

Dressing technology WireDress®

When grinding gets an unimagined dimension

Entirely new possibilities for grinding with metal-bonded CBN and diamond grinding wheels: this is made possible by STUDER's WireDress®. Not only does this cutting-edge EDM technology save massive downtime, it also makes it possible to dress sintered metal bonds with the highest precision in the grinding machine at the full working speed.

But how does this dressing technology work? Michael Klotz, project manager for development at Fritz Studer AG, explains it this way: "It is a well-known fact that metal-bonded grinding wheels are much more durable and dimensionally stable when machining difficult-to-machine materials and ultimately enable higher productivity. The problem with this is that metal bonds can only be dressed to a very limited extent using conventional methods in the grinding machine. In addition to this there is a high dressing tool wear associated with a low cutting ability. This is neither an operator-friendly, nor a high quality and process consistent dressing method". That's why the "best" bond – the metal bond - is rarely used. "STUDER has developed, along with technology partners, the machine-integrated WireDress® dressing technology. Here, the dressing is done at full wheel speed. In contrast to conventional mechanical or external EDM dressing, WireDress® dressing occurs by a modified wire erosion in the grinding machine, where the grinding oil serves as a dielectric.

The dressing process is contactless and wear-free. The grit itself is not dressed, the metallic bond around the grit is removed. Depending on how deep the grit is embedded in the bond, it either falls out or remains with original sharpness in the bond. The grinding wheel receives a high grain clearance for maximum cutting capability, lower grinding forces and low burning risk. You can now harness the capabilities of metal bond with WireDress®. Using a bond with a high dimensional stability, almost any profile can be precision-contoured in the µm range. Long dressing intervals can be achieved. Yet another plus: the accurate processing of sophisticated or smallest geometries that was neither economical nor possible before, now becomes feasible. Compared to grinding with ceramic-bonded grinding tools, significant increases in productivity in the range of at least 30 percent is realistic, with resin bonds, even more is possible. With a sintered metal bonded grinding wheel, you can even go beyond the limit - you can just re-dress it in the machine again. With a conventional with galvanic bonded grinding wheel you can only go over the limit once. "Maximize these limits without fear - that also makes greater profitability possible," adds Michael Klotz.

WireDress® - the new generation

WireDress® had up-to-date the drawback that the device took up a lot of space on the table and limited the usable centre length in the machine. Now STUDER is launching the new generation on the market. WireDress® is now much more compact and sits directly behind the workhead, making it more flexible and also more powerful than its predecessor.

The Art of Grinding.

This has changed compared to the previous model.

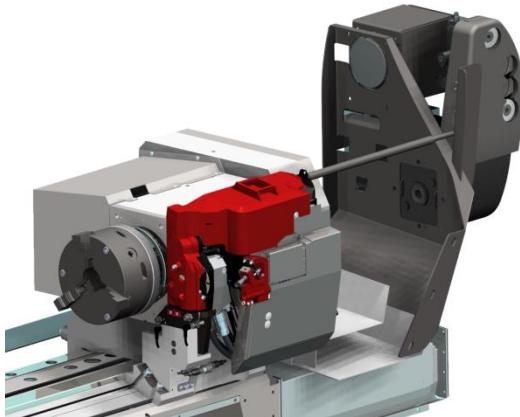
- Now the full centre distance can be used, there is no restriction from the dressing device, which is now placed behind the workhead
- The new generation WireDress® is 20 percent faster than its predecessor
- WireDress® is a right and left dresser in one, it can be automatically swivelled to two positions.
- By swivelling the dresser, higher shoulders and deeper profiles can now be dressed with a universal dressing tool - the wire
- Large grain sizes up to B151 (D151) can now be dressed for maximum cutting performance (depending on the bond)
- It has an extended sensory monitoring capability

Conclusion

Thanks to WireDress®, the dressing of metal-bonded grinding wheels is now a breeze. STU- DER is convinced that this allows users to massively increase productivity and precision when grinding carbide, steel and ceramics.

Image 1:

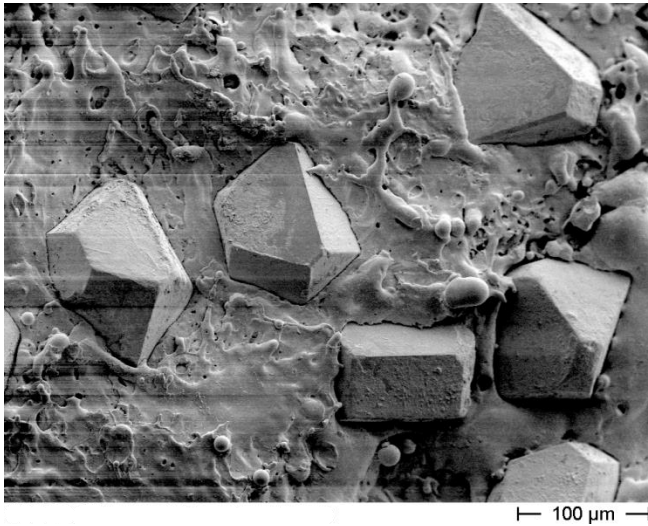
STUDER WireDress® - the latest generation of machine-integrated dressing technology for metal-bonded grinding wheels.



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Picture 2:

SEM image of a D126 grain



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