You can always change the motor speeds according to the desired airflow.

AIRFLOW ADJUSTMENT

Short circuit terminals R and W2 on the thermostat terminal block of the furnace located on the control card and wait 10 seconds.

When all the heating elements are activated, check the airflow by taking the following measurements:

- total amperage of all the heating elements
- voltage at the furnace
- supply air temperature at a point that is not exposed to the heat radiation of the elements
- return air temperature

The airflow can be roughly measured using the measurements taken previously. You must use the following formulas:

$$\text{LITER/S} = \frac{0.82 \times \text{amp.} \times \text{volts}}{\Delta T (^{\circ}\text{F})}$$

$$\text{CFM} = \frac{3.1 \times \text{amp.} \times \text{volts}}{\Delta T (^{\circ}\text{F})}$$

$$\text{CFM} = \frac{\text{kW} \times 3000}{\Delta T (^{\circ}\text{F})}$$

DAMPERS PRE-ADJUSTMENT

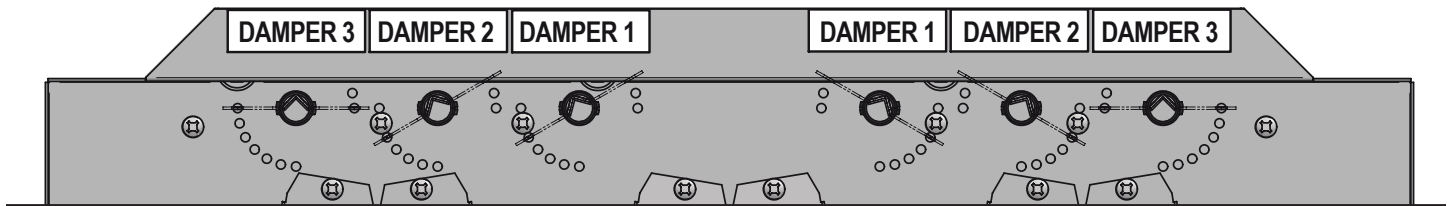
When you receive your furnace, the air flow dampers (patent pending) are factory pre-adjusted. Moreover, a screw prevents you from closing dampers at a lower position than that pre-adjusted. **You must never remove that screw to close the dampers.** However, you can open them (equally on each side) to increase the air flow. Refer to tables below to evaluate the air flow according to the dampers' opening.

10 kW: dampers 1 and 2 @ 30° - damper 3 closed

15-18 kW: dampers 1 and 2 @ 45° - damper 3 closed

20-23 kW: damper 1 @ 45° - damper 2 @ 60° - damper 3 closed

27-30 kW: dampers 1 and 2 @ 45° - damper 3 @ 90°



You can modify the angle of the first and second damper but there is a bolt that will block at one limit, simply press and turn with pliers.



The chosen angle is where you will feel a bump with your finger.

10 TO 23 kW												
UNIT	ESP	DAMPER 1	DAMPER 2	DAMPER 3	L		ML		MH		H	
kW	IWC	DEGREES	DEGREES	DEGREES	CFM	Δ T (°F)	CFM	Δ T (°F)	CFM	Δ T (°F)	CFM	Δ T (°F)
10	0.2	30	30	0	802*	37*	896	33	896	33	952	32
15	0.2	45	45	0	896	50	952*	47*	1088	41	1129	40
18	0.2	45	45	0	896	60	952*	57*	1088	50	1129	48
20	0.2	45	60	0	896	67	952*	63*	1088	55	1129	53
23	0.2	45	60	0	896	77	952	72	1088*	63*	1129	61
10	0.5	30	30	0	690*	43*	748	40	817	37	874	34
15	0.5	45	45	0	817	55	970*	46*	1017	44	1052	43
18	0.5	45	45	0	817	66	970*	56*	1017	53	1052	51
20	0.5	45	60	0	817	73	970	62	1017*	59*	1052	57
23	0.5	45	60	0	817	84	970	71	1017*	68*	1052	66

L = Low; ML = Medium/Low; M = Medium; MH = Medium/High; H = High
Speeds and dampers are factory adjusted

The continuous mode is set at low speed

* recommended (factory pre-cabled)

