

This graph depicts the thrust and tension of the rock falling from the hopper onto the belt per unit time. The graph shows that the rock that had the maximum impact on the belt from the 3.5-meter bunker covered a distance of 5238 mm. (Table 3, Figure 5).

Table 3: Stresses and displacements of the hopper height.

Time (s)	(B)Equivalent Stress (Max) (MPa)	Total Deformation (Max) (mm)
1,1755E-38	0	0
0,12502	2,3605e-004	617,9
0,25002	2,2662e-004	1235,4
0,37503	1,6845e-004	1854,9
0,5	1,6863e-004	2492,1
0,62501	2,2694e-004	3174,3
0,75001	2,2516e-004	3927,8
0,87502	1,6332e-004	4393,7
1	1,6885e-003	4699,6
1,125	1,5561e-003	4719,5
1,25	1,7772e-003	4902,2
1,375	5,9421e-003	5097,8
1,5	3,3168e-003	5170,4
1,625	0,45364	5259,8
1,75	0,39978	5269,5
1,875	0,42374	5260,6
2	0,48341	5253,5
2,125	0,37993	5236
2,25	0,44386	5238,1

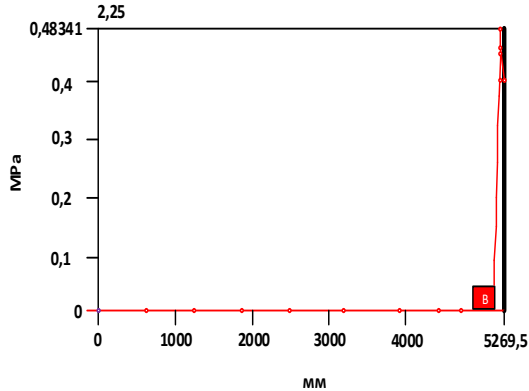


Figure 5: Graph voltage and displacement of the hopper 3.5 m.

4 CONCLUSION

We have studied and analyzed in detail the problems of the CLT operation process during overburden operations at the Angren coal mine. As a result of the analysis, it was revealed that the main problems of overburden transportation are due to various reasons for the rupture of the main line 3.8. In this regard, a

scientific study of this problem was carried out, which made it possible to identify one of the main problems of frequent ruptures of the main belt conveyor during operation, due to both the structural and technical features of the main belt itself, and the impact force of the mined rock from the loading and unloading bunker of the SFT. In order to identify the causes of the identified problems, an analysis was made of the operation of the SFT, taking into account its technical parameters (belt speed, degree of hardness and angle of fall of the rock onto the tape, as well as the height of the bunker, from which the rock is unloaded onto a tape 3.5 m high, according to the Ansys program. The analysis showed that one of the main problems is due to the height of the production bunker. Determining the optimal height of the operational hopper allows you to avoid frequent breaks in the main belt conveyor No. 3.8. An important role is played by the peculiarity of the design of the loading and unloading bunker itself.

Our analysis showed that from a bunker height of 3.5 meters, the impact stress of the falling rock on the main line is 0.48341 MPa.

The results of the analysis show that the determination of the optimal height of the loading and unloading hopper makes it possible to extend its service life and reduce the frequency of repair work of this design

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