We care about your machine safety and efficiency!





CATALOGUE

We prove that dealer is authorized by UKS to sale the series industrial sealing products, and the products we sell are all the certified and quality produces

SINCE 2005 FROM CHINA
Beijing United Industrial Sealing Technology Co.,LTD.
HTTP://WWW.UKSOILSEALS.COM
JANNE VICOSE INDUSTRY CO., LTD.
HTTP://WWW.JANNEVICOSE.COM





We firmly believe that the development of industrial technology is endless, and there is no end to quality and customer service.

To achieve the ideal and pursuit of perfection, UKS never stops.

As long as the world is making progress, you can see that UKS is diligent and dedicated.

Professional partner for seals!



Convenient ordering

The most direct way of supply

Without intermediate links is the direct marketing terminal sales model

Same day delivery

We have some items with quick shipping, scientific guarantee supply efficiency

Fast delivery

The fastest next-day delivery, and efficient working mode, so that you have unlimited business opportunities

Quality & Technology

Excellent raw materials create noble quality Good quality rubber refining, highly intelligent equipment CNC production procedures, and quality requirements

Technology derived from superb theoretical practice Global customer trust and tireless quality requirements

Confidence in service

For quality, we dare to promise, dare to face, dare to climb the technical peak in the service

WMS(Warehouse Management System)

Stylized assisted management

The typical representative of information management, the pioneer of systematic management practice

Modern service, fashion management

Make industry into fashion, regard parts as handicrafts, to win your rare trust

Sincere team facing the same goal

The existence of the same reasonable goal makes team members invincible





Industrial Co., Ltd. of JANNE VICESE

Introduction: Industrial Co., Ltd. Of JANNE VICE -SE was invested in the mainland of China in 2008, with industrial area of 12,300 square meters, and construction area of 6,200 factories and office bui -Idings. The environment of the area with green area more than 48 and attractive landscapes is pretty elegant, and vigorous.

JANNE VICESE is an enterprise by production and trade of professional rubber seals, automobile and motorcycle parts and accessories hydraulic transm-ission parts. Among its production, the brands of UKS seal series are well-known. They are widely used in mining, machinery manufacturing and other industries. JANNE VICESE provides accessories many years to major companies for several years, and, therefore, has been greatly trusted by numer -ous mechanical equipment manufacturing and automobile manufacturing enterprises.

JANNE VICOSE is always advocating quality, putting "heartfelt quality, excellence" as their absoulute stan-dards of conduct, comprehensively main taining the development space of a brand. Let the sense of focusing on quality to win permanent trust by customers.



Janne vicose industrial 2005

annevicose, cor

Leading the way in Technology & Quality

JANNE VICESE Industrial Co., Ltd., was invested in the mainland of China in 2008, with industrial area of 12,300 square meters,

and construction area of 6,200 factories and office buildings.

The environment of the area with green area more than 48 and attractive landscapes is pretty elegant, and vigorous.

JANNE VICESE is an enterprise by production and trade of professional rubber seals, automobile and motorcycle parts and accessories hydraulic transmission parts.

Among its production, the brands of UKS seal series are well-known.

They are widely used in mining, machinery manufacturing and other industries.

JANNE VICESE provides accessories many years to major companies for several years, and, therefore,

has been greatly trusted by nume mechanical equipment manufacturination automobile manufacturing enterprises







BRIEF INTRODUCTION ABOUT UKS

INTRDUCTION

Industrial Co., Ltd. Of JANNE VICOSE was invested in the mainland of China in 2005, with industrial area of 12,300 square meters, and construction area of 6,200 factories and office buildings. The environment of the area with green area more than 48 and attractive landscapes is pretty elegant, and vigorous.

JANNE VICOSE is an enterprise by production and trade of professional rubber seals, automobile and motorcycle parts and accessories hydraulic transmission parts. Among its production, the brands of UKS seal series are well-known. They are widely used in mining, machinery manufacturing and other industries. JANNE VICOSE provides accessories many years to major companies for several years, and, therefore, has been greatly trusted by numerous mechanical equipment manufacturing and automobile manufacturing enterprises.

