

DEVICE FOR DETERMINING LOAD ON DRILL BIT

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[1, 2], [3],

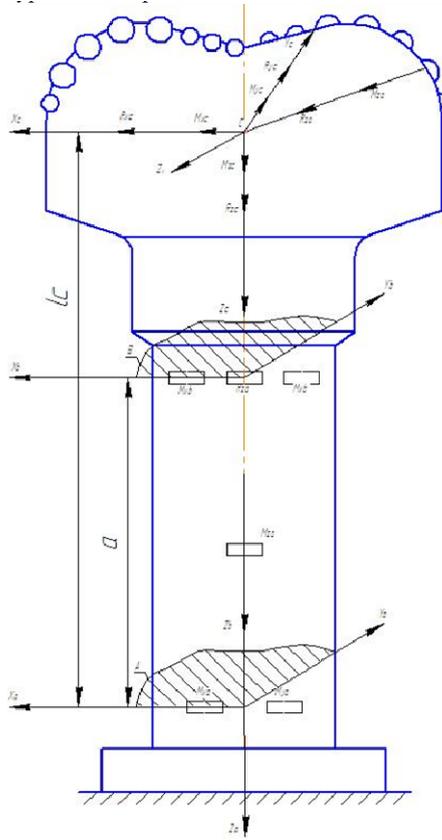
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[4]

[4].

[5].

(. 1),



.1.

z_c (. . 1, —)

x x_b ,

(. 2),

1 2): R_{za} — ; M_{za} —

b — B),

B),

(. . 2)

B; l_c — x y z x_b y_b z_b

x_c y_c

$$\begin{cases} M_{xa} = R_{yc} l_c + M_{xc}; \\ M_{xb} = R_{yc} (l_c - a) + M_{xc}. \end{cases} \quad (1)$$

$$R_{yc} = \frac{M_{xa} - M_{xb}}{a}; \quad (2)$$

$$M_{xc} = \frac{M_{xb} l_c - M_{xa} (l_c - a)}{a}, \quad (3)$$

R_{yc} —

y_c ; x_c —

x_c .

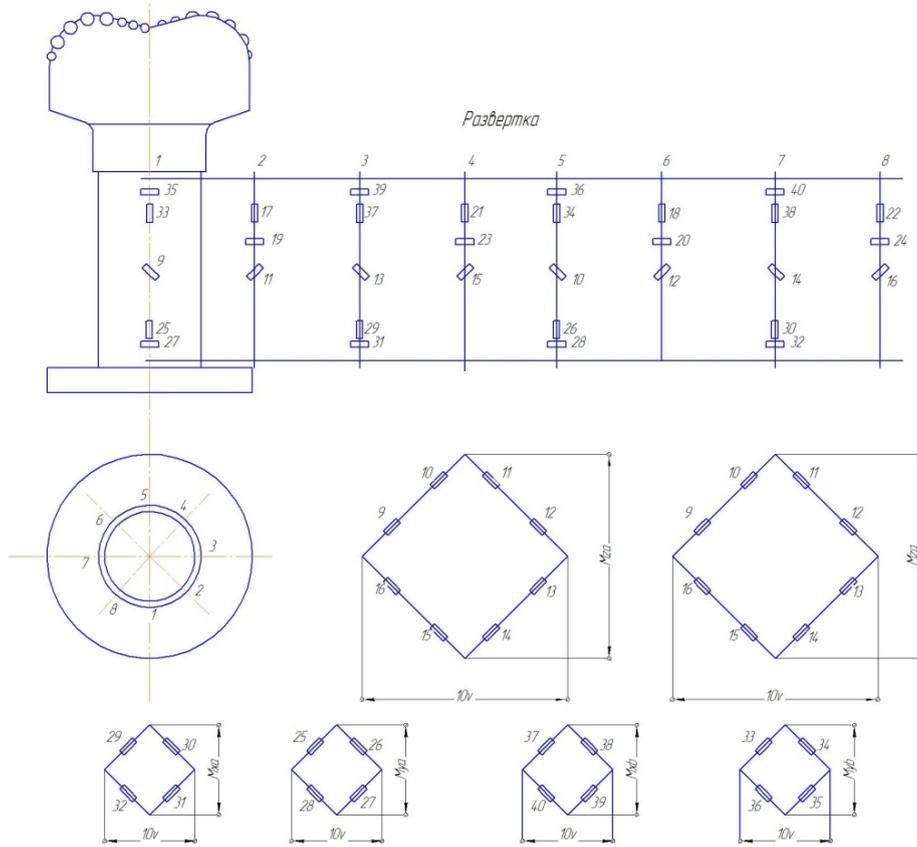
x_c

$$R_{xc} = \frac{M_{yb} - M_{ya}}{a} \quad (4)$$

$$M_{yc} = \frac{M_{yb}l_c - M_{ya}(l_c - a)}{a} \quad (5)$$

$$z_a = z_b, \quad M_{zc} = M_{za}, \quad (6)$$

$$R_{zc} = R_{za}. \quad (7)$$



. 2.
1...8 —

, 9...40 —

(2)-(7)

1. ... , 1983. – 23 .
2. ... – 2016. – 1. – 110-116. //
3. ... ; ... 840268 : ... 21 9/08 / ... ; ... 2729036/22-03; ... 23.02.79; ... 23.06.81, ... 23.-4 .

4. / // – 2008. – 2. – . 23-29.
5. . 2566646. G01L1/22. ; – 2014106253/28; . 19.02.2014; . 27.10.2015, . 30.

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