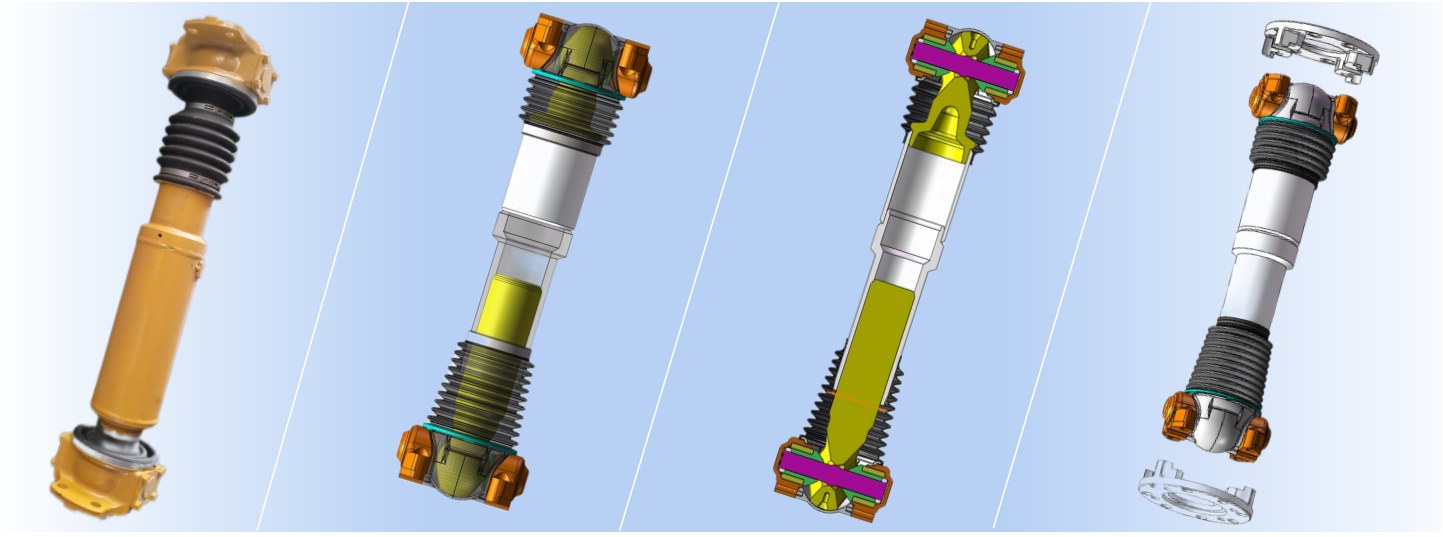
青岛极致创新科技有限公司

QINGDAO ACME INNOVATION TECHNOLOGY CO., LTD.

Maintenance-free Driveshaft



——Provide you with a new choice——

Company Profile

Qingdao Acme Innovation Technology Co., Ltd. was established in March 2018.Qingdao Acme focuses on technical innovation and sustainable development in the field of hydraulics and transmission all the time.The maintenance-free driveshaft independently developed by our company has been applied in engineering factories such as Lovol, Shantui, and Shandong Zhongcha,etc. This product can effectively solve the pain points of difficult maintenance and high cost of customers, and has been widely concerned by customers such as OEMs and new energy vehicles, and other customers.

Qingdao Acme has a professional development team with bachelor degree or above. They have worked in the well-known enterprises such as Caterpillar, AVIC Research Institute, Parker O'Har, China Academy of Aeronautics, CRRC Sifang Institute, Meichen Group, and have rich experience in product research and development, management and so on.

Qingdao Acme has won many honors, such as Qingdao 2022 New Economic Potential Enterprise,Chinese technology-based small and medium-sized enterprises, Qingdao Blue Ocean Equity Exchange Center listed enterprises, 2021 China (Qingdao) International Elite Entrepreneurship and Innovation Competition "Most Investment Value Award", etc.

Financing

Qingdao Acme has obtained more than 10 million angel round and pre-A round equity financing from investment institutions such as Qingdao Qingchuang Talent Endowed Equity Investment Partnership (Limited Partnership) and Qingdao Milestone Venture Capital Center (Limited Partnership). Investors have high hopes for our innovative technologies, products and huge product market prospects.

