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МЕЗГИЛДЕН ДУУРАЛДАРГА ЖЫЛДЫК ОКУУНУН ӨТҮҮ ПРОЦЕССТЕРИН СИМУЛЯЦИЯЛОО

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Аннотация: *Бул макалада убакыттын өтүшү менен ар кандай бирдей температурада жылуулук агымынын процесстери моделделет, жылуулук жоготууларынын энергия сыйымдуулугун азайтуу маселелери каралат. Ошондой эле, бул моделдин негизинде, ал дубал структурасынын оптималдуу баалуулуктарды жана калыңдыгы сыяктуу көрсөткүчтөрдү тандоого мүмкүн болгон.*
Негизги сөздөр: *Жылуулук өткөрүмдүүлүк, тыгыздык, температура, жылуулук өткөрүмдүүлүк, жылуулук өткөрүмдүүлүк коэффициенти, Ньютон-Рихман мыйзамы.*

МОДЕЛИРОВАНИЕ ПРОЦЕССОВ ПЕРЕХОДА ТЕПЛОВОГО ЧТЕНИЯ ОТ ВРЕМЕНИ СТЕН

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Аннотация: *В данной статье моделируются процессы протекания теплового потока при различных однородных температурах во времени, рассматриваются вопросы снижения энергоемкости потерь тепла. Также на основе этой модели удалось подобрать оптимальные значения конструкции стен и таких показателей, как толщина.*
Ключевые слова: *Теплопроводность, плотность, температура, теплоотдача, коэффициент теплоотдачи, закон Ньютона-Рихмана.*

MODELING OF THERMAL READING TRANSITION PROCESSES ON THE WALLS TIME

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Annotation: *In this article, the processes of flowing heat flow at different homogeneous temperatures over time are modeled, the issues of reducing the energy consumption of heat lost are considered. Also on the basis of this model, it was possible to select the optimal values of the design of the walls and indicators such as thickness.*
Keywords: *Thermal conductivity, density, temperature, heat dissipation, heat transfer coefficient, Newton-Rixman law.*

Today, at the present stage of the development of World Civilization, due to the increase in demand for energy, the constant increase in energy prices, as well as the decrease in energy resources and pollution of the surrounding air, the wide introduction and use of energy resources is an urgent task. Therefore, special attention is paid to the development of new energy resources that are efficient and require minimal economic costs.

The world is conducting scientific research aimed at creating energy systems that ensure the continuity of hydrodynamic and thermal processes, take into account the optimization of control and management schemes, the necessary heat exchange processes for the development of technological, constructive and regime parameters, use in heat supply systems, efficient devices. Studies aimed at increasing efficiency and developing new modern structures, as well as improving their methods of heat calculation, are considered one of the most important issues [1-3].

The transfer of heat from a hot environment to a cold environment through a separating solid wall between them is called a heat transfer. In various heat exchangers used in any industry, the heat exchange between the heat carriers is carried out by heat transfer. If the separating wall should conduct heat well, it is made of a material with a high thermal conductivity. In other cases, for example, if it is necessary to reduce heat dissipation, the wall is made of a material whose thermal insulation properties are good.

The amount of heat given to the wall from the boiling heat carrier (hot medium) is determined by the Newton-Rixman formula:

$$\mathrm{Q} = \alpha_1 F(t_1 - t_{dev1}) \tag{1}$$

here: α_1 - coefficient of heat transfer from a hot heat carrier to the wall surface at which the temperature is t_1 ; F-the surface of the flat wall.

The heat flow transmitted through the wall by the method of thermal conductivity is determined from the following equation:

$$\mathrm{Q} = \frac{\chi}{б} F(t_{dev_1} - t_{dev_2}) \tag{2}$$

The amount of heat transferred from the second surface of the wall to the cold environment:

$$\mathrm{Q} = \alpha_2 F(t_{dev_1} - t_{dev_2}) \tag{3}$$

here: α_2 - coefficient of heat transfer from the second surface of the wall to the cold environment.

Since the heat transfer process under consideration goes in a stationary order, the more heat the wall receives, the more it transmits. We solve the above equations with respect to the temperature difference:

$$\left.\begin{aligned} t_1 - t_{dev_1} &= \frac{Q}{\alpha_1 \cdot F} \\ t_{dev_1} - t_{dev_2} &= \frac{\delta}{\chi}\frac{Q}{F} \\ t_{dev_2} - t_2 &= \frac{Q}{\alpha_2 F} \end{aligned}\right\}$$

Heat flow by adding equations to the equation

$$Q = F(t_1 - t_2) / \left(\frac{1}{\alpha_1} + \frac{\delta}{\chi} + \frac{1}{\alpha_2} \right) \tag{4}$$

or we determine the density of the heat flux:

$$q = (t_1 - t_2) / \left(\frac{1}{\alpha_1} + \frac{\delta}{\chi} + \frac{1}{\alpha_2} \right) \tag{5}$$

