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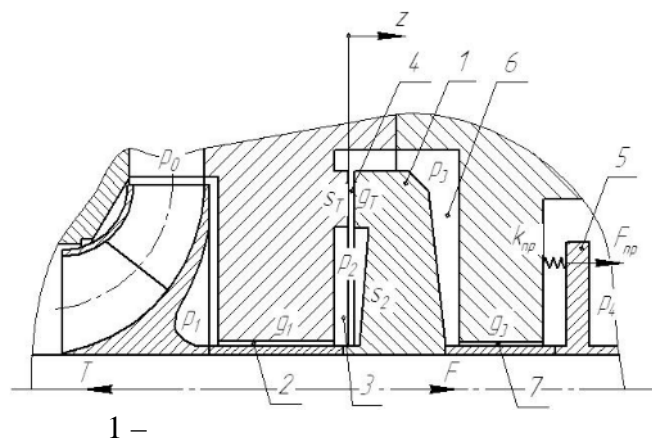
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[1].

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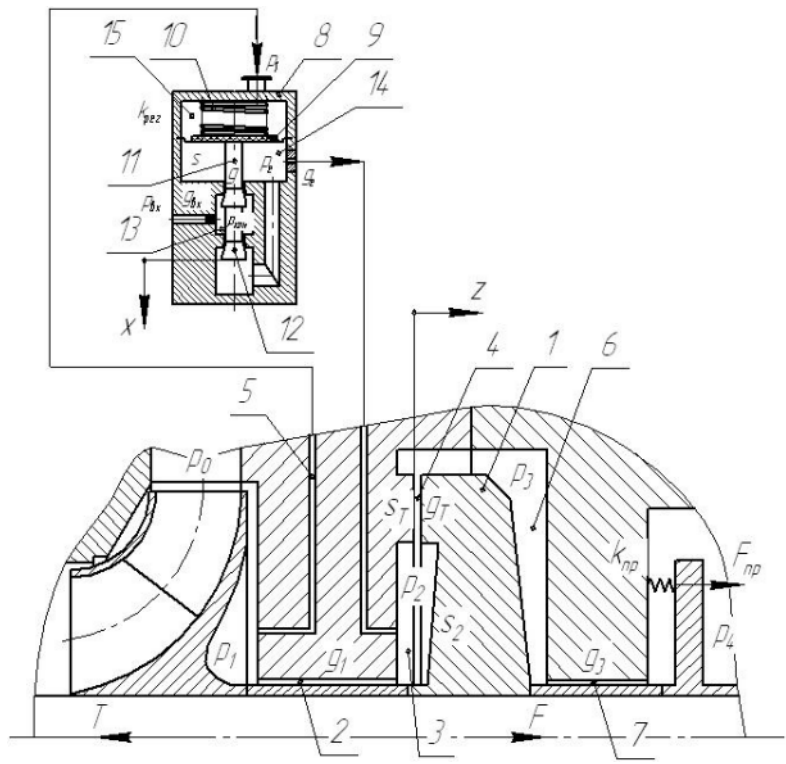
(.1).
 1, 2. 3 6
 z.
 5,



6, 2 3 ; F ,
 4

[2],

(.3).



- 1 - ; 3 - ; 2, 7 - ; 3 - ; 4 -
- ; 5 - ; 8 - ; 9 - ; 10 - ; 6 -
- 11 - ; 12 - ; 13 - ; 14, 15 -

1. 3

5

6. 3

6 z.

2 3 6

2

- 2

2.

F

z,

- 2

$$F = T.$$

2.

[4]

$$T = F + F, \quad (1)$$

F_{np}

$F,$

$$F = s (p_2 - p_3), \quad (2)$$

s

$$s (p_2 - p_3) = -F_{np}. \quad (3)$$

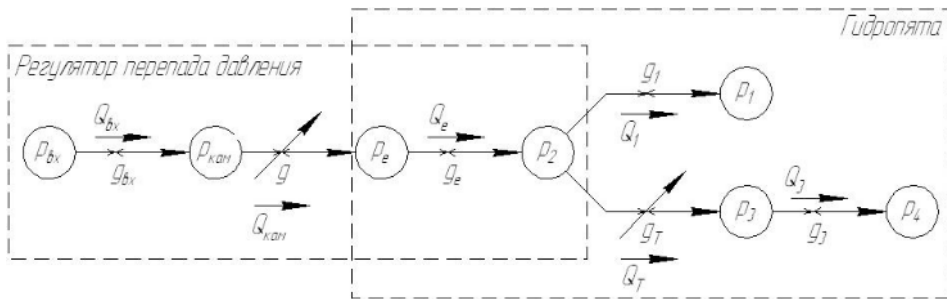
$$p_e s = p_1 s + F, \quad (4)$$

F

4:

$$Q = Q = Q = Q_1 + Q ; Q = Q_3 ; \quad (5)$$

Q - ; Q - ; Q - ; Q_1, Q_3, Q -



4 -

$$Q = g (-) ; Q = g (-) ; Q = g (- 2) ; \quad (6)$$

$$Q_1 = g_1 (2 - 1) ; Q = g (2 - 3) ; Q_3 = g_3 (3 - 4)$$

,1,2,3,4,

u,

$$\psi_{,1,2,3,4} = \frac{P_{,1,2,3,4}}{p} ; \tau = \frac{T}{p s} = b \psi_1 ; \chi = \frac{F_{np}}{p s} ; \quad (7)$$

$$\chi = \frac{F}{p s} ; \sigma = \frac{s}{s} ; \sigma = \frac{s}{s} ; u = \frac{z}{z} ; \xi = \frac{x}{x}$$

