PNEUMOPULSE DRIVE VIBRATING BUNKER CONTROL OVER THE MOVEMENT. BASIS DESIGN CALCULATIONS

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Abstract: *The article presents the method of calculating the pneumopulse drive of the original design vibrating hopper.*

Keywords: vibrating hopper, pneumopulse drive, the method of calculation

1. Introduction

The level of modern production and therefore competitiveness depends on the degree of an automation of production processes. One of the additional means of automation manufacture is bootable and orientation devices, among them, the most perspective are vibrating hoppers [1]. The widespread use of vibrating equipment for blanks and details' supply during manufacturing operations is due to various kinds of high efficiency of vibration mode for their artificial seizure, orientation and transportation. The vibration hoppers are built on the basis of the different drives' types – mechanical, electromagnetic, pneumatic, hydraulic and others. Among the all types of drives for bunkers with large carrying capacity should be used the vibrating hoppers with pneumatic or hydraulic drives, including their varieties – pneumopulse and hydropulse, the advantages of which are proved in comparison with the other types of actuators driven manufacturable machine vibration [2, 3, 4].

Therefore developing of new designs of vibrating hoppers on basis of the pneumopulse drive and development the appropriate method of calculation are relevant engineering and scientific tasks.

2. Basic part

Estimated diagram pneumopulse drive vibrating bunker control over the movement of shown in Figure 1.

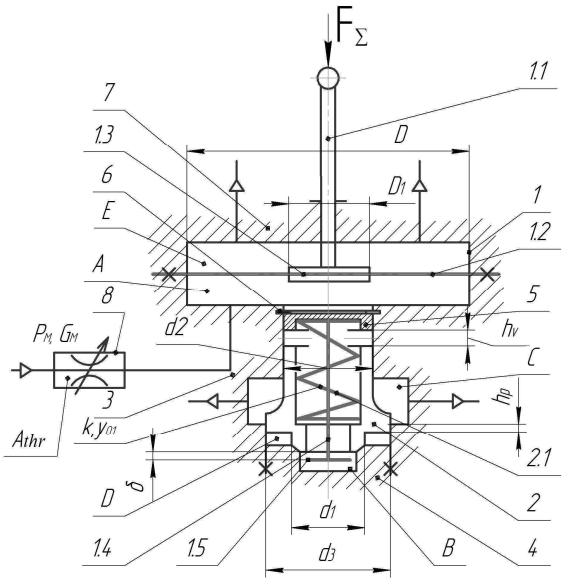

Figure 1: *Estimated diagram pneumopulse drive vibrating hopper control over the movement*

The main drive links are membrane pneumoengines 1, rod 1.1 which passes vibration load on the tank (conditionally not shown) winning effort F_Σ, which in the first approximation and neglecting friction forces in the guide rod and internal friction in the