27 TO 30 kW										
UNITÉ	ESP	DAMPER 1	DAMPER 2	DAMPER 3	L		M		H	
kW	IWC	DEGREES	DEGREES	DEGREES	CFM	Δ T (°F)	CFM	Δ T (°F)	CFM	Δ T (°F)
27	0.2	45	45	90	1717	47	1901	43	2060	39
30	0.2	45	45	90	1717	52	1901	47	2060	44
27	0.5	45	45	90	1573	51	1751	46	1905	43
30	0.5	45	45	90	1573	57	1751	51	1905	47
27	0.75	45	45	90	1500	54	1716	47	1810	45
30	0.75	45	45	90	1500	60	1716	52	1810	50

L = Low; M = Medium; H = High
Speeds and dampers are factory adjusted

The continuous mode is set at low speed

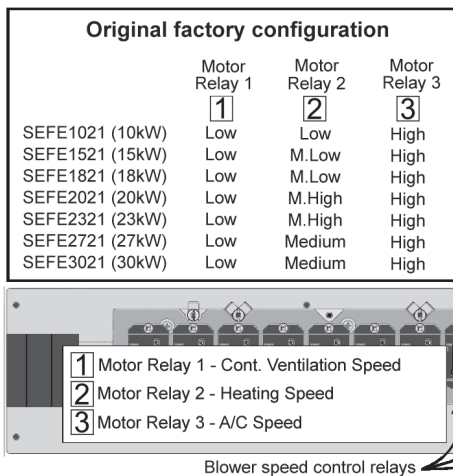
* recommended (factory pre-cabled)

CFM / SPEED TABLE

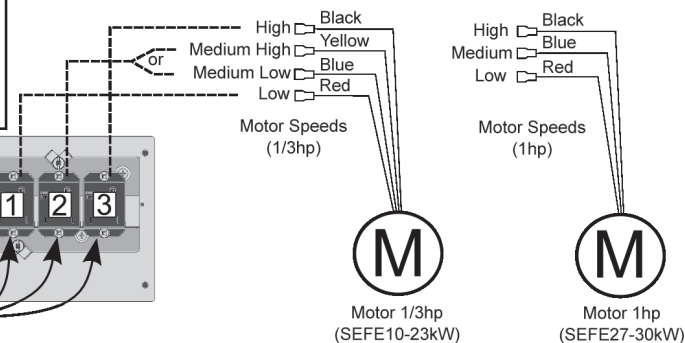
10 TO 23 kW												
ESP	DAMPER 1	DAMPER 2	DAMPER 3	L		ML		MH		H		
IWC	DEGREES	DEGREES	DEGREES	IM (A)	CFM	IM (A)	CFM	IM (A)	CFM	IM (A)	CFM	
0.2	30	30	0	1.2	802	1.4	896	1.5	896	1.8	952	
0.2	45	45	0	1.4	896	1.6	952	1.6	1088	2	1129	
0.2	60	60	0	1.6	896	1.9	1129	2	1219	2.3	1325	
0.2	75	75	0	1.7	910	2.1	1172	2.2	1325	2.6	1524	
0.2	90	90	0	1.7	924	2.2	1172	2.7	1385	2.9	1524	
0.5	30	30	0	1	690	1.1	748	1.3	817	1.6	874	
0.5	45	45	0	1.2	817	1.4	970	1.5	1017	1.8	1052	
0.5	60	60	0	1.3	887	1.5	1052	1.7	1171	1.9	1241	
0.5	75	75	0	1.4	913	1.7	1149	1.9	1349	2.1	1379	
0.5	90	90	0	1.4	913	1.9	1193	2.1	1379	2.4	1478	

27 TO 30 kW										
ESP	DAMPER 1	DAMPER 2	DAMPER 3	L		M		H		
IWC	DEGREES	DEGREES	DEGREES	IM (A)	CFM	IM (A)	CFM	IM (A)	CFM	
0.2	30	30	0	3.9	1717	4.3	1901	4.5	2060	
0.2	45	45	0	4.1	1717	4.7	1993	5.8	2423	
0.2	60	60	0	4.3	1717	5	1962	6.1	2472	
0.2	75	75	0	4.3	1717	5	1993	6.1	2472	
0.5	30	30	0	3.3	1573	3.8	1751	4.3	1905	
0.5	45	45	0	3.7	1594	4.4	1857	5.2	2167	
0.5	60	60	0	4	1616	4.7	1887	5.4	2207	
0.5	75	75	0	3.8	1594	4.9	1887	5.8	2250	

L (Low) ; ML (Medium/Low) ; M (Medium) ; MH (Medium/High) ; H (High)



The blower speeds can be modified by changing the connection of the three motor relays. Please refer to the illustrations below.



