

$$Q_o = k d_{\epsilon x}^n \sqrt{P_{\epsilon x}}$$

$$Q_o = k d_{\epsilon}^m d_{\epsilon x}^n \sqrt{P_{\epsilon x}}$$

$$Q_o = k D^l d_{\epsilon}^m d_{\epsilon x}^n \sqrt{P_{\epsilon x}}$$

$$Q_o = f(D,d_{\epsilon},d_h,d_{\epsilon x},\alpha,\mu_c,P_{\epsilon x})$$

$$Q_o = 5,46 \cdot 10^{-3} \left( d_{\text{\tiny{ex}}} d_{\text{\tiny{o}}} \right)^{0,9} \sqrt{P_{\text{\tiny{ex}}}}$$

$$\frac{Q_h}{Q_e}=1,13\left(\frac{d_h}{d_e}\right)^{3,0}$$

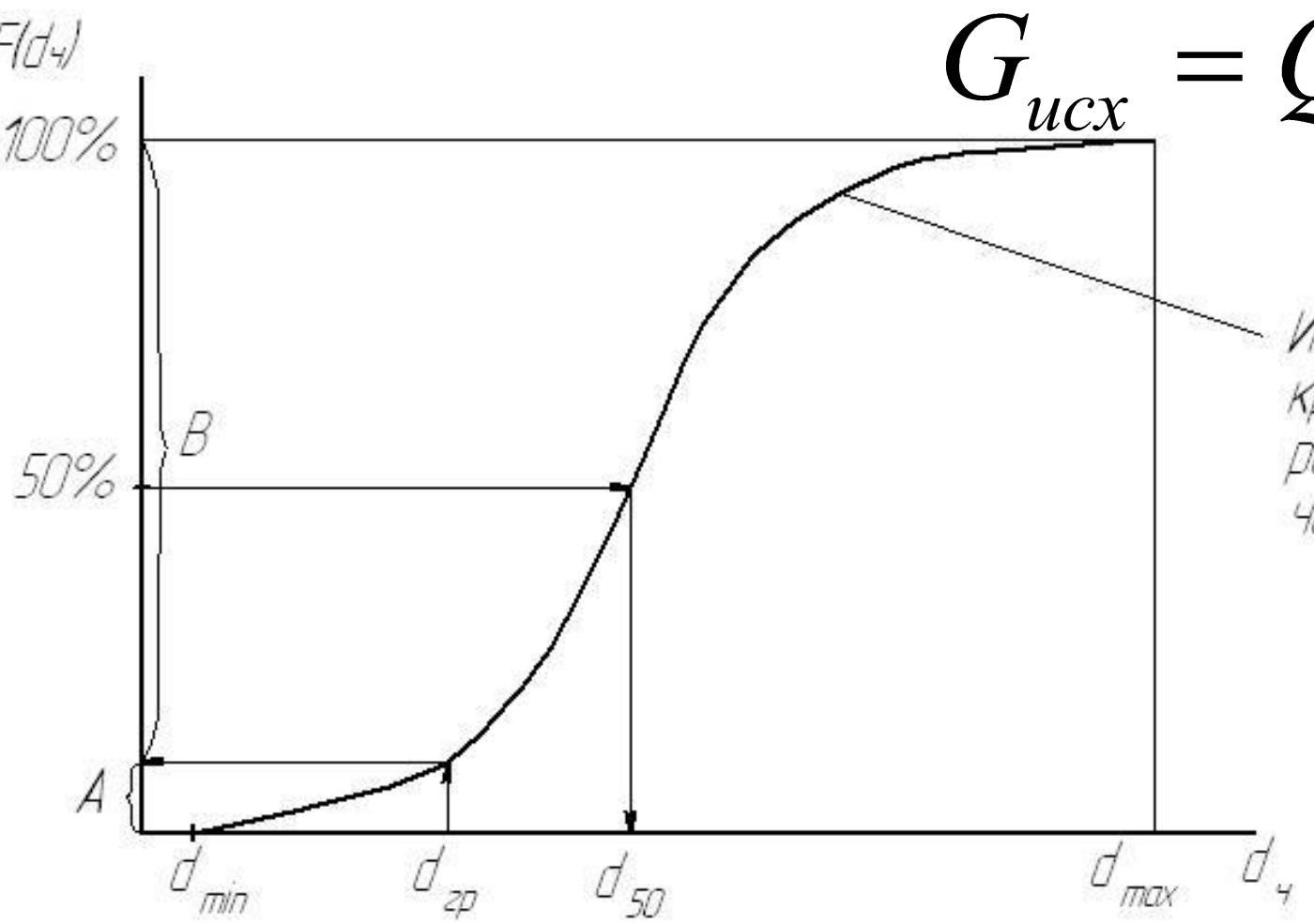
$$Q_o=Q_e+Q_h \qquad \qquad \frac{Q_o}{Q_e}=\frac{Q_e}{Q_e}+\frac{Q_h}{Q_e}$$

