

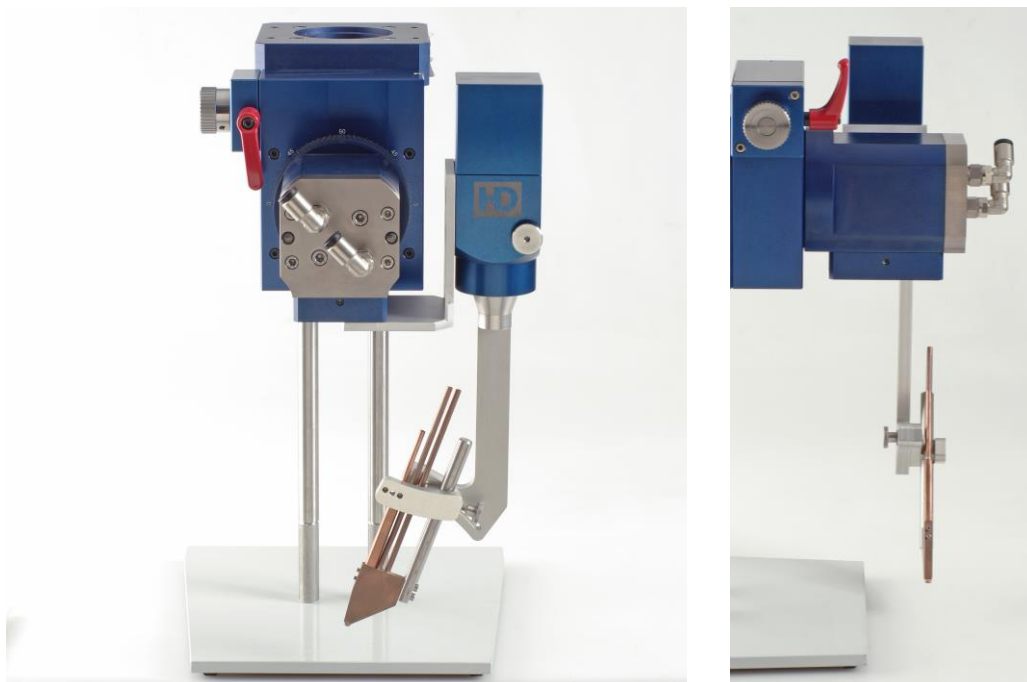
HD Sonderoptiken · F.W.-Raiffeisenstr. 31A · 52531 Übach-Palenberg

## Adjustment unit (XYZC – Adjustment)

### Functions

- Adjustment unit (XYZC – Adjustment) for Off-Axis powder nozzles

### Description



The off-axial powder nozzle (round, rectangular, with/without carbide insert) is the simplest form of a powder nozzle. The filler material in form of powder is injected through the nozzle from the side into the melt pool generated by the laser beam. The flat design and direct water cooling down to its tip enables the use of this nozzle up to a laser power of 10 kW when used properly.

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Depending on the nozzle diameter and the melt pool size, a powder efficiency of more than 90 percent can be achieved.

Conventional guide slides are often used to integrate the nozzle into a modular cladding head and to carry out simple nozzle adjustments. For this purpose, customary slides are assembled on which a nozzle is mounted. However, it is not taken into account that the working environment for laser coating is very rough. The system and the surrounding area are very heavily contaminated with powder. This powder settles in the spaces between the guide slides and makes them go more and more stiff.

This aspect was considered in the new development of nozzle adjustment unit by HD. This has resulted in an adjustment that is **dustproof**. Only round and therefore easily sealed guides were used for this. Commercial sleds have been dispensed with.

The nozzle adjustment can be connected to any optics using an individual flange. It is not equipped with standard slides as these cannot be installed dust-tight. A concept was chosen in which a seal must be implemented. All adjustment paths are protected against dirt and powder dust by seals.