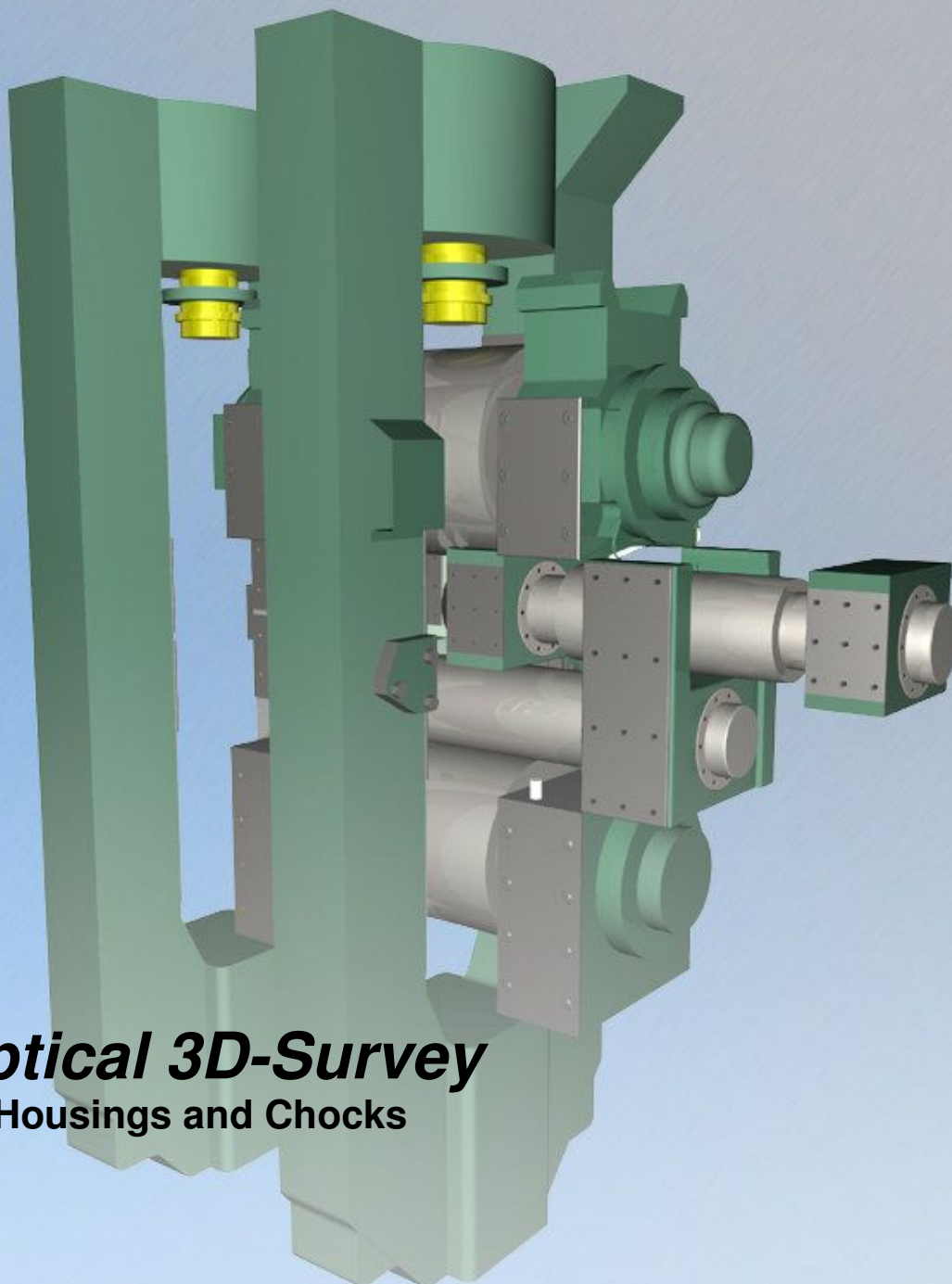


Engineering Services and Solutions for Rolling Mills



Leussink

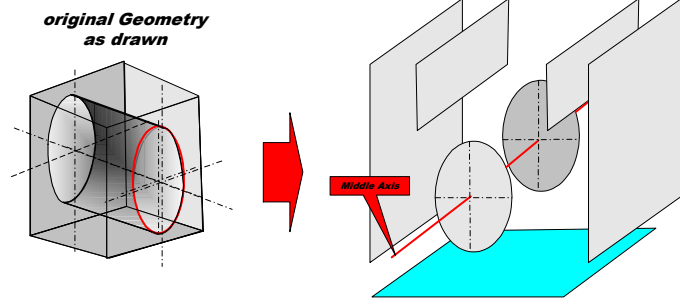
Think. Solve. Engineer.



Optical 3D-Survey
for Housings and Chocks

The Objective

To optimize the overall rolling quality as well as for maintenance purposes it is necessary to check the overall geometry of housings and chocks. For the chocks, the most important characteristics are: the distances and parallelism of the outer bearing surfaces and the profile of the central bores, which hold the valuable roll-neck bearings.



This checking process can be performed utilizing photogrammetric methods. A special surveying camera is used to take images of the optically tagged chocks from different angles, which serve as the base level data for our photogrammetric analysis software **PHAUST.assist**. The software verifies the images and transfers them to our experts who complete the evaluation and documentation of the survey data.