$$Q_e=\frac{Q_o}{1+\frac{Q_h}{Q_e}}$$

$$d_{\varepsilon p} = 8,44 \cdot 10^3 \sqrt{\frac{d_e D c_{ucx}}{d_h K_D \sqrt{P_{ex}} (\rho_m - \rho_{\mathcal{H}})}}$$

$$K_D=0,8+\frac{1,2}{1+100D}$$

$$G_{ucx} = Q_{общ} c_{ucx}$$

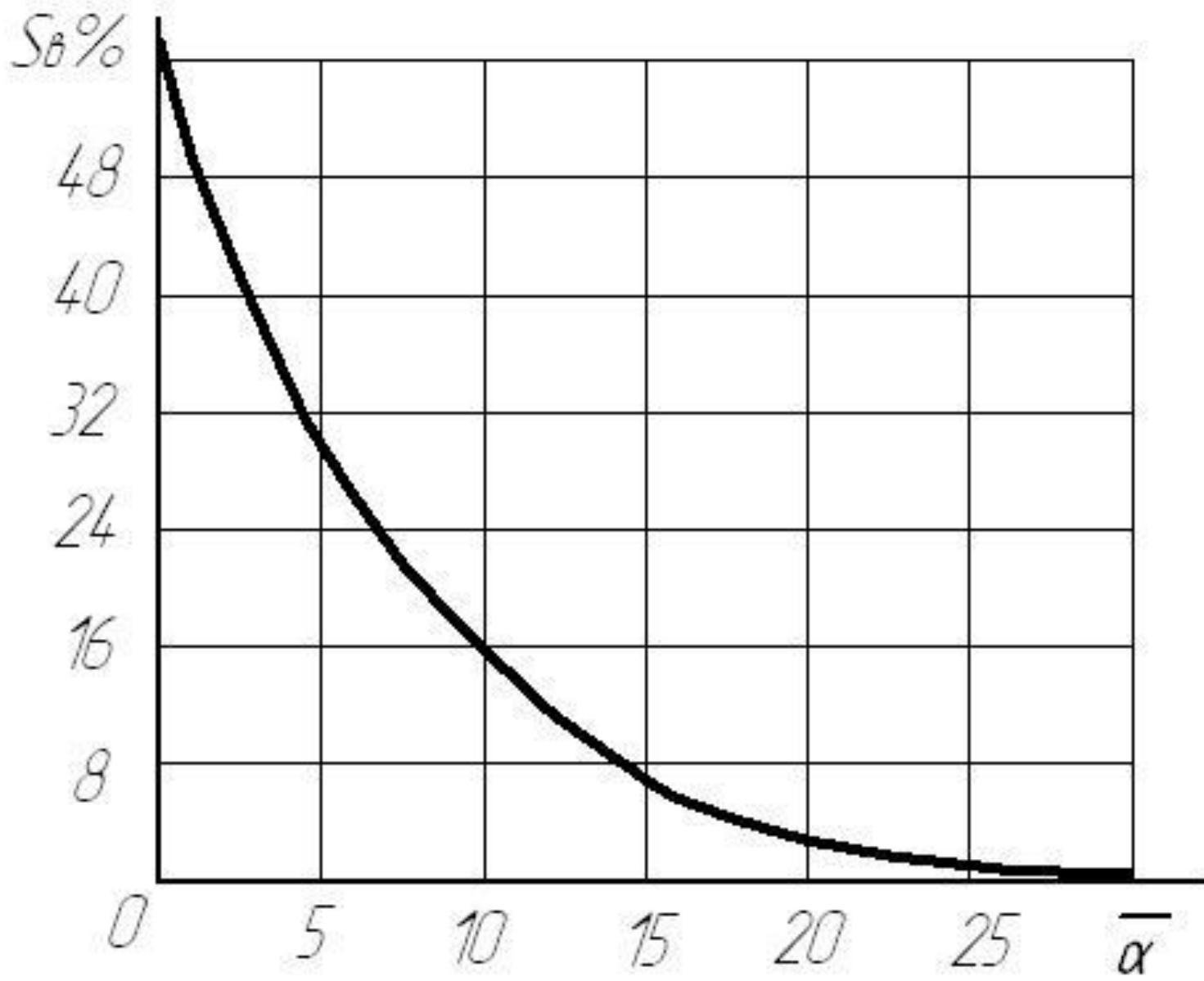


$$G_e = G_{ucx} \frac{A}{100} \quad c_e = \frac{G_e}{Q_e} \quad G_h = G_{ucx} - G_e$$

$$c_{\varepsilon}=1,18\left(\frac{d_{\varepsilon}}{d_h}\right)^{0,3}\left(tg\left(\frac{\alpha}{2}\right)\right)^{0,13}\left[\frac{U_{ex}^2}{R}\frac{d_{50}^3}{v_c^2}\frac{\rho_m-\rho_{\mathcal{H}}}{\rho_{\mathcal{H}}}\right]^{-0,24}c_{ucx}^{0,78}$$

$$\mathcal{Q}_{оби} c_{ucx} = \mathcal{Q}_\varepsilon c_\varepsilon + \mathcal{Q}_h c_h$$

$$G_{ucx}=G_\varepsilon+G_h$$



$$\overline{\alpha} = \pi^2 d^4 \omega^2 R^2 (\rho_m - \rho_{\mathcal{H}}) \rho_{\mathcal{H}} \frac{v_{\mathcal{H}}}{2 b'}$$

$$\omega=\frac{2U_{ex}}{D-d_{ex}}$$

$$b'=\left[1,35+17,8d_e\tg\frac{\alpha}{2}\right]\left(0,58+0,26U_{ex}\right)\cdot10^{-18}$$

