Pyrometer — what is it? Description of working principle and operating rules

Remote measurement of temperature is necessary to not only control production processes but is part of the process of setting up auxiliary heating. After the calculation the power density heating devices and their installation it is necessary to check the actual temperature. It is best to use infrared pyrometers. To measure the temperature of the surface of materials, there are many types of devices. In their application they differ on contact with a remote deposition. Pyrometers belong to the latter class of devices. Their principle of operation is based on measuring the heat waves emitted by a heated surface. General diagram of a device are shown below The radiation passes through the funnel of the device for the pyrometric sensor. In this thermal energy is converted into electricity. The strength of the signal received depends on the temperature of the surface the higher it is the more current will be generated by the sensor. With the help of the electronic Converter the original data are displayed on the LCD. There is another kind of so-called pyrometers thermal imagers. Their principle of operation is based on a comparison of the thermal radiation spectrum with the reference. On the color screen is projected the image of heat waves from objects caught in the lens of the device. Spectral characteristics can determine the value of temperature and to observe its gradual change in the square of the measured material. The imagers have found practical application for the private and Autonomous heating. They can be used to pinpoint the location of a leak in a hidden pipe. Like any measurement device, the working of infrared pyrometer is characterized by certain parameters. The choice of a particular model is done on their values. Consider the most important ones. It defines the area of the object on the surface of which the temperature is controlled. It depends on the angle of the lens device. The higher it is the greater will be the area of temperature measurement. This takes into account the distance to the object. A prerequisite for accurate measurements is the overlaying of the spots only on the material surface. In case of exceeding the square of the temperature reading will be inaccurate. Optical resolution is the ratio of the spot diameter of the instrument to the distance to the object. Depending on model it can be from 21 to 6001. The latter refers to the class of professional devices used for removal of indications of heating the surface in heavy industry. For domestic and semi-professional pyrometers optimal value is equal to 101. Determined by parameters of the pyrometric sensor. In most cases it is

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