

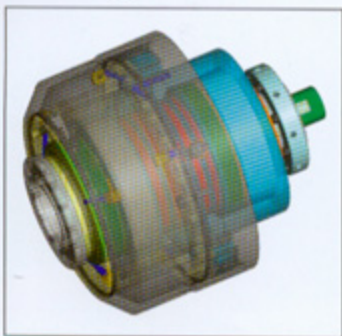
Swiss Quality Production

EPE

European Production
Engineering

2007

Drive systems



Grinding technology

Cutting tools

Fixtures

C-Technology

Cleaning systems

 **SWISSMEM**

SPHINX

Your partner



EMO Hannover
17. - 22.09.2007
Hall 4, Booth C46



HANSER

Where trains make their pit stops

Train wheels have a hard life. Countless kilometers on widely varying sections with heavy loads. As with every industrial system, the service life of trains also depends heavily on maintenance.

Smooth rolling surfaces for comfortable travel

An important point on the check list of the Technical Service Co. of the Austrian Railways (ÖBB), Salzburg (Austria), is the reconditioning of rolling stock and locomo-

tions which are distributed throughout the entire carriage, adversely affecting the comfort of the passengers.

There is a remedy for this, however, in that train wheels are made of forged steel and can be reconditioned several times over. The wheels of locomotives are inspected every 150,000-180,000 kilometers, while carriage wheels are inspected after two years at the latest, depending on the section on which they are used. In Austria, a new carriage wheel is 1150 mm in diam-

(Fig. 1) and in programming the system. For reasons of safety, the adjustable cutting tool tip is repositioned after about four wheels. Here, a development by Ceratizit offers something new. The four-sided cutting tool tip with eight usable cutting edge corners offers a markedly superior degree of use by comparison with the conventional tangential design. In the final analysis, it is actually only possible to use four of the eight cutting edge corners of the tangential type. The Ceratizit retaining system, moreover, offers particularly



Fig. 1. Degree of wheel wear measured along the reconditioning pit

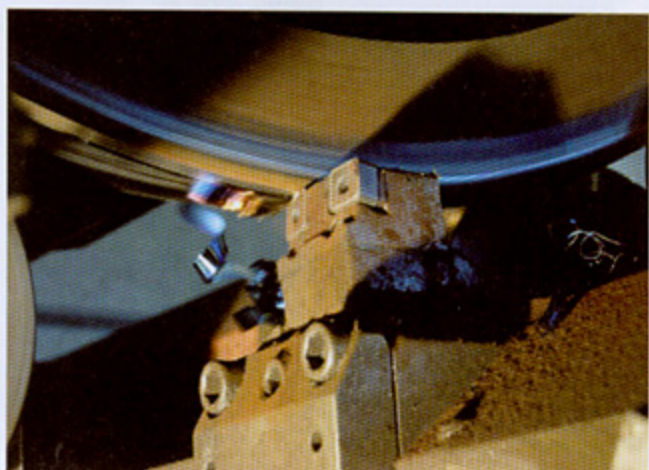


Fig. 2. Safety aspect: Controlled chip breaking

tive wheel sets, and the safeguarding of the quality of these components. Train wheels are subject to extreme stresses, and wear is correspondingly high. According to Markus Krabichler, Product Manager at Ceratizit, Reutte (Austria), »First and foremost, the wheels of trains which service particularly winding or hilly sections are subject to heavy wear and tear. In the case of intercity expresses, particular attention is paid to the quality of the rolling surface of the wheels, since these luxury trains should run as quietly as possible over long distances.«

The most common cause of damaged rolling surfaces is hard braking. Under sudden or even prolonged braking, a wheel can lock up and be dragged along the track in this condition. This gives rise to a flat spot and hardening, and the wheel runs out-of-round. The result is juddering and vibra-

tion and may be turned off to a minimum diameter of 1086 mm. A wheel loses between 4 and 10 mm of its diameter every time it is reconditioned. When a wheel can no longer be re-turned, the complete axle is replaced.

More usable cutting edge corners

On average, the teams of the Austrian Railways Technical Service Co. process 24 axles a day in a two-shift operation in two sunken processing centers. The machine employed in plants of this type is installed in a pit. The train or carriage runs over it and the wheels are reconditioned without being removed – an expensive operation. The processing of one axle (both wheels are dealt with simultaneously) takes between 15 and 25 minutes, half of which is spent in measuring the degree of wear

convenient handling and, thanks to the use of cemented carbide shims, the usual cases (and their need for laborious replacement) are eliminated. As a result, both time and material are saved.

Safety is important to Krabichler. »Because the machine is positioned beneath the train (due to the risk of injury) a controlled chip breaking function is decisive (Fig. 2). Our »R70« and »R71« feature special geometries which were developed to ensure the optimum chip behavior in the reconditioning of train wheels.«

■ Ceratizit Austria Gesellschaft mbH
A-6600 Reutte
Phone +43-5672-2000
Fax +43-5672-200-500
www.ceratizit.com