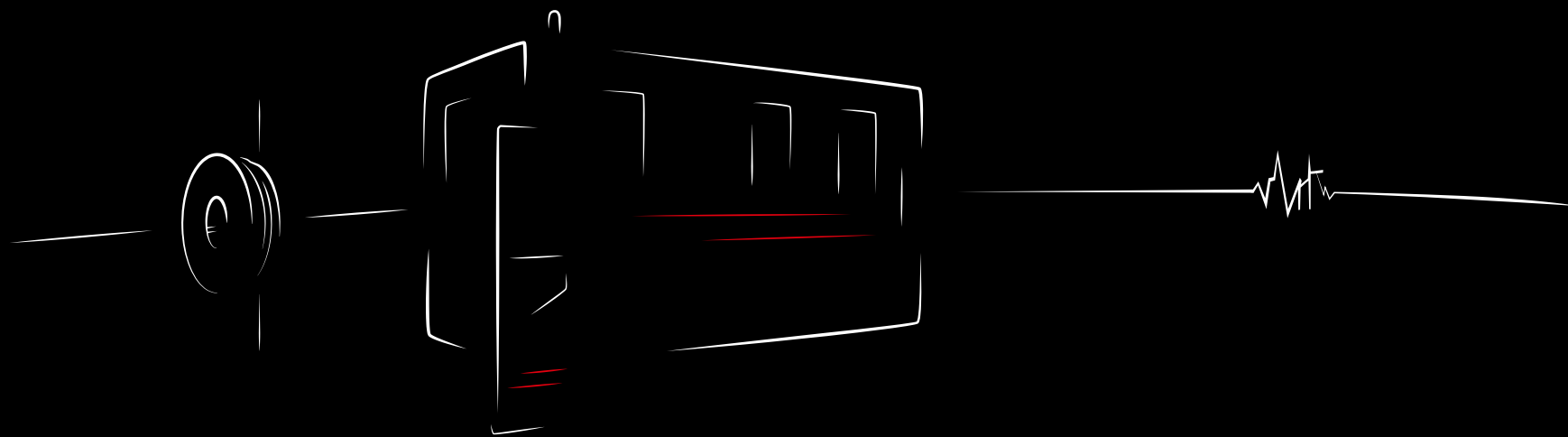


## The Art of *Economy*



Wire EDM dressing of CBN and diamond grinding wheels



**EDM DRESS**



## The future is now

### **Grind at higher speeds for higher productivity**

Up to **280% more material removal** with EDM-dressed grinding wheels.

### **390% longer service life**

Open surface topography with protruding abrasive grain yields sharp grinding wheels with an up to 390% longer service life.

### **Complex and intricate profiles**

Freely programmable and contactless dressing process permits precise and complex geometries. No need for additional grinding wheels for some grinding operations.

# Up to 280% more feed, 390% longer tool life.

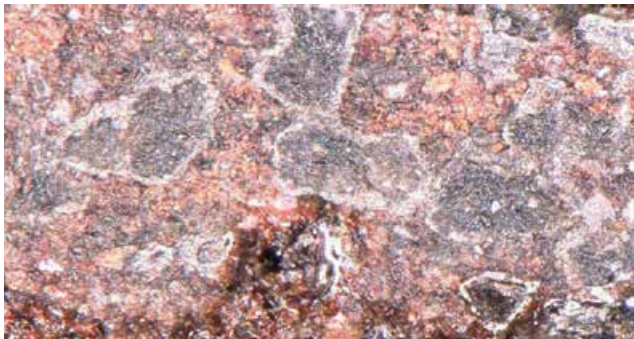
By EDM dressing with the Mitsubishi Electric **V350** EDM generator.