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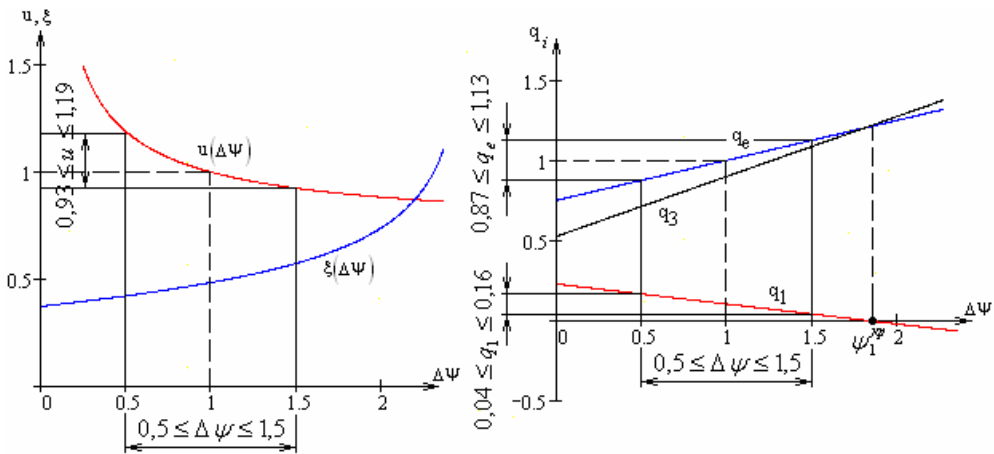
$$\begin{aligned}
\sigma(\psi_2 - \psi_3) &= b\psi_1 - \chi; \quad \sigma_M(\psi_e - \psi_1) = \chi_{pe}; \\
g(\psi_2 - \psi_3) &= g \xi^3(\psi_2 - \psi_3) = g_e(\psi_e - \psi_2) = \\
&= g_1(\psi_2 - \psi_1) + g u^3(\psi_2 - \psi_3); \\
g u^3(\psi_2 - \psi_3) &= g_3(\psi_3 - \psi_4).
\end{aligned} \tag{8}$$

q

$$\begin{aligned}
u &= \sqrt[3]{\alpha_3 \frac{\sigma \left(\frac{g_e + g_1 + g_3}{b} \Delta\psi + g_e \delta\psi + g_3 \frac{b}{\sigma} \left(\psi_4 - \frac{\chi}{b} \right) \right)}{(g_e + g_1 + g_3) \left(\Delta\psi + \psi_4 - \frac{\chi}{b} \right)}}; \\
q_e &= \frac{\left(1 - \frac{b}{\sigma} \right) \Delta\psi + (1 + \alpha_{13}) \delta\psi + \frac{b}{\sigma} \left(\frac{\chi}{b} - \psi_4 \right)}{1 - \frac{b}{\sigma} + (1 + \alpha_{13}) \delta\psi + \frac{\chi}{\sigma} - \psi_4}
\end{aligned} \tag{9}$$

$$5 \quad : \quad g_1 = 2 \cdot 10^{-9} \text{ }^3 (\cdot)^{-1};$$

$$\begin{aligned}
g : g_3 : g : g : g &= 2 : 1,5 : 0,4 : 2 : 2; \quad = 1,1; \quad = 0,5; \quad = 3; \quad = 0,3; \\
\psi_4 &= 0; \quad = 0,5; \quad b = 0,95.
\end{aligned}$$



5 -

$$\begin{aligned}
0,5 < \Delta\psi < 1,5 \\
0,93 < u < 1,19;
\end{aligned}$$

$$0,87 < q_e < 1,13.$$

, 12%.

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. - , 2006.- .3.- .79-86.
 3. / . . . - : - , 1982.- 63 .
 4. . ,, . . . - . :
, 1987.- 256 .

STATIC ANALYSIS OF THE LOCKING AUTOMATIC BALANCING DEVICE OF THE CENTRIFUGAL PUMPS

SUMMARY

In this paper the technique of static calculation of essentially new design of the locking automatic balancing device of the centrifugal pump is stated. This device represents difficult hydromechanical system of automatic control consisting of two subsystems: a balancing disk and a regulator of pressure difference. This system possesses several advantages in comparison with devices of traditional execution.

Keywords: axial force, regulator, static analysis