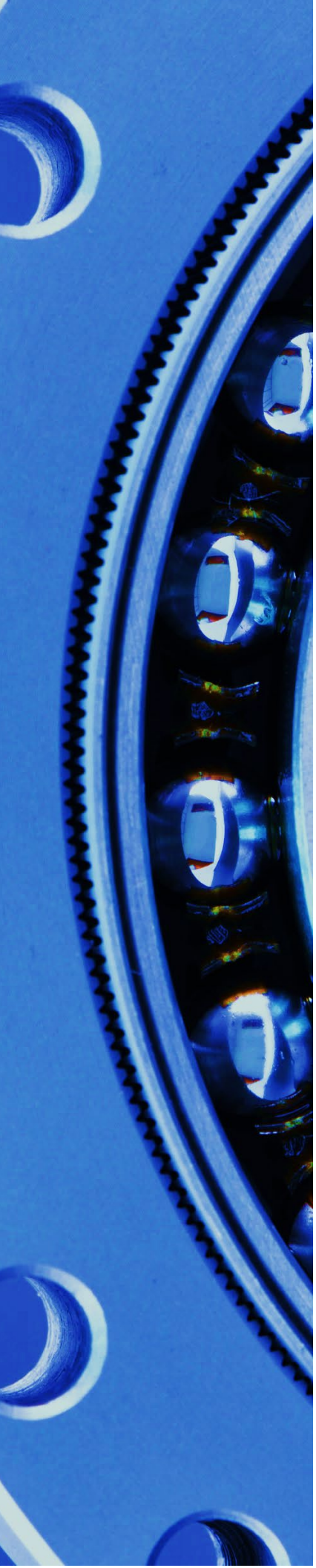


CONIC SYSTEMS

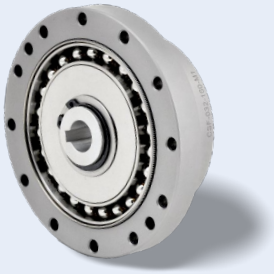
Harmonic Gearing for Automation

Zero and Ultra Low Backlash Harmonic Gearing

- *HD – Long Cup and Pancake Gearing*
- *CS – Short Cup Harmonic Gearing*
- *SH – Hollow Shaft Harmonics for Robotics*
- *LT – Zero Backlash Servo Gearheads*

Harmonic Gearing for Robotics and Automation

CSF-M1- Short Cup Harmonic Gearing

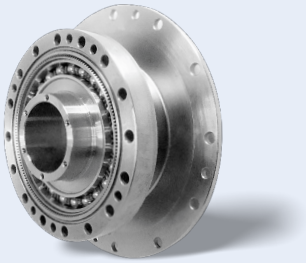


Standard sizes 17 to 32
Standard ratios from 50 to 160:1
Other sizes (CSD) and ratios available upon request

CSF-CR1- Short Cup with Integrated Cross Roller Bearing

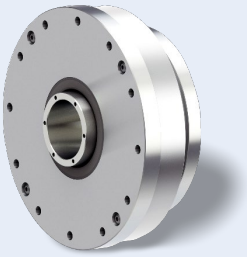
Standard sizes 17 to 32
Standard ratios from 50 to 160:1
Other sizes and ratios available upon request

SHF-M1- Hollow Shaft Through Bore Wave Generator



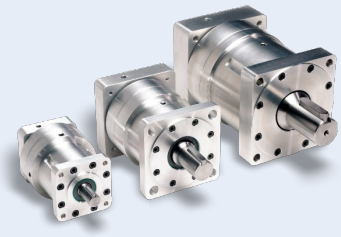
Standard sizes 17 to 32
Standard ratios from 50 to 160:1
Other sizes and ratios available upon request

SHF-CR1- Hollow Shaft Integrated Cross Roller Bearing



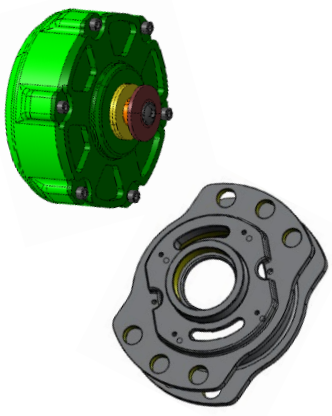
Standard sizes 17 to 32
Standard ratios from 50 to 160:1
Other sizes and ratios available upon request

LT - Lifetime Series Zero Backlash Servo Gearhead



Harmonic Gearing for planetary gearhead replacement
Standard sizes LT1-17, LT2-23, LT3-34, LT4-43 with metric equivalents
Standard ratios from 50 to 160:1 with other ratios available upon request

