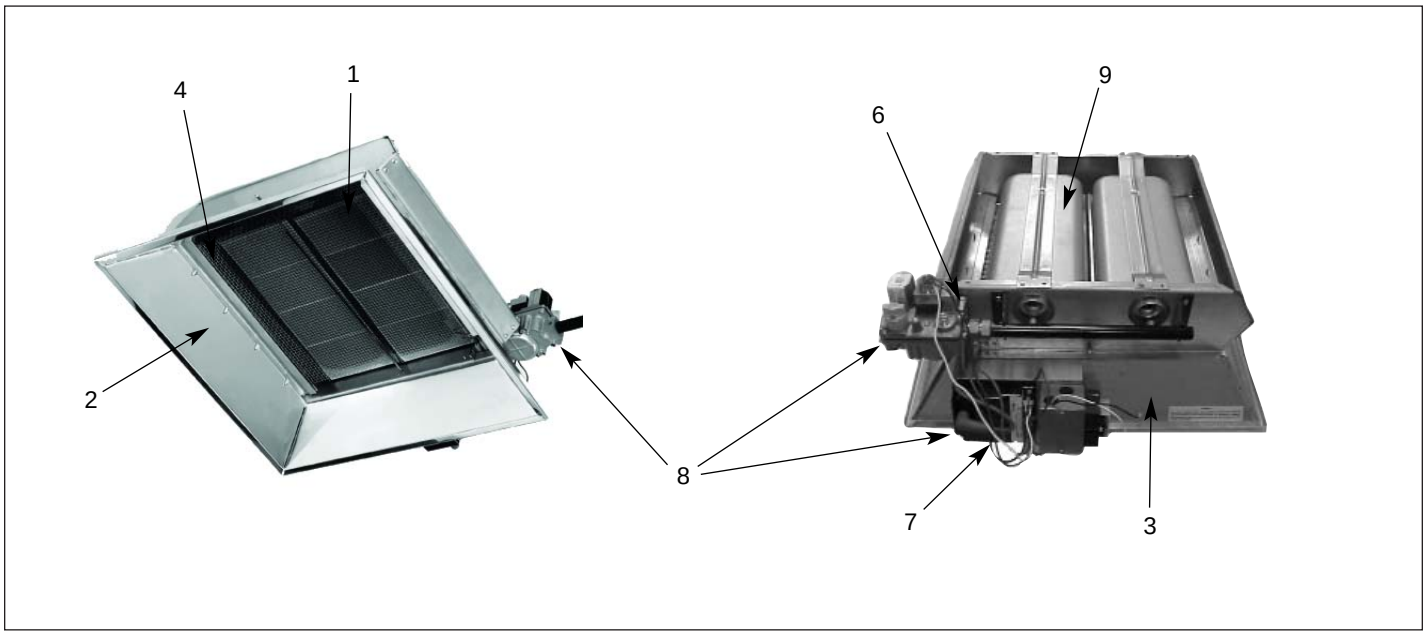
Figure 3.1 - Construction Features



Features

1. High temperature diamond-faced ceramic tiles
2. Polished aluminum reflectors
3. 16 gauge aluminized steel frame
4. Corrosion-resistant 330 stainless steel full-face screen
5. No air mover is utilized
6. Direct spark, intermittent pilot, or self-energizing standing pilot ignition
7. 115V, 25V, or millivolt controls
8. Externally-mounted controls
9. Burners are replaced by removing four fasteners
10. CSA design certification

Benefits

1. Provide maximum heat transfer.
2. Direct radiant heat to the desired area, for increased comfort over wider areas.
3. Provides support for simple chain mounting.
4. Re-radiates heat back to the ceramic tiles for increased temperature and efficiency, while protecting the tiles from foreign objects.
5. Eliminates fan noise, drafts, and maintenance.
6. Maximize application flexibility.
7. Accommodate a wide range of electrical inputs.
8. Allow convenient access to gas valve, control system, transformer, and gas orifices, which increases ease of installation and service.
9. Eliminates the removal of the unit from its mounted position for service.
10. Assures that the unit conforms to national safety standards.