## Exploit the advantages of metal-bonded grinding wheels in the grinding process

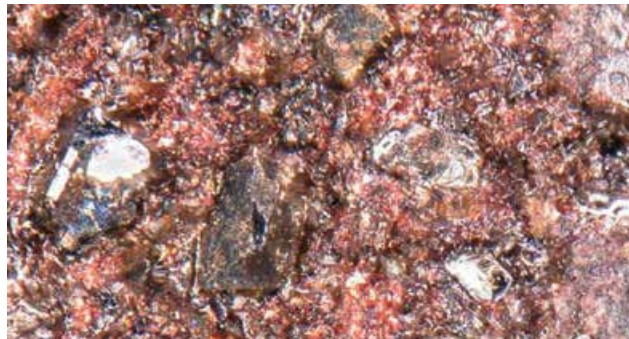
In the grinding of tungsten carbide, ceramics and hardened steels, metal-bonded grinding wheels have huge advantages over the grinding wheels with synthetic resin bonds currently in frequent use. They are much more dimensionally stable and permit significantly higher grinding feed rates – for previously unattained productivity.

The constant challenge of boosting precision and effectiveness while reducing costs can be achieved with metal-bonded grinding wheels. The previously highly elaborate dressing process can now be superseded by wire EDM systems with the V350 generator from Mitsubishi Electric.

**Grinding wheel surface before erosive processing**



**Grinding wheel surface after erosive processing**



## Mitsubishi Electric V350 – the generator for the best grinding wheels

The V350 generator from Mitsubishi Electric has outstanding properties for the dressing process and makes it possible to produce grinding wheels with a sharp cut. The result is open-porous grinding wheels with the best possible grain protrusion – for optimum grinding.

Mitsubishi Electric has been a partner of the Formula 1® team for many years, and over 26,400 workpieces are machined on Mitsubishi Electric EDM systems each season.

Formula One® racing car  
The Alfa Romeo Racing C38-Ferrari



For Alfa Romeo Racing, every millisecond of lap time counts, and the demands on precision and performance are extreme. Why shouldn't you benefit?

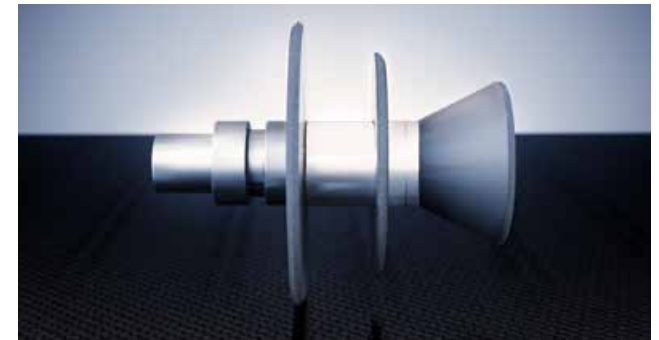


MANUFACTURING PARTNER



## Impossible contours ...

Which ones would you like for special results?



**“** *A new age in dressing has dawned thanks to wire EDM. Undreamt-of possibilities can now become reality.* **”**

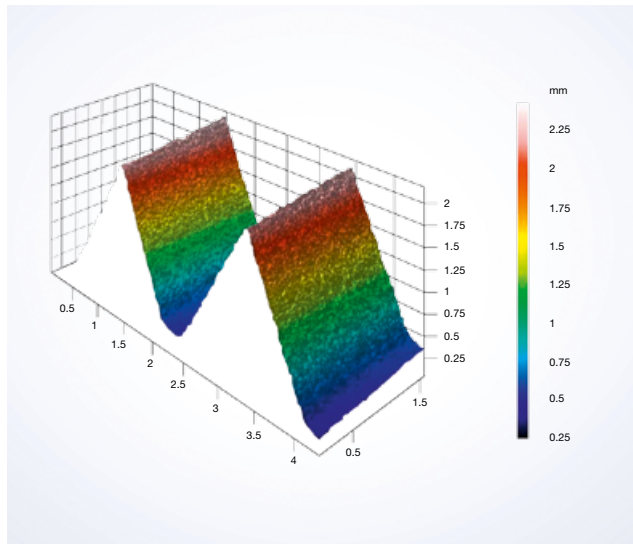
**Prof. Dr.-Ing. Bahman Azarhoushang**

Head of Competence Centre for Machining  
Professor at Furtwangen University of Applied Sciences  
Faculty of Mechanical and Medical Engineering  
Campus Schwenningen