ANTICIPATOR

If you install a thermostat equipped with a heat anticipator, refer to the user's guide of the thermostat to adjust it. Using an ampmeter, measure the current on the single stage thermostat.

PROCEDURES TO FOLLOW

1. Set the anticipator to its highest setting (ineffective);
2. Disconnect the wire from the W1 terminal of the furnace and connect an ampmeter between the W1 terminal and the wire mentioned;
3. Increase the temperature set point of the thermostat in order to call for heat and let the furnace run for 3 to 4 minutes so that it reaches its full capacity;
4. Once the current is stable, take the reading and adjust the anticipator to that value. Set the anticipator to a higher value if longer heating cycles are required.

VERIFYING THE HIGH LIMIT THERMAL PROTECTIONS

When the furnace has run at full capacity for 10 minutes, block the supply and return air openings and measure the supply air temperature at a point that is not exposed to heat radiation from the elements. The elements are supposed to shut down one by one before the temperature exceeds 95°C-200°F.

MAINTENANCE

N.B. In order for the warranty to be valid, the unit must be cleaned regularly.

Cut off power supply at circuit breaker/fuse before cleaning the unit. Use a soft rag for dusting. When cleaning, use only a damp rag and non-abrasive dish soap. Do not use abrasive or chemical cleaners because they may damage the finishing. If the unit is used in a very dusty location, use a vacuum brush to remove dust and other foreign objects from the grilles. Note that cigarette smoke could yellow the discharge grille and that the best way to prevent it is to clean the unit on a regular basis.

Do not use cleaning products identified with these symbols:



N.B.

Note that there is electrical current linked to the unit even if the thermostat is set off. This means that there is a risk of electric shock as long as the unit is energized.

PREVENTIVE MAINTENANCE

Do not try to repair your furnace yourself. Call a qualified technician. However, before calling a technician, check the following points.

1. Make sure fuses or circuit breakers are activated.
2. Adjust the temperature set point of the thermostat above the ambient temperature. If heating does not start, cut off the power supply and call a technician.

N.B. When calling a technician for maintenance or to order a replacement part, specify the model of your furnace as well as its serial number.

AIR FILTER

Excessive dust or dirt accumulation can block the airflow, forcing the unit to work harder to maintain the desired temperature. Therefore, it uses more energy and increases heating costs.

Since the air filter supplied is disposable, you should replace it two to four times a year, according to the model used and the installation area. Dirtier areas can require more than four filter changes.

To replace a dirty filter, open the access door to the filter, remove the old filter and insert the new one inside the rack. Make sure the new filter has the same technical specifications and size as the previous one.

N.B. Never operate the unit without a filter in place.

Every time a filter is changed, you should check the following points.

- Excessive accumulation of dirt or dust on furnace components.
- Damaged components or surfaces.
- Presence of water inside or outside the furnace.

If you encounter any of these problems, do not operate the furnace. Call a qualified technician.

BLOWER

The blower motor is sealed and permanently lubricated, so it is not necessary to lubricate it.

Even if you change the filter frequently, the blower's blades and motors will become dust laden after a few months. The entire blower assembly should be inspected annually. If needed, vacuum out the dust. If you cannot clean the blower without removing it from the furnace, this service must be performed by a qualified technician.

CONTROL CARD AUTODIAGNOSTIC

The control card of the furnace is equipped with three LED pilot lights that allow easy and quick diagnostic of its essential functions. They are located at the bottom left of the control card (see illustration).

