

## WHAT GRINDS YOUR GEARS?

### ATLANTIC GmbH has developed a new grinding wheel for discontinuous profile gear grinding.

The objective was to develop a quality which outperforms existing grinding wheels currently available on the market. Furthermore, this had to be achieved using raw materials which have a secure future supply, without utilizing any environmentally polluting materials (e.g. Naphthalene).

In order to analyse the efficiency in relation to the stock removal rate  $Q'_w$   $\text{mm}^3/(\text{mm} \times \text{s})$ , the volume of stock removed  $V_w$  ( $\text{mm}^3$ ) and the structural integrity of the work piece, Atlantic worked in cooperation with the WZL (machine tool laboratory of the RWTH Aachen University).

Together with the WZL, the criteria for the performance evaluation were defined.

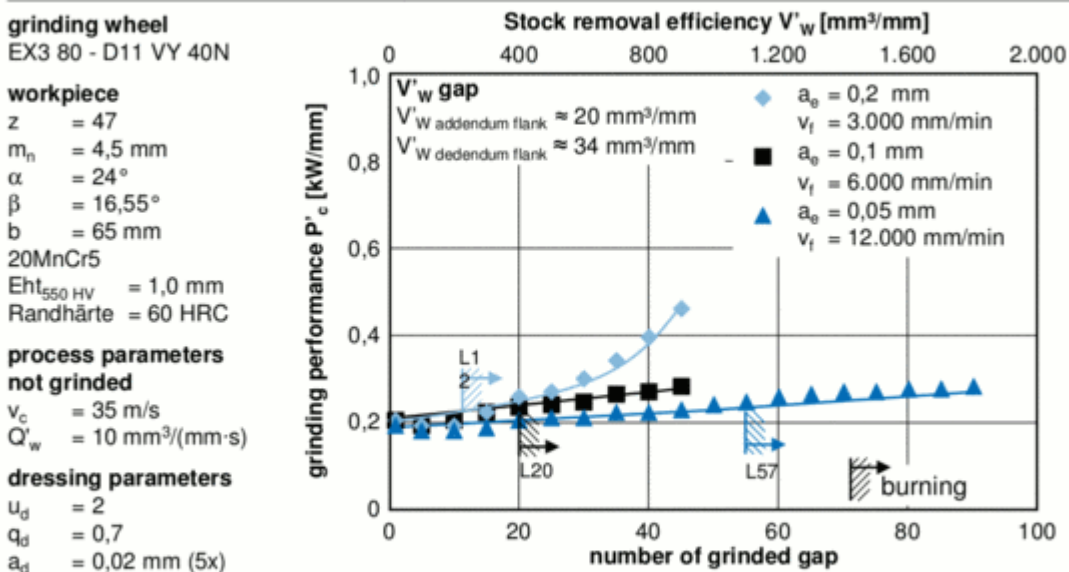
After production of different grinding wheels in various qualities, the grinding tests at the WZL were completed and analyzed.

After the evaluation of the grinding performance, nital etching, Barkhausen measurement and gear tooth geometry, the trials will now be verified by industrial application.

During the laboratory tests the specification EX3 80 D11 VY 40 N produced exceptional results.

The newly developed grinding wheels when compared to other wheels tested to-date, gave an improvement in performance of 15%, without experiencing any structural damage to the work piece.

### Comparison of the grinding performance at a constant material removal rate for specification EX3 80 - D11 VY 40N



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## Material removal rate for specification EX3 80 - D11 VY 40N

### grinding wheel

EX3 80 - D11 VY 40N

### workpiece

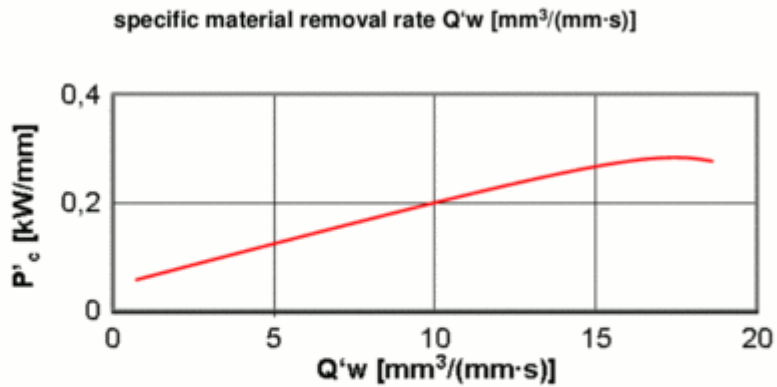
z = 47  
 m<sub>n</sub> = 4,5 mm  
 α = 24°  
 β = 16,55°  
 b = 65 mm  
 20MnCr5  
 Eht<sub>550 HV</sub> = 1,0 mm  
 surface hardness = 60 HRC

### process parameters

not grinded  
 v<sub>c</sub> = 35 m/s  
 Q'<sub>w</sub> = 10 mm<sup>3</sup>/(mm·s)

### Dressing parameters

u<sub>d</sub> = 2  
 q<sub>d</sub> = 0,7  
 a<sub>d</sub> = 0,02 mm (5x)



All industrial trials now completed on a variety of gears gave an improvement in performance.

Due to the positive results achieved with Atlantic specification EX 80 D11 VY 40 N, a stock of such wheels is now available for delivery at short notice.

Our application engineers would be pleased to arrange a visit to provide advice or undertake trials.

### discontinuous gear tooth grinding

stock number	specification	grinding wheels ( D x T x H* )
05999 3001 SLS	EX3 80 -D11 VY 40N	350 x 40 x 127,0 [mm]
05999 3002 SLS	EX3 80 -D11 VY 40N	400 x 30 x 127,0 [mm]
05999 3003 SLS	EX3 80 -D11 VY 40N	400 x 45 x 127,0 [mm]
05999 3004 SLS	EX3 80 -D11 VY 40N	400 x 70 x 127,0 [mm]

\*D = outer diameter  
 \*W = width  
 \*H = inner diameter

The grinding wheel dimensions indicated are to be considered as semi-finished products.  
 The dimensions given can be adapted to your individual requirements.

That means D and/ or T can be reduced and H can be increased!

Should you have an interest in this high performance grinding wheel, please contact us.