

From:

KOMATSU Mining

Mariusz Androsiuk

Tel: +48 669 979 271

To:

PROram

Kontakt: Michał Hamkało, Rafał Milczarski

Tel: +48 502 605 358

REFERENCE

Regarding the 3D scanning services provided by PROram:

We wish to express our complete satisfaction and commendation for their professionalism and the high-quality measurement and 3D scanning services delivered to us. Throughout our collaboration, PROram executed a scan of a crusher shaft using the Absolute Arm Hexagon measuring arm, and performed scanning of several smaller components applying reverse engineering, resulting in the creation of accurate 3D CAD models. Their advanced technology and expertise enabled measurements with precision up to 0.05 mm, exceeding our expectations.

We particularly value the comprehensive mechanical analysis of the crusher shaft included in PROram's report. They not only focused on the measurement dimensions but also identified potential causes of damage and proposed corrective actions. Their proactive approach and readiness for further discussions with our experts and engineers facilitated a thorough understanding of the problem and the development of effective solutions.

It's important to highlight that all tasks were completed on time, maintaining the highest standards of quality. The 3D CAD models of the scanned smaller components accurately reflected the actual objects with remarkable precision, demonstrating the high level of professionalism and experience of PROram's engineers.

Collaborating with PROram has provided us with valuable experiences and knowledge about modern measurement technologies, significantly contributing to our development and innovation. Their flexibility, willingness to face challenges, and responsiveness make PROram a valuable partner whose support we can rely on.

We wholeheartedly recommend PROram's services to anyone seeking reliable and professional solutions in measurements, 3D scanning, reverse engineering, and general engineering.

Kind Regards,

Mariusz Androsiuk

Design Department Manager

Joy Global (Poland) Sp. z o.o

19.04.2024



Joy Global (Poland) Sp. z o.o.

Mariusz Androsiuk
Kierownik Działu Konstrukcyjnego

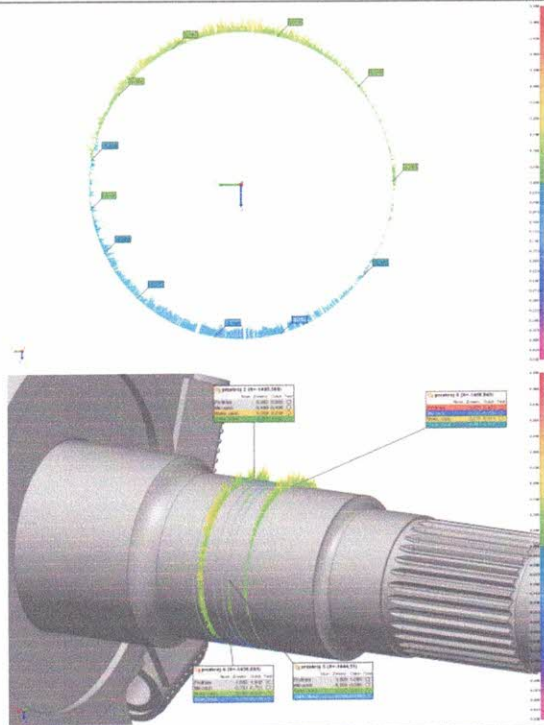
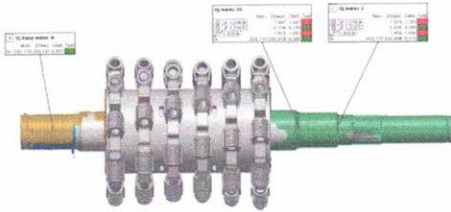


Document name: Raport pomiarowy dla Walu kruszarki
 Report no./rev : report 1 rev. 0
 Report Author: Rafał Miłczarski
 Surveying date: 08.12.2023
 Report date: 15.12.2023

W dniu 08.12.2023 w siedzibie firmy Komatsu (Mining Group) przy ul. Murarskiej 20 w Tychach wykonano pomiary kontroli geometrii przy pomocy Absolutnego Ramienia Pomiarowego RA8525. Pomiary wykonano za pomocą skanera laserowego mierząc bezстыkowo obszary zainteresowania. Wyniki kontroli znajdują się na następných stronach.

Na rysunku przedstawione zostały średnice rozpatrywanych elementów walcowych wraz z ich nominalnymi i zmierzonymi komponentami.

Ze względu na zauważalne gołym okiem uszkodzenia zastosowano środki ostrożności w postaci rozdzielania sprawdzanego walca na 2 osobne walce. Walec 2 jest to średnica uzyskana z obszaru bez uszkodzeń, natomiast walec 22 jest to średnica uzyskana ze skanu wraz z uszkodzonymi miejscami.



Organization: Proram
 Customer: Komatsu
 E-mail: ram@proram.no
 Operator name: Michał Hamkalo
 Project:

Part name:
 Part number:
 Drawing #:
 Serial #:
 Device:

Organization:
 Operator:
 E-mail:

Part name:
 Part number:
 Piece: część 20231208T135051

