



AES Informational Bulletin

What affects the heating ability of Magnum Furnaces?

The furnace is operating properly but the home is not adequately heated:

Heating your home is affected by furnace installation, venting configuration, fresh air configuration, fuel quality and moisture, ducting configuration and static pressure, cold air return configuration and balancing, duct runs, heat loss of home and operational practices.

The Magnum Corn / Wood Pellet / Agri-fuel appliance is designed to produce a certain amount of heat. The proper distribution of that heat and the heating requirements of the home will determine if the appliance is adequate or will only heat a portion of the area.

The heating ability of the Magnum Furnace will be increased with clean dry (11-14% if using agri-fuels) fuel, separate ductwork rather than using existing ductwork and proper heat distribution throughout the home. Modern heating practices use more than one appliance strategically located for proper zone heating. Proper installation and venting of the appliance will assure the best results. If the appliance is not producing heat consult a HVAC licensed and factory trained technician to determine what proper steps need to be taken.

The Magnum 6500 or Magnum 7500 Furnaces are not listed nor should be considered a primary source of heat. While most customers enjoy the tremendous heating ability of the furnace and they are known for heating large areas, there should always be a primary heating source to satisfy local codes, insurance requirements and also heating needs.

Always consult your installation manual for proper clearances, ducting examples and recommendations. It is **required** that all Magnum Furnaces be installed by certified trained professionals. If the appliance is self installed it will void factory warranty should an improper installation cause damage to the appliance.

Maintenance is often a factor of the furnace not heating efficiently. The required maintenance is outlined in the owner's manual. This is the minimum requirement for proper operation. Some dealerships offer maintenance contracts and are a good idea to assure proper operation of your appliance. A dirty heat exchanger will seriously reduce the heat output of the appliance. If you are having problems with your appliance contact your dealership where you purchased the appliance. All AES dealers are required to provide service on the Magnum appliances.

Proper Fuel:

The BTU of the appliance can be reduced as much as 30-60 percent depending on the quality and moisture content of the fuel that you are using. Make sure that you have clean fuel and a moisture content of 11-12 percent.

Proper Combustion air:

It is required to have adequate combustion air hooked to the appliance. On the 6500 and 7500 furnace it is best to bring in a 4" diameter fresh air pipe and hook directly to the appliance. The

7500 allows you to use a 3" diameter fresh air pipe but it cannot be over 10 feet long and cannot have over 2 elbows. If it is longer than 10 feet you must use a 4" diameter pipe. The 6500 requires a 4" diameter fresh air pipe for proper operation.

Proper venting configuration:

It is important to position your appliance so that there are not excessive elbows, tees, etc. You must also have a minimum of a 5 foot rise on the venting before going horizontal. Be sure that all exposed venting to outside temperatures are protected and possibly enclosed in a chaseway. Protection against strong winds must be provided. Consult with your venting supplier to make sure that all venting connections are done properly.

Proper duct work installation:

It is important to have the proper duct work and proper plenum pressure for the appliance to produce heat. In a regular gas or oil furnace the heat exchangers are very light and it does not take very much static pressure in the plenum to cause the heat exchangers to work and then the heat comes out into the plenum.

On a solid fuel appliance such as the 6500 or the 7500 furnace, the heat exchangers have to be made out of heavier material so the plenum static pressure has to be greater (.4-.6 inches of water column) or the heat exchangers will not work properly and the heat will go out the venting instead of out into the plenum.

This is first noticed by the following condition: When the furnace is first started up and before the fan kicks in the plenum will get warm. Then when the fan kicks in the air will be warm for a while and then start to cool off. Eventually (especially on lower heat settings) the air will remain cool. This is a sign that you have not set your plenum static pressure correctly. To get adequate heat off of the appliance, you will have to increase the static pressure until the plenum temperature is around 125-135 degrees F.

This is accomplished by restricting the plenum size or closing off part of the 12" round coming off of the top of the furnace.

Cold Air Return:

It is important that the cold air return is connected and properly balanced with the hot air outlet. Many times this is not done and the room fan cannot operate correctly. The proper pressure on the cold air return must be set so that the room fan runs with a slight amount of suction against it. This will enable the blower to run without heating up and shutting off or restricting air flow. If the room fan runs hot you need to decrease the size of the cold air return coming in. You can purchase a reducer from your dealership or from AES directly. Once the proper cold air is set, then the hot air static pressure can be set to cause the appliance heat exchangers to operate.

Shop Plenum installation: Many times the furnace will not be able to exit the heat out of the plenum because proper cold air return and hot air plenum restriction is not done. To accomplish this you will have to restrict the cold air return based on proper installation and then restrict the hot air outlet. Typically covering 1/3 of the 12" round should be sufficient but proper temperature readings and static pressure readings are a must.

For more information visit our web site at www.MagnumHeat.com and contact your closest AES product dealer.