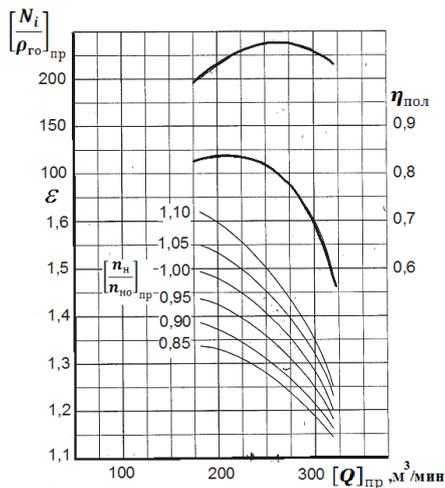


CORRECTION OF INJECTORS REDUCED CHARACTERISTICS BASED ON THE
MACHINES PARAMETRIC DIAGNOSTICS RESULTS

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Key words: *centrifugal injectors; parametric diagnostics; reduced characteristics*

$$\varepsilon, \quad \eta_{\text{пол}} \quad ([N_i/\rho_n]_{\text{пр}}) \quad [Q]_{\text{пр}} \quad ([n_n/n_{\text{но}}]_{\text{пр}}) \quad (1).$$



. 1.

[1].

[3, 4]. [5]

$$\eta_{\text{пол}} = f([Q]_{\text{пр}}) \quad [5]$$

$[Q]_{\text{пр}}$.

$$\eta_{\text{пол}} = f([Q]_{\text{пр}}).$$

$$\Delta\eta_{\text{пол}}^* = \eta_{\text{пол.о}} - \eta_{\text{пол}}^* \quad (1)$$

$\eta_{\text{пол.о}}$ —

; $\eta_{\text{пол}}^*$ — $\eta_{\text{пол}}$,

[2],

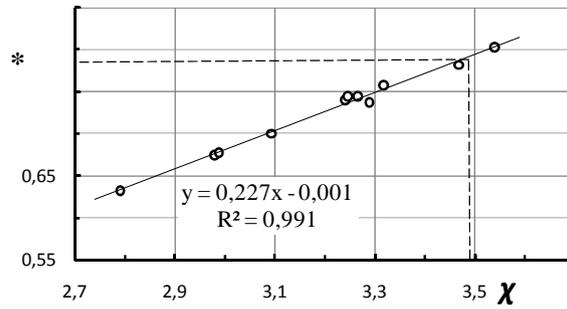
$$\eta_{\text{пол}}^* = R^2 \cdot \eta_{\text{пол}}^*$$

$$\eta_{\text{пол}} = f(\chi) \quad (2) \quad \chi = \chi_0, \quad \chi = \ln\left(\frac{P_{\text{н2}}}{P_{\text{н1}}}\right) / \ln\left(\frac{T_{\text{н2}}}{T_{\text{н1}}}\right); \chi_0 — \chi$$

$$; P_{\text{н1}} \quad P_{\text{н2}} — \quad T_{\text{н1}} \quad T_{\text{н2}} — \quad / ^2. \quad (2)$$

$$\eta_{\text{пол}} = \eta_{\text{пол.о}} \cdot \frac{Z_{\text{н1}} \ln\left(\frac{T_{\text{н20}}}{T_{\text{н10}}}\right)}{Z_{\text{н10}} \ln\varepsilon_{\text{н0}}} \cdot \frac{\ln\varepsilon_{\text{н}}}{\ln\left(\frac{T_{\text{н2}}}{T_{\text{н1}}}\right)}, \quad (2)$$

$$\varepsilon_H = P_{H2}/P_{H1}; z_{H1} \text{ —}$$



. 2. η_i^* $\eta_i = f(x)$

(1), (2)

$$\eta_{\text{пол}} = f(x)$$

$$\eta_{\text{пол}} = f([Q]_{\text{пр}})$$

$$\Delta\eta_{\text{пол}}^*, \quad (1).$$

$$\varepsilon = f([Q]_{\text{пр}})$$

[6]:

