JTEKT

Traction Drive Unit

Reducer for high-accuracy feeding

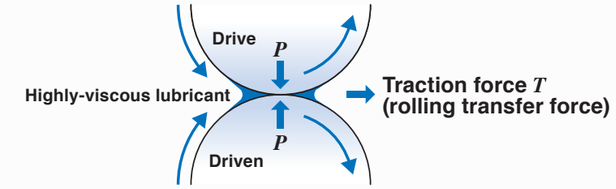
- Minimal rotation irregularity
- No backlash
- Low noise, low vibration

CAT.NO.B1011E-A

A Traction Drive Unit conceived from bearing core technologies

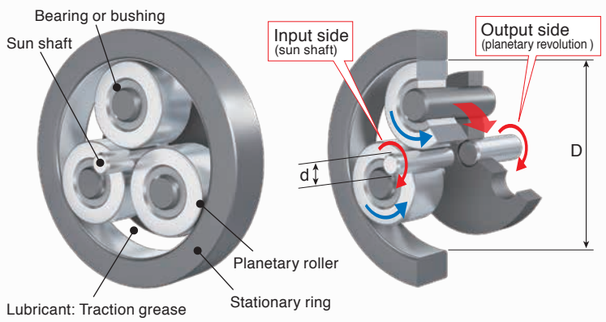
The traction drive unit is a power transmission based on the rolling contact between rollers and is capable of smooth, rattle-free power transfer. High-accuracy and high-strength rollers are subjected to elastic deformation prior to assembly, achieving high pressure force. Additionally, by introducing traction grease that becomes highly viscous under high pressure, it is possible to achieve excellent power transfer while securing lubricity.

Principle and Structure



Traction force $T=\mu P$

μ:Traction coefficient
P:Pressure force



Reduction ratio $i=\dfrac{D+d}{d}$

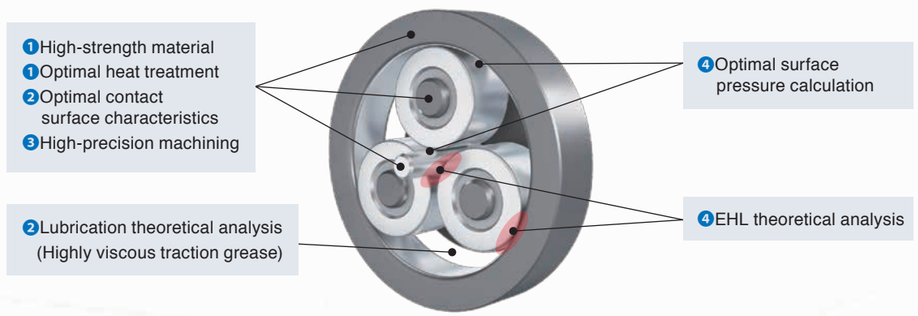
D:Stationary ring bore diameter
d:Sun shaft outer diameter

Reduction ratio: 3 - 12 (1-stage)
Large reduction ratio is possible
if made multistage

Application of JTEKT Core Technologies

Taking bearing technologies accumulated over many years under the KOYO brand and applying them to traction drive units.

- ❶Materials, heat treatment technology
- ❸High-precision machining technology
- ❷Tribology technology
- ❹Analysis technology



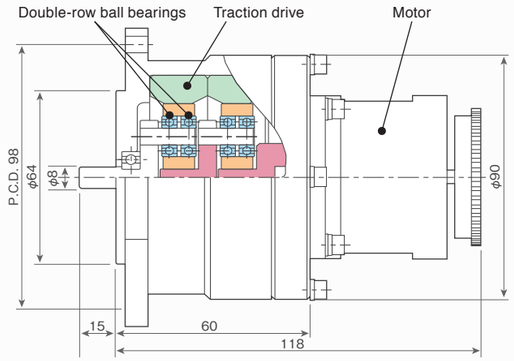
Rotation stability | **No backlash** | **Low noise, low vibration**

Ideal for High-accuracy Feeding

Specification Examples

No Backlash Type

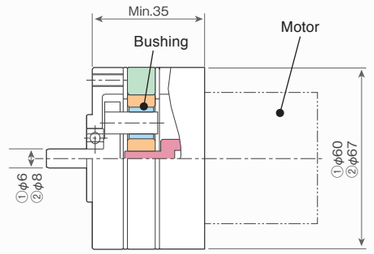
Backlash has been eliminated and friction reduced by adjusting the internal clearance of the ball bearings in the planetary roller.



