First-ever mass-produced ceramic bearing for automobile

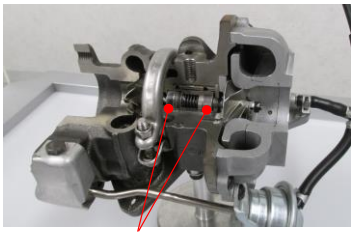
Registration No.	Number 00325		
Registration Date	September 14, 2021	Registration Category	Category 1

Name (Model, etc.)	Ceramic bearing for automobile turbocharger unit
Location	Kashiwara-shi, Osaka JTEKT CORPORATION
Owner (Custodian)	JTEKT CORPORATION
Manufacturer (Company)	Koyo Seiko Co., Ltd. (now JTEKT CORPORATION)
Year Manufactured	1998
Year first appeared	1998
Reason For Selection	This was the world's first ceramic bearing successfully commercialized in 1998 for turbocharger units for automobile engines. Reduction of rotational friction resistance by using a rolling bearing on the turbocharger shaft is effective to reduce turbo lag and improve fuel consumption. Developing a bearing that could withstand high temperature conditions created by engine exhaust heat and rapid acceleration/deceleration of the turbocharger was quite difficult. However, it was successfully commercialized by employing heat resistant and lightweight ceramic balls with excellent strength and reliability for the bearing with the cooperation of turbocharger manufacturer IHI. As the world's first mass-produced ceramic bearing used in automobiles, this has tremendous significance considering that the auto industry had never used any ceramic materials in mechanical components for mass production before then.
Registration Standard	1-B (Show a uniquely Japanese scientific or technological development from an international perspective.)

Open/Closed to Public	Closed to Public

Photo

Turbo unit



Ceramic bearing for automobile turbocharger unit

Exploded view

Other useful information	