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Annotation: The article describes the movement of the chain through the tension roller in the chain drive in the combined unit is sufficiently regulated, reducing the load on each tooth and chain hinge due to the increase in the angles of sprocket coverage.

Keywords: Chain drive, speed, power, friction, roller, parameter, depreciation

Increasing the service life of chain drives is an important issue. In recent years, in order to increase the service life of the chain is carried out by increasing the speed of the transmitted torque (power). At small loads and speeds, the operating time of the chain is hours. These values are based on the standard. It is also often used in high power transmission, through bath or drip lubrication to reduce friction and friction in chain hinges. Much of the theoretical and experimental research has focused on improving the friction resistance of hinge surfaces, with little attention paid to research on chain strength. The chain service life standard is given for all types of chains and these values are determined experimentally. A number of methods have been developed to calculate chain service life. However, the calculation results were considered to differ significantly from each other in the same parameters of the transmission. The main reason for these differences is to determine the service life of the chain, taking into account many parameters in the calculation. Therefore, the available methods for determining the service life of a chain are approximate calculation methods. According to experimental studies, the operating time of the chain is defined as% hours and% hours. The allowable pressure is determined by the following expression:

$$[\rho] = \rho_0 K_C \frac{\lambda_1 K_N}{K_v} \quad (1)$$

where, -coefficient of lubrication depending on the chain speed, -coefficient taking into account the distance between the axles, -force coefficient, -loading coefficient. Although the service life of the chain based on the given standard is taken from the tables, it is not calculated using the appropriate formulas.

There are also calculations of service life in such methods as NV Vorobev, Pitcha, Rakhner AA, Gotovtsev, taking into account that the chain operates in different states. However, using these formulas, it is possible to determine only the component values of the service life of a chain drive with a tension tension roller, a composite guide star. In the proposed chain drive, the movement of the chain is sufficiently regulated by the tension roller, the load on each tooth and the chain hinge decreases as the sprocket coverage angles increase, which means that friction and friction are also reduced. In addition, the angular velocity is adjusted and flattened due to the flexible element, which

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has a leading star content. When the amplitude of the velocity change decreases to 15□20%, the rotation angle and the angular velocity change - occur in the range. Based on the calculations, it was determined that the elastic element is present in the given virginity -values.
It is known that a method that meets the requirements of the standard is given. According to it, the expression for calculating the service life of the chain is as follows:

$$C = 4350\frac{\Delta_t \cdot K_ц K_m K_C}{K_v \rho}\sqrt[3]{\frac{u_{12}A_t}{v}} \qquad (2)$$

where, - is done on the chain step, - is the coefficient that determines the type of chain, - is the coefficient that determines the chain row, - is the coefficient of lubrication; -loading coefficient, -linear speed of the chain, -transmission ratio, -stellar distance between stars, -delivered pressure, -number of leading star teeth.
The formula for calculating the maximum service life of the chain for a star-shaped chain drive with a tension roller is given in the following form, taking into account (1), (2) and [1].

$$C_1' = 4350\frac{\Delta t K_T \cdot K_K \cdot U_m \cdot K_c}{K_v}\sqrt[3]{\frac{z_1^{1,5}U_{12}\left(\frac{t_3 n_3'}{\cos\alpha_e} - \delta_A\right)}{r_2(\omega_2 - \Delta\omega_2)\cos\alpha_2}} \qquad (3)$$

where, -coefficient determining the tension of the chain leading network, -coefficient determining the stiffness of the leading star elastic element, -chain pitch, -number of joints in the chain leading network, -coefficient of elongation of the joint step.
The maximum operating time parameters of the proposed chain drive are shown to be greater than the ratio of the normal chain drive based on the defined and calculated values.
Using the proposed expression (3), we determine the coupling time of the chain drive on the basis of the values of the given parameters. It should be noted that the longer the extension chain is capable of operating, the longer the extension will be in working condition. The results of the calculations are presented in Table 1.

Table 1.
Results of the calculation of the service life of a chain drive chain with a leading star, tension roller

C_1'	Δ_t	K_T	K_K	K_m	K_C	K_v	P	Z_1	r_2	t_3	δ_A	ω_2
минг соат	%						МПа		$м$	$м \cdot 10^{-3}$	$м \cdot 10^{-3}$	c^{-1}
14,20	0,3	1,4	1,2	1,0	1,3	1,45	15	25	0,05	20	2,0	30
12,15	0,25	1,25	1,1	1,0	1,2	1,25	20	22	0,06	25	2,5	35
9,35	1,1	1,1	1,0	1,0	1,1	1,05	27	20	0,065	28	3,0	40

The given values of the parameters given in Table 2.1 are determined based on the descriptions in DIN 8195. The results of the calculations show that the presence of a tension roller based on the service life of the chain, the elastic element in the drive sprocket, i.e. load amortization, transmission lubrication, external force behavior and the effect of transmission geometry parameters are important. Based on the results, it will be possible to increase the operating time of the chain from hour to hour.

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In conclusion, it can be said that in the proposed chain drive, the movement of the chain is sufficiently regulated by the tension roller, the load on each tooth and chain hinge decreases as the angles of the sprocket cover increase, hence the friction and friction also decrease. In addition, the angular velocity is adjusted and flattened due to the flexible element, which has a leading star content.

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