

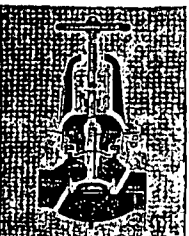
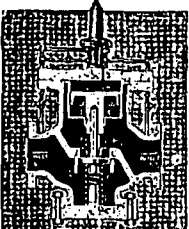
Reading from top to bottom:

G-A double-cushioned single-acting non-return valve, angle pattern.

G-A double-cushioned check valve, globe pattern.

G-A cushioned unloading valve, globe pattern.

G-A combined throttle and automatic engine stop valve, globe pattern.



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atmosphere at elevated temperatures introduces the problem of corrosion. Erroneous sampling data result unless the equipment is constructed of material which will withstand corrosion.

- (4) The particulate loading of the gases varies throughout the heat; a factor which must be taken into consideration when taking a sample. The loading varies from 0.5 to 2.5 grains per standard cubic foot with a maximum loading occurring during the ore boil. Particle size ranges normally from less than 0.5 to 3 microns with material from 2 to 3 millimeters being discharged during the flue blowing period. The major constituent is iron. No analysis is presented here as the constituents are generally common to all basic open hearths. Particulate build-up on sampling equipment due to impaction often results in fouling of equipment.

Sampling procedures recommended were to sample at a location ten diameters away from the nearest obstruction. This permits sampling from an undisturbed gas flow pattern in the stack. Since the stack inside diameter decreases with height, the average inside diameter is used to choose the sampling location.

At the ten stack diameter level, where the flow is still quite turbulent, use graphic integration to get an average velocity.

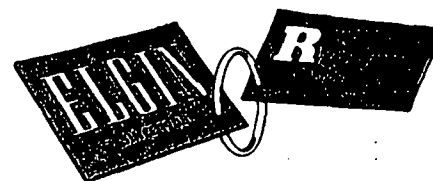
Directions for ordering papers on p. 153

Further, it is desirable to ascertain the average velocity of the stack gases before actual sampling. These data assist in choosing the proper size sampling nozzle, the sample size and the position to place the sampling nozzle across the diameter of the stack. There are several devices on the market for determining the velocity of gas streams. A vane type anemometer cannot be used because of the high temperature and particulate loading. The separate impact tube and static tap device is unwieldy and does not provide desired results. The pitot tube appears to be best suited for open hearth work.

The equipment required for measuring the pressure head of the pitot tube should have a range of 0.00 to 0.25 inch of water. A convenient device for this is an inclined draft gage.

For velocity calculations, you need to know the stack gas density; therefore the composition of the gas must be

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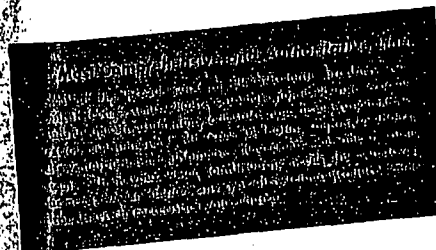
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