Infrared Heating Systems Defined

Infrared heating systems rely upon the transfer of radiant energy from hot heat exchanger surfaces (up to 2200°F for high intensity heaters) through the air to cooler surfaces, without the use of an air mover. Since radiant energy always travels in a straight line from its source, people and objects within a direct line-of-sight of the heat exchanger become warmed immediately.

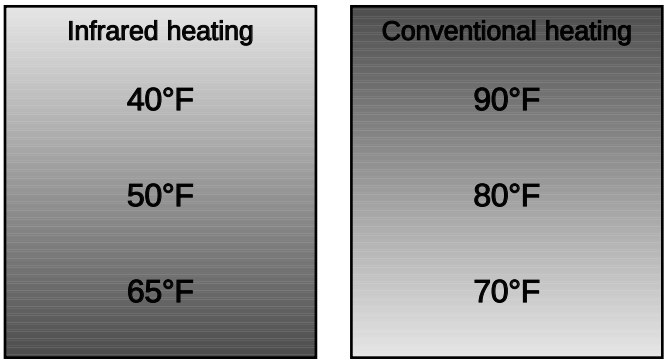
Infrared heating systems can serve three basic functions:

- Total building heating - The infrared heaters are used to heat the entire building. The system is designed to heat the floor, which, in turn, creates convection currents that heat the air above it.
- Partial building heating - The infrared heaters are used to heat sections of a building such as an assembly line or an office section located in an open area of a warehouse.
- Spot heating - The infrared heaters are used for heating only small areas, such as a loading dock or a single-person work cell. High intensity heaters are ideal for these applications.

Advantages of Infrared Heating

- There is no air mover. This reduces electricity and maintenance costs, and also results in better worker comfort, since there are no uncomfortable drafts or annoying fan noise.
- Temperature recovery is quick if cold air is introduced from open doors or windows. A conventional warm air system must first heat the cold air, which then heats the objects in the space. In contrast, an infrared system supplies immediate heat to the surfaces in the space.
- Zone heat control is easy with infrared heating, due to its ability to efficiently heat small areas.
- There can be a significant energy cost savings in spot heating applications. If only a small section of a large, open building requires heat, a conventional warm air system must heat and deliver a large volume of air. This is especially significant in a building with high ceilings, where the warm air will tend to collect. Infrared heaters will more efficiently heat only the surfaces required, at lower thermostat settings.

Example of typical heat distribution in a building:



Typical Applications

The following are examples of applications that can benefit from high-intensity infrared heating.

- Manufacturing facilities
- Vehicle repair centers
- Warehouses and loading docks
- Aircraft hangars
- Indoor tennis courts
- Car washes
- Indoor golf driving ranges
- Covered walkways
- Emergency vehicle garages
- Indoor stadium seating areas
- Vestibules

See Infrared Design and Engineering Guide 9-200 for additional application information.

Table 5.1 - Performance and Dimensional Data

	Model	Btu/hr Input		Radiating②	Overall Dimensions (in.)			Shipping
		Natural Gas	Propane Gas	Area (sq. in.)	Height	Length	Width	Weight (lb.)
	MT 28	27,500	-					
	MT 30	30,000	30,000	93	9	17-1/4	23-3/4	30
	MT 33	33,500	-					
	MT 56	55,000	-					
	MT 60	60,000	60,000	186	9	24	23-3/4	40
	MT 66	67,000	-					
	MT 84	82,500	-					
	MT 90	90,000	90,000	279	9	30-3/4	23-3/4	48
	MT 99	100,500	-					
	MT 112	110,000	-					
	MT 120	120,000	120,000					
	MT 132	134,000	-	372	9	37-3/4	23-3/4	59
	MT 160 ①	160,000	160,000					

① Available only with direct spark ignition.
② All models except the 160 include a 330 stainless steel re-radiating screen.

Table 5.2 - Control Systems

Ignition Type	Description	Gas Type	Control Voltage
Direct Spark	100% Safety Lockout with Manual Reset	Natural or Propane	25V or 115V
Intermittent Pilot	Non-100% Shut Off	Natural only	25V or 115V
Standing Pilot ③	100% Safety Shut Off, Self-energizing	Natural or Propane	Millivolt

③ Supplied with thermostat and 35 feet of wire.