ADVANTAGE

We have:

1.science researcher	25%
2.niccety equipments	>33%
3.experiment equipments	>12%
4.new product development(year)	>13.7%

PR-CATEGO RY

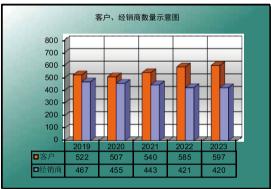
Oil sealing, bushings, o-ring&o-ring kits, D-, U-, V-, X-ring, engine gasket, rubber rroduct, valve stem seals, mechanical seals, heavy duty seals, and drill using, spool-using, buffer ring, dustproof, wear resistant ring et.

TECHNOLOGY

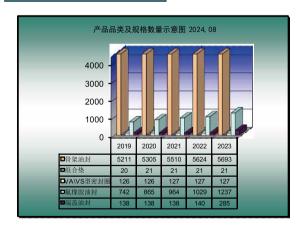
JANNE VICOSE has an excellent high-quality technology development team, who uses the most advanced computer software, and precisely plan and design every product. Our Company has openly professional enterprise laboratory, which is equipped with kinds of detection equipments and testing materials. They ensure the best technology to quality products; The technical engineering staff of the UKS devotes themselves to the need of each end customer, and adheres to professional standards being a technical staff.

DEVELOPMENT





DESIGN



OUTLOOK

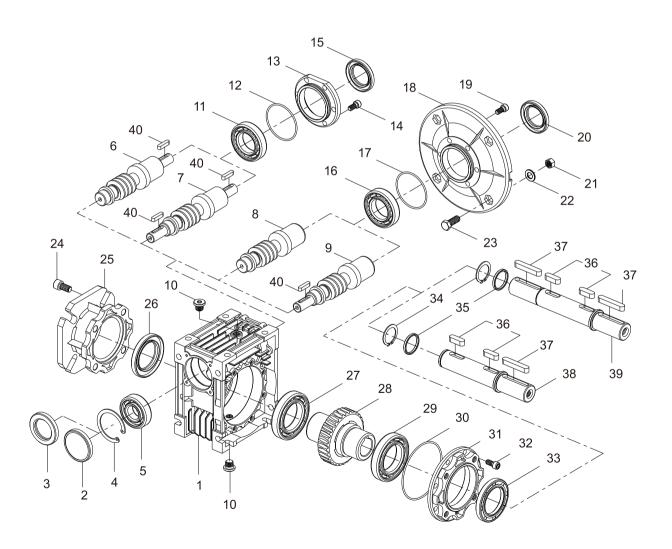
Perfect service to customers is of vital importance to any business; staff's service is the driving force for development. In the 21st century, JANNE VICOSE maintained the nature of the modern international enterprises in manufacturing and service; adhere to provide the most comprehensive services to each customer. We are looking forward to working with China and the world countries and the regions to conduct a comprehensive cooperation and common development.



Overview and structural features of reducer (gearbox)

As the name implies, a reducer (gearbox) is a mechanical device that reduces speed (also called a gearbox). It is a relatively precise mechanical device that is mainly used between the motor and the actuator to reduce the input shaft speed to the output speed required by the user. It is widely used. There are various types of reducers, but the principle and method of reduction are basically finalized.

NMRV reducer parts explosion view and name







NO.	零件名稱	Name of Parts
1	箱體	Cablint
2	油封蓋	End cover
3	油封	Oil seal
4	孔用擋圈	Hole-circlip
5	軸承	Bearing
6	軸輸入蝸杆	Input shaft worm
7	雙軸輸入蝸杆	Double input worm
8	孔輸入蝸杆	Input hole worm
9	孔輸入軸輸入蝸杆	Input shaft and hole worm
10	油塞	Oil plug
11	軸承	Bearing
12	0型橡膠密封圈	O-ring
13	軸承座	Bearing block
1 4	内六角螺釘	Inner hex screw
15	油封	Oil seal
16	軸承	Bearing
17	0型橡膠密封圈	O-ring
18	輸入法蘭	Input flange
19	内六角螺釘	Inner hex screw
20	油封	Oil seal