On Site Survey

In the first step, targets and measuring adapters plus additional calibration bars are applied to the chock. A minimum of 16 images of each chock is taken with the surveying camera. The images are then checked by the special software **PHAUST.assist** with to determine their suitability for the high-precision evaluation process, which delivers results in the precision range of 0.10 mm.



The Concept

CORTS Engineering promotes **PHAUST.industry** – a complete on-site chock survey package made up of the survey camera, the complete measuring equipment, and the on site software, enabling you to survey your chocks independently and on site. Integrated algorithms guarantee high-precision images and an on site data check so that your chock data may be evaluated online by our photogrammetric techniques.

The final evaluation and documentation is done via internet by our experts at INVERS and a complete presentation of the final measuring results is delivered to you for your final independent use. This procedure is strictly confidential and secured by technologies similar to online banking.

The Components



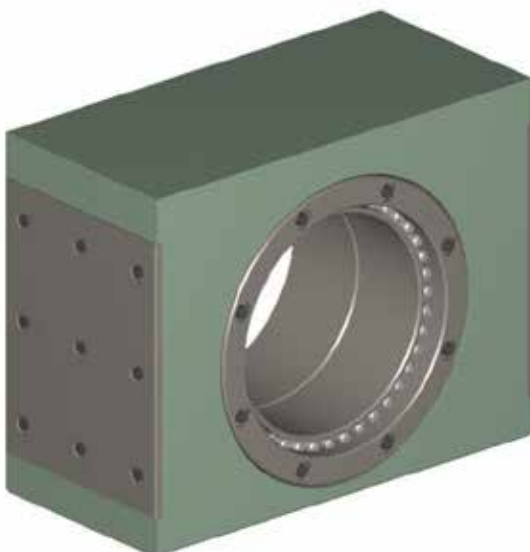
The **PHAUST.industry** survey package includes:

- calibrated survey camera
- complete set of measuring adapters, targets and calibration bars
- powerful industry notebook
- on site verification software
- transfer gateway to INVERS

The Results

The geometric analysis of your chocks is based on the 3D coordinates of the targets. 3D planes are then calculated from this data. The targets that are applied to the bores of the bearings are used for the calculation of the axis coordinates and the radius of the bores.

In addition to the standard measuring reports, the chocks can be presented using the 3D-CAD software INVENTOR, the online-DWF format, or customer specific CAD programs on request.



CORTS Engineering				INVERS			
Check Nr	6			Drawing Nr			
Check Name	Work Roll Chock						
Chock Position	lower	Operator Side					
Place of Survey							
Date of Survey	09.11.2004						
Date of Calculation	03.12.2004						
temperature	26.7° C						
<p>Outside</p>				<p>Inside</p>			
Diameter (mm)				rated Dim.	546,20	Tolerance : -0,05 / 0,075	
R1	rated	measured	Difference	R2	rated	measured	Difference
	273,10	244,9	-28,2		273,10	273,4	0,3
Distances (mm)				rated	measured	Difference	
s1	364,00	363,7	-0,3	s3	364,00	363,9	-0,1
Plate				Plate			
s2	364,00	363,6	-0,4	s4	364,00	364,1	0,1
Plate				Plate			
s1+s2				s3+s4			
Sketch (isometric):				rated Dimensions (mm)			
				Mount. Surf. 728,00 Tolerance: +0,00 / -0,01			
				Plate Thick. Tolerance:			
				d1	d2	d3	
				measured	727,6	727,6	727,6
				Difference	-0,4	-0,4	-0,4
				measured	727,7	727,8	727,5
				Difference	-0,3	-0,2	-0,5
				measured	728,1	727,8	727,5
				Difference	0,1	-0,2	-0,5
Color Code	Value Entry	Entry	Exit	OK	Enter		
J022.11.04							

Leussink

Think. Solve. Engineer.

C&M Leussink Engineering
16-18 Doyle Ave, PO Box 371
Unanderra NSW 2530
P +61(0)2 4260 7777
F +61(0)2 4260 7788
www.leussink.com.au
info@leussink.com.au

CORTS Engineering

Dipl.-Ing. Jochen Corts
Ronsdorfer Str. 29-37
D-42855 Remscheid
P +49 (0)2191 / 98800-18
F +49 (0)2191 / 98800-56
www.corts.de
j.corts@corts.de

Partners



CP-Systems

Change Paradigm Systems AG

Dr. Daniel Hackmann
Gustav-Maurer-Str. 9
CH-8702 Zollikon

P. +41 (0)840 / 700 400
M. +41 (0)79 / 419 7319

www.cp-systems.ch
info@cp-systems.ch



INVERS Industrievermessung

Dipl.-Ing. Detlev Woytowicz
Nordsternstr. 65
D-45329 Essen

P. +49 (0)201 / 36 142-10
F. +49 (0)201 / 36 142-29

www.invers-essen.de
info@invers-essen.de



SOLVing 3D

Dr. Bernd-Michael Wolf
Osteriede 5
D-30827 Garbsen

P. +49 (0)5131 / 90 79 72-0
F. +49 (0)5131 / 90 79 72-9

www.solving3d.de
info@solving3d.de