

Casting unit of the quick-change dosing cup system for continuous casting of molten metal on open-jet continuous casting machines comprises a coaxially mounted stationary upper dosing cup and a movable lower replaceable dosing cup, which consist of a refractory-lined metal housing and a calibrated wear-resistant insert, the inlet opening of which, designed as a confuser, transitions into a cylindrical channel. The ratio of the sliding surface area of the dosing cup housing to the radius of curvature of the insert confuser is described by the following relation and lies within the specified limits:

$$\frac{S_{\text{sliding surf.}}}{\pi \cdot R_{\text{curvature}}^2} = 0.34 - 2.8,$$

where: $S_{\text{sliding surf.}}$ is the sliding surface area of the dosing cup, mm²;

$R_{\text{curvature}}$ is the radius of curvature of the confuser insert for the upper and lower dosing cups, respectively, in mm.

The surface of the confuser insert for the upper and lower dosing cups is curved, described by a radius of curvature determined by the following relation:

$$R_{\text{curvature}} = \frac{D_{\text{c.c.}}}{D_{\text{c.}}} \cdot C,$$

where: $D_{\text{c.}}$ is the outer diameter of the confuser insert for the upper and lower dosing cups, respectively, in mm;

$D_{\text{c.c.}}$ is the diameter of the cylindrical channel of the confuser insert for the upper and lower dosing cups, respectively, in mm;

K is the curvature coefficient of the confuser insert, in mm, determined by the relation:

$$K = \frac{\pi \cdot H_{\text{calibr.insert}}}{\sqrt{3}},$$

where $H_{\text{calibr.insert}}$ is the height of the calibrated insert for the upper and lower dosing cups, respectively, in mm.