

The strain wave gearing that propelled the rise of industrial robots

Registration No.	Number 00400		
Registration Date	September 29, 2026	Registration Category	Category 1

Name (Model, etc.)	HarmonicDrive® R Series
Location	Azumino-shi, Nagano
	Harmonic Drive Systems Inc. Ariake Factory
Owner (Custodian)	Harmonic Drive Systems Inc.
Manufacturer (Company)	Harmonic Drive Systems Inc.
Year Manufactured	Recreated in 2025 based on drawings made in 1982 and 1989
Reason For Selection	This item is a reducer widely used in industrial robots, particularly in multi-jointed robots. It employs the strain wave gearing mechanism invented by the American Clarence Walton Musser as a gear mechanism that amplifies torque while providing the high reduction ratio needed for industrial robots that use electric servo system. The various conditions required for practical application, such as shock loading resistance, precision, and torsional rigidity, were realized through collaboration with robot manufacturers. The R series, which was developed in 1977, right before the widespread adoption of industrial robots, contributed greatly to the practical application of industrial robots that use electric servos, and is significant because it was a driving force behind the initial growth of the robot industry in the 1980s.
Registration Criteria	1-B (Shows a uniquely Japanese scientific or technological development from an international perspective.) 2-B (Made a notable contribution by facilitating an epoch-making advance in Japan's economy and place in the world.)

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