$$\varepsilon_H = \left(\frac{T_{H2}}{T_{H1}}\right)^{\eta_{\text{пол}}/0,235}; 0,235 \text{ —}$$

$$(k-1)/k$$

$$(3)$$

$$\varepsilon_H, \quad \varepsilon_H = \varepsilon'_H.$$

$$\varepsilon_H = \left(\frac{T_{H2}}{T_{H1}}\right)^{\eta_H/0,235}; \varepsilon'_H = \left(\frac{T_{H2}}{T_{H1}}\right)^{\eta'_{\text{пол}}/0,235}, \quad (4)$$

$$\eta_H \text{ — } \eta_{\text{пол}} \quad ; \eta'_{\text{пол}} \text{ —}$$

$$\varepsilon_H \quad \varepsilon'_H \quad (T_{H2}/T_{H1}),$$

$$\varepsilon'_H = \left(\varepsilon_H^{0,235}/\eta_H\right)^{\eta'_{\text{пол}}/0,235} = \varepsilon_H^{\eta'_{\text{пол}}/\eta_H}. \quad (5)$$

$$\eta'_{\text{пол}},$$

$$\eta'_{\text{пол}} = \eta_H - \Delta\eta_{\text{пол}}^*. \quad (6)$$

(5)

$$\varepsilon'_H = \varepsilon_H^{\left(\frac{\eta_H - \Delta\eta_{\text{пол}}^*}{\eta_H}\right)}, \quad (7)$$

$$\varepsilon = f([Q]_{\text{пр}})$$

$$(7) \quad \Delta\varepsilon = \varepsilon_{\text{н}} - \varepsilon'_{\text{н}}.$$

$$\Delta\varepsilon = \varepsilon_{\text{н}} - \varepsilon_{\text{н}} \cdot \left(\frac{\eta_{\text{н}} - \Delta\eta_{\text{пол}}^*}{\eta_{\text{н}}} \right) = \varepsilon_{\text{н}} \cdot \left(1 - \varepsilon_{\text{н}} \frac{-\Delta\eta_{\text{пол}}^*}{\eta_{\text{н}}} \right). \quad (8)$$

$$(5) \quad \begin{aligned} & \varepsilon_{\text{н}}, \quad \eta_{\text{пол}}, \\ & \eta'_{\text{пол}}, \\ & d\varepsilon'_{\text{н}} = (\ln\varepsilon_{\text{н}}) \cdot \frac{\varepsilon_{\text{н}}}{\eta_{\text{пол}}} \cdot d\eta'_{\text{пол}} = -(\ln\varepsilon_{\text{н}}) \cdot \frac{\varepsilon_{\text{н}}}{\eta_{\text{пол}}} \cdot \Delta\eta_{\text{пол}}^* \cdot \eta_{\text{пол}}, \\ & d\varepsilon'_{\text{н}}/\varepsilon_{\text{н}} = -(\ln\varepsilon_{\text{н}}) \cdot \frac{1}{\eta_{\text{пол}}} \cdot \Delta\eta_{\text{пол}}^* \cdot 100\%. \end{aligned} \quad (9)$$

$$(9) \quad \begin{aligned} & \varepsilon_{\text{н}}, \quad \eta_{\text{пол}}, \\ & (\Delta\eta_{\text{пол}}^*), \quad \varepsilon_{\text{н}}, \quad \eta_{\text{пол}}, \\ & \varepsilon_{\text{н}} \quad \eta_{\text{пол}}, \\ & \varepsilon_{\text{н}} \quad \eta_{\text{пол}}, \end{aligned}$$

$$\eta_{\text{пол}} = 0,03 \text{ (3 \%)} \quad \varepsilon_{\text{н}} = 1,55 \text{ — } 1,55 \text{ \%}.$$

$$\left(\frac{0,35}{0,85} \right)^2 = 0,16 \quad \left(\frac{0,85}{1,55} \right)^2 = 0,30 \quad \text{и т.д.}$$