Reduction ratio	100 (2-stage reduction)
Torque (output shaft)	2N•m
Rotating speed fluctuation coefficient	±0.5% or less
Backlash	0.01deg or less

Compact Type

The compact design incorporates a bushing in the planetary roller.



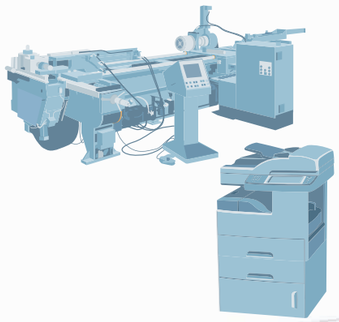
	①	②
Reduction ratio	10	5
Torque (output shaft)	2～4N•m	7.5～12N•m
Rotating speed fluctuation coefficient	±0.5% or less	

Customization according to customer requests is available, so please do not hesitate to contact us.

Application Examples

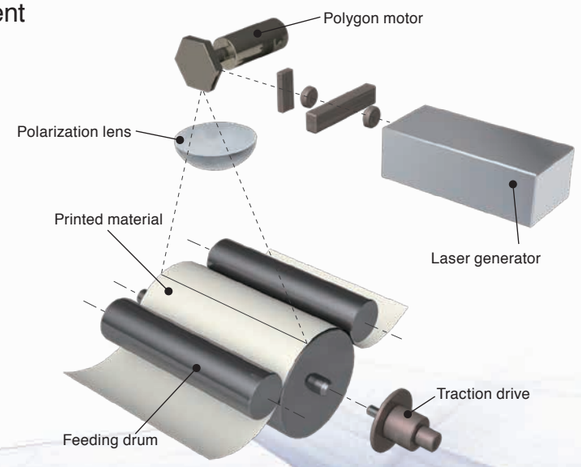
- Printers
- Machine tools
- FPD manufacturing equipment
- ROBOT