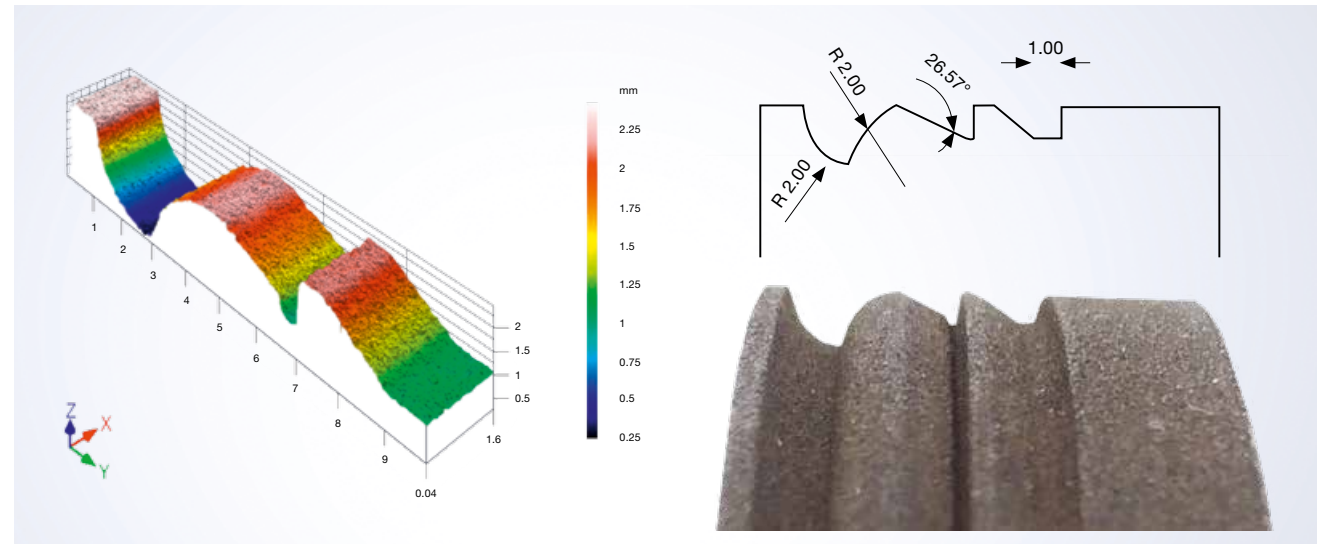
No mechanical forces, sharp abrasive grain and complex contours.  
Reproducibly precise results.

Grinding wheel geometry



Precise grinding wheel geometry with a deep profile.