HEARTBEAT LED PILOT LIGHT

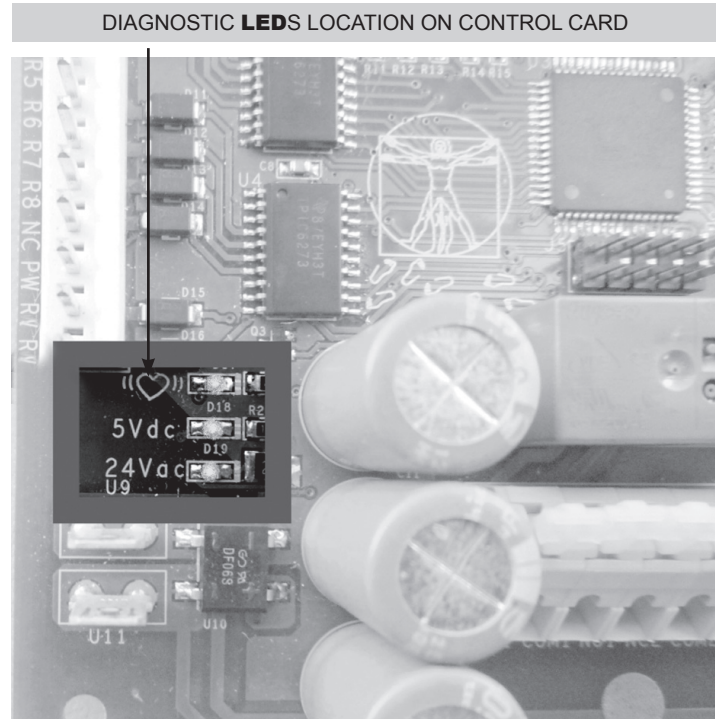
The first LED pilot light from the top is blinking in normal operation; this is the control card heartbeat. If it is always off or always on, it means that the card processor has finish running its program. In this case, it is recommended to reset it by cutting off the power supply of the furnace at the circuit breaker for at least ten seconds and then reactivating it. If the heartbeat LED pilot light is still not blinking, replace the control card.

5 VDC LED PILOT LIGHT

If on, the second LED pilot light indicates that the internal electronic circuit is supplied by a 5 VDC power source. If this pilot light is off when the 24 V LED pilot light is on, there is a problem. In this case, you must replace the control card.

24 V LED PILOT LIGHT

The last LED pilot light indicates that the card is supplied by a 24 V power source. If it is not on, it means that there is a problem with the electrical supply upstream the card. In this case, check the primary and secondary circuit voltages of the 24 V transformer.



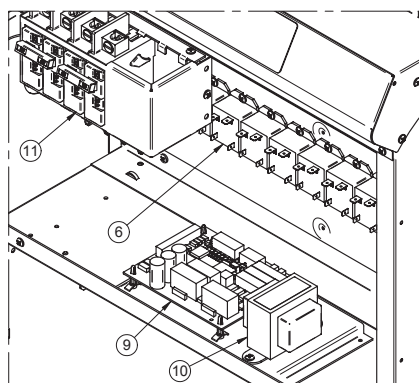
TROUBLESHOOTING

PROBLEM	DEFECTIVE PART OR PART TO CHECK
The unit does not work	<ul style="list-style-type: none"> - Defective thermostat, wrong thermostat setting or positioning - Open circuit breaker or fuse - Faulty connections - Faulty motor or condensator - Faulty blower control switch - Faulty transformer - See above: CONTROL CARD AUTODIAGNOSTIC
The unit runs continuously	<ul style="list-style-type: none"> - Defective thermostat, wrong thermostat setting or positioning - Heat losses greater than the unit capacity - Faulty relay - Thermostat wire incorrectly connected to the furnace - See above: CONTROL CARD AUTODIAGNOSTIC
The unit cycles under control of the thermal protection (overheat indicator)	<ul style="list-style-type: none"> - Blocked air vents - Defective motor
Overheating	<ul style="list-style-type: none"> - Defective thermostat, wrong thermostat setting or positioning - Defective motor
The breaker trips when the heater is turned on	<ul style="list-style-type: none"> - Faulty connections - Voltage higher than that indicated on the nameplate
Elements are on, but the motor does not work	<ul style="list-style-type: none"> - Defective motor or condensator - Faulty relay
The desired room temperature cannot be reached	<ul style="list-style-type: none"> - One or more defective elements - Defective thermostat or wrong thermostat setting - Voltage lower than that indicated on the nameplate - Heat losses greater than the unit capacity - Faulty relay

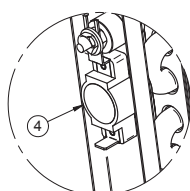
N.B. If you do not solve the problem after checking these points, cut off the power supply at the main electrical panel and contact our customer service (see the “Limited warranty” section to obtain the phone numbers).

