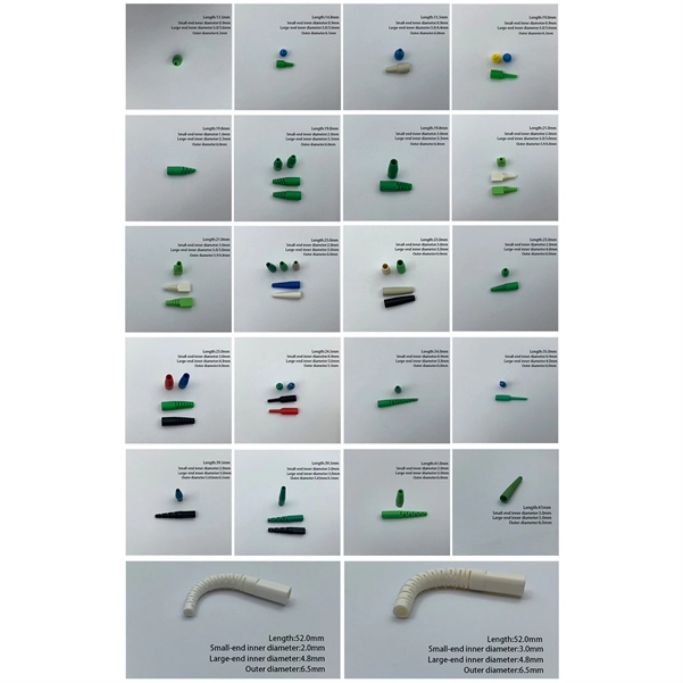
Bucket Wheel Excavator Bridge



Overview

The paper presents the analysis of the failure of the crawler-mounted loading bridge of a bucket wheel excavator. Various measurement and calculation methods have been used to evaluate the causes and effects of the event. It allowed fo. The paper presents the analysis of the failure of the crawler-mounted loading bridge of a bucket wheel excavator. Various measurement and calculation methods have been used to evaluate the causes and effects of the event. It allowed for a complex analysis of the event in terms of its causes and effects.First, based on the results of weighing, the loading bridge's mass parameters have been determined, which have been used for the verification of theoretical mass data of the machine determinedThe fundamental parameter which determine the design of the structure and proofs its safe operation, is list of dead and live/operational loads together with its distribution. That defines the stability of unit. In case of mining machinery, due to its specific layout and enormous size, occurrence of the stability loss can result in catastrophic failure.In the paper, authors present investigations of the stability loss of discharge bridge operating with bucket wheel excavator. Authors, step by step, present the definition of overturning edges,

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weighing and balancing process. Moreover, numerical simulations and experimental testing of the structure are presented. On the basis of acquired data, cause of the stability loss and assessment of influence of this incid. The most important machines for open pit mines with continuous mining system are bucket-wheel excavators, bucket-chain excavators, and spreaders. These large-scale machines can be over 100 m long, 80 m high, and their weight usually exceeds several thousand tonnes. The conditions in which they operate are characterized by frequent fluctuations which can lead to situations where a machine reaches its strength limit. Sometimes, machines can also be reaching their limits of stability relative to the edge of overturning. Even everyday, normal operating conditions are characterized by heavy load exerted on the machine's load-carrying structure and structural elements due to the harmonic character of loads and frequent overloads [1,2]. In case of such heavy objects, even the basic tasks concerning movement ar. The described event of the loss of stability of the crawler-mounted loading bridge of a bucket-wheel excavator forms a complex experimental-methodical approach to investigating causes of complex failures (RCA – Root Cause Analysis). This kind of events, involving a large part of a company's core equipment, leads to significant financial losses caus. A methodical approach of analyzing failures and catastrophes has been used to investigate the event. It was aimed at identifying the cause of the accident and determining the state of the machine both at the moment of failure and directly after it with the use of simulation and experimental methods. Numerical simulation of the event of the los.

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Bucket Wheel Excavator Bridge



The bridge-type bucket wheel reclaimer is a continuous reclaiming machine, mainly used for wide-span, large-capacity stockyards. It ...



The supporting structure is formed by a bridge girder under which the scraper chain or bucket wheel is installed. Harrow-type carriages with harrow arms are mounted on the bridge structure, on either one ...



Wheel on bridge (bucket wheel) reclaimers utilize two bucket wheels mounted so that they rotate around a bridge which travels up and down the stockpile. To reclaim across the face of the stockpile, the ...



BWRs are mammoth machines with a rotating wheel fitted with buckets at its periphery. As the wheel rotates, the buckets scoop material from stockpiles, transferring it onto conveyor systems for further ...

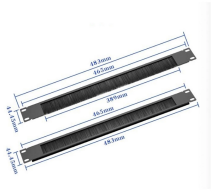


Keywords: measurement uncertainty, wear metrology, dimensional measurement, in-situ monitoring, calibration traceability, bucket-wheel excavator, degradation analysis, reliability assessment

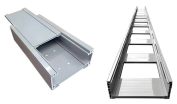
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The paper presents the analysis of the failure of the crawler-mounted loading bridge of a bucket wheel excavator. Various measurement and calculation methods have been used to evaluate ...



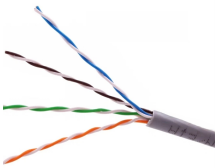
A bucket wheel excavator (BWE) consists of a superstructure to which several more components are fixed. The bucket wheel from which the machines get their name is a large, round wheel with a ...



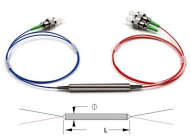
In the paper, authors present investigations of the stability loss of discharge bridge operating with bucket wheel excavator.



The article analyzes the failure of a bucket wheel excavator''s discharge boom suspension. The failure caused significant operational disruption and financial losses.



The bridge-type bucket wheel reclaimer is a continuous reclaiming machine, mainly used for wide-span, large-capacity stockyards. It adopts bucket wheel to reclaim materials, which can realize automatic ...



For higher flow rates and/or larger particle sizes, we strongly suggest a machine configuration in which the bridge is mounted through the bucket wheel. In this manner, power transmission between the ...

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