The new Fraunhofer CCL ID-H Hardening head can be used to carry out laser beam hardening of hardenable steels and cast iron materials in confined spaces, typically inside rotating cylinders or tubes. The overall arm construction is similar to our ID Cladding head design featuring integrated water cooling and beam delivery. The head can operate at up to 3 kW maximum laser power, and the initial prototype head has been tested using both disk and fiber laser (a diode laser version is also planned). Our ID-H head is available as a standard ID hardening head or as a retrofit to our ID 1 or ID 2 cladding systems.

The current 20 mm x 8 mm spot size can produce a 0.629” (16 mm) wide hardened track with an effective case depth of approximately 1 mm. (See figure with results of hardness measurement below)

**Specifications**
- Laser Power: up to 3 kW
- Hardening/Softening Track Width: up to max. 1” (25 mm)
- Spot Size: 0.787” x 0.314” (20 mm x 8 mm)
- Minimum Internal Diameter: 3.0” (76 mm)
- Maximum Reach: 39.3” (1000 mm)

**Applications**
- Oil drilling components
- Pipes, Valves and Bearing bushings
- Plastic extrusion barrels
- Heavy machinery components