REPLACEMENT COMPONENT LIST

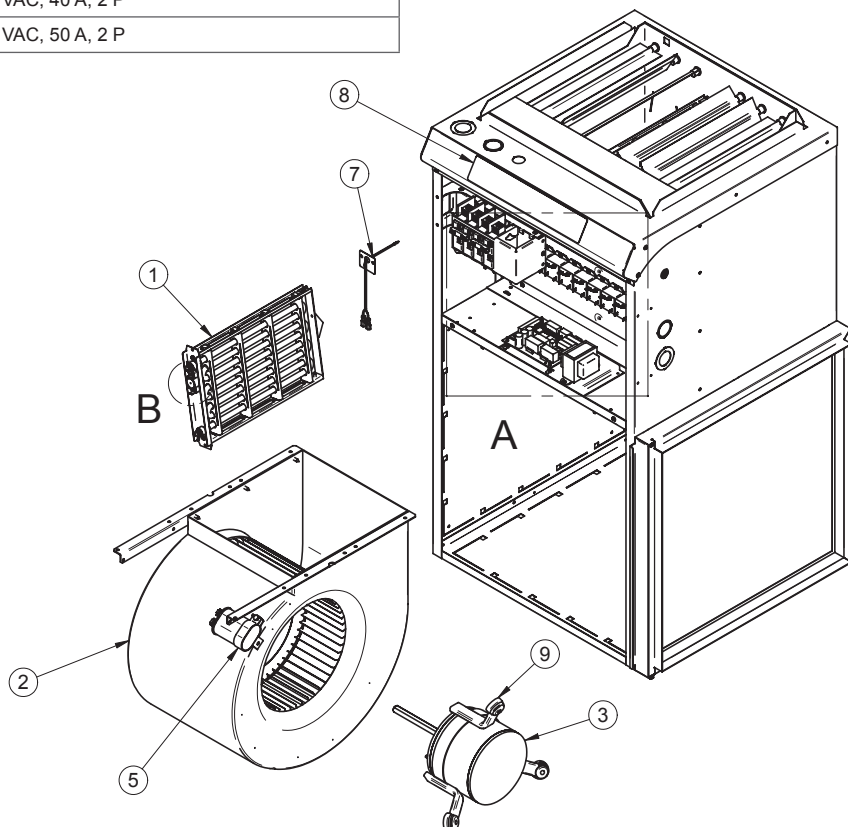
REF. #	PART #	DESCRIPTION
1	ELF-SEF0521	ELEMENT ASSEMBLY 5 KW
1	ELF-SEF0421	ELEMENT ASSEMBLY 4 KW
1	ELF-SEF0221	ELEMENT ASSEMBLY 2 X 2, 5 KW
2	BLO-004	SQUIRREL CAGE & BLOWER 10-8
2	BLO-005	SQUIRREL CAGE & BLOWER 12-11
3	MO-036-1	MOTOR 208-230 VAC, 1 PH, 1/3 HP, 4 SPEEDS, 1075 RPM
3	MO-037	MOTOR 240 VAC, 1 PH, 1 HP, 3 SPEEDS, 1075 RPM
3	SUP-004	MOTOR SUPPORT FOR BLO-004
3	SUP-002	MOTOR SUPPORT FOR BLO-005
4	PROT-010	THERMAL PROTECTION L-160-40 - 10 KW TO 23 KW
4	PROT-019	THERMAL PROTECTION L-140-40 - 27 KW & 30 KW
5	CAP-010	CAPACITOR 6 UF AT 370 VAC
5	CAP-002	CAPACITOR 20 UF AT 370 VAC
6	REL-006	RELAY, SPST, 30 A, 24 VDC
7	SEN-002	TEMPERATURE SENSOR
8	PAD-004	MEMBRANE KEYPAD, SEFE/SEFECM FURNACES
9	CIR-003-SEFE1021	MAIN CONTROL CARD SEFE1021
9	CIR-003-SEFE1521	MAIN CONTROL CARD SEFE1521
9	CIR-003-SEFE1821	MAIN CONTROL CARD SEFE1821
9	CIR-003-SEFE2021	MAIN CONTROL CARD SEFE2021
9	CIR-003-SEFE2321	MAIN CONTROL CARD SEFE2321
9	CIR-003-SEFE2721	MAIN CONTROL CARD SEFE2721
9	CIR-003-SEFE3021	MAIN CONTROL CARD SEFE3021
10	TRF200040D	TRANSFORMER, 240/208-24 VAC, 40 VA
11	BREA-001	CIRCUIT BREAKER, 120/240 VAC, 30 A, 2 P
11	BREA-002	CIRCUIT BREAKER, 120/240 VAC, 40 A, 2 P
11	BREA-003	CIRCUIT BREAKER, 120/240 VAC, 50 A, 2 P



