$$Q_o = k d_{вх}^{n} \sqrt{P_{вх}}$$

$$Q_o = k d_{в}^{m} d_{вх}^{n} \sqrt{P_{вх}}$$

$$Q_o = k D^{l} d_{в}^{m} d_{вх}^{n} \sqrt{P_{вх}}$$

$$Q_o = f(D, d_{в}, d_{н}, d_{вх}, \alpha, \mu_{c}, P_{вх})$$

$$Q_o = 5{,}46 \cdot 10^{-3} \left(d_{вх} d_в\right)^{0{,}9} \sqrt{P_{вх}}$$

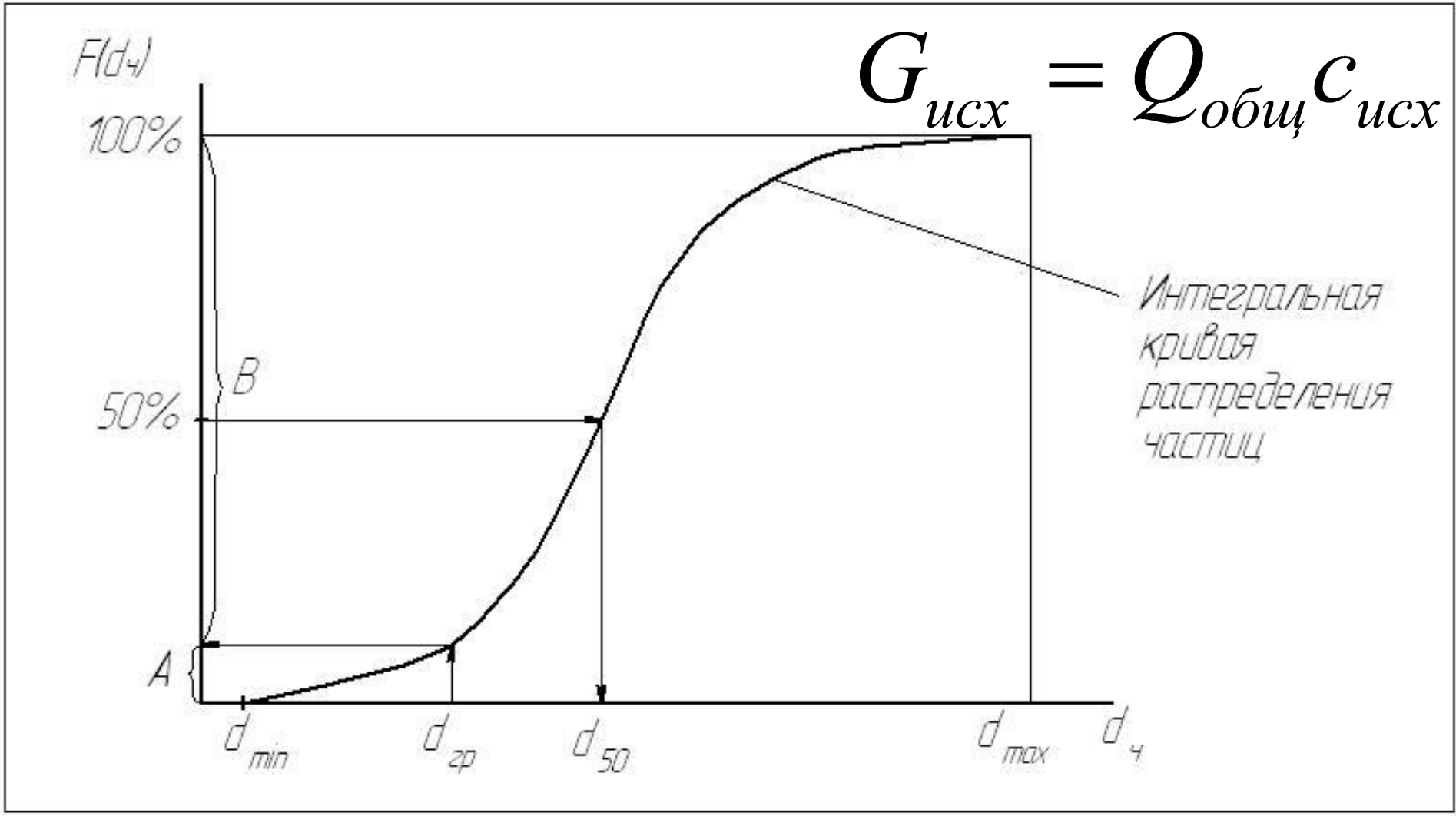
$$\frac{Q_н}{Q_в} = 1{,}13 \left(\frac{d_н}{d_в}\right)^{3{,}0}$$

