



JIE Website



JIE USA



JIE Intelligent Drive Industrial Zone



Established in 1988, JIE has been insisting on manufacturing a great reducer in 100 years, aiming to build a century-old enterprise with its craftsmanship. JIE serves global market with intelligent drive solutions incl. gear units, motors, inverters, sensors and Internet of Things. JIE is committed to providing great products for great partners across the world. With the core strategy of "Specialization, Intelligence and Globalization", JIE is dedicated to the innovation and application of industry 4.0 technologies incl. intelligent plants, intelligent products, intelligent services, intelligent experiences, intelligent talents, etc. JIE, a provider of Intelligent Drive Solutions!



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JRST、WP Worm Reducer

JIE INTELLIGENT DRIVE SOLUTIONS PROVIDER



	<p>JRTH Helical-Bevel Gearmotors Size:39-189 Ratio:3.98-197.37 Input power:0.12-200kW Output torque:10-62800Nm</p>		<p>JRST Helical-Worm Gearmotors Size:39-99 Ratio:6.8-288 Input power:0.12-22kW Output torque:10-4900Nm</p>		<p>JRTRX Gearmotors Size:59-109 Ratio:1.3-8.65 Input power:0.12-45kW Output torque:1.4-990Nm</p>
	<p>JRHD Bucket Elevator Gear Units Size:5-16 Ratio:25-71 Input power:16-1305kW Output torque:11000-173000Nm</p>		<p>JRHO Palm Oil Gear Units Size: 310 Ratio:56, 80 Input power:106, 141kW Output torque:75000Nm</p>		<p>JRHA Air-Cooled Gear Units Size:166 Ratio:14 Input power:228kW Output torque:21000Nm</p>
	<p>JRPH Planetary Gear Units Size: 08-100 Ratio: 3.4-2000 Input power:75-250kW Output torque: 8000-100000Nm</p>		<p>VR Coaxial Planetary Gear Units Ratio: 3-100 Backlash: 1-3/3-5/5-7/arc-min Torque: 6-3300Nm</p>		<p>EV Bevel Helical Gear Units Ratio: 3-100 Backlash: 4-9/6-11arc-min Torque: 12-1920Nm</p>
	<p>JRWND NEMA Worm Gears Size:30-150 Ratio:7.5-100 Input power:0.06-15kW Output torque: 2.6-1760Nm</p>		<p>WPA Worm Gears Size:40-250 Ratio:10-60 Input power:0.12-33.2kW Output torque:19-2745Nm</p>		<p>WPW Worm Gears Size: 40-250 Ratio:10-60 Backlash: 0.12-33.2kW Torque: 6-3025Nm</p>
	<p>JDN NEMA Standard Motors Size: 63-180 Power: 0.12-22kW Efficiency: IE2, IE3, IE4</p>		<p>JDB Explosion-Proof Motors Size 80-315 Power:0.75-200kW Explosive-Proof Grade: Exib II BT4 Efficiency:IE2、IE3</p>		<p>JDC Servo Motors Size: 30-90 Power: 0.4-7.5kW Rated torque: 1.27-48Nm</p>
	<p>JCM Converter & Gearmotor Integrated System Size:004-0075 Power:0.4-7.5kW Ingress Protection: IP54-IP65 Input Power: 3AC380-440V Output Frequency: 0-200Hz</p>		<p>JCF Frequency Converters Size: 0075-0550 Power: 0.75-55kW Output Frequency: 0-200Hz Carrier Frequency: 8-32kHz</p>		<p>JCS Servo Drivers Size: FSA/FSB/FSC Power: 0.4-7.5kW Input Power: 1AC 22V/3AC 380V</p>
	<p>JRESS Stainless Steel Worm Gears Size:40-90 Ratio:7.5-100 Input power:0.09-4kW Output torque:19-458Nm</p>		<p>JRSS Screw Lifter Size: 35-150 Ratio:5-40 Input power: 0.19-16.3kW Lift Capacity: 500-26050Kg</p>		<p>JRTM Spiral Bevel Right Angle Size:2-25 Ratio:1-5 Input power:0.014-335kW Input speed: 10-1450r/min</p>
	<p>JEC Escalator Reducer Size:2-15, 2-25 Ratio:24.5 Efficiency:≥96% Working lift:146000h Output torque: 3530-5150Nm</p>		<p>JN Agricultural Machinery Gear Units Ratio:0.364-2.33 Input speed:800r/min Efficiency:≥96%</p>		<p>JIE Intelligent Drive Solution Provider For more products, please contact JIE.</p>



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1 Preface

The instruction introduces the transportation, storage, assembly, usage and maintenance of worm speed reducers, etc.