Concave and convex profiles

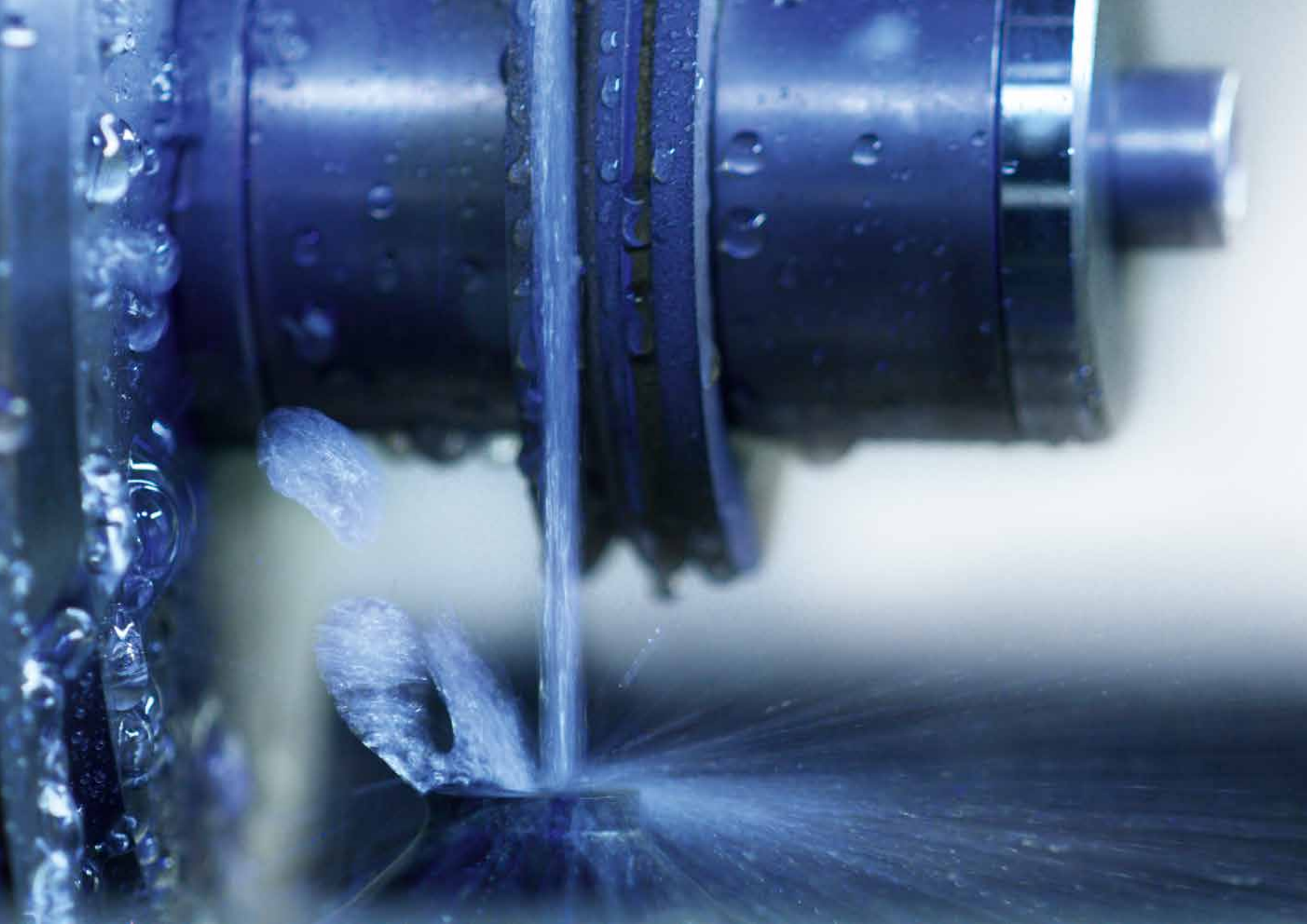


Even complex geometries can be realised on a grinding wheel with wire EDM. For conventional dressing, three grinding wheels would be required for this geometry – with EDM, a single wheel is sufficient.

Image source  
Competence Centre for Machining  
Furtwangen University









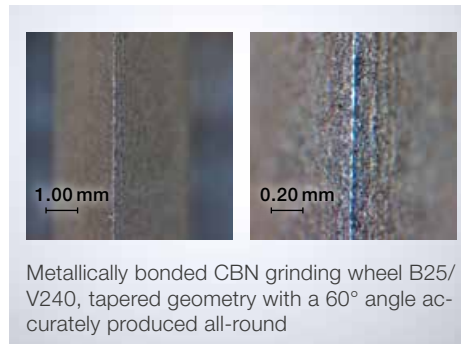
# Electrical sparks as a dressing tool – contactless, precise and no compromises.

## Contour fidelity



Wire EDM dressing of the grinding wheel enables the **finest and most complex geometries**. By using thin erosion wires, inner radii of  $r = 0.05$  mm can be achieved on the grinding wheel. Outer radii are only limited by the grain size of the grinding wheel, and tapered contours can be produced with geometrical accuracy.

## Contactless



EDM dressing is a **contactless process** that does not apply any mechanical forces to the grinding wheel. This completely eliminates break-outs and contour damage in the dressing process.

## Intact grains



The wire EDM dressing of grinding wheels is remarkable because only the bond of the grinding wheel is machined. The **abrasive grains remain unaffected by the process** and thus retain their natural shape and sharpness.

## Uncompromising

During machining, the bond of the grinding wheel is removed to the desired grinding contour. The abrasive grains that are no longer bonded drop out of the grinding wheel. As a result the remaining structure of the grinding wheel is characterised by **protruding, sharp exposed abrasive grains** creating greater chip clearance and performance.

This significantly **improves grinding performance**, i.e. grinding feed rate, and **grinding burn is avoided**. At the same time, the service life of the grinding wheel is extended several times due to the considerably reduced mechanical and thermal stressing.