NO.	零件名稱	Name of Parts
21	外六角螺母	Six hexagon nut
22	墊圈	Washer
23	外六角螺栓	Six hexagon bolt
24	内六角螺釘	Inner hex screw
25	輸出法蘭	Output flange
26	油封	Oil seal
27	軸承	Bearing
28	蜗輪	Worm gear
29	軸承	Bearing
30	O型橡膠密封圈	O-ring
31	輸出端蓋	Bearing support cover
32	内六角螺釘	Inner hex screw
33	油封	Oil seal
34	軸用擋圈	Shaft-circlip
35	墊圈	Washer
36	鍵	Key
37	鍵	Key
38	單向輸出軸	Single output shaft
39	雙向輸出軸	Double output shaft
40	鍵	Key



© Effect of reducer shell material and thermal expansion coefficient on oil seal

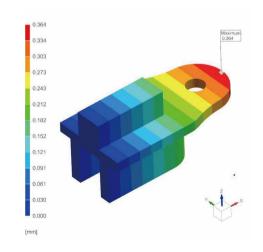
With the continuous development of material technology, different shell materials have also been developed for reducers. We ignore other materials and only focus on aluminum alloy materials here. During the communication process with the engineers of the reducer company, the excellent engineers of UKS Company discovered that the aluminum alloy box (shell) reducer may also have the end cover fall out or the oil seal as a whole move outward under pressure. After measuring the outer diameter of the cavity hole and the oil seal, we found that this was a problem caused by the difference in thermal expansion coefficients under different shell materials of the reducer. Today's RV reducers basically use aluminum alloy boxes, while helical gear reducers with hard tooth surfaces mostly use cast iron materials (cast iron materials do not have the problems described in this section).

UKS professional engineers have tested and verified the 5454 aluminum alloy material in the range of 20° C~ 300° C. The average thermal expansion coefficient of the material is (line and surface) 23.2° 25.6um, which means that this is larger than the expansion of cast iron. The coefficient (line and surface) of 8.5° 12.2um is more than twice as large. If the machining accuracy of the cavity hole remains unchanged and the installation dimensions of the oil seal remain unchanged, then the aluminum alloy box (shell) reducer will have a situation where the oil seal will move outward due to the increase in temperature and the large expansion coefficient.

Temperature range	20	20~100	20~ 200	20~ 300
Brass	_	17.8	16.8	20.9
Aluminum alloy	-	22.0~ 24.0	23.2~ 25.6	24.0~ 25.9
Cast iron	-	8.7~11.1	8.5~12.2	10.1~12.2
Stainless steel	-	16	16.8	17.5

UKS engineers proposed a solution. First, increase the outer diameter thread of the oil seal and end cover to increase friction;

Second, the outer diameter of the oil seal and end cover should be designed according to the standard of oil seal installation size exceeding the middle value, and try to make the installation size more than 75% of the standard value. This solves the process matching problem caused by the thermal expansion coefficient of the box.





The input and output speed difference (speed ratio) of the reducer (gearbox)

Input and output speed difference (Ratio): Since the reducer is mainly used to reduce the speed of transmission equipment, in application, there will be a huge difference in the speed of the power input end and the output end, from the speed ratio of 7.5 to 100

(I= 7.5;10;15;20;25;30;40;50;60;80;100;1000;2000:3000....6000) or even more. A problem arises from this, that is, the input oil seal operates at high speed, while the output oil seal operates at low speed. Assuming that the service life of the oil seals is equal, then there should be a large difference in the service life of the input oil seal and the output oil seal in theory. So how to solve the different usage conditions of the turbine and worm end of the reducer has become an important issue in oil seal design.

After a long period of testing, exploration, and research, UKS seal system engineers believe that there should be structural differences in the oil seals in these two parts, and there may also be material differences. At the input end, the structure can be optimized within the pressure critical point to reduce friction, and self-lubricating materials can also be added, thereby greatly extending the service life