Engineered Solutions



Custom designed harmonic gearing to meet your specific application requirements

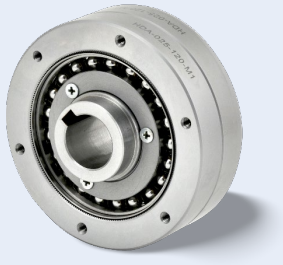
- Custom ratios
- Custom sizes
- Custom housing
- Tailored testing and performance parameters

HD Series- Long Cup & Pancake Type

HDF-M1 - Ultra-Thin Pancake Type

Shortest axial length for space constrained applications
Standard sizes from 10 to 50
Standard ratios from 50 to 200:1

HDA-M1 - Heavy Duty Pancake (with Hubs)

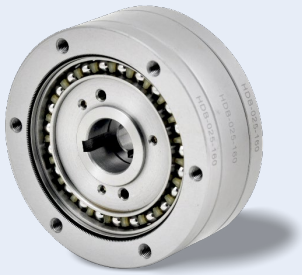


Double wave generator extended hub for bearings
Standard sizes from 20 to 100
Standard ratios from 50 to 315:1

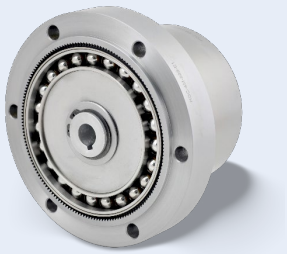
HDR-M1 - Heavy Duty Pancake Type

Dual bearing wave generator, wider flex spline than HDF
Standard sizes from 20 to 100
Standard ratios from 50 to 315:1

HDB-M1 - Differential Phasing Pancake Type



Double HDF design for differential and phase shifting
Standard sizes from 20 to 50
Standard ratios from 50 to 200:1



HDC, E1, E2, M1 - Zero Backlash Long Cup Style Gearing Sets

Long cup style component sets
Drop-in replacements for existing applications
Standard sizes from metric 10 to 100 and English 1C to 15M
Standard ratios from 60 to 315:1

Harmonic Differentials

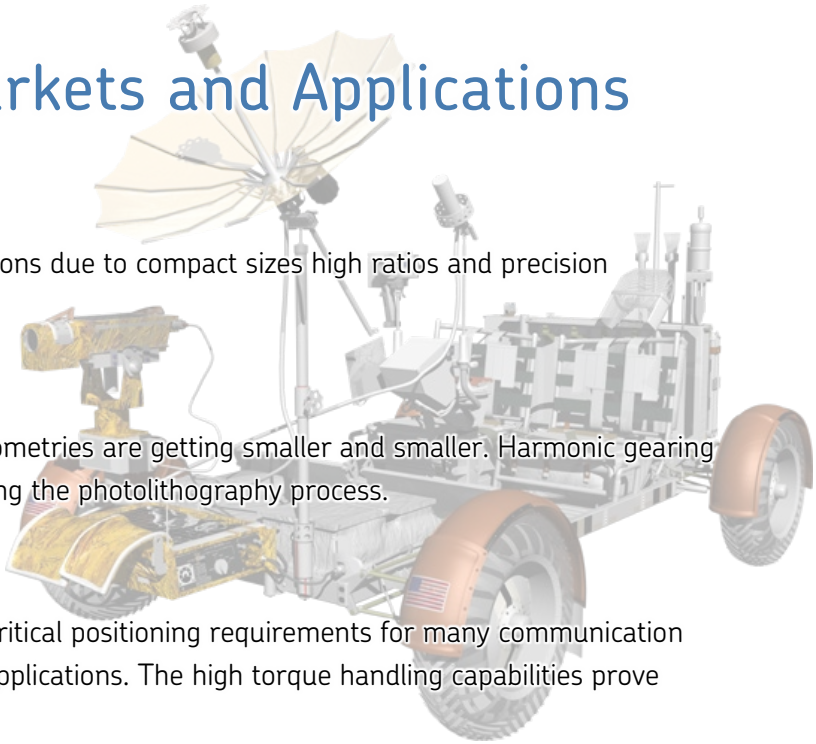
SM Series

Shaft mount harmonic differential
Simplified mounting with internal HDB
Standard sizes 20 to 40, ratios from 80 to 160:1

RA Series

Right angle harmonic differential
Ratio 80:1 with 1:1 & 2:1 for reversing and declutching
Standard sizes 300, 500, & 2,000, Up to 315 NM torque

