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[11].

(CAD/CAE ing System [8, 9]) — omputer-aided design/Computer Aided Engineer-

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$$H_{\text{СФР}}^{\text{дин}} = H_{\text{СТ}}^{\text{уд}} / K_{\text{пр}} \cdot K_{\text{В}}, \quad (1)$$

$K_{\text{В}}$ - , -
 [2]; $K_{\text{пр}}$

[12, 13]; $H_{\text{СТ}}^{\text{уд}}$ -

10 15 % [12, 13], ,

$$K_{\text{пр}} = 0,086 \left(\frac{U \cdot d_c}{\nu} \right)^{-0,375} \cdot \left(\frac{\sigma \cdot d_c}{\rho \cdot \nu^2} \right)^{0,326}, \quad (2)$$

U - , -
 ; d_c -
 ; ν, ρ, σ -

(1) (2) Λ

$$\Lambda = \frac{H_{\text{сфр}}^{\text{дин}}}{H_{\text{ст}}}. \quad (3)$$

(VOF) [14],

VOF. C ($C=1$, $0 < C < 1$).

$$\nabla V = 0, \tag{4}$$

$$\frac{\partial}{\partial t}(\rho V) + \rho(V \cdot \nabla)V = -\nabla p + \mu \nabla^2 V + F_s + \rho a_g, \tag{5}$$

$$\frac{\partial C}{\partial t} + V \cdot \nabla C = 0, \tag{6}$$

V — , ρ, μ — ; a_g — ; F_s —
 — CSF- [14]. VOF-
 F_s

$$F_s = \sigma k \nabla C, \tag{7}$$

k —
 " — ". VOF CAE FLOTRAN CFD (Computational Fluid Dynamics) [9].

« », , , :

$$K = \frac{\Delta P}{\rho V^2 \Delta l}, \quad (8)$$

ΔP – ; V –
 Δl –

[9],

$$\Delta P = F / S, \quad (9)$$

S –

[15]

$$F_{\text{морм}} = 0,182 \cdot 4 \sqrt{\frac{\rho \sigma^3}{a_g}} \cdot V \cdot \Pi, \quad (10)$$

Π –

[12, 13]

$$\xi = \alpha + \beta / \text{Re}, \quad (11)$$

α, β –

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$$d_{kp} = \left(\frac{24}{c_f} \right)^{1/3} \frac{\sigma}{V_n^2 (\rho^2 \cdot \rho_r)^{1/3}}, \quad [16] \quad (12),$$

c_f – ; V_n –
; ρ_r –
 $c_f = 2,6$ [16].
() [17]

$$V = 1,54 \sqrt{\frac{\sigma \cdot a_g}{\rho}} \cdot \Psi, \quad (13)$$

Ψ –
0,05 0,7

$$\Psi = 1,4 \left(\frac{\rho}{\rho_r} \right)^{0,2} \cdot \left(1 - \frac{\rho_r}{\rho} \right)^5. \quad (14)$$

$$V_n = V_{km} - V, \quad (15)$$

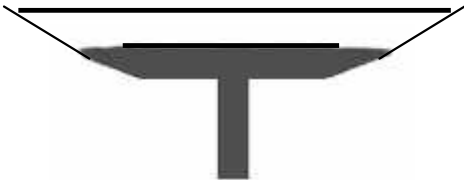
V_{km} –
, (12) – (15)

$$\Delta\tau = l / (V - V_n), \quad (16)$$

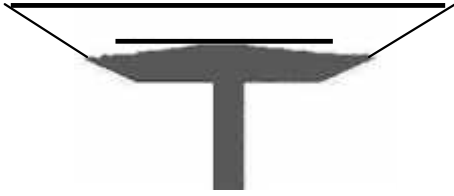
l_{mm} –

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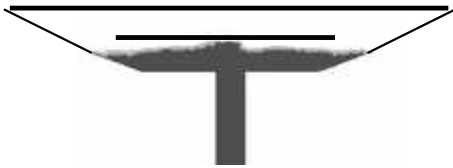
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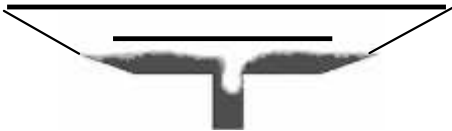
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 7,6 / ."
 100%
 $t=1,2$
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 $t=1,1$;) $t=1,2$;) $t=1,25$.

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