$$Q_o = Q_в + Q_н \qquad \frac{Q_o}{Q_в} = \frac{Q_в}{Q_в} + \frac{Q_н}{Q_в}$$

$$Q_в = \frac{Q_o}{1 + \frac{Q_н}{Q_в}}$$

$$d_{гр} = 8{,}44 \cdot 10^3 \sqrt{\frac{d_в D c_{исх}}{d_н K_D \sqrt{P_{вх}} \left(\rho_т - \rho_{ж}\right)}}$$

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



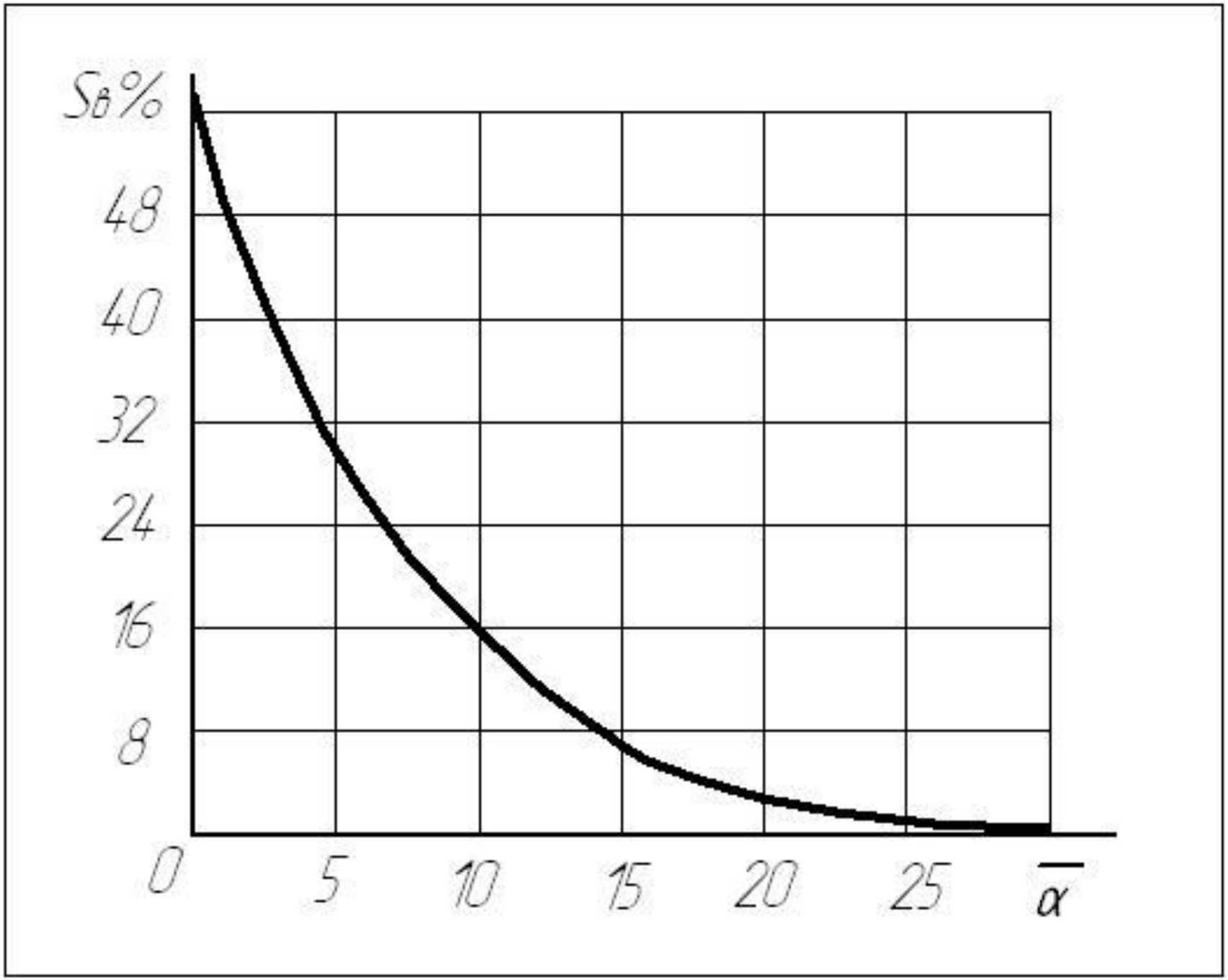

$$G_{исх} = Q_{общ} c_{исх}$$

$$G_в = G_{исх} \frac{A}{100} \quad c_в = \frac{G_в}{Q_в} \quad G_н = G_{исх} - G_в$$

$$c_в = 1{,}18\left(\frac{d_в}{d_н}\right)^{0{,}3}\left(tg\left(\frac{\alpha}{2}\right)\right)^{0{,}13}\left[\frac{U_{вх}^2}{R}\frac{d_{50}^3}{\nu_c^2}\frac{\rho_т - \rho_{ж}}{\rho_{ж}}\right]^{-0{,}24} c_{исх}^{0{,}78}$$

$$Q_{общ}c_{исх} = Q_в c_в + Q_н c_н$$

$$G_{исх} = G_в + G_н$$


$S_в$%
48
40
32
24
16
8
0
5
10
15
20
25
$\overline{\alpha}$

$$\overline{\alpha} = \pi^2 d^4 \omega^2 R^2 \left(\rho_m - \rho_{ж}\right)\rho_{ж} \frac{\nu_{ж}}{2b'}$$

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