Core technology

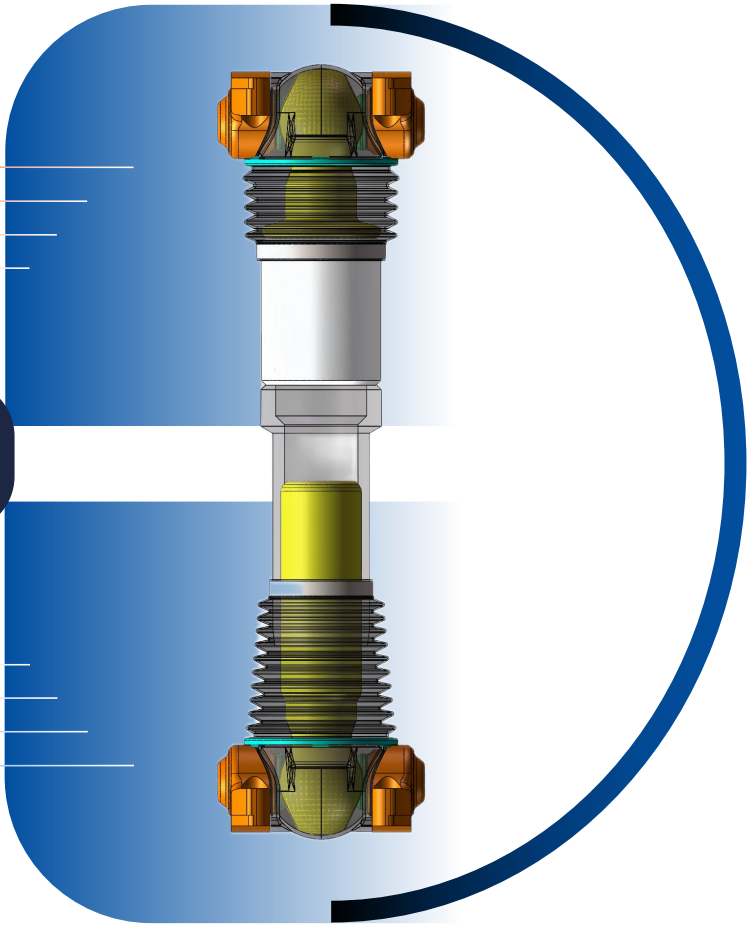
Qingdao Acme conforms to the main line of innovation in "Made in China 2025", takes strengthening the basic capabilities of the industry's "core basic components" as its purpose, focuses on the "key common technologies" in the hydraulic and transmission industries, and achieves technological breakthroughs from "innovation in structural principles". The relevant technology has been authorized 3 American invention patents, 1 European invention patent, 1 German invention patent, 3 Japanese invention patents, 1 Korean invention patent, 2 Indian invention patents, 5 Chinese invention patents, and 7 Chinese utility model patents.

In the future, Qingdao Acme will continue the research and development, production and sales of hydraulic and transmission core components.Based on disruptive innovation, we believe that we will become the leader in the domestic high-end hydraulic and transmission products market.

Maintenance Free

- **Maintenance free:** After the product is fully filled with grease before installation, no grease is required during use.
- **Quick installation:** Our shafts can be installed quickly because of the same interface as conventional products.
- **High reliability:** Torsional fatigue exceeded 300,000 times under 5Hz experimental conditions.

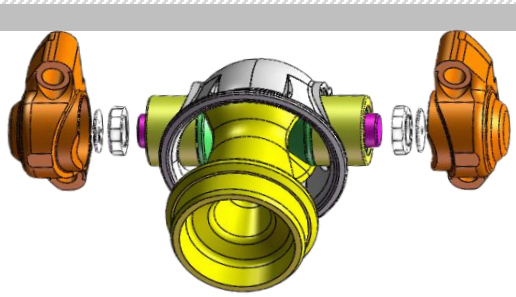
Driveshaft



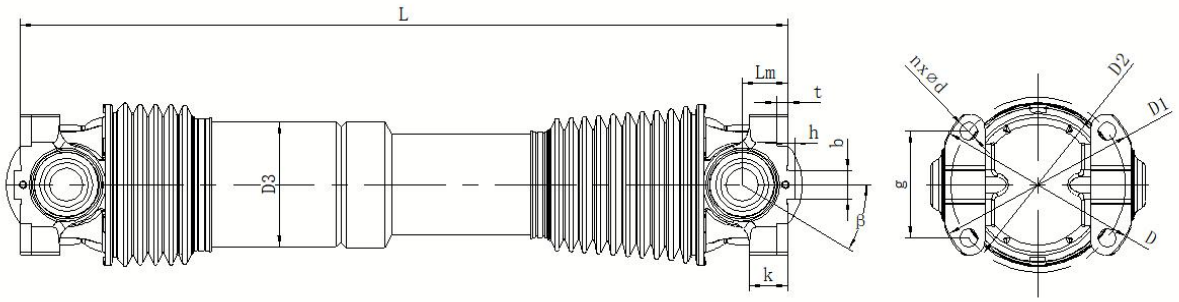
- **Lightweight:** It can reduce weight by more than 30% compared with existing products of the same specification.
- **Large transmission angle:** It can work stably for a long time under the working condition of 20° transmission angle.
- **Noise and vibration:** Compared with traditional products, it runs more smoothly and reduces noise by 2dB.

