

# Principle of heating

As the name of the products suggests – “convectors” – they are heating systems which are based on convection. With the help of the energy provided (electricity, hot water, burning), the heating element is warmed to a temperature which is higher than the surrounding environment, and the air which surrounds the heating element is heated and rises. Thus, circulation takes place –airflow – during which the temperature in the whole room gradually increases. This is one of the most common and widespread methods of heating.



Convectors are called “direct-heating” because energy use and the heating of the heating element take place immediately and at the same time as when an increase in room temperature is required. A heat storage system is the opposite; here, the energy consumption (charging) and use of this accumulated energy (heating) are not simultaneous – i.e. they take place at different times.

The advantage of the direct-heating system is the good dynamics of heating, that is, the speed of temperature increase in the heated room. The higher the temperature of the heater, the better the dynamics are. Among other convection systems, direct-heating convectors excel; they work with heating element temperatures of up to 150°C. As the heating element is hidden inside the body of the heater, it is protected against direct contact with the user and its higher temperatures are not dangerous here.

On the other hand, a disadvantage can be the minimal or non-existent contribution of a radiant component (conveying of energy via infra-red radiation). To be specific, the whole output of convectors is concentrated in the heating element which is placed in the bottom part of the body, and they are almost cold on the surface – therefore, they don’t radiate. Only the outlet grille and its immediate surroundings are warm because warm air flows through there into the room. The absence of radiation will cause the surrounding building structures to remain cold for a long period, even though the air temperature in the room increases fast. This has the effect that the room will become cold in a relatively short time after the convector has been switched off. The air in the room permanently transfers its heat to the building structures (it heats them), and thus its temperature decreases. As the convectors are switched off and no heat is supplied to the room, the temperature drops.



This phenomenon is avoided by the use of radiant convectors, which are constructionally designed in such a way that approx. 50% of thermal energy is transferred via radiation and approx 50% by convection. Thus, the excellent dynamics of heating are maintained and simultaneously, structures are heated by radiation from the convector. Therefore, their operation is substantially more comfortable and they should be given unambiguous preference in living spaces.

Contemporary newly-built buildings have very good thermal properties and the requirements for the output of the heating system thus decrease considerably. Therefore, the trend in heating is moving towards more comfortable large-surface systems such as electric floor heating or ceiling heating. Despite that, there are still many applications for which ECOFLEX direct-heating convectors are the most advantageous solution. Easy installation, low acquisition costs, zero maintenance requirements, easy regulation and the fact that the convectors cannot freeze and the heating medium cannot leak from them – these are all arguments which can lead to the choice of this heating system.