n1 = 1 40	400r/min NMRV025/030		30	NMRV025/040		NM	RV030/0	40	NM	NMRV030/050			NMRV030/063			
	n2	P1 (kw)	1025	1030	P1 (kw)	1025	i040	P1 (kw)	1030	1040	P1 (kw)	1030	1050	P1 (kw)	1030	1060
100	1 4	0.09	10	10	-	-	-	-	-	-	-	-	-	-	-	-
150	9.3	0.06	10	15	-	-	-	-	-	-	-	-	-	-	-	-
200	7	0.06	10	20	-	-	=	-	-	=	-	=	-	=	-	-
250	5.6	0.06	10	25	-	-	-	-	-	-	-	-	-	=	-	-
300	4.7	0.06	10	30	0.06	10	30	0.09	10	30	0.18	10	30	0.22	10	30
400	3.5	0.06	20	20	0.06	10	40	0.06	10	40	0.12	10	40	0.18	10	40
500	2.8	0.06	20	25	0.06	20	25	0.06	20	25	0.09	10	50	0.18	10	50
600	2.3	0.06	20	30	0.06	20	30	0.06	20	30	0.09	20	30	0.12	20	30
750	1.9	0.06	30	25	0.06	25	30	0.06	25	30	0.09	25	30	0.12	25	30
900	1.6	0.06	30	30	0.06	30	30	0.06	30	30	0.06	30	30	0.09	30	30
1200	1.2	0.06	40	30	0.06	40	30	0.06	40	30	0.06	40	30	0.09	40	30
1500	0.93	0.06	50	30	0.06	50	30	0.06	50	30	0.06	50	30	0.06	50	30
1800	0.78	0.06	60	30	0.06	60	30	0.06	60	30	0.06	60	30	0.06	60	30
2400	0.58	0.06	60	40	0.06	60	40	0.06	60	40	0.06	60	40	0.06	60	40
3000	0.47	0.06	60	50	0.06	60	50	0.06	-	=	0.06	60	50	0.06	60	50
3200	0.44	-	-	-					80	40	-	-	-	-	-	-
4000	0.35	-	-	-	0.06	50	80	0.06	80	50	0.06	80	50	0.06	80	50
4800	0.29	-	-	-					-	-	0.06	80	60	-	-	-
5000	0.28	-	-	-	0.06	50	100	0.06	50	100	-	-	-	0.06	100	50



The reason for the temperature generated during the operation of the reducer (gearbox)

As a mechanical transmission device, it is normal for the reducer to generate heat during use. However, in an overheated operating state, it will cause equipment damage, failure, or greatly shorten the service life. Therefore, it is very important to understand the cause of the heat generation of the reducer. This section mainly focuses on the temperature increase caused by the seal factor, and other issues are briefly stated.

1. Transmission shaft speed and friction

The transmission shaft speed is high, for example, the linear speed reaches 22 meters (or the inner diameter 70mm oil seal speed exceeds 6500r/m), which is an important reason for the temperature. Putting aside the speed and talking about temperature, everything is a cloud.

2. Friction area and radial pressure of the oil seal lip

In the field of oil seal manufacturing, there are theoretical studies on face seals and line seals. The so-called face seal means that the oil seal lip runs against the shaft in a large area, while the line seal means that the oil seal lip runs against the shaft in a small area due to the design angle problem. Both designs have their own advantages and disadvantages. However, for the generation of temperature, the larger the friction area, the higher the heat generated. Secondly, the greater the radial grip of the oil seal lip on the shaft, the higher the heat generated. Therefore, under high-speed conditions, choosing line seals and low radial cohesion force design becomes a scientific and feasible choice.



3. The interference between the lip and the shaft is too large

The interference fit between the lip and the shaft is the core function of the seal. Since the oil seal rubber is an elastomer, coupled with the difference between the processing shrinkage ratio and the designed interference, as well as the difference in trimming, the difference in spring performance, and the influence of external temperature and humidity, the control of the interference itself is a systematic problem. Therefore, too large an interference is also likely to increase the pressure of the grinding shaft, thereby increasing the heat.



$\langle \hat{\circ} \rangle$

Causes of temperature generation during operation of reducer (gearbox)

4. Poor structural design of oil seal

Oil seal design is still a technical job and a systematic project in China. A good oil seal design can greatly relieve the pressure on the shaft, and achieve interference compensation with the shaft under good sealing conditions, so as to operate reliably for a long time. Otherwise, high heat or oil leakage can be generated.

5. Self-lubricating function of seal rubber material

The oil seal rubber material contains graphite and other additives to assist rubber lubrication. If you only rely on grease lubricants, it may not be able to achieve the best performance of the seal. The industry also adds molybdenum disulfide, polytetrafluoroethylene powder or applies nano fluorocarbon coating on the lip part to the rubber. Help the material to produce self-lubricating function in the oil-deficient dry grinding structure, and reduce wear and resistance to a certain extent.

