

## **COLDfire Treatment Testing Results – Slitter Blades**

### **Test summary**

This test group was the first run, and there are difficulties with the data due to the experiments being constrained by the factory's normal operating practice. Hence, there are limited performance comparisons which can validly be made. In scientific terms there are few samples and no opportunity for controlled replication of experiments. Nevertheless, conservative analysis shows there to be a longer slitting life provided by COLDfire treated slitter rolls.

Direct comparisons have been made between slitter rolls only where the following conditions have been met:

- Similar yield strength material
- Similar thickness material
- Many of the same coils have been slit.

Comparisons were made to determine the ratio:

*(slit length by COLDfire treated slitter roll) / (slit length by Untreated slitter roll)*

and the difference in length slit, namely:

*(slit length by COLDfire treated slitter roll) - (slit length by Untreated slitter roll)*

These comparisons were made based on each of the following measures of slit length:

- Actual physical length of material slit

Adjusted length of material slit (adjusted to length equivalent for 0.40mm thick material)

### **Single edge to single edge comparisons**

Refer tables 1 and 2 showing data from all valid comparisons

Refer Figure 1, a Pareto chart indicating total slit by each COLDfire slitter roll.

Refer Figure 2, a Pareto chart indicating total slit by each Untreated slitter roll.

Refer Figure 3, a Pareto chart indicating the total length of each material slit by COLDfire treated slitter rolls.

Factors of note:

- In **every instance**, the COLDfire treated slitter roll outperformed the untreated slitter roll.
- The substance of the results is the same, regardless of the slit length measurement used (with or without adjustment for thickness).

### **Observations and Conclusion**

Despite the small number of data points available, a performance difference is clear. Typically, a single edge of a COLD-fired slit roll outlasted more than 2 edges of Untreated slit rolls, while slitting similar material. This ratio of performance of COLDfire to Untreated ranged from 1.8 x to 2.9 x the slitting life for a single sharpening. This translates to an extra 5,000m to 11,000m material slit for each edge of each roll for each sharpening, or about 10 extra coils slit.

Further measurements need to be made to compare any difference in material removal when the slitter rolls are resharpened. Experience indicates less material need be removed to sharpen the COLDfire treated slitter rolls.



