

$$M = 23 \cdot 10^2 \text{ кг}$$

$$J_{xz} = 250 \text{ кг} \cdot \text{м}^2$$

$$J_y = 1090 \text{ кг} \cdot \text{м}^2$$

$$J_z = 950 \text{ кг} \cdot \text{м}^2$$

$$P_z = 16 \cdot 10^3 \text{ Н}$$

$$t_p = 100 \text{ Гц}$$

Три амортизатора АКС: 300 Н

$$P_{nz} = 300 \text{ кг}; P_{nx} = 210 \text{ кг}; P_{ny} = 90 \text{ кг};$$

$$C_z = 39 \cdot 10^5 \text{ Н/м}; C_x = 27 \cdot 10^5 \text{ Н/м}; C_y = 11 \cdot 10^5 \text{ Н/м}$$

$$N_{\min} = \frac{2500}{300} \approx 7,66 \Rightarrow N_{\min, n} = 8$$

Примем  $N_p = 10$ .

$$x_{1,2} = 900 \text{ мм}; x_{5,6} = 500 \text{ мм}; x_{8,10} = 0 \text{ мм}; y_{2,4,6,8,10} = 320 \text{ мм}$$

$$x_{3,4} = 700 \text{ мм}; x_{7,9} = 200 \text{ мм}; y_{1,3,5,7,9} = 320 \text{ мм};$$

$$z = 645 \text{ мм}; \theta = 20^\circ$$

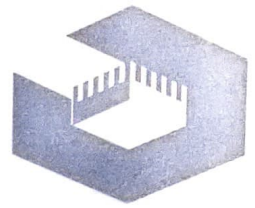
$$\begin{cases} C_{zj} = C_{y2j} \cdot \cos^2 \theta + C_{x2j} \cdot \sin^2 \theta \\ C_{yj} = C_{x2j} \cdot \cos^2 \theta + C_{z2j} \cdot \sin^2 \theta \\ C_{xj} = C_{y2j} \cdot \cos^2 \theta + C_{z2j} \cdot \sin^2 \theta \end{cases}$$

$$\begin{cases} C_{zj} = 11 \cdot 10^5 \cdot 0,883 + 27 \cdot 10^5 \cdot 0,117 = 1,287 \cdot 10^6 \text{ Н/м} \\ C_{yj} = 27 \cdot 10^5 \cdot 0,883 + 39 \cdot 10^5 \cdot 0,117 = 2,84 \cdot 10^6 \text{ Н/м} \\ C_{xj} = 11 \cdot 10^5 \cdot 0,883 + 39 \cdot 10^5 \cdot 0,117 = 1,428 \cdot 10^6 \text{ Н/м} \end{cases}$$

$$C_z = N_p \cdot C_{zj} = 12,87 \cdot 10^6 \text{ Н/м}; C_y = 28 \cdot 10^6 \text{ Н/м}; C_x = 14,28 \cdot 10^6 \text{ Н/м}$$

$$K_x = \sum_{j=1}^{N_p} (C_{yj} \cdot z_j^2 + C_{zj} \cdot y_j^2) = (2,84 \cdot 10^6 \cdot 0,645^2 + 1,287 \cdot 10^6 \cdot 0,32^2) = 13,13 \cdot 10^6 \text{ Н/м}$$





$$K_y = 10 \cdot 1,428 \cdot 10^6 \cdot 0,643^2 + 1,287 \cdot 10^6 \cdot$$

$$\cdot (0,9^2 + 0,7^2 + 0,5^2 + 0,2^2) \cdot 2 = 10^7 \text{ Н/м}$$

$$K_z = 10 \cdot 1,428 \cdot 10^6 \cdot 0,5^2 + 7,85 \cdot 10^6 \cdot (0,9^2 + 0,7^2 + 0,5^2 + 0,2^2) \cdot 2 = 10,5 \cdot 10^6 \text{ Н/м}$$

$$f_z = \frac{1}{2\pi} \sqrt{\frac{C_z}{M}} = 11,9 \text{ Гц}, \quad f_{Bz} = \frac{1}{2\pi} \sqrt{\frac{K_z}{J_z}} = 16,73 \text{ Гц}$$

$$\begin{pmatrix} f_{x1} \\ f_{x2} \end{pmatrix} = \begin{pmatrix} 18,62 \\ 6,55 \end{pmatrix}, \quad \begin{pmatrix} f_{y1} \\ f_{y2} \end{pmatrix} = \begin{pmatrix} 40,21 \\ 5,07 \end{pmatrix}$$

$$z_{y-T} = z = \frac{P_z}{C_z} \cdot \left| \frac{s_z^2}{s_z^2 - f_p^2} \right| = \frac{16000}{12,87 \cdot 10^6} \cdot \left| \frac{11,9^2}{11,9^2 - 100^2} \right| = 4,2 \cdot 10^{-3}$$

$$\psi = \frac{P_z}{C_z} = \frac{16 \cdot 10^3}{12,87 \cdot 10^6} = 1,24 \cdot 10^{-3}$$

$$L_{\text{бу}} = 20/g \left( 1 - \frac{100^2}{11,9^2} \right) = 36,85 \text{ гб}$$

$$\frac{f_p}{f_z} = \frac{100}{11,9} = 8,4 > \sqrt{2}, \quad f_{y2} = f_{\min} = 5,07 \text{ Гц}$$