

Steering Business



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JTEKT applies technologies cultivated in electric power steering (EPS) to contribute to the realization of a safer and more comfortable car society and autonomous driving.

Description of business

Providing steering systems, which assume the basic vehicle function of "turning." The main product lineup includes column assist-type EPS¹ and rack assist-type EPS² that provide EPS for a variety of automobiles, from passenger cars to large commercial vehicles.

Value created in fiscal 2018

Strengthening development of software for autonomous driving

- Established J-QuAD DYNAMICS Inc., a joint venture company for system development of integrated control for autonomous driving, gathering the Toyota Group's technical knowledge of autonomous driving and vehicle motion control.

EPS application area expansion

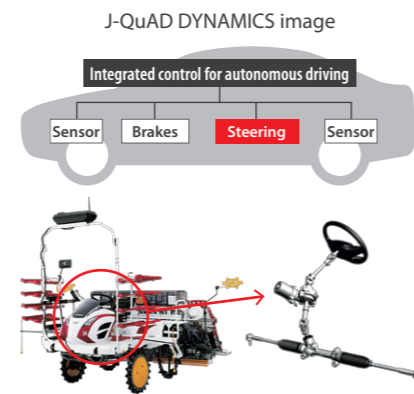
- Developed EPS (intermediate assist-type EPS³) for multipurpose vehicles used for agricultural, off-road, and other applications
- Expanded sales to agricultural and construction vehicles that will be autonomous in the future

Rack assist-type EPS business expansion

- To strengthen the global supply system further, we set up production sites for dual pinion-type EPS in four regions (Japan, China, North America, and Europe) and rack parallel-type EPS in three regions (Japan, China, and North America).



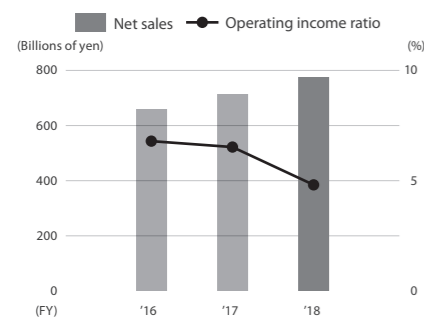
JATJ rack parallel-type EPS line-off ceremony
Started mass production of rack parallel-type EPS at JATJ in China (January 2019)



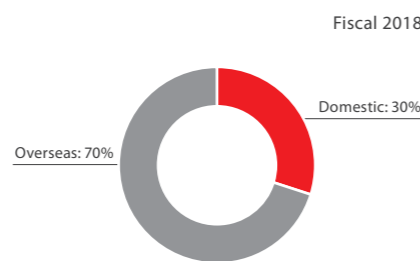
Intermediate assist-type EPS

- EPS where the motor responsible for the assist is attached to the column
- EPS where the motor responsible for the assist is attached around the steering rack
- EPS where the motor responsible for the assist is attached to the intermediate shaft
- EPS where the motor responsible for the assist is attached around the rack bar with two pinion shafts
- EPS where the motor responsible for the assist is attached parallel to the rack bar

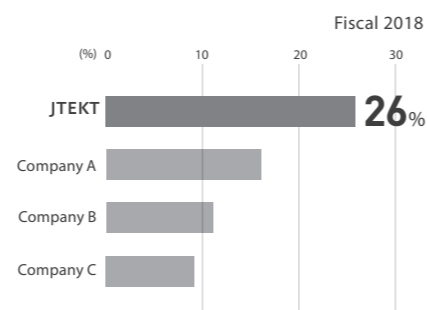
Net sales and operating income ratio



Sales ratio

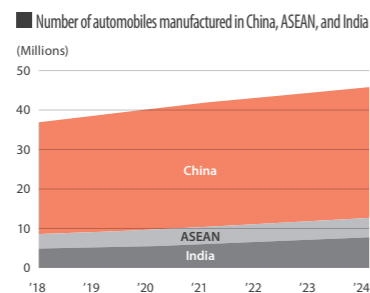


Steering share



Business environment analysis

- Accelerating efforts to realize an autonomous driving society
- Emerging market growth and severe EPS competition
- Globalization of projects and sophistication of customer requirements



Strengths

- One out of every four cars in the world is equipped with JTEKT steering
- Expanding business for Japanese customers as well as European customers
- Column assist-type EPS, dual pinion-type EPS, and rack parallel-type EPS in the main product lineup, which can provide EPS to all passenger cars



Solutions for social issues (from the perspective of the SDGs)



- Supporting realization of a society without traffic accidents through autonomous driving
- Contributing to the greater fuel efficiency of vehicles, not only passenger vehicles but also commercial vehicles
- Establishment of global development bases and nurturing the development of human assets to contribute to enhanced technological capabilities in each country

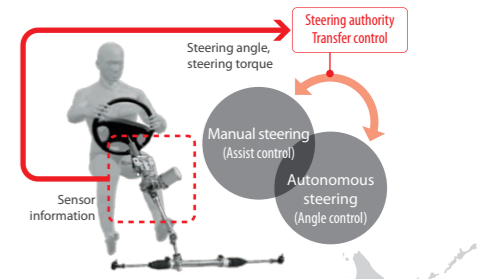
Medium-term policies

Maintain top share in steering and continue to be the No. 1 & Only One as a top runner of advanced steering technologies such as ADAS⁶

With the No. 1 market share, JTEKT will leverage its knowledge as an expert of "steering feeling" to contribute to the provision of comfortable driving, safety, and security.

Research and development of advanced technologies for realizing autonomous driving

- Establish JTEKT IT Center Akita Corporation as a software development site to strengthen electronic control technologies and create local employment opportunities
- Expand software development site to the Higashi-Kariya Plant for integrated development of the V-shaped process⁷, from system requirements to evaluations. Further strengthen development resources by expanding overseas offshore sites and increasing efficiency.
- Contribute to a comfortable driving and zero traffic accident society through technologies that support autonomous driving, hands-on detection⁸, and steering authority transfer systems⁹



Improve EPS cost competitiveness

- Improve procurement flexibility through in-house production of MCU¹⁰, optimize costs, and further reduce costs by reducing production costs through line automation
- Develop next-generation column assist-type EPS through innovative cost reductions that take advantage of regional characteristics and collaborate with Group companies to increase competitiveness and expand market share in developing countries that are growing

Strengthen global project management system

- Promote global standardization in design, production, and management.
- Establish cross-functional management systems for each project to efficiently develop and produce globally competitive products

JTEKT's steering development base



- Advanced Driving Assistant System: Advanced driving assistance system to support comfortable driving and prevent accidents
- Development model showing correspondence between development and testing processes within system development
- EPS sensor detects driver operation intention
- Technology that converts steering power safely and accurately by harmonizing operation intention between the system and driver
- Motor integrated computer unit

Focus

Social contributions in public transport and logistics fields through autonomous driving and precise docking controls

JTEKT is conducting research in conjunction with venture companies and universities on the practical application of autonomous driving and precise docking control technologies¹¹ required for next-generation transportation systems. We aim to help resolve social issues in public transportation and logistics by providing safety and security while eliminating driver shortages.

Truck platooning image

Wheelchair boarding (± 40-20 mm width, stop)

11. Control that automatically stops a bus or small transportation vehicle at a predetermined location (such as a bus stop) with a high degree of accuracy

Global Topics

Global top share in power steering, further expansion of supply system

In order to promote sales growth in India, where the market is expected to expand, we are increasing the number of production sites. In addition, a production site was built in Morocco to establish a business site in North Africa. We aim to start mass production in 2020.

JIN inaugural ceremony

Bird's-eye view of the JAMO Plant