

FIRE LOAD PROPERTIES OF SUNNYHEAT™ IR HEATING PANELS

Excluding only the power cable, the heating panels consist of non-combustible components. The fire-load calculation therefore only involves the power cable.

The power cable consists of **PVC** with the **H05VV-F** designation, weighs 250 grams including its copper content and is 2 meters in length.

Therefore recognize the following calculation: $0,25\text{kg} * 5,8\text{kWh/kg} = 1,45\text{kWh}$ $1,45\text{kWh}/2\text{m} = 0,725\text{kWh/m} = 2,61 \text{ MJ/m}$

SUNNYHEAT™ Fire Load: $0,725\text{kWh/m} = 2,61 \text{ MJ/m}$

Heat of combustion (fire load values) of cables and wires up to 1000V nominal voltage:

Limiting the amount of fire exposure to combustible materials is of importance. Thus, the combustion energy that can occur should be limited. Fire load is the quantity of combustible material in a given area, or the quantity of heat that can be generated from its combustion. Fire load for cables and wires is expressed in kWh/m.

Fire-load values of cables and wires are calculated depending upon their shape, design, amounts of insulation and by:

- Type
- Type of insulating materials - halogen or halogen-free
- Dimensions
- Number of cores or pairs
- Wire size

Values used to calculate the fire load of electrical cables are below.

To determine fire load, the calorific value (H_u) of a material is constant:

- PVC (Common): $H_u = 5,70 \text{ kWh / kg}$ (lower limit)
- PVC (Insulation): $H_u = 6.39 \text{ kWh / kg}$
- PVC (for jacketing material): $H_u = 5.84 \text{ kWh / kg}$
- PE (Common): $H_u = 12,20 \text{ kWh / kg}$

The approved fire load of 7 kWh/m may be doubled with exclusive use of halogen-free cables and wires (up to 14 kWh/m). Fire loads are also expressed in MJ/m. The conversion is: $1 \text{ MJ} = 0,278 \text{ kWh}$ $1 \text{ kWh} = 3.6 \text{ MJ}$

SUNNYHEAT™ SAFETY TIPS

The IR panel contains a safety circuit-breaker in case its temperature reaches 130°C . Despite this and several other security precautions in the thermostat that manage panel temperature, the following points should be considered:

The normal maximum surface temperature of 120°C is similar to a stove – quick contact will not cause a burn. Nevertheless, installation of the panel should be done so that small children cannot reach the glass heating surface.

The panel should not be put into operation even if the surface is only partially covered to prevent the panel from overheating.

The front glass surface of the panel should be at a distance of at least 30 cm to people and combustible materials.