6. Manufacturing and installation accuracy of worm gear

The matching of worm gear is not within the professional scope of oil seal engineers. However, due to the concentricity and coaxiality of the worm gear matching, the impact on the oil seal is very large, which can not only increase the operating temperature of the equipment, but also directly cause oil leakage.



7. The viscosity and saturation of lubricating oil

The viscosity of lubricating oil/grease will inevitably affect the operating temperature. What needs to be explained here is the saturation of the added oil. The more oil in the mechanical cavity, the better. When the oil is saturated, the operating pressure will increase, especially the temperature will increase significantly.

- 8. High load or overload will also cause the reducer to heat up quickly.
- 9. External environmental factors: such as poor ventilation, dust, poor heat dissipation conditions, etc.
- 10. Internal faults
- 11. Bearing precision
- 12. Frequent start and stop



MENU

ISR 1.0m ε:1.00

20min+

Temperature of reducer (gearbox) during operation

ISR 1.0m &1.00

10min+

Mode	el	NMRV5	50	Transı	mission rat	io 10	Am	ıbient temp	perature 2	22℃
Port	Duration	0min	5min	1 0 min	20min	30min	40min	60min	120min	1 20 min Rear
Input shaft	/°C	22℃	43.3℃	47.5℃	51 ℃	55.5℃	56.5℃	58.3℃	58.8℃	58.8℃
Output shaft	/℃	22℃	32.2℃	43℃	47.3℃	49.1 ℃	54.4℃	56.3℃	56 . 6℃	56.6℃
Unit:	$^{\circ}$									
	60					55.5	56.5	58.3	58.8	58.8
	50			47.5	51		54.4	56.3	56.6	56.6
Reducer	40		43.3	43	47.3	49.1				
operating temperature test	30		32.25	43						
	20	22								
	10									
	0	0min	5min	1 0min	20min	30min	40min	60min	1 20min	120min后
					-O- Input	shaft -C	► Output shaf	t		
中心 最高 最低:	27.7		*			中心 最高 最低 62.0	28.0			



슚 How to solve the leakage when the reducer is installed upside down

The application fields of reducers are extremely wide and the use environments are also diverse. Not only are there forward and reverse rotations, high-frequency start and stop, use in plateau and cold climate conditions, but there are also different installation postures. This includes vertical installation. Vertical installation includes rain type, vertical formal installation and vertical reverse installation. In the case of vertical installation, the oil seal is not lubricated and may be subject to dry wear, which places high requirements on the oil seal's temperature and wear resistance. In the case of vertical inversion, the oil pours vertically on the oil seal along with the cavity. As the reducer operates, even though the oil seal lip exerts a certain interference pressure on the shaft, it is still unavoidable that a weak oil film will follow. leakage due to the rotation of the shaft. In this regard, UKS not only proposed the concepts of radial cohesion force and IP67/68, but also designed a return oil line on the oil seal lip.

>The concept of IP67/68: With the export of products to the EU and the requirements of different fields, it has also had a profound impact on oil seal technology. IP67 and IP68 water-proof standards were first used to measure the level of resistance of electronic products to liquid penetration under specific conditions. Later, it was fully adopted in various fields such as machinery and equipment, automobiles, and smart wearable devices. IP67 mainly blocks the entry of water molecules when it stays in clear water 1 meter deep for 30 minutes. IP68 puts forward higher requirements, which are generally stipulated by the manufacturer. Based on the requirements of IP67, UKS proposed its own theoretical framework of radial cohesion force, achieving reverse waterproof and air-tight tests that are more in line with the characteristics of the skeleton oil seal (not simply waterproof, but also dust-proof and oil-proof) leakage), and implemented it on the skeleton oil seal, thereby formulating a more scientific and measurable standard for the cohesion force of the main lip of the skeleton oil seal and the half-width interference of the auxiliary lip.





