

Save money when repairing ND/PCD dies:

Multiple wire drawing machines have strongly enhanced the number of drawing heads, mostly those made of PCD: thousands are in use, others in repair and in reserve. All this binds capital. Eder Engineering offers advice, deeds and the technology to save costs here.



Machines such as the “**USP-Twin**” semi-automated ultrasound system with two workstations can be operated by just one person and deliver twice the throughput of perfectly repaired dies.

Wire drawing has changed tremendously with the use of multiple drawing machines. Thus, the number of dies has also increased, mostly those made of PCD. Thousands of such tools are in operation, and a significant number are on the way to repair. Once again, thousands are in reserve to compensate for fluctuations and ensure ongoing operations.

Even the best PCD dies wear sooner or later, so that trouble-free drawing is hardly possible anymore. In order not to have to buy new dies permanently, it is customary to remove worn tools from the drawing process at an early stage and repair them in a suitably equipped workshop with qualified personnel and then reintegrate them into the work process. To make the worn drawing dies ready for use again: that's why there are no profit on wire drawing and cable works. **There are two alternative options.**

1. The outsourcing of maintenance initially saves investment in machinery and equipment together with the training of personnel in the drawing workshops. However, it also brings **disadvantages and dependencies** like

- Loss of cost transparency (repair costs are hardly verifiable and service providers rarely welfare institutions)
- qualitatively uncertain repair results
- Time shortages of drawing dies as well
- Dependence on delivery dates and logistics.

2. In-house die maintenance offers these remarkable advantages:

- full transparency and controllability of all maintenance costs
- integrated, in-house independence and increased competitiveness
- At any time flexible reworking of the dies to actual needs.
- higher die service life and overall productivity
- reduced stock of drawing tools.

Basics to the drawing die repair

The wear begins with the loss of the mirror polished surface in the reduction cone part of the die, at the wire contact point in the drawing cone. If this is not repolished immediately, a wear/draw ring is created, which affects the surface of the drawn wire and can subsequently lead to wire breaks and standstill. Assuming suitable machines, it is sometimes sufficient to post-polish the drawing cone with slightly worn dies alone, with the advantage that the dimension in the die cylinder is preserved and the die can continue to remain in use with the original diameter. For drawing rings of medium to heavy wear, however, the die often needs a completely new profile geometry and the next largest dimension in the drawing cylinder. All this requires an adequately equipped die-repair workshop.

The growing use of multiple drawing machines requires more repair-requiring PCD drawing dies, which can hardly be handled with existing conventional maintenance machines. It needs more powerful concepts. For processing the conical parts (inlet / drawing cone / exit) ultrasonic systems are necessary and for reworking in the draw cylinder special high speed wire calibration machines: both as universally applicable, wide range of application, with high throughput and minimum personnel.

Eder Engineering designed the **USP-Twin** semi-automated two-station ultrasound system as a solution that is simple, one-person operated, and enables twice the throughput of perfectly repaired dies: one station handles 0.05mm to 3 mm dies, the second larger dimensions from 1 mm to over 8 mm. Both are specifically customizable. In order to avoid a jam during the calibration polishing of the drawing cylinder after machining, **Eder** also offers a semi-automated high-performance wire calibration system equipped with two workstations. The “**HGM-21**” allows an ideally high calibration speed for PCD drawing dies, adjustable up to 900 strokes/min., High throughput and again the machining in the bore area from 0.05mm to 10mm. The machining concepts were developed with **over 70 years of experience**. They are ideal for mid- to high-throughput operations, but with limited skilled workload relieved by high-automation-grade, easy-to-use equipment.



EDER Engineering GmbH

Peter-Jordan-Str. 12/3,
1190 Vienna/Austria
Contact person is Dr. Kurt Eder
Tel.: +43 1 3674949
office@eder-eng.com
www.eder-eng.com