8,000 patent applications per year  
70,000 produced EDM machines  
142,000 employees  
95 years of technology

MITSUBISHI  
ELECTRIC



**If you've got grand designs,**  
you need someone strong you can count on.



Since 1970, a growing number of European companies have therefore been turning to high-performance EDM machines from world market leader Mitsubishi Electric.

Only by producing components in-house is it possible to tailor them perfectly to the intended task. Mitsubishi Electric resorts to its own controls, semiconductors, motors and other items, which are adapted in detail to all requirements. The only thing you notice is that it works – and often for many decades after purchase.

If you want to invest soundly in a durable EDM machine, choose **Mitsubishi Electric**.





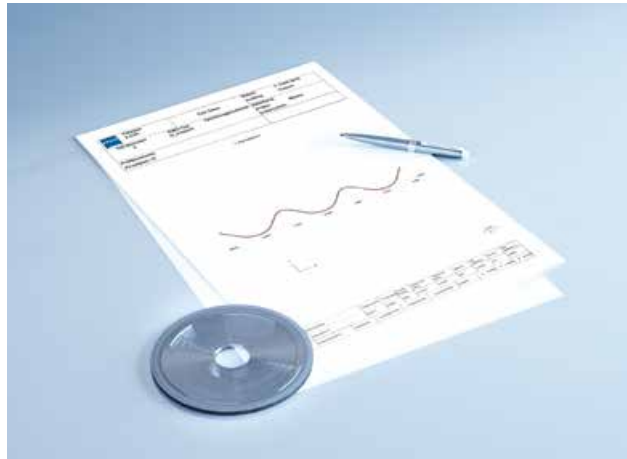
# Smart technology, simple, exact, automatic.

## Simple



EDM Dress – the package for wire EDM dressing is supplied as a turnkey solution and can go into production straight after commissioning. All the necessary components and technologies are made available ready for use.

## Exact



The wire EDM dressing technology is fully CNC-controlled and reproducible. Each grinding wheel is produced with geometrical precision and within the same tolerances every time.

## Automatic



Once set up, the dressing process runs completely automatically. Manual intervention is not necessary, and operator supervision is not necessary. This enables complete automation of the process at any time by automatically loading and unloading the machine.





**Diamond grinding wheel**  
**Running time**

Pre-roughing 20 min 31 s  
Roughing 12 min 38 s  
Finishing 10 min 29 s

**Total 43 min 38 s**



# Unmanned operation.

24/7/365? You decide for yourself how far you want to go.

**Automated single-unit production**



All Mitsubishi Electric V350 EDMs are always ready for the unmanned automatic production of individual grinding wheels. All the rotating spindles used by ITS Technologies are available with a range of standard automatic clamping interfaces and adapters.

**Fully automated single machine**



“DiamondCell” EDM Dress cell – single machine automated with handling robot and magazine in variable configurations. The solution for total autonomy: unsupervised running time is determined by the size of the magazine.

**Automation – multi-machine line**



As an autonomous technology, EDM Dress is always available for use in fully automated lines with several machines. The possibilities are unlimited.

One of the best-kept secrets of leading  
cutting tool and grinding wheel manufacturers



# Installed on the quiet countless times – and not only in Germany.

You can't afford to miss out on a competitive advantage of this magnitude.

## Economic benefits



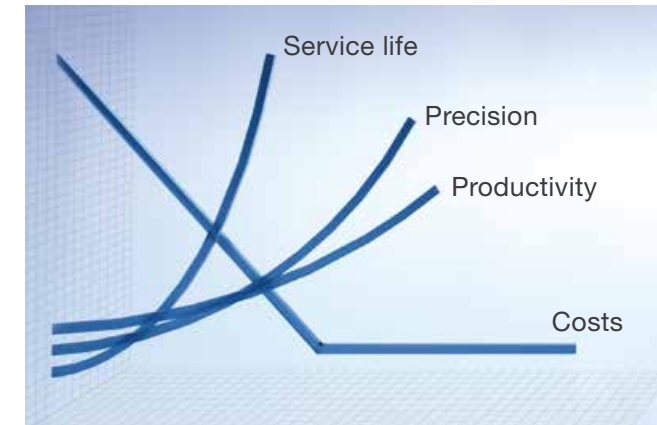
- Up to 280% increase in grinding productivity
- Up to 390% increase in grinding wheel service life
- Reduced number of grinding wheels required
- Reduced number of grinding machines required
- Significant competitive edge due to lower costs