$$G_\epsilon=G_{ucx}S_\epsilon\qquad\qquad C_\epsilon=\frac{G_\epsilon}{Q_\epsilon}$$

x1; x2; x3 ... x16

$\sum x_i = 100\%$

$$G_{ucx1} = G_{ucx} x_1$$

$$G_{ucx2} = G_{ucx} x_2$$

.....

$$G_{ucx16} = G_{ucx} x_{16}$$

$$G_{\epsilon 1} = G_{ucx} x_1 S_{\epsilon 1}$$

$$G_{\epsilon 2} = G_{ucx} x_2 S_{\epsilon 2}$$

.....

$$G_{\epsilon 16} = G_{ucx} x_{16} S_{\epsilon 16}$$

$$\sum_1^{16} G_{\epsilon} = G_{\epsilon} \quad c_{\epsilon} = \frac{G_{\epsilon}}{Q_{\epsilon}}$$

$$x_{\epsilon 1} = \frac{G_{\epsilon 1}}{G_\epsilon}$$

$$x_{\epsilon 2} = \frac{G_{\epsilon 2}}{G_\epsilon}$$

.....

$$x_{\epsilon 16} = \frac{G_{\epsilon 16}}{G_\epsilon}$$

$$G_{ucx1}-G_{\epsilon 1}=G_{\hbar 1}$$

$$G_{ucx2}-G_{\epsilon 2}=G_{\hbar 2}$$

.....

$$G_{ucx16}-G_{\epsilon 16}=G_{\hbar 16}$$

$$\sum_1^{16} G_{\hbar} = G_{\hbar}$$

$$x_{h1} = \frac{G_{h1}}{G_h}$$

$$x_{h2} = \frac{G_{h2}}{G_h}$$

.....

$$x_{h16} = \frac{G_{h16}}{G_h}$$