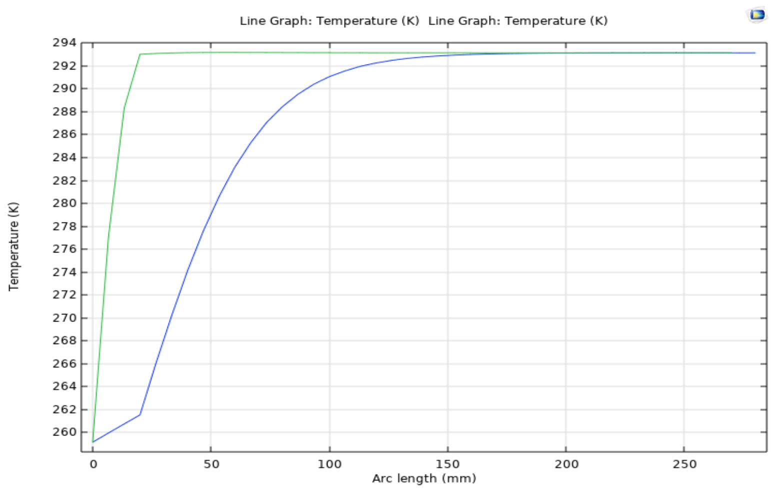
When calculating the critical equations, the physical parameters of the liquid are obtained from the data tables according to the determining temperature. As a rule, this temperature, the average temperature of the liquid is obtained. As a determining measure for Circular pipes, its diameter, the diameter equivalent to complex cross-sectional channels, and its length is obtained when washing the plate with a stream. Modeling research of various physical phenomena can be carried out either directly on the object itself or on its Model. The Model and the process taking place in it provide a theory of similarity of conditions that must be satisfied. The possibilities of applying the theory of similarity to experiments are incredibly large.

Calculation of heat transfer through a flat wall can be carried out using the surface density of the heat flow [4-8].

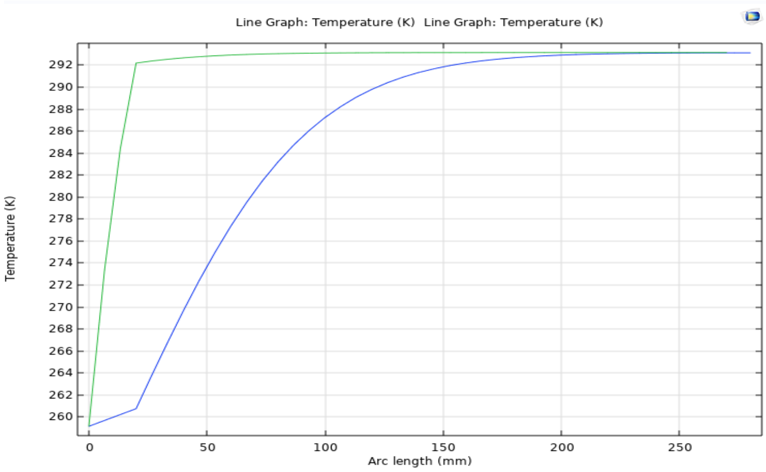
To study the temperature flowing through a solid wall, the following formula is used.

$$d_z \rho C_p \frac{\partial T}{\partial t} + d_z \rho C_p \bar{U} \nabla T + \nabla \bar{q} = d_z Q + q_0 + d_z Q_{ted} . \bar{q} = -d_z k \nabla T.$$

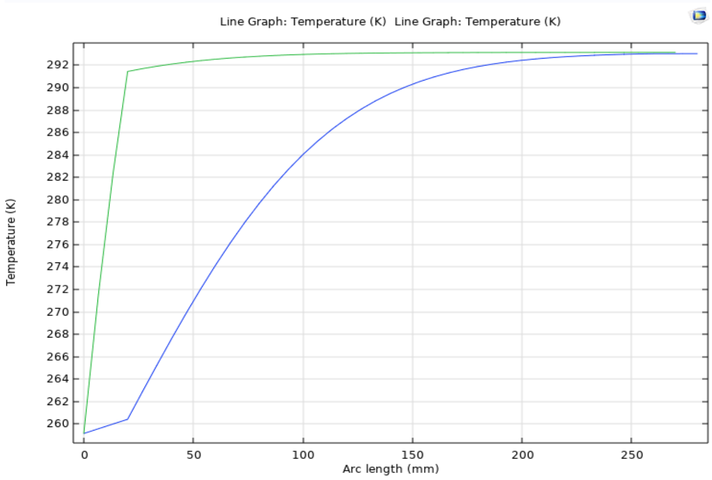
Issue setting: when the external temperature is -14 ^{o} C, the hona temperature is required to be 20 ^{o} C. Heat dissipation in this process occurs mainly from external barrier structures[9-10].