Good interference compensation capability

What is the appropriate amount of lip interference? Both GB/T9877-2008 and DIN3760-1996 have made settings, as shown in the following table:

	Lip interference and limit deviation	Unit: mm
Shaft diameterd1		Limit deviation
5~ 30	0.7~1.0	0.2
0 00		-0.3
30∼ 60	1.0~1.2	0.2
30 00	1.0 1.2	-0.6
60~80	1.2~1.4	0.2
00 00	1.2 1.4	0.6
80~130	1.4~1.8	0.2
00.2120	1.4~1.0	-0.8
130~ 250	1 0- 2 /	0.3
130~ 250	1.8~ 2.4	-0.9
250- 400	2.4.2.0	0.4
250~ 400	2.4~ 3.0	-1

Interference compensation cannot be just a slogan or a simple concept. It requires systematic research, in-depth exploration of oil seal structure and usage scenarios, and effective digital control of the entire production process to achieve the expected interference loss compensation effect.

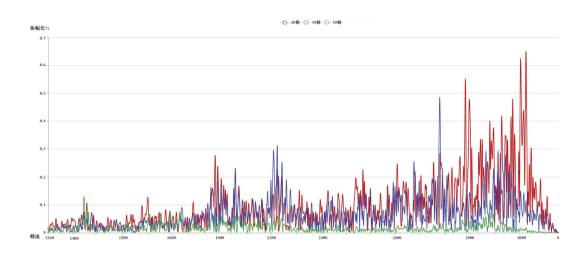


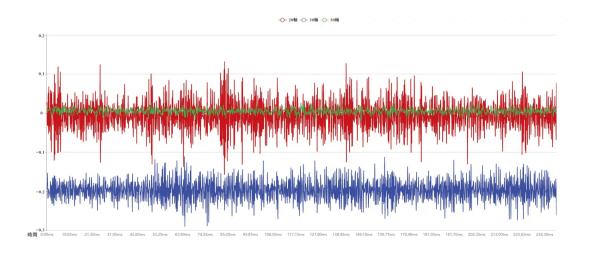


Good deflection design and shaft compensation solve shaft vibration problems

Generally there is no problem under uniform load, but under heavy load conditions, the shaft torque increases, especially in the E-DRV bipolar deceleration mode, which poses a challenge to the sealing effect of the oil seal. Under load, the vibration frequency of the worm gear increases greatly. If the S and L dimensions of the oil seal are not adjusted according to the characteristics of the reducer, resulting in the lack of good shaft resistance, oil leakage will become a difficult puzzle to solve. The interference compensation theory of the UKS seal design system has effectively made up for the above shortcomings with the help of 18 years of sealing and lubrication experience.

Diameter Φ30mm Shaft length 350mm Speed 1260rpm — 3000rpm







Material selection that meets EU RoHS environmental requirements.

Due to the EU's latest mandatory environmental standards, our customers will have many batches of products in 2023 that will have customs clearance difficulties due to defects in RoHS implementation standards. UKS complies with the EU's mandatory environmental protection regulations and officially launches a new vulcanization system rubber in reducer oil seals. Lead (Pb), mercury (Hg), (Cd), hexavalent chromium (Cr6+), polybrominated biphenyls (PBBs) and polybrominated diphenyl ethers (PBDES) in rubber have been strictly monitored.



No.	Test Items	Unit	Result	MDL	Limited Value*
1	Cadmium (Cd)	mg/kg	N.D.	2	100
2	Lead (Pb)	mg/kg	N.D.	2	1000
3	Mercury (Hg)	mg/kg	N.D.	2	1000
4	Hexavalent Chromium Cr(VI)	mg/kg	N.D.	8	1000
	Sum of PBBs	mg/kg	N.D.	-	1000
	Monobromobiphenyl	mg/kg	N.D.	5	-
	Dibromobiphenyl	mg/kg	N.D.	5	-
	Tribromobiphenyl	mg/kg	N.D.	5	-
	Tetrabromobiphenyl	mg/kg	N.D.	5	-
5	Pentabromobiphenyl	mg/kg	N.D.	5	-
	Hexabromobiphenyl	mg/kg	N.D.	5	-
	Heptabromobiphenyl	mg/kg	N.D.	5	-
	Octabromobiphenyl	mg/kg	N.D.	5	-
	Nonabromobiphenyl	mg/kg	N.D.	5	-
	Decabromobiphenyl	mg/kg	N.D.	5	-
6	Sum of PBDEs	mg/kg	N.D.	-	1000
0	Monobromodiphenyl ether	mg/kg	N.D.	5	-