2 Safety Notes

- ★ Please read the instruction carefully before operation of the products and present the instruction to the end user for preservation in an proper condition.
- ★ Strictly following the instructions in the manual is the prerequisite for the trouble-free operation and the fulfillment of quality warranty, which, in further, can avoid personnel injury and property loss.
- ★ Whenever the worm gear reducer has any abnormal phenomena (like temperature increasing, noise level, vibration in an improper level) during the operation, Please urgently stop the reducer and check the cause. The machine can't be operated unless the cause is found out and the abnormal phenomena is eliminated. Please consult our service department if you have any requirements.

3 Transportation

- ★ Once you received the shipment, Please check items right now. In case any damages occurred, please don't use and inform the transport company immediately.
- ★ Before the hanging of reducers, Please tighten the bolt of flying ring which is selected according to the weight of reducers and can't bear additional weight. If there is additional load, Please select proper device to move the reducer.
- ★ Please remove all transportation fixture prior to startup of reducers.

4 Installation

4.1 Installation Notes

- ★ Check if the data on nameplate conform to the operating requirement on site.
 - Environment requirements for standard speed reducer:
 - Ambient temperature:-10℃~+40℃
 - No oil, acid, smoke, noxious gas and radiation.
- ★ Check the mounting position, the rotation direction and the shaft direction are correct.
- ★ The base-plate must be plane and stout, and the base-bolts must be screwed down and shockproof.
- ★ The joint shafts of prime mover, reducer and operation device must be coaxial after installation.
- ★ The diameter tolerance zone of input and output shaft is h6. The holes of fittings (such as couplings, belt-pulley, sprocket wheel and so on) must properly mate the shaft and this prevents bearing from breakage due to over-tight mate and avoid affecting normal power transmission due to over-loose mate.

Installation Tolerances(as follows)

Table 1

Shaft end	Flange
Diameter tolerance <ul style="list-style-type: none"> • ISO h6 (ISO h6 for solid shafts) • ISO E8 (ISO E8 for input hollow shafts) • ISO F8 (ISO E8 ISO E8 for output hollow shafts) 	Register diameter shoulder tolerance <ul style="list-style-type: none"> • ISO F7

- ★ The input, output shafts and flanges have been applied anti-corrosion before pack. Please clean the output shafts and flange surfaces thoroughly to ensure they are free from anti corrosion agents, contamination or analog using a commercially available solvent. Do not let the solvent come into and contact the sealing lips of the oil seals danger of damage to the material!
- ★ Be sure that worm reducer had been filled lubricant according to the following provisions before startup:
 - The WP series worm reducers, which didn't fill lubricant before leaving factory, must be filled lubricant. Please refer to"table 4 and table 7" for lubricant capacity and selection .
 - JRST series worm reducers are filled with lubricant in our factory. Please check if the oil level conform to the specification prior to running for the model JRST110 to JRST150. In case any deviation for the oil level, Please adjust to proper oil level. For lubricants and capacity, Please refer to the appendix" table 5 and table 8".
 - The JRSS series worm reducer, which didn't add lubricant before leaving factory, must be filled lubricant. Lubricant capacity and selection refer to "table 6 and table 9".
- ★ Drives such as sprocket wheel and gear must be fitted closely to bearing in order to reduce bending stress of hanging shaft. Please refer to chart 1:

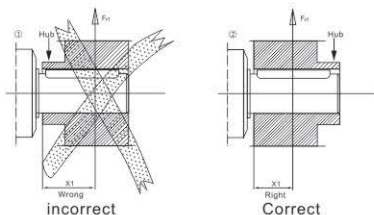


Chart 1

Notes:


- ★ Never use hammer to hit the belt pulleys, couplings, pinions, etc. onto the shaft end. It will damage the bearings, housing and the shaft!
- ★ It may be easier to assemble if you first apply lubricant to the output element or heat it up briefly (to 80 – 100° C)
- ★ In the case of belt pulleys, make sure the belt is tensioned correctly in accordance with the manufacturer's instructions .
- ★ Power transmission elements should be balanced after fitting to prevent the over large radial and axial forces.
- ★ While mounting motor to reducer with motor adapter, or mounting shaft into hollow shaft it is necessary that proper amount of lubricant is applied to the worm shaft input hole, motor shaft, driving hollow shaft and driven shaft and keyway, avoiding tightly assembling and rusting after being used for a long time.(It may be easy using mount device).
- ★ Flange mounted, flange should be adapted well to avoid distortions.
- ★ Torque arm mounted, driving hollow shaft and driven shaft should be fitted well. Torque arm should be fixed and locked tightly.
- ★ As access is installed at top of screw shaft, you must use locking device to avoid moving. Foregoing situation, please pay attention to model A and B especially.