## Technical advantages



- Reproducible dressing results
- Complex geometries can be produced – hence fewer grinding wheels required in some cases
- Intricate structures produced with ease – extension of grinding possibilities

## Investment – worth your money



EDM Dress is a series solution:

- Mitsubishi EDM generator V350
- Standard wire EDM system
- Rotating spindles with standard clamping fixtures
- Ready-to-go technology





**Service hotline:**

**+49 (0) 2102 486 7600**

**Application support:**

**+49 (0) 2102 486 7700**

Monday to Friday: 7.30 am to 8 pm / Saturday: 9 am to 4 pm

# Service.

We're there to help you.

You don't like call centres and queuing systems? We don't either. With every Mitsubishi Electric EDM system you buy excellent service as part of the package. Service is performed by our own highly skilled service technicians so that production is kept dependably up and running. Users are assisted over the phone and benefit from the expertise and wealth of experience of Mitsubishi Electric specialists.

## Warehousing and logistics



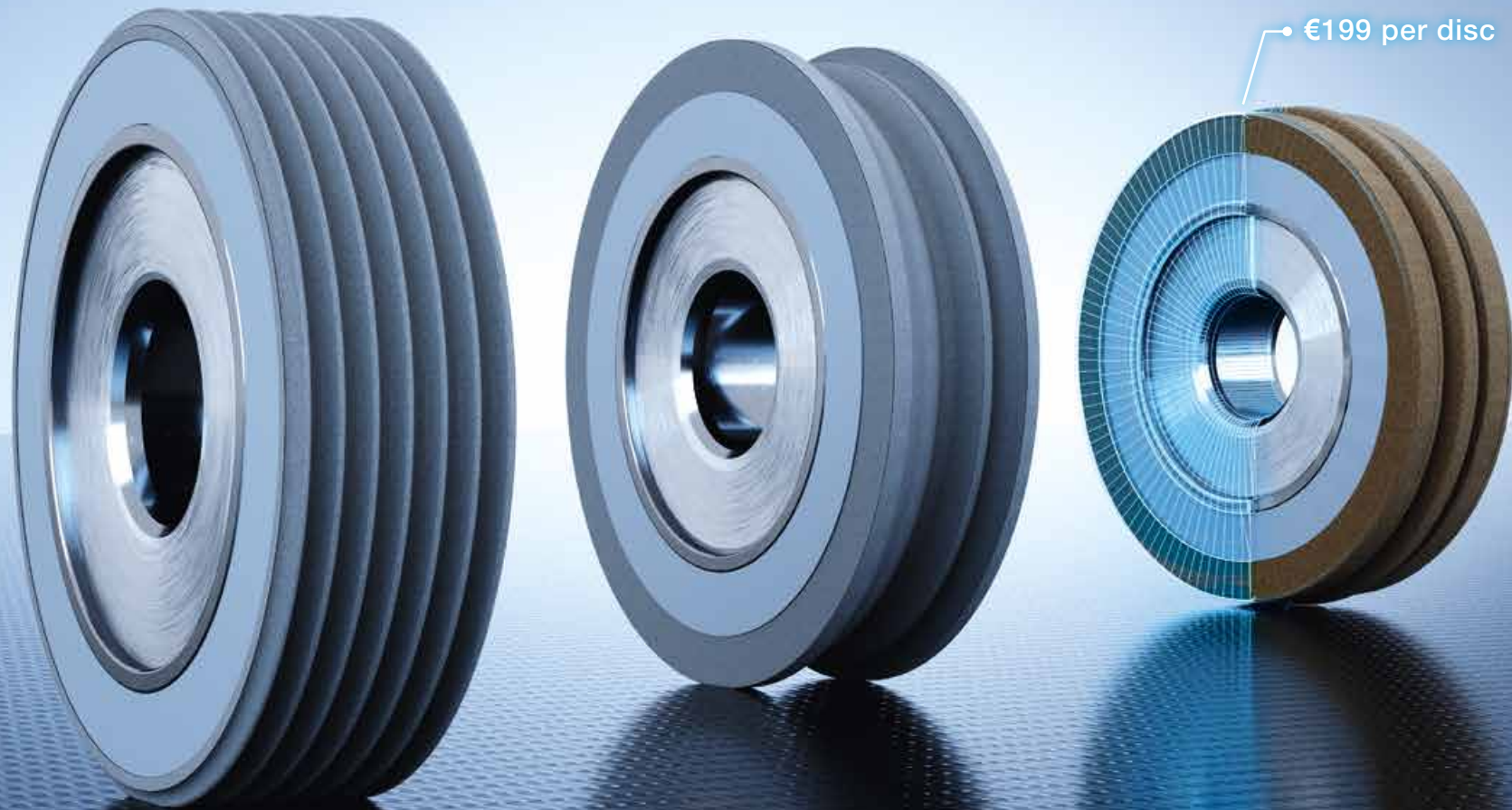
We supply all in-stock products (wear and spare parts) even outside normal business hours, e.g. by courier or collection. Our proximity to Düsseldorf Airport and motorway links enables us to ship parts at high speed.

