

# G-Rotor, Internal/External Gear Pumps

## The Challenge:

Provide a low-cost, net-shape manufactured component using advanced powder metallurgy techniques to improve pump characteristics and performance.

## The Solution:

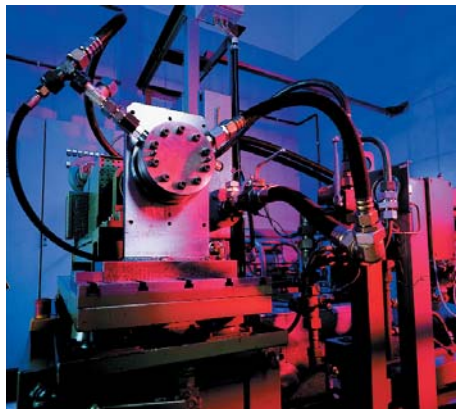
GKN Sinter Metals powder metal pump components manufacturing technology incorporates best-in-class processes and assures full integration, from concept to production, including theoretical calculation and component testing.

## Higher performance:

- High efficiency, low noise
- Net-shape components
- Low-cost powder metal manufacturing
- Enhanced service life
- Accuracy and reliability
- High-quality standard

## Cost Savings:

- Cost-effective manufacturing process
- In-house secondary and finishing operations
- Testing and optimization of pump component prototypes on test rig minimize potential sources of error
- Numeric pump simulation for optimization of porting, housing and toothing; increased efficiency reduces number of test rig cycles



Test rig / Centre of Excellence-Hydraulics



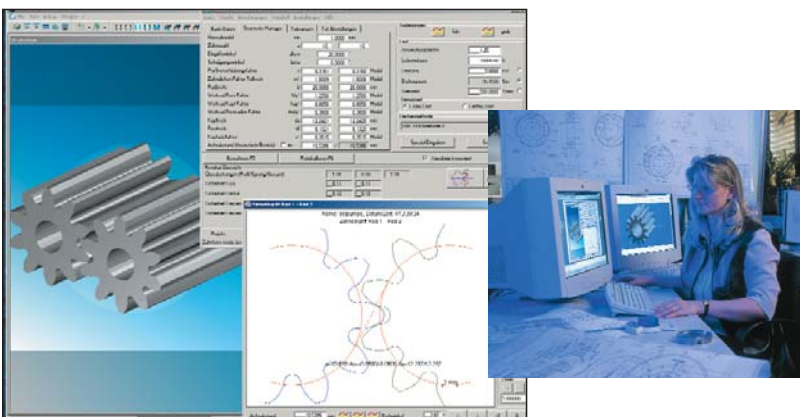
Crescent Pumps



External Gear Pumps



Gerotor Pumps



Toothing calculation software

**Design Capabilities:**

Final dimensional geometry does not require further secondary operations for a variety of applications...

■ *On Pinion gears*

We offer the involute and cycloide application.

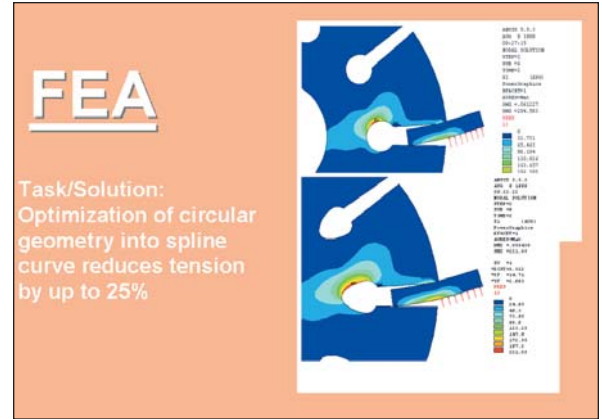
■ *On G-Rotors*

We offer the lobe and duocentric as well as the planetary application.