DETAIL A



DETAIL B



LIMITED WARRANTY

This limited warranty is offered by Stelpro Design inc. ("Stelpro") and applies to the following products made by Stelpro: SEFE10, SEFE15, SEFE18, SEFE20, SEFE23, SEFE27, SEFE30 models. **Please read this limited warranty carefully.** Subject to the terms of this warranty, Stelpro warrants its products and their components against defects in workmanship and/or materials for the following periods from the date of purchase: **5 years.** This warranty applies only to the original purchaser; it is non-transferable and cannot be extended.

CLAIM PROCEDURE

If at any time during the warranty period the unit becomes defective, you must cut off the power supply at the main electrical panel and contact 1) your installer or distributor, 2) your service center or 3) Stelpro's customer service department. In all cases, you must have a **copy of the invoice** and provide the **information written on the product nameplate.** Stelpro reserves the right to examine or to ask one of its representatives to examine the product itself or any part of it before honoring the warranty. Stelpro reserves the right to replace the entire unit, refund its purchase price or repair a defective part. Please note that repairs made within the warranty period must be authorized in advance in writing by Stelpro and carried out by persons authorized by Stelpro.

Before returning a product to Stelpro, you must have a Stelpro authorization number (RMA). To obtain it, call the customer service department at: **1-800-363-3414** (electricians and distributors - French), **1-800-343-1022** (electricians and distributors - English), or **1-866-766-6020** (consumers). The authorization number must be clearly written on the parcel or it will be refused.

CONDITIONS, EXCLUSIONS AND DISCLAIMER OF LIABILITY

This warranty is exclusive and in lieu of all other representations and warranties (except of title), expressed or implied, and Stelpro expressly disclaims and excludes any implied warranty of merchantability or implied warranty of fitness for a particular purpose.

Stelpro's liability with respect to products is limited as provided above. Stelpro shall not be subject to any other obligations or liabilities whatsoever, whether based on contract, tort or other theories of law, with respect to goods or services furnished by it, or any undertakings, acts or omissions relating thereto. Without limiting the generality of the foregoing, Stelpro expressly disclaims any liability for property or personal injury damages, penalties, special or punitive damages, damages for lost profits, loss of use of equipment, cost of capital, cost of substitute products, facilities or services, shutdowns, slowdowns, or for other types of economic loss or for claims of a dealer's customers or any third party for such damages. Stelpro specifically disclaims all consequential, incidental and contingent damages whatsoever.

This warranty does not cover any damages or failures resulting from: 1) a faulty installation or improper storage; 2) an abusive or abnormal use, lack of maintenance, improper maintenance (other than that prescribed by Stelpro) or a use other than that for which the unit was designed; 3) a natural disaster or an event out of Stelpro's control, including, but not limited to, hurricanes, tornadoes, earthquakes, terrorist attacks, wars, overvoltage, flooding, water damages, etc. This warranty does not cover any accidental or intentional losses or damages, nor does it cover damages caused by negligence of the user or owner of the product. Moreover, it does not cover the cost of disconnection, transport, and installation.

The warranty is limited to the repair or the replacement of the unit or the refund of its purchase price, **at the discretion of Stelpro.** Any parts replaced or repaired within the warranty period with the written authorization of Stelpro will be warranted for the remainder of the original warranty period. This warranty will be considered null and void and Stelpro will have the right to refuse any claims if **products have been altered** without the written authorization of Stelpro and if the nameplate numbers have been removed or modified. This warranty does not cover scratches, dents, corrosion or discoloration caused by excessive heat, chemical cleaning products and abrasive agents. It does not cover any damage that occurred during the shipping.

Some states and provinces do not allow the exclusion or limitation of incidental or consequential damages and some of them do not allow limitations on how long an implied warranty lasts, so these exclusions or limitations may not apply to you. This warranty gives you specific legal rights and you may have other rights which vary from state to state or from province to province.