NC6-RR™

Spindle Sheath Precision Feed (Z')

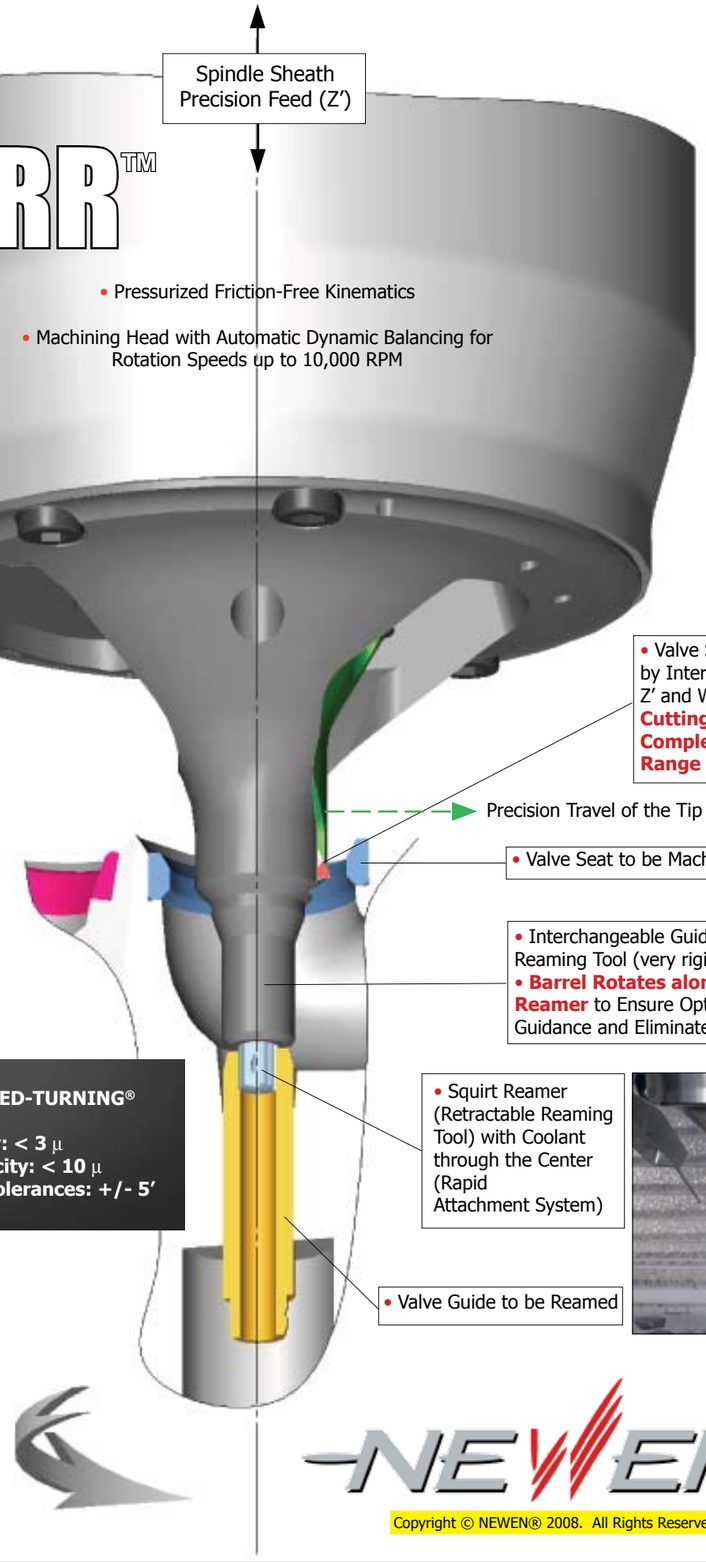
- Pressurized Friction-Free Kinematics
- Machining Head with Automatic Dynamic Balancing for Rotation Speeds up to 10,000 RPM

One Same Machining Cycle (guide & seat) and One Spindle Position

The spindle approaches the valve guide, positioning the barrel within 0,5-1mm of the valve guide, the machine head locks (x,y,z), the retractable reamer feeds though, reams the valve guide and retracts. Valve seat turning follows immediately (or vice-versa). The machining cycle is completed within 6-7 seconds on average for 1 standard valve seat & 1 valve guide.

One single operation, no tool changes, same tool for exhaust, intake, roughing, finishing...

NEWEN FIXED-TURNING® NC6-RR™
- **Circularity: < 3 µ**
- **Concentricity: < 10 µ**
- **Angular Tolerances: +/- 5'**



- Valve Seat Generating by Interpolation of Axes Z' and W, **One Same Cutting Tool for a Complete Valve Seat Range**
- Precision Travel of the Tip Holder Carriage
- Valve Seat to be Machined
- Interchangeable Guiding Barrel for Reaming Tool (very rigid)
- **Barrel Rotates along with Reamer** to Ensure Optimum Guidance and Eliminate Wear
- Squirt Reamer (Retractable Reaming Tool) with Coolant through the Center (Rapid Attachment System)
- Valve Guide to be Reamed

NEWEN®

Ref:NC6-RR-1008-EN

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ENGLISH

NEWEN®

NC6-RR™

Fixed-Turning® Process

SQUIRT REAMER

NC6-RR™ - VALVE GUIDE SQUIRT REAMING & VALVE SEAT MACHINING BY INTERPOLATION

One Same Machining Cycle (guide & seat) and One Spindle Position

(See Back)