Conic Systems Markets and Applications

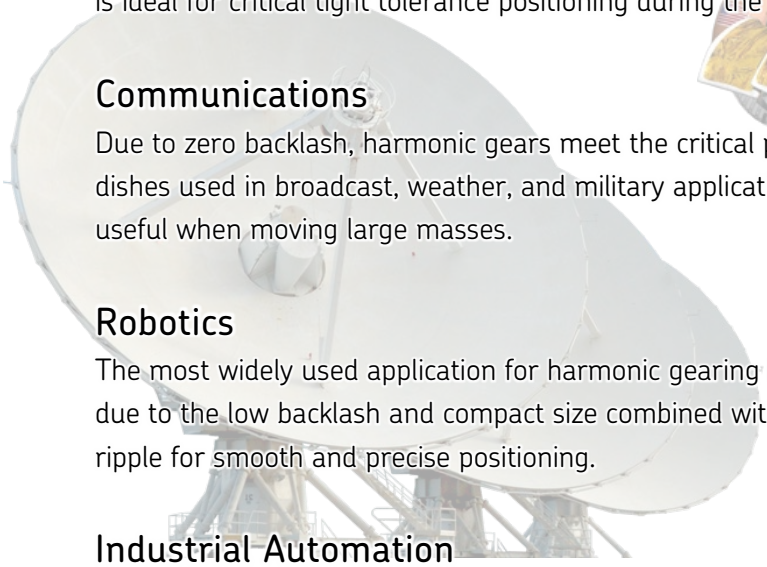


Aerospace & Defense

Harmonic gears were first used in space applications due to compact sizes high ratios and precision positioning. Some are still on the moon.

Semiconductors

This is an ever-expanding market where chip geometries are getting smaller and smaller. Harmonic gearing is ideal for critical tight tolerance positioning during the photolithography process.



Communications

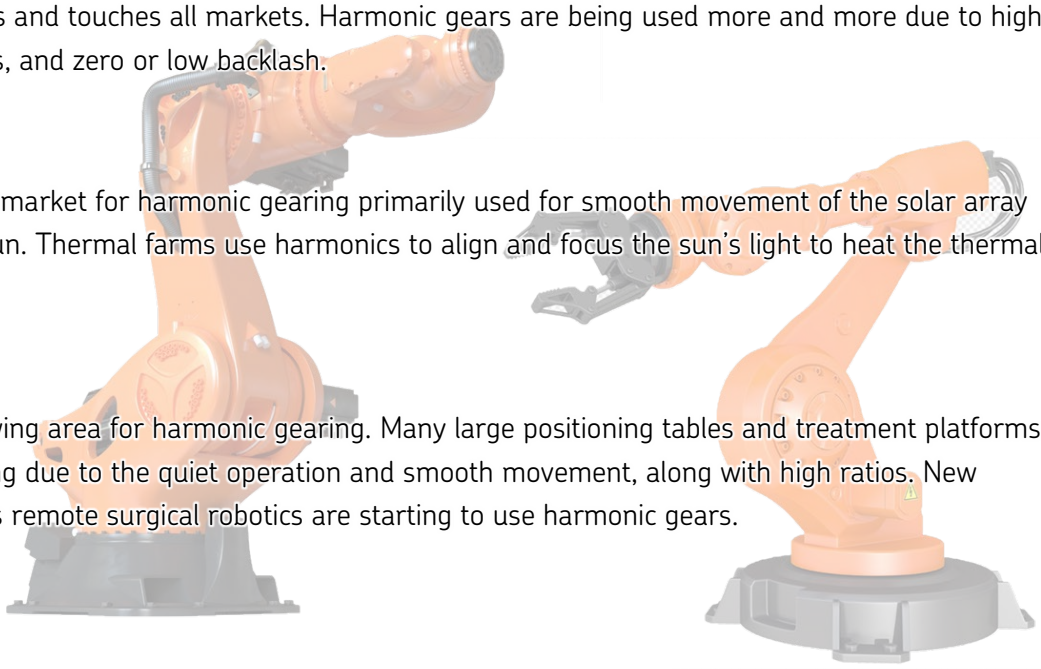
Due to zero backlash, harmonic gears meet the critical positioning requirements for many communication dishes used in broadcast, weather, and military applications. The high torque handling capabilities prove useful when moving large masses.

Robotics

The most widely used application for harmonic gearing is robots. Each joint or arm uses a harmonic gear due to the low backlash and compact size combined with higher ratios and very low vibration and velocity ripple for smooth and precise positioning.

Industrial Automation

One of the fastest growing markets for harmonic gearing is industrial automation which encompasses many different applications and touches all markets. Harmonic gears are being used more and more due to higher ratios, compact sizes, and zero or low backlash.



Solar Energy

This is an emerging market for harmonic gearing primarily used for smooth movement of the solar array while tracking the sun. Thermal farms use harmonics to align and focus the sun's light to heat the thermal collector.

Medical

This is another growing area for harmonic gearing. Many large positioning tables and treatment platforms use harmonic gearing due to the quiet operation and smooth movement, along with high ratios. New technologies such as remote surgical robotics are starting to use harmonic gears.

CONIC SYSTEMS

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