UKS reducer special oil seal test record

The oil seal of the reducer is indeed special. If there is leakage, it will be cumbersome to replace, especially the input end or even the one with a flange. It is not only time-consuming, but also some users cannot disassemble and replace the oil seal at all. This will result in shutdown of production, return to the factory for repairs, etc. Coupled with the particularity of the oil seal of the reducer, the input end speed is high, which places high requirements on the tolerance of many oil seals. In view of this, UKS attaches great importance to reducer oil seals, and the testing process and testing projects are more comprehensive and in-depth.

Machine model: NMRV50 Test date: 2024.6.17 9:52 Ambient temperature: 28℃

Oil seal specifications: Worm TCG 30*047*07-S Turbine TCG 40*062*08-S EC 47*08-S

Duration	Temperature	Stop reaction	Forward and reverse reaction	Oil leakage	No load
30min	49.1 ℃		\checkmark	No	Normal
60min	56.3℃	\checkmark		No	Normal
6h	59.3℃		\checkmark	No	Normal
12h	56.7℃	\checkmark		No	Normal
24h	59.8℃		\checkmark	No	Normal
48h	59.6℃			No	Normal
72h	59.3℃	\checkmark		No	Normal
96h	59.7℃			No	Normal
1 20h	59 . 1 ℃			No	Normal

Sample evaluation conclusion Qualified

Stop performance:

Stop performance is excellent, normal throughout.

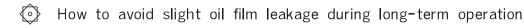
Forward and reverse performance:

The overall performance is good, and a fine oil film can be seen in the forward and reverse intervals.

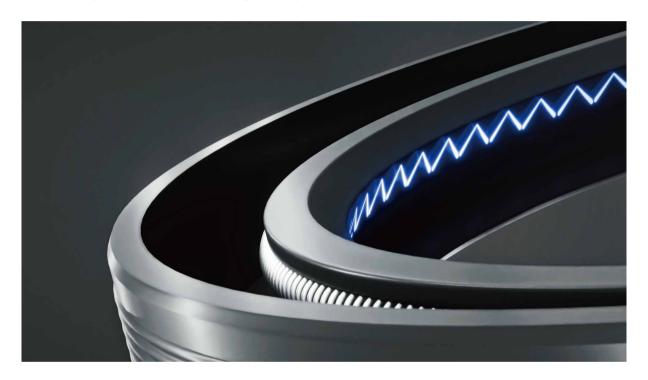
Wear condition:

After a continuous test of up to 133 hours, the wear value shows good, the rubber surface is smooth, and the sealing edge is slightly blunt.





UKS brand oil seal engineers discovered the problem during a large number of and long-term reducer experiments. After long work of collecting information, proposing plans, correcting plans, theoretical verification, installation experiments, and data sets, etc., they proposed the forward and reverse rotation. Based on the two-way oil return design concept of oil film recovery, at a predetermined speed of 1500-3000 rpm, a two-way triangular oil return line with a 30-degree angle is designed. Through the semi-fluid's tiny centrifugal force, the concept of micro-scraping oil cleaning is used. Solved the problem of oil film leakage during forward and reverse interaction.



An on-site test bench was conducted to investigate the installation directions of M1, M2, M3, M4, M5, and M6, as well as the different oil seal performances in various directions. The installation of RV reducers is more complicated due to the large number of models. Generally speaking, under different installation directions, the most severe situation will cause the oil seal to be completely pressurized by the oil in the forward direction and completely lose lubrication. In this case, the requirements for oil seals are even more stringent.

The UKS technical team studied the problems of many reducer manufacturers in oil seal applications in Songji, and finally came up with the TCGS solution and conducted a large number of tests. Under different installation conditions, different temperatures, and different speed ratios. We are not afraid of testing, 48 hours, 72 hours, 96 hours, 130 hours..., most of the models we purchased rotate day and night, video observation, and technicians record a large amount of basic data.