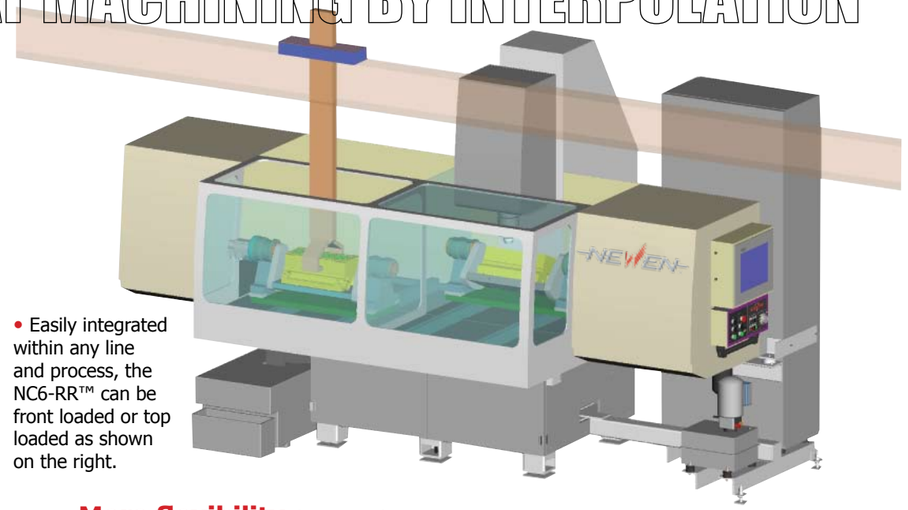
The spindle approaches the valve guide, positioning the barrel within 0,5-1mm of the valve guide, the machine head locks (x,y,z), the retractable reamer feeds though, reams the valve guide and retracts. Valve seat turning follows immediately (or vice-versa). The machining cycle is completed within 6-7 seconds on average for 1 standard valve seat & 1 valve guide.

One single operation, no tool changes, same tool for exhaust, intake, roughing, finishing...

Squirt Reamer Configuration

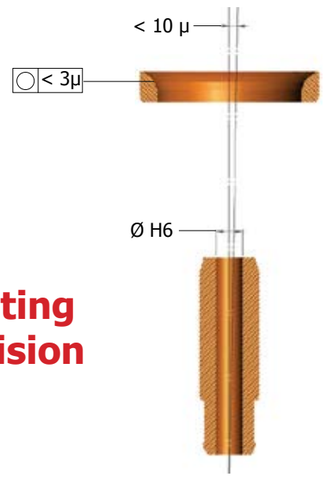
The ideal machine for mass production of cylinder heads combining valve guide and valve seat machining.

- Completely automatic valve guide and valve seat machining, with retractable reamer with high-pressure coolant through-the-center.
- Interchangeable guiding barrel for reaming tool.
- Quick reamer attachment.
- Barrel rotates along with reamer to ensure optimum guidance and eliminate wear.
- Incomparable precision.
- Perfect valve seat circularity.
- Perfect concentricity.
- *Optional:* machine can be equipped with 2 NC C-axes for dual station configuration and automatic machining of cylinder heads with multi-angle valve guide implantation.



- Easily integrated within any line and process, the NC6-RR™ can be front loaded or top loaded as shown on the right.

8000 RPM SPINDLE



Exacting Precision

More productive than high speed machining centers and transfer lines with no tool changes required, no time is ever wasted traveling back and forth to the machine magazine to change tooling between roughing and finishing operations and/or between exhaust and intake valve seats. Machining cycle times are optimum, quality always consistent.

More flexibility than any plunging system: one and only one standard ISO cutter is all that's required to machine any valve seat profile, any diameter, intake and/or exhaust, roughing and finishing. No profile is too complex, no dedicated tooling is ever required. Straight lines, radii, concave shapes, convex, all are permitted and generated with surprising ease and unrivaled precision. The NC6-RR™ can literally be reassigned to an entirely new cylinder head type within minutes. No dedicated tooling is ever required.

More economical than plunging: custom dedicated tools have long lead times, impose that back-up pieces be kept in stock at all times and represent substantial budgets. Standard ISO cutters, on the other hand, are always available and their cost is insignificant. Annual cost savings total hundreds of thousands of dollars/euros per cylinder head line.

More precise than any other system: machining by interpolation of axes virtually eliminates all cutting pressure and tool deviations. Combined with valve guide reaming with retractable reamer, the method yields and guaranties extra ordinary geometric qualities, including valve seat circularity consistently within 3 microns, valve seat to valve guide concentricity consistently within 10 microns and angular tolerances within +/-5'.

More affordable the NC6-RR™ costs a fraction of the price of dedicated high speed machining centers or traditinal transfer lines. The NC6-RR™ can be reassigned anytime, it is never obsolete.

- Table design allows split table set-up.

Linear Guide Ways

Precise motion control is assured for positioning and repeatability accuracies.

- High speed rapid traverse.
- Low maintenance requirements.
- Long life high reliability.

Standard equipment features NEWEN numerical control

Siemens, Fanuc or any other control available as an option.

Powerful NEWEN FIXED-TURNING® Software

with valve seat design capabilities. The most significant advance in operator friendly control and the only software designed specifically for valve seat machining in the industry today.

NEWEN FIXED-TURNING®

Worldwide Patents: 6,086,293; 6,382,883B1; 6,382,884B1; 6,530,727...