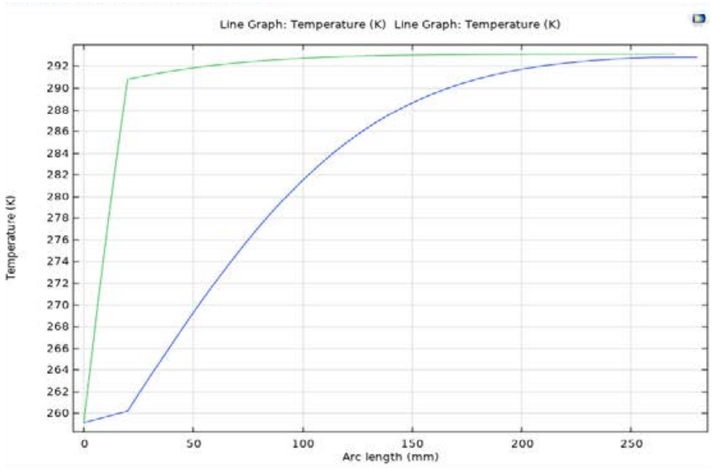
1-Fig. Read the heat through the walls in 1 hour



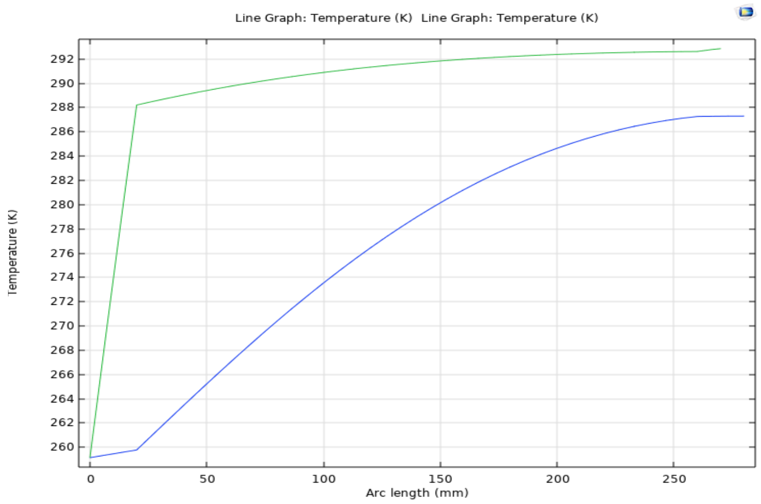
2-Fig. Read the heat through the walls in 2 hours



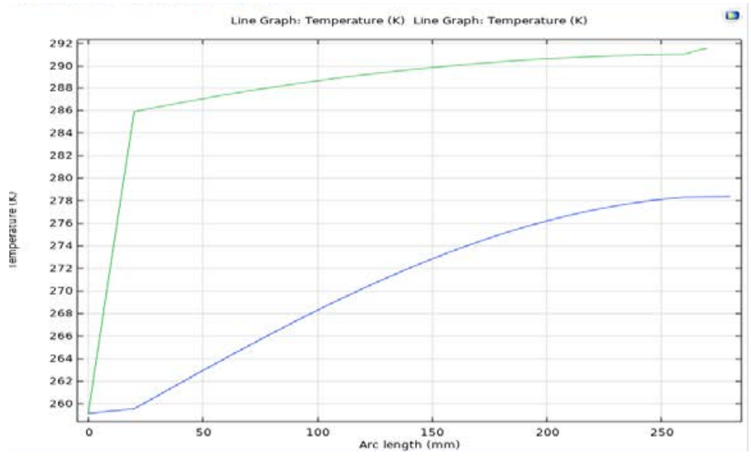
3-Fig. Read the heat through the walls in 3 hours



4-Fig. Read the heat through the walls in 4 hours

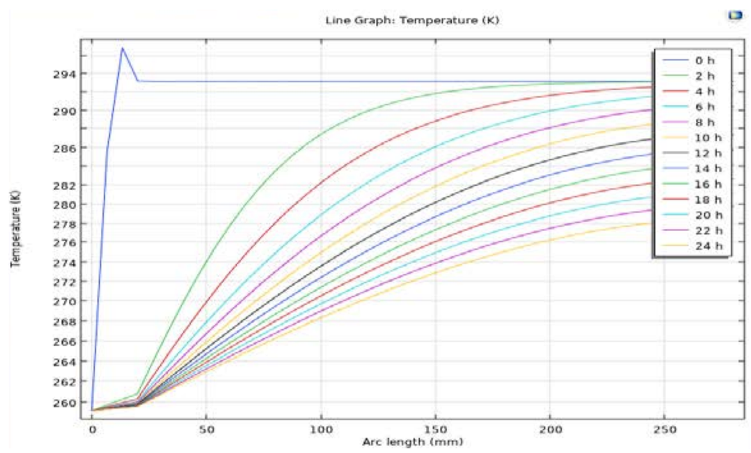


5-Fig. Read the heat through the walls in 12 hours



6-Fig. Read the heat through the walls in 24 hours

Summarizing this graph, it follows that the heat flow over time changes in the isolated state of the external walls.



7-Fig. Flow of heat through an insulating wall for a day

Conclusion: spending for the heating system by reducing the heat dissipation can be reduced; the cost of laying can be reduced, which leads to the savings in the amount of money spent and products, and the introduction of a relatively high-quality and more reliable heating system in the mains.

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