## Original Mitsubishi Electric parts



All standard spare parts of the Mitsubishi Electric consumables line are original imports or fabricated in Germany in accordance with the development and design specification. You receive original parts of immaculate quality at attractive prices.





• €199 per disc



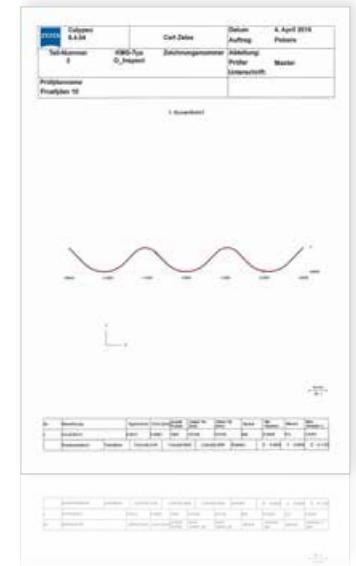
# Knowledge beats belief.

Bring your own grinding wheel and experience the process live. The grinding wheel is profiled to your wishes. Test the feed rates and service life on the real-life job. You'll be delighted with the superior productivity and potential for savings.

For only €199 per disc – the offer is limited to one grinding disc, max. diameter 150 mm, per customer.



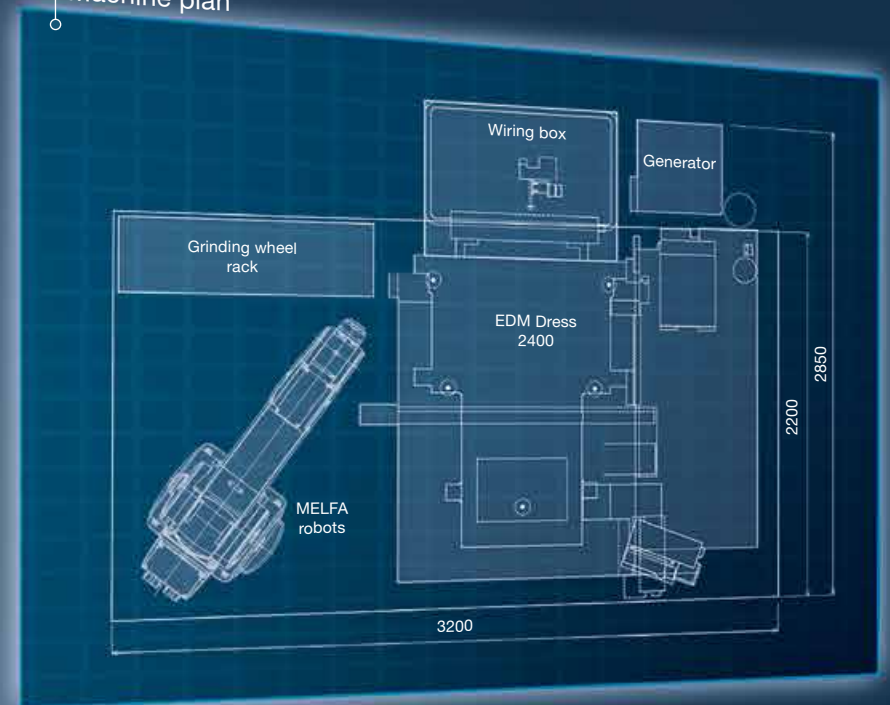
Grinding wheel 3M 6PHN 1A1 150x6x10 D46 in its untreated state and finished profile.  
Processing time: Initial profiling 1 h 42 min / follow-up profiling 44 min