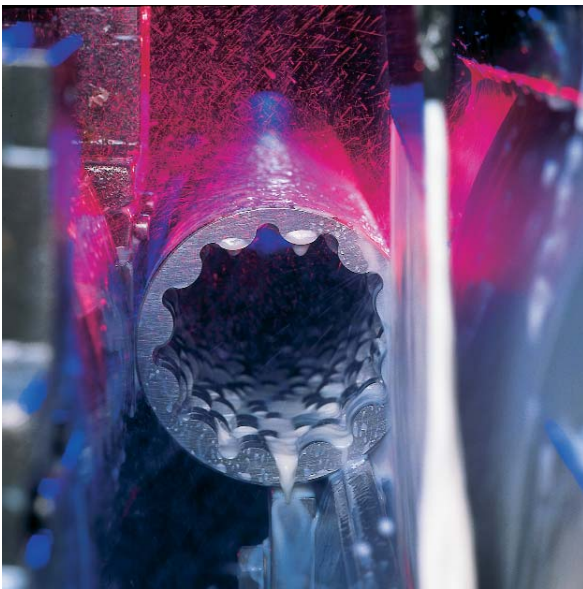
■ *On Crescent rotors*

We offer the involute and trochocentric application.

■ Customer tailored toothing designs



FEA Design Optimization



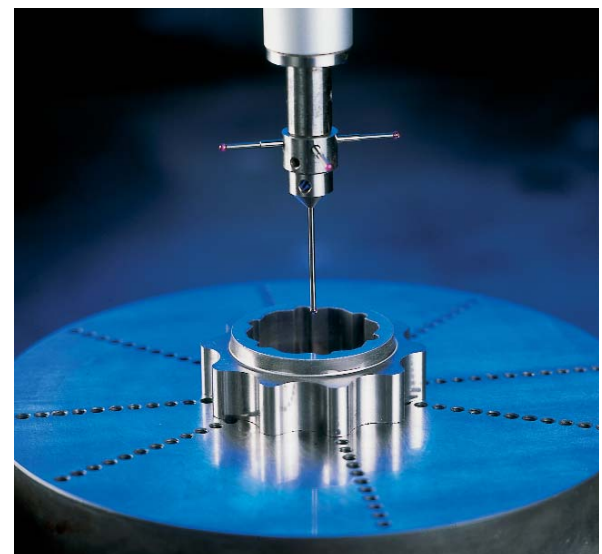
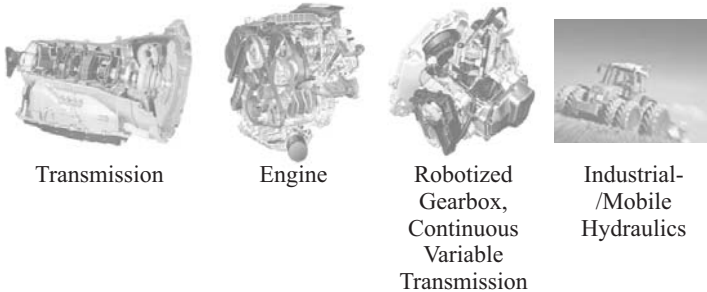
Secondary operation

**Value added Engineering:**

Relying on Centre of Excellence, we apply following engineering tools and capabilities, including:

- Material Development and Lab Testing (static, dynamic, fatigue, wear)
- Computerized Gear/Rotor Calculations and Design
- FEA Design Optimization
- Pump Modelling and Simulation(in implementation)
- Performance and Efficiency Calculations
- Sample and Prototype Manufacturing, CAD-CAM
- Prototyping of pump assembly for test purposes
- In-house Secondary Operations
- Pump Rig Testing (all operating parameters)
- Cooperation with Universities and Institutes
- From technical questionnaire to design proposal (e-mail to: [infopumps@de.sinter.gknplc.com](mailto:infopumps@de.sinter.gknplc.com))

**Applications:**



3D CMM (Coordinate Measuring Machine)