Our inspiration

Your business drives us. For every individual set of requirements, we have an equally diverse range of solutions: four out of every five products that leave our company are special versions, developed, designed, and produced to customer specifications – from space saving component sets to customised special drives. Harmonic Drive® Precision Drive Technology based on the strain wave gear principle can be found in machine tools, and of course also in robotics, the aerospace industry, and numerous other key industries.

Our headquarters are in Limburg an der Lahn, Germany, but our marketplace is the entire world. Since the company was founded in 1970, Harmonic Drive AG has grown from a small distribution company to a leading international solution provider with production capability for drive technology – with a parent company in Japan and a sister company in the USA, employees in more than 20 locations worldwide, and a product range of over 23,000 items.

Each product reflects our extensive expertise – and also the conviction that successful innovations are not made for the market, but are created by the market. We are your reliable partner when it comes to developing solutions together that ideally meet your needs – as a result Harmonic Drive AG has been creating pioneering products for nearly half a century.

Find out for yourself: share your next challenge with us and find out how your business can become a driving force for innovation.
Far beyond the horizon

Our highly developed drive solutions can be found all over the world – and even above it: gears from Harmonic Drive AG ensure that the “Opportunity” space probe is still operating reliably more than 13 years after its precise landing on the surface of Mars.

Whether it’s a red or blue planet: gears, actuators and systems from Harmonic Drive AG are used wherever the highest demands are placed on quality and reliability. It is no wonder that our pioneering mechatronic products are used today in a wide range of key industries.

Thanks to local sites worldwide and close cooperation with our parent company in Japan and our sister company in the USA, we ensure that you can benefit from customised Harmonic Drive® Solutions around the globe – we are there where you need us. We cross national borders and time zones with ease, and face tricky challenges with enthusiasm.

We successfully meet the requirements of our customers from a wide range of industries. The driving force behind our success is creativity and customer focus: more than 80% of our solutions are developments that we have designed and produced ourselves for specific purposes – from applications in optical machines in India to communications engineering in South Africa.

Let us know what you need: we are sure to have the ideal solution for your requirements.

Maybe you will think of us the next time you fly over the horizon in a plane from the Airbus range: high precision Harmonic Drive® Gears for aviation help ensure that you have a safe flight and put the world at your feet.
The Harmonic Drive® Gear belongs to the group of the strain wave gears. The Flexspline is slightly smaller in diameter than the Circular Spline resulting in it having two fewer teeth on its outer circumference. It is held in an elliptical shape by the Wave Generator and its teeth engage with the teeth of the Circular Spline across the major axis of the ellipse.

As soon as the Wave Generator starts to rotate, the zone of tooth engagement travels with the major elliptical axis.

When the Wave Generator has turned by 180 degrees, the Flexspline has regressed by one tooth relative to the Circular Spline.

Each turn of the Wave Generator moves the Flexspline two teeth in opposite direction relative to the Circular Spline.
Do you place special emphasis on compactness, torque capacity and precision?

Furthermore, if you would like a complete drive solution from a single source, with perfectly matched components and without any additional design effort, then with the Harmonic Drive® Servo Actuators you have found the correct product. The combination of highly dynamic compact servo motors, precise Harmonic Drive® Component Sets and output bearings with high tilting rigidity demonstrate their exceptional performance. If required, we can also supply the matching servo controllers.

However, a gear drive is not always the best solution for all applications. If precision and high torque are required at medium speeds, we offer a practical alternative with Harmonic Drive® Direct Drives in the TorkDrive® Series – hollow shaft included!
Would you like to use your own motor?

The Units and Gearboxes are the best choice – whether for procurement reasons or because of particular interfaces. Harmonic Drive® Units and Gearboxes are a combination of precise Harmonic Drive® Component Sets with output bearings with high tilting rigidity for the attachment of heavy loads. Compared with component sets, the design integration and the sealing are far simpler.

At higher speeds or with lower gear ratios than is possible with Harmonic Drive® Gears, there is still often the need for highest precision. Here, our Harmonic Planetary Gears can provide the answer. By utilising a special design with flexible ring gear in the final stage, we can guarantee constant high precision over the whole lifetime – we call this Permanent Precision®!
Units, Gearboxes, Planetary Gears

INCREASED PERFORMANCE

with hollow shaft

INCREASED PERFORMANCE

without hollow shaft
Quality Proven!

It is no wonder that the Harmonic Drive® Component Sets with their unique operating principle and constructional variety have already proven as the ideal drive mechanism in numerous machines across the world. The extremely compact component sets comprise three components: Circular Spline, Flexspline and Wave Generator. They offer maximum flexibility in terms of design integration, ensuring various design possibilities on both the drive and the output side. It would be very difficult to find this range of design options with any other gear systems. The compact design also ensures a space and weight saving integration.