

MATRIX-REFERENCE SYSTEM FOR WORKPIECES:

HIGHER PRESSURES AND ECONOMIC MACHINING AT ALL LOT SIZES

Measures to reduce the downtime of CNC machines are significantly more effective than chasing seconds in the actual machining process by increasing, for instance, the cutting speed. What matters is to keep the machine turning, milling or drilling. Especially, but not exclusively, for heavy machining System 3R has introduced the Matrix reference system. The workpiece is fixed in a chuck outside the machine while the machining is going on; the setting up for machining takes place in a few seconds. This is beneficial for long runs, but crucial for the profitability of short runs and one-piece-production.

The Matrix-chucks have been developed by System 3R as a spin-off from the pressure tools for producing cutting inserts. The design was recently optimized for heavy machining. The compact construction makes the system suitable for big pressure forces and the wide aperture offers many opportunities in turning, milling and edm. The generous diameter of the drawbar means short distances between the references and the applied locking force, giving maximum stability and accuracy. Therefore the inherent properties of the Matrix system come into their own in tough machining applications.

The Matrix system consists of five types with apertures of 57 up to 187 mm and pressure forces from 350 up to 2100 kN. The repeatability is 0.002 mm. The applied air pressure is 6 ± 1 bar. Other striking features are the low construction height (in relation to the accessibility of the machining room), the extreme precise 90°-indexing and the hardened and ground references. The chuck is sealed against dirt and swarf, and provided of automatic air-blast cleaning of the references. So also under severe work environments can be operated. Furthermore the system has a TurboLock function for enhanced clamping force and is prepared for automatic changing by means of the System 3R automation program.



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**(caption fig. 1-s3r_matrix_compleet)

Due to the high clamping force and the high positioning accuracy the Matrix reference system is especially suitable for heavy machining applications.