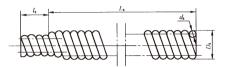


The relationship between oil seal spring and oil seal sealing performance

The reason why the skeleton oil seal can seal is because of the interference of the lip and the stable radial force exerted by the spring on the shaft. Among them, the spring in the oil seal serves as a radial load element and plays a vital role in the sealing performance of the oil seal. This ensures that the oil seal lip is tightly attached to the rotating shaft, preventing grease or fluid from breaking through the sealing edge and causing leakage. Therefore, it can be said that the spring is the core component of the sealing and lubrication system.

1. Spring dimensions and parameters

Basic spring dimensions, as shown in the figure:



dı/mm	ds/mm	Ds/mm	Ls/mm	Stretching 5% load/N
>5~ 30	0.2~0.25	1.2~1.6		0.5~1.0
>30~60	0.3~0.4	1.5~ 2.0	Ls≈ π	1.5~ 2.0
>60~80	0.35~ 0.45	2.0~2.5	(2a+ design	2.0~3.0
>80~130	0.4~ 0.50	2.5~ 3.0	median value of main lip size	2.0~3.0
>130~250	0.45~ 0.60	3.0~3.5	after spring	2.0~3.5
>250~400	0.55~ 0.80	3.5~ 4.0	installation)	9.0~12.0

In this table, the free length of the spring and the stretched length after installation are not set. If the ratio of groove diameter $2\pi r^*95\%$ is followed, all specifications cannot be fully covered. If the above calculation is performed for all, then the force generated by the spring will be insufficient for small specifications, such as inner diameters within 15mm, and oil seals with an inner diameter of 250mm or more will use the same proportion, the inner spring tension will be too large. What's more, the oil seal also has a difference of 4/5/6/7/8/9/10mm in height within the same inner diameter, so the impact is even greater. If the design is verified, of course there is no problem.

2. Spring length

The length of the spring directly determines the cohesion force of the oil seal lip to the shaft. If it is too tight, the resistance is good, but the grinding mill will heat up, the rubber lip will wear faster, and the oil seal will have a shorter service life.

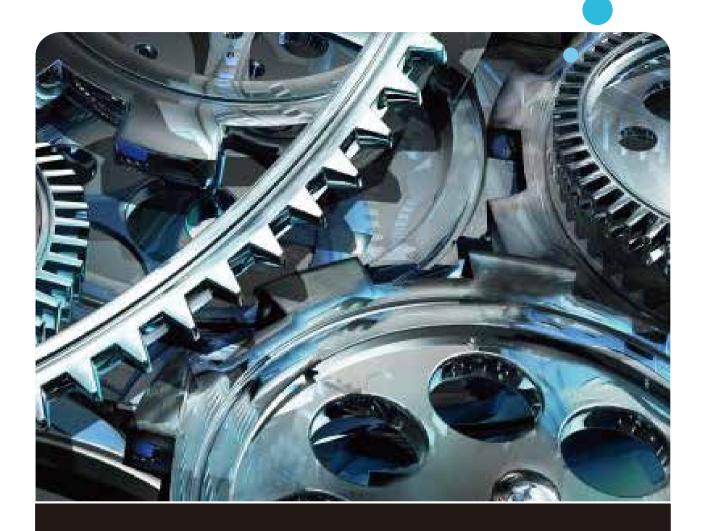
If it is too loose, the wear will slow down, the pressure resistance will decrease, and oil film may leak out

The degree of tightness is the main ability that oil seal springs need to master. How to maintain tightness? Then you need to look at the comprehensive consideration of spring wire diameter, spring diameter, spring tension and spring length.

Spring effective length tolerance table

Unit:mm

Spring wire diameter	≤0.2	>0.2~0.3	>0.3~0.4	>0.4~0.5	>0.5~0.6	0.6	0.8
L _s Tolerance	±0.2	± 0.3	± 0.4	± 0.5	± 0.6	± 0.8	±1



We prove that dealer is authorized by UKS to sale the series industrial sealing products, and the products we sell are all the certified and quality produces

SINCE 2005 FROM CHINA
Beijing United Industrial Sealing Technology Co.,LTD.
HTTP://WWW.UKSOILSEALS.COM
JANNE VICOSE INDUSTRY CO., LTD.
HTTP://WWW.JANNEVICOSE.COM