$$b' = \left[1{,}35 + 17{,}8 d_{в} \frac{tg\frac{\alpha}{2}}{d_{н}}\right]\left(0{,}58 + 0{,}26 U_{вх}\right)\cdot 10^{-18}$$

$$G_{в} = G_{исх} S_{в} \qquad c_{в} = \frac{G_{в}}{Q_{в}}$$

x1;  x2;  x3 …  x16

$\Sigma xi=100\%$

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

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

……

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

$$G_{в1} = G_{исх} x_1 S_{в1}$$

$$G_{в2} = G_{исх} x_2 S_{в2}$$

.....

$$G_{в16} = G_{исх} x_{16} S_{в16}$$

$$\sum_{1}^{16} G_в = G_в \qquad c_в = \frac{G_в}{Q_в}$$

$$x_{в1} = \frac{G_{в1}}{G_{в}}$$

$$x_{в2} = \frac{G_{в2}}{G_{в}}$$

$$\cdots\cdots\cdots\cdots\cdots$$

$$x_{в16} = \frac{G_{в16}}{G_{в}}$$

$$G_{исх1} - G_{в1} = G_{н1}$$

$$G_{исх2} - G_{в2} = G_{н2}$$

.....

$$G_{исх16} - G_{в16} = G_{н16}$$

$$\sum_{1}^{16} G_{н} = G_{н}$$

$$x_{н1} = \frac{G_{н1}}{G_{н}}$$

$$x_{н2} = \frac{G_{н2}}{G_{н}}$$

$$\cdots\cdots\cdots\cdots\cdots$$

$$x_{н16} = \frac{G_{н16}}{G_{н}}$$