$$[N_i/\rho_{\text{н}}]_{\text{пр}} = f([Q]_{\text{пр}})$$

$$[7], \quad \left[\frac{N_i}{\rho_{\text{н}}} \right]_{\text{пр}} = \frac{N_i}{\rho_{\text{н}}} \cdot \left(\frac{n'_c}{n'_{c0}} \right)^3, \quad (10)$$

$$N_i \text{ — } 20^0 \text{ — } 760 \text{ ; } \rho_{\text{н}} \text{ — } \dots$$

$$N_i = \frac{M \cdot L}{\eta_{\text{пол}}}, \quad (11)$$

$$L = \frac{k \cdot \eta_{\text{пол}}}{(k-1)} \cdot z_{\text{н1}} \cdot R_{\text{н1}} \cdot T_{\text{н1}} \cdot \left(\varepsilon_{\text{н}}^{\frac{k-1}{k}} - 1 \right);$$

M — ; z_{H1} ; R_{H1} — ; L — ; k —

$$N_i \quad (11) \quad (10) \quad M$$

$$\left[\frac{N_i}{\rho_H} \right]_{np} = \frac{k}{k-1} \cdot z_{H1} \cdot R_{H1} \cdot T_{H1} \cdot Q_v \cdot \frac{\rho_{H1}}{\rho_H} \cdot \left(\frac{n'_c}{n'_{co}} \right)^3 \cdot \left(\varepsilon_H^{k \cdot \eta_{пол}} - 1 \right) \quad (12)$$

$$(12)$$

$$\varepsilon_H \cdot \eta_{пол} \quad (12)$$

$$\left[\frac{N_i}{\rho_H} \right]' = \frac{k}{k-1} \cdot z_{H1} \cdot R_{H1} \cdot T_{H1} \cdot Q_v \cdot \frac{\rho_{H1}}{\rho_H} \cdot \left(\frac{n'_c}{n'_{co}} \right)^3 \cdot [\varepsilon_H^{k \cdot \eta_{пол}} - 1], \quad (13)$$

$$[N_i/\rho_i]' , \varepsilon'_H \quad \eta'_n \quad -$$

$$\varepsilon'_H \quad (13) \quad (5). \quad (13)$$

$$\eta'_n \cdot \varepsilon_H \quad (13) \quad (14).$$

$$\left[\frac{N_i}{\rho_H} \right]' = \frac{k}{k-1} \cdot z_{H1} \cdot R_{H1} \cdot T_{H1} \cdot Q_v \cdot \frac{\rho_{H1}}{\rho_H} \cdot \left(\frac{n'_c}{n'_{co}} \right)^3 \cdot [\varepsilon_H^{k \cdot \eta_H} - 1]. \quad (14)$$

$$(14)$$

$$[N_i/\rho_H]_{np} = f([Q]_{np}),$$

$$[N_i/\rho_i]'$$

$$\varepsilon_H = \varepsilon_H \quad \lambda \quad \eta_{пол} = \eta_H$$

$$[5], \quad \eta_{пол} = f([Q]_{np}) \quad N_{епр} = f(T_{znp}), \quad \langle \dots \rangle$$

$$[N_i/\rho_H]_{np} = f([Q]_{np}) \quad B_{воз пр} = f(N_{епр}) \dots \rangle$$

$$\varepsilon = f([Q]_{np}).$$

$$\varepsilon = f([Q]_{np}), \quad \eta_{пол} = f([Q]_{np}), \quad \langle \dots \rangle$$

$$\eta_{пол} = f([Q]_{np}), \quad \varepsilon = f([Q]_{np}) \quad [N_i/\rho_H]_{np} = f([Q]_{np})$$

$$\eta_{пол},$$

$$\varepsilon = f([Q]_{np}) \quad -$$

$$\eta_{пол} = f([Q]_{np});$$

$$\varepsilon_H.$$