And more



Eliminate speed irregularity of feeding drum

Contributes to improving image quality



Reducer with a Minimal Rotation Irregularity Unachievable Using Gears

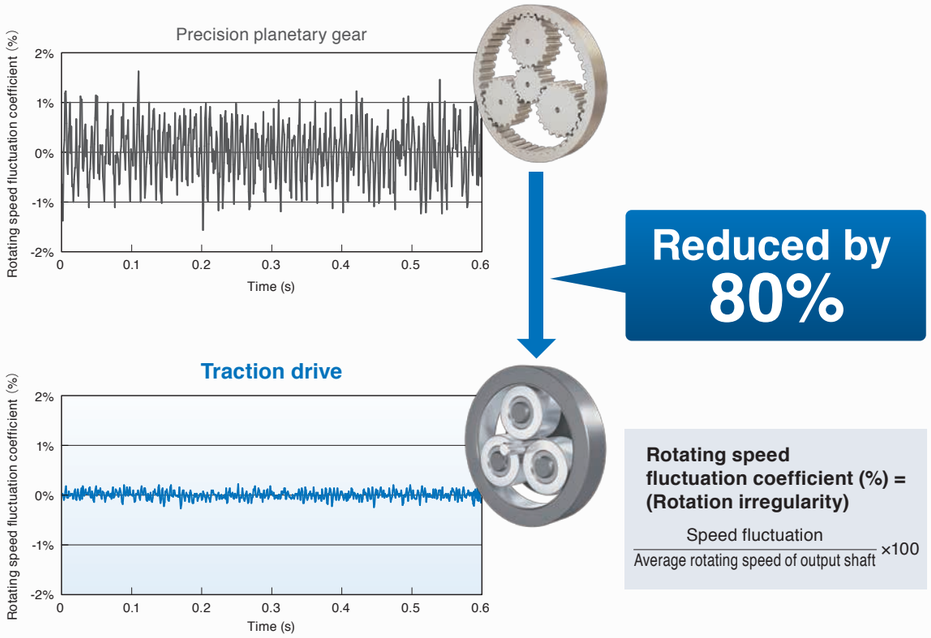
Features

Comparison with planetary gear

Mechanism	Rotation irregularity	Backlash	Noise/Vibration	High-speed performance	Torque capacity
Traction drive	◎	◎	◎	○	△
Planetary gear	△	△	△	△	◎

Measurement examples

1 Rotation irregularity



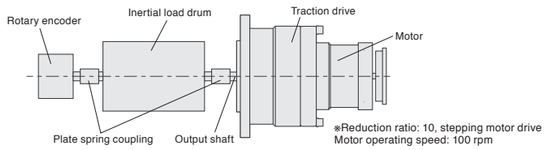
Reduced by 80%

Rotating speed fluctuation coefficient (%) = (Rotation irregularity)

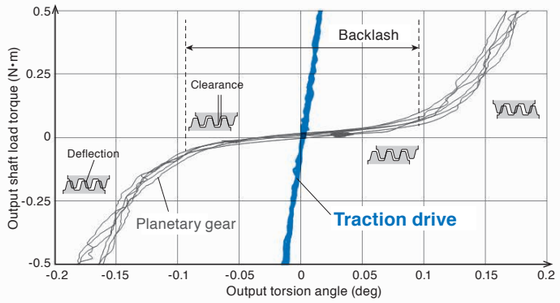
$$\frac{\text{Speed fluctuation}}{\text{Average rotating speed of output shaft}} \times 100$$

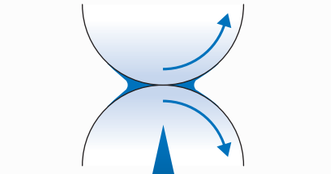
Measurement method

Run the motor at a set speed measuring rotating speed of the output shaft using the rotary encoder



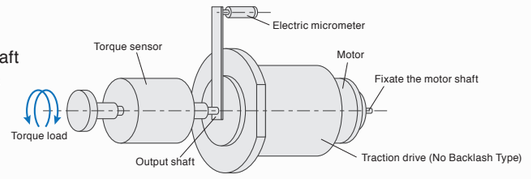
2 Backlash





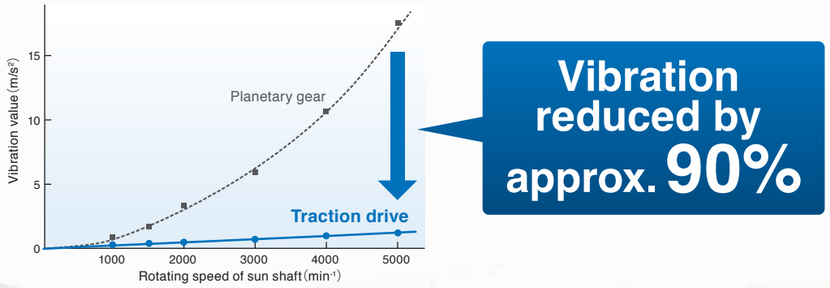
Measurement method

Measure the torsion angle of the output shaft when the motor shaft is fixed and torque is applied to the output shaft clockwise and counter-clockwise



3 Noise

4 Vibration



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Koyo, TOYODA, and JTEKT
unified all brands into JTEKT.

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CAT.NO.B1011E-A
Printed in japan '15.05-1CCH