



Universal  
deployment



80 km/h  
operating  
speed



No track  
closures



60 km  
non-stop grinding



+100%  
Rail life extended  
by up to 100 %



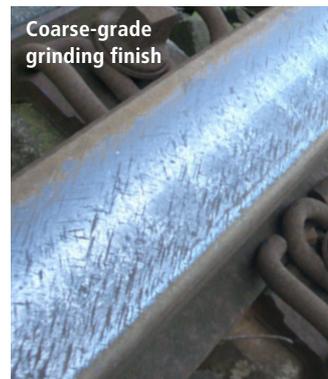
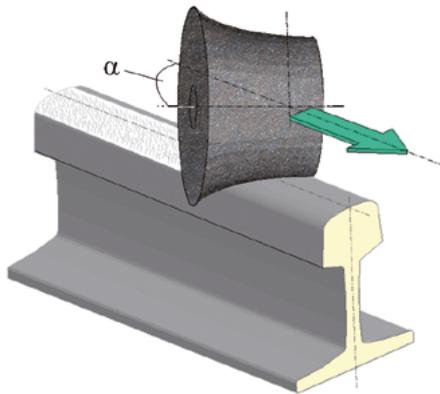
Reduces noise by  
3 to 10 decibels

# Grinding wheels for maintenance with preventive High Speed Grinding

Technical Datasheet

## Grinding wheels for the fastest rail-reprofiling machine in the world

With "High Speed Grinding (HSG)", Vossloh has developed a new preventive grinding technique for mainline, light rail and industrial rail networks. Its grinding speed of up to 80 km/h is unique and for the first time ever has enabled a rail reprofiling machine to operate inside the train timetable. While the traction vehicle pulls the grinding machine along the rails, the hydraulic system presses the grinding wheels mounted in the individual cradles/ grinding revolvers onto the rails. The forward motion and the downward pressure cause the grinding wheels to rotate, which produces the grinding effect. Both coarse and medium-fine grinding wheels are used, which wear down evenly as they remove the top-most layer of steel. The coarse-grade grinding wheels remove more material while the medium-fine version provides a surface finish with a roughness of under  $7\mu\text{m}$  in order to prevent head checks. The grinding revolvers can also be tilted, which makes it possible to actively modify the rail profile (e.g. anti-head check profile).



### Benefits

- / The HSG grinding principle with passively-driven peripheral grinding wheels (arranged in rows in the grinding revolver) rules out overheating and overgrinding
- / Targeted material removal of 0.1 mm to safely remove the outer head-hardened layer
- / Enormous non-stop grinding capacity of up to 60 km of rail per shift
- / Also recommended as acoustically effective grinding technology
- / Effective corrugation removal
- / Removing slippery surface layer

### Applications

- / Machining straight track and switches
- / Machining new rails
- / Noise reduction in sensitive areas
- / Prevents head checks and Corrugation removal



## Grinding wheels for High Speed Grinding

### Technical data

#### Material

The grinding wheels are made up of three main components: corundum, resin and filler material. The filler material delivers improved grinding characteristics.

#### Grinding quality

The passively-driven grinding wheels are suspended in series, and the brief contact period between grinding wheel and rail prevent overheating and overgrinding. The material substance of the rail remains unaffected.

#### Recycling

Both the bushing and the axle of a grinding wheel can be recycled once the corundum has been removed from the used grinding wheels. The bushings and the axles can be cleaned and reused many times over. The residual corundum material can also be sustainably reused. An ingenious recycling system ensures that these raw materials are reprocessed.

At the customer's request, VRS can take care of all aspects of grinding wheel disposal.

#### Transport and storage

Store in a dry, frost-free environment. Grinding wheels require special protection from salty air when transported by sea.

#### Dust analysis / emissions

The dust extraction system on the HSG machines is made up of mineral-reinforced composite material that meets all the functional and railway-operations requirements concerning temperature-resistance, resistance to wear and tear, damage tolerance, etc. As it is not metallic, there's no interference with the switching equipment mounted on the rails or the track's centerline.

#### Occupational health & safety

Despite the fact that more than 95 % of dust and sparks are captured, a minimal fire risk cannot be completely ruled out. In very dry weather conditions, a decision must be made in each case whether the grinding work can go ahead. In Germany, the fire danger indexes for grassland and forest areas are to be used as a guide.

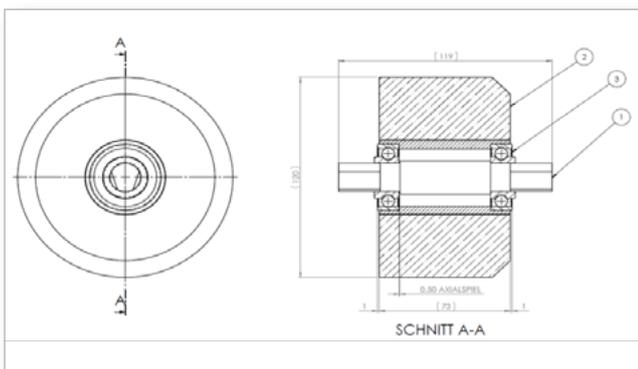
#### Material removal and operational range

Both of these aspects are influenced by various factors such as temperature, humidity, rail hardness (prevailing baseline hardness as well as operations-related hardening) and variations in the transverse profile of the rail head. Consequently, they can vary considerably. In close collaboration with the customer, Vossloh calculates the material removal required and the maximum coverage possible.

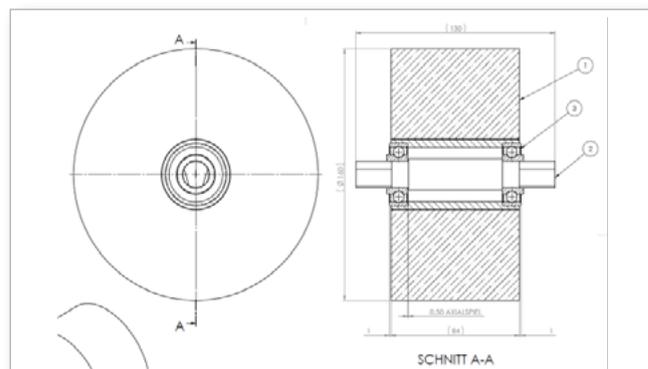


#### Daten

Grinding wheel type	Course grinding wheels	Medium-fine grinding wheels	Course grinding wheels	Medium-fine grinding wheels
Grinding zone	gauge corner	gauge corner	running surface	running surface
Article number	1300381	1301211	1300382	1301210
Material removal per pass	0.04 mm	0.02 mm	0.04 mm	0.02 mm
Range / output per wheel	approx. 16 km	approx. 12 km	approx. 40 km	approx. 35 km
Dimensions	D = 120 mm, W = 73 mm	D = 120 mm, W = 73 mm	D = 160 mm, W = 84 mm	D = 160 mm, W = 84 mm
Weight	approx. 2.5 kg	approx. 2.5 kg	approx. 4.5 kg	approx. 4.5 kg



Gauge corner grinding wheel



Running surface grinding wheel

Global expertise  
in over 100 countries