Traditional cross shaft	V S	Maintenance free driveshaft
2-4 times per quarter	**Maintenance**	0
31KG	**Weight**	**19KG (Reduce by approximately38%)**
80dB (2200r/min)	**Noise**	**77~78dB** (2200r/min)
GB 150000 times (3Hz)	**Fatigue**	**300000 times(5Hz)**
When the transmission angle exceeds 16°, the product life will be reduced by 75%, and the vibration will be enhanced.	**Transmission angle**	When the transmission angle is increased to 20°, it can still maintain smooth operation for a long time.
About 400 CNY per year	**Maintenance costs**	**0**

Eg: 7000N·M

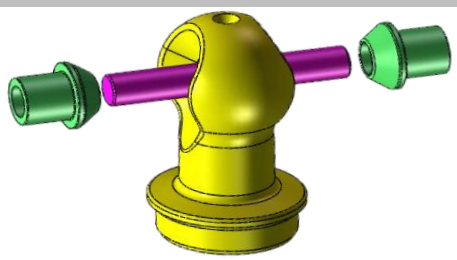


The universal joint of this product adopts the original "slotted pin shaft", "roller sleeve" and "ball joint" design scheme. This structure makes the transmission mechanism and direction change mechanism of the propeller shaft always in a closed lubrication space composed of rubber protective sleeve and nylon ball socket, so as to achieve the effect of maintenance-free, noise reduction and shock absorption.



Main parameters and dimensions

Model	Slewing diameter D mm	Operating torque Tn Max N·m	Axis chamfer β (°)	Scalability Ls mm	Simensions mm										
					Lmin	D1	D2	D3	Lm	nxΦd	g	t	h	b	k
60	125	4600	≤25	80	358	124	104	90	27	4xΦ13	66	8	4.6	20	25
80	147	8000	≤25	80	420	145	125	89	33	4xΦ13	76	8	4.6	20	28
90	152	12000	≤25	80	546	150	129	100	35.5	4xΦ13	76	8	4.6	20	35



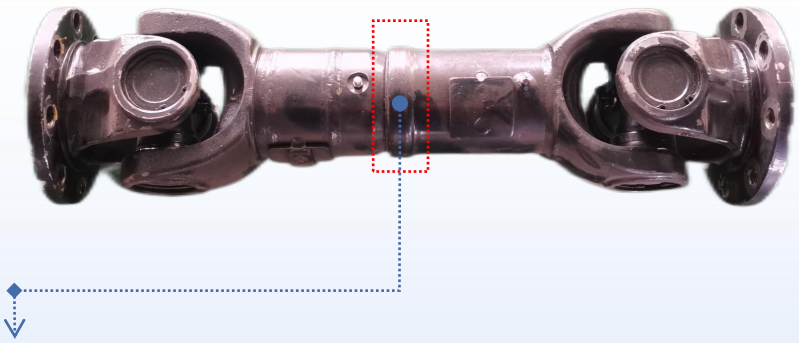
The slotted pin shaft is subjected to a balanced tension force in opposite directions at both ends when working, and has a stronger bearing capacity than a cross shaft of the same diameter. The whole shaft adopts the airfoil structure design scheme, if the main engine connection is simply modified, the connection flange between the two ends of the drive shaft and the upper and lower power ends can be simplified, and two flanges will be saved.

Due to the relatively hidden installation position of the "driveshaft", the external protective cover, the lubricating oil channel is easy to block, and the butter nozzle orientation is uncertain, the maintenance process is time-consuming and laborious.

Technical highlights

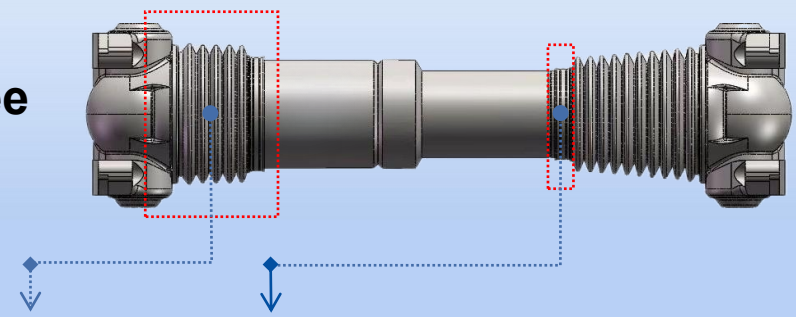
“static seal” replace “sliding seal”

Traditional cross shaft



"**Sliding seals**" cause grease to continue to escape during operation.