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**Pareto Charting Summary**

Figure 1: COLDFire Slit length totals by blade and edge

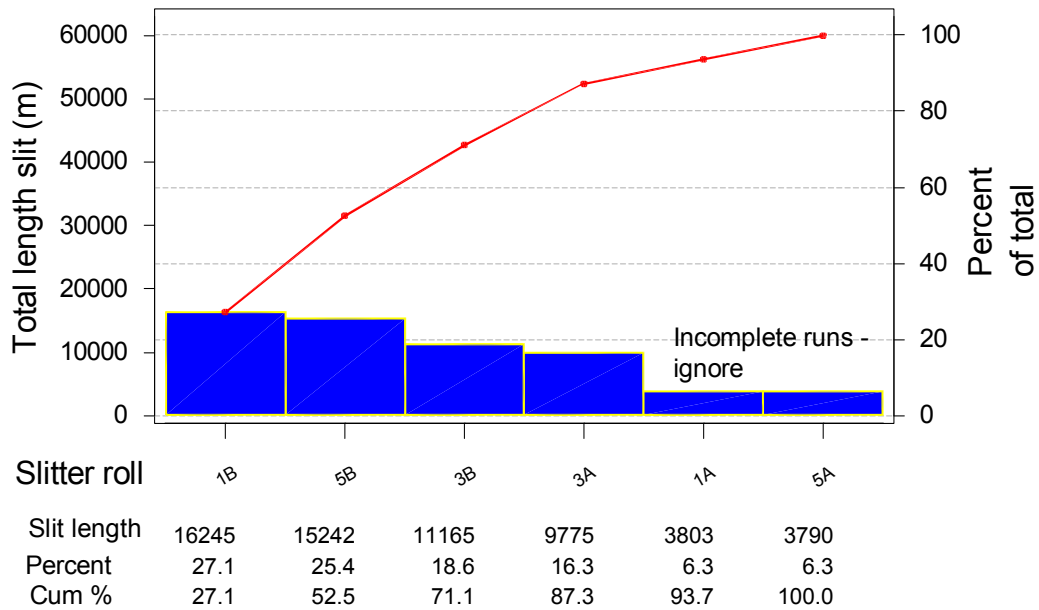
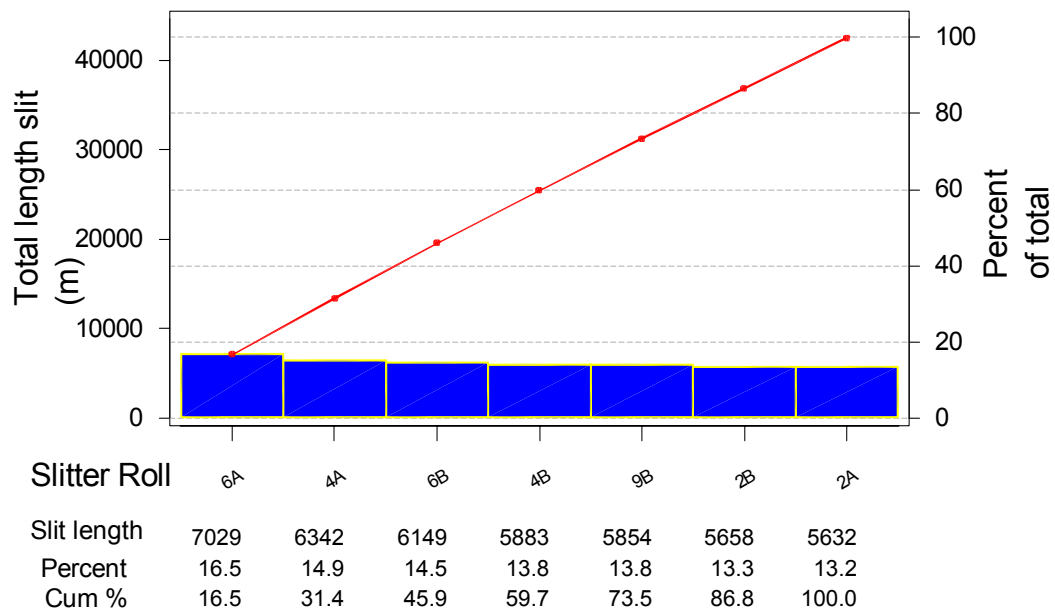
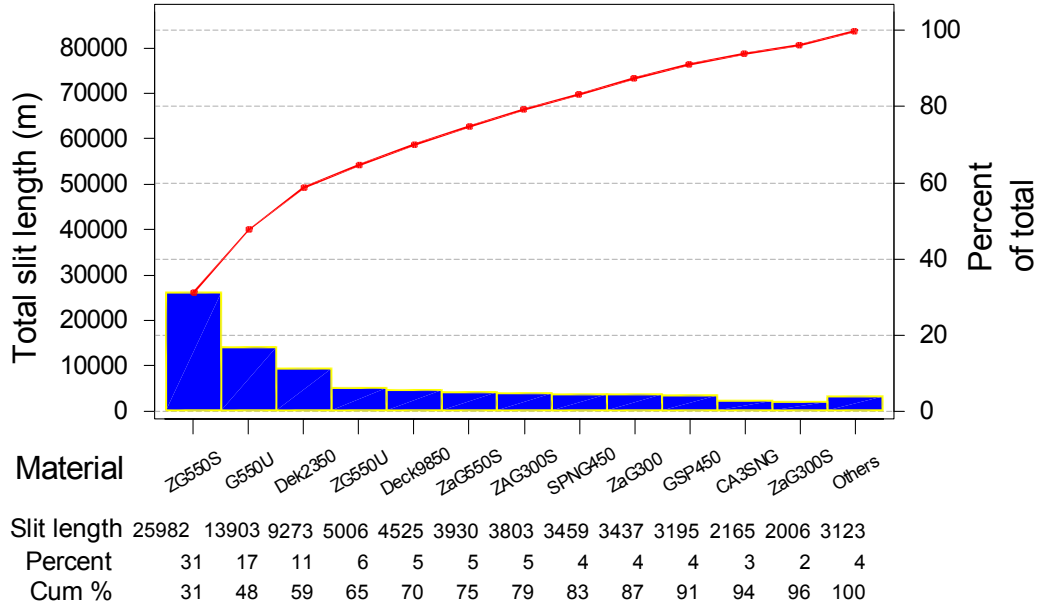


Figure 2: Untreated Slit length totals by blade and edge



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Figure 3: Slit length totals by product



**Graphed Test Result Data in association with BHP Australia**

<b>Table 1: Actual length of material slit</b>	<b>COLDfire treated blade and edge</b>	<b>Untreated blade and edge</b>	<b>Improvement of COLDfire to Untreated</b>	<b>Increase distance by COLDfire to Untreated blade</b>
Blade and edge	<b>1B</b>	2B		
Distance slit	<b>16246</b>	5658	<b>2.87</b>	10588
Blade and edge	<b>1B</b>	2A		
Distance slit	<b>16246</b>	5632	<b>2.88</b>	10614
Blade and edge	<b>3B</b>	4B		
Dististance slit	<b>11164</b>	5883	<b>1.9</b>	5281
Blade and edge	<b>3B</b>	4A		
Dististance slit	<b>11164</b>	6341	<b>1.76</b>	4823
Blade and edge	<b>5B</b>	6B		
Dististance slit	<b>15244</b>	6150	<b>2.48</b>	9094
Blade and edge	<b>5B</b>	6A		
Dististance slit	<b>15244</b>	7030	<b>2.17</b>	8213



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## COLDfire Slitter Roll Comparison