DIAMONDCELL



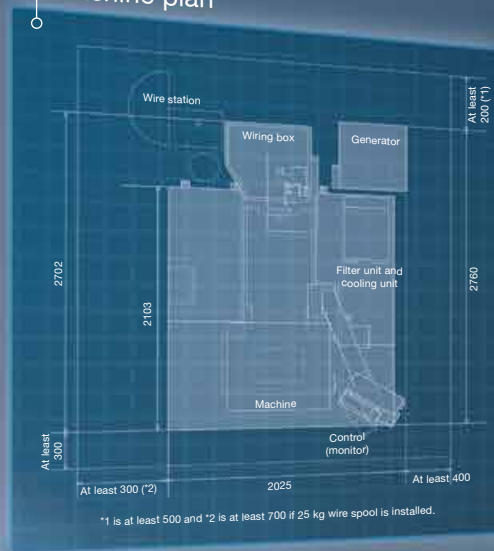
Machine plan



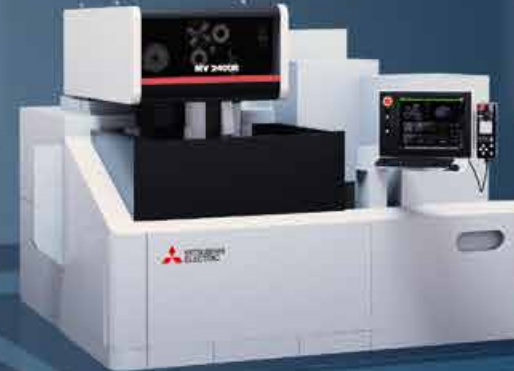
## EDM DRESS 1200



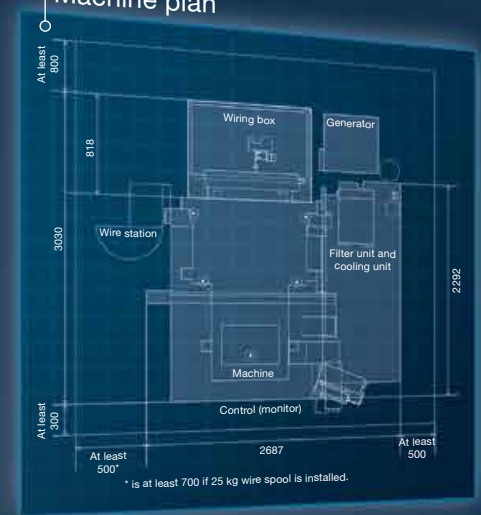
Machine plan



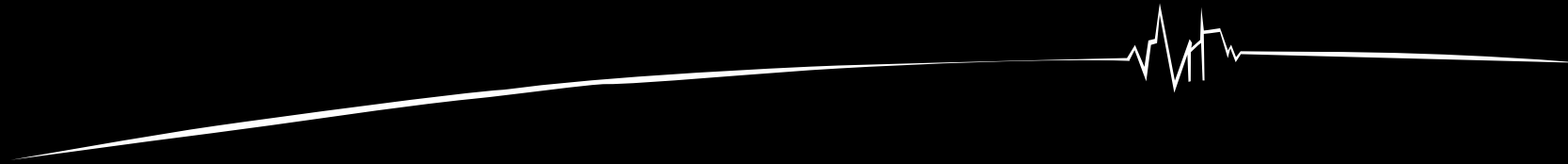
## EDM DRESS 2400



Machine plan



Partners



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