HEAT TRANSMISSION CONVECTIVE AND LUMINOUS HEAT EXCHANGE

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Abstract: Heat transfer is divided into three types, namely conduction, convection, and radiation. Heat transfer studies the problems of temperature distribution in or within a body system. As we know, the process of heat transfer occurs due to the effect of temperature on the body. Thermal conductivity is the transfer of heat from one body to another, which occurs due to the difference in temperature between these bodies, including macroparticles. transition states are observed.

Keywords: Gases - in such fuels, heat transfer occurs due to the transfer of kinetic energy from one molecule to another. In metals – electronic transfer. In dielectrics – atom or molecules connection vibrations Heat transfer due to.

Introduction: Heat transfer by thermal conductivity is characteristic of homogeneous solids. In gaseous and liquid fuels, convective and radiative heat transfer usually occur, and their effects occur simultaneously. In transparent bodies, heat transfer by conduction is also possible only by radiation.

Convective heat exchange - moving liquid or hot gases their places cold to their places mechanic accordingly in the transfer status In liquids, heat is transferred by conduction in addition to convection. For example, the formation of thermal conductivity in molten metals is of great importance.

Diluted solution hard to the body heat flow to the effect England scientist Isaac Newton proposed the following formula. This on the ground α – convective heat

transmission coefficient W /m 2 ·K ; F – wall surface participating in heat exchange, m 2 ; t n – flow temperature, K t d – wall temperature, K.

Heat transfer in solids is considered on the example of a single body and isotropic bodies. Heat transfer in a solid is a process in which the temperature changes continuously over time throughout the entire volume. The state of temperature at points throughout the body per unit time is called the temperature field.

The main task of uniform thermal conductivity is to find the temperature distribution and heat flow in solids.

Non-uniform thermal conductivity – the temperature field changes over time stands, that is body it gets hot or It's getting cold. Uneven heat The function of conductivity is to determine the temperature at the same time. The formulas under study are designed for heating and cooling. In the case of heating, the temperature of the body is the same at all points. In practice, this applies to well-mixed liquids or thin bodies with very high coefficients of thermal conductivity. The heating time is calculated according to the Stark formula.

The first is the transfer of temperature by convection, and the second is the transfer of temperature by radiation. convective in the way to pass heater environment with of the product surface oneoccurs due to the movement of particles of the environment due to heat when they are in contact with each other will be. Of heat radiation way with to pass environment and product is directly proportional to the difference between the temperatures of the two. This means that the higher the temperature of the heating medium, the greater the heat transfer to the product. Low (650 o C until was) at temperatures product slowly, mainly, convective It gets hot at the expense of. Heating since starting product fast, mainly, radiation heat Therefore, the time it takes to heat the product to a low temperature is much longer than the time it takes to heat it to a high temperature.

As the furnace operation progresses, the wall is exposed to heat at all points and in every necessary on point temperature one in a way become goes and time come

unchanging This ensures the inevitable heat exchange. When heating iron pieces and blanks, the surface heats up faster than the interior. It gets hot. That's why this metal in the oven more time hold stand necessary will be, this and extends the heating time and increases the production of the oven

To determine the amount of heat dissipated along the wall surface, it is necessary to multiply the specific heat consumption by the total surface area, that is:

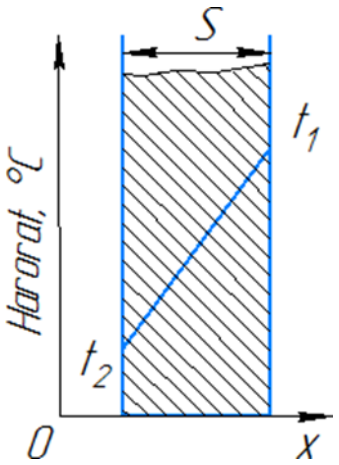

Figure 1. Oven elements of the wall

The issue. Flat with a chimney one layered wall for s = 0.5 m , t 1 = 1400 ° C, t 2 = 200 ^{o} C and for a two-layer (the inner part of the wall is fireclay, the outer part is light fireclay brick) s 1 = 0.5 m , s 2 = 0.065 m , t 1 Determine the value of the heat dissipated through the wall when = 1200 ^{o} C. We assume that the temperature between the fireclay brick and the insulating coating is 500 o C, and the temperature on the outer surface is 100 ^{o} C.

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