Maintenance free driveshaft

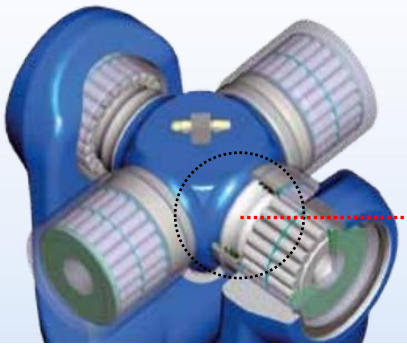


The protective sleeve is fixed to the outer circle of the spline sleeve by means of a clamp~~, forming a "static seal"~~ where the grease is not lost.

"Maintenance-free driveshaft" subverts the transmission structure of the traditional cross joint, realizes maintenance-free, and brings better experience to customers.

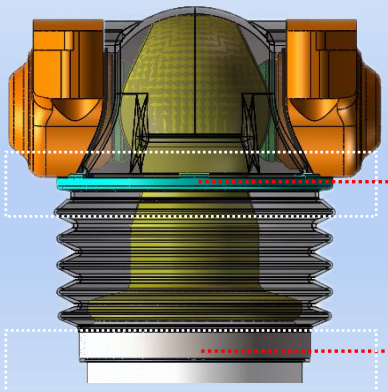
“static seal” replace “sliding seal”

Traditional cross shaft



The "**sliding seal**" formed between the bearing seal and the cross-shaft journal causes grease to continue to escape during operation.

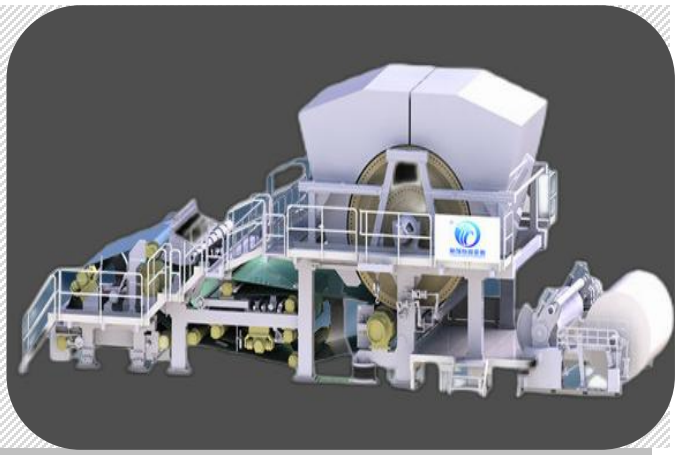
Maintenance free driveshaft



The two ends of the protective sleeve are fixed to the outer circle of the shaft tube and the outer circle of the nylon ball socket by clamps, forming a "**static seal**", so that the grease can never escape.

Maintenance-free driveshafts are mainly used for:

Automotive industry	Construction machinery	Petroleum machinery



Mining machinery | **Agricultural machinery** | **Papermaking machinery**

SHANTUI

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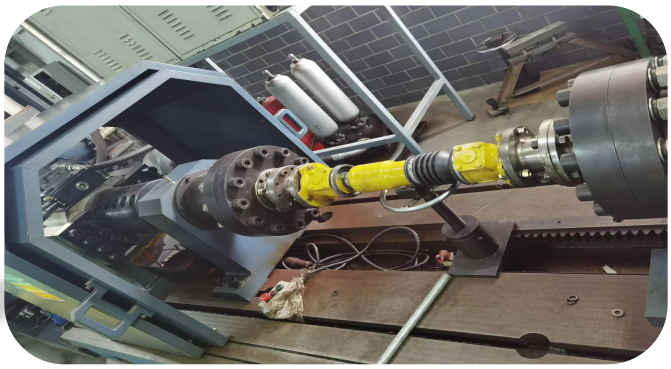

AKNUO

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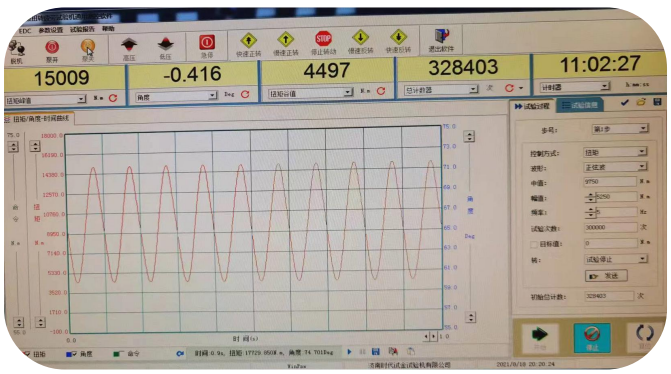

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Product pursuit of the ultimate, innovation leads the future

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