Figure 5.1
Model Number Designations

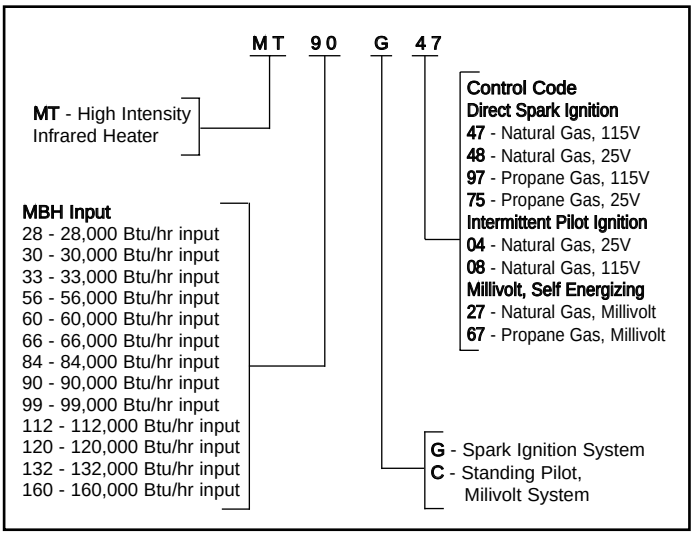


Table 5.3
Gas Utilities

Gas Connection (in.)	Minimum Gas Inlet Pressure ("W.C.)	Manifold Gas Pressure ("W.C.)
1/2 NPT	7.0 (natural gas)	6.0 (natural gas)
	11.0 (propane gas)	10.0 (propane gas)

MODINE INDOOR AIR SOLUTIONS

Table 6.1
Clearances to Combustible Materials (see Figure 6.1 for definitions)

Model	Minimum Clearances to Combustible Materials (in.)			
	Top	Sides	Rear	Bottom
MT 28 MT 30 MT 33	30	30	24	72
MT 56 MT 60 MT 66	36	36	33	88
MT 84 MT 90 MT 99	48	42	39	104
MT 112 MT 120 MT 132	54	48	45	120
MT 160	60	54	51	136

Figure 6.1
Clearances to Combustibles

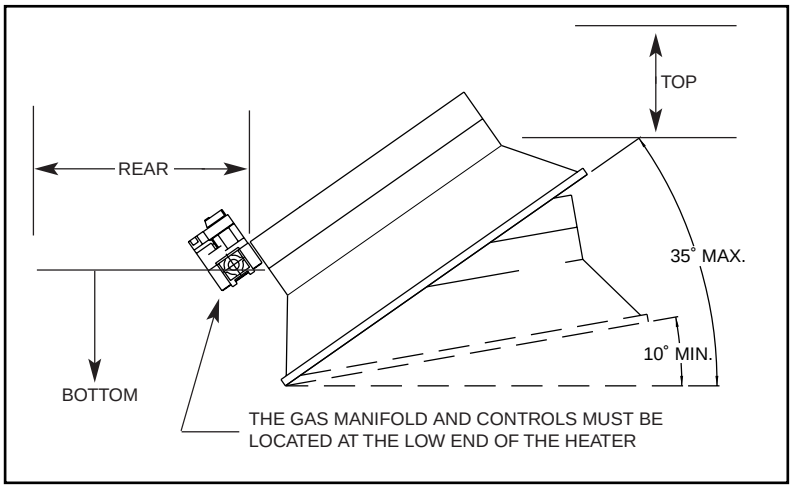


Table 6.2
Recommended Mounting Heights

Model	Recommended Mounting Heights (ft.)①		
	Total Building Heating		Spot Heating
	10° Angle	35° Angle	35° Angle
MT 28 MT 30 MT 33	8-14	7-12	8-14
MT 56 MT 60 MT 66	14-20	12-16	12-20
MT 84 MT 90 MT 99	20-26	16-24	18-26
MT 112 MT 120 MT 132	26-32	20-30	22-36
MT 160	26-40	22-38	24-36

① Refer to Design and Engineering Guide 9-200 for more information. Note that these recommendations are guidelines; actual heights may vary depending upon installed conditions.