4.2 Mounting Position

4.2.1 WP Series Mounting Position

The general series of WP Mounting position is foot mounting. For others, oil plug and air vent should be changed.

4.2.2 JRST Series Mounting Position

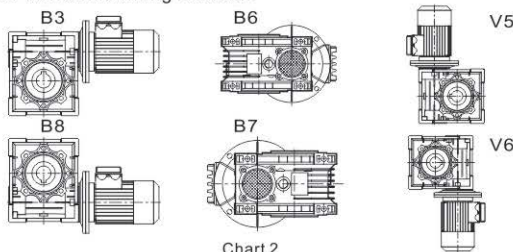


Chart 2

4.2.3 JRSS Series Mounting Position

Basic Model		Screw fluctuate without rotation		Screw rotate without fluctuation	
A 	B 	C 	D 	E 	F

Chart 3

5 Usage

- ★ Don't drive reducer with large external mass moments of inertia which could exert a retro-driving load on the worm reducer.
- ★ Before use, please check and make sure the reducer mode, center distance, ratio, link manner of input shaft, output shaft structure, input and output shaft direction and revolving direction are right according to requirements. Input speeds of worm shaft should be less than 2000r/min. The general speeds range is 600~1800 r/min.
- ★ Make sure that worm reducer has been added lubricant correctly before startup.
- ★ The load should be added step by step when using the machine. Never run it with full load.
- ★ When the ambient temperature is 5℃ upper or lower than the normal level stated in the table, please contact us.
- ★ When abnormal circumstances occur, please stop and check reducer according to "Malfunctions" (Allowable highest oil temperature is 95℃. The temperature is lower 95℃, if oil temperature no more goes up, please let reducer continue running).
- ★ Please active the air vent or the breather valve as following steps before startup.

a) Activating air vent with cone plug

1. Air vent with cone before working
2. Remove the cone while working



Chart 4

b) Activating the breather valve

1. Breather valve with fixture before working
2. Remove the fixture while working



Chart 5

- ★ Worm reducers require a run-in period of at least 24 hours before reaching its maximum efficiency. If worm reducer rotates toward to two directions, each direction needs to separately rotate for some time. The table show the average power reduction during the run-in period.

6 Check and Maintenance

6.1 Maintenance Intervals

Table 2

Cycle of check	Content
Working first 100 hours(WP...,JRSS...)/ 500 hours (JRST110~150...)for first running.	Cleaning house and changing oil
Renew the lubricant / 2500hours(WP...,JRSS...)/ 5000hours(JRST...)after changing oil for first time.	Cleaning house and changing oil Replace anti-friction bearings and oil seal.
The reducers ranging from JRST25-90 have been filled lubrication. User doesn't need to add oil. After about 10000 hours continual running, please change lubricant.	

6.2 Lubricants

- ★ Please change the oil when the oil is warm .
- ★ Shut down the power to prevent personnel injury!Cooling until it doesn't feel hot by hand.
- ★ The worm reducer must still be warm otherwise the high viscosity of excessively cold oil will make it harder to drain the oil.
 - Place a container underneath the oil drain plug
 - Remove vent plug/breather valve and oil drain plug.
 - Drain all the oil and clean the inside, then screw the oil drain plug.
 - Pour in new oil of the same type through the vent hole. Do not mix synthetic lubricants. If the type is different, please contact us.
 - Pour in the volume of oil in accordance with lubricant capacity table.
 - Screw the breather plug back in and check at the oil level plug

6.3 Malfunctions

Table 3

Malfunctions	Causes	Solutions
Overheating	Improper connection among prime mover, reducer and the operation device	Adjust to proper position
	Overloading	Adjust to proper load
	Over friction of seals	Drop lubricant at oil seal
	Lubricant overmuch or shortage	Adjust to proper oil quantity as indication
Vibration	Much impurity in oil or inferior oil	Refill proper oil
	Prime mover, reducer and the operation device mount badly	Find out the bad place and tighten it
	Tooth surface of worm gear sets worn-out or damaged	Replace worm gear sets(We will cooperate with you when necessary)
	Bearing worn-out	Replace bearing
Noise	Bolt loose	Tighten screw
	Bearing damaged or too large clearance	Replace bearing
	Worm gear sets mesh badly	Mend tooth surface or replace worm gear sets(Please contact to us)
	Lubricant shortage	Fill in adequate oil as indication
Oil leakage	Foreign object in box	Discharge all the oil in order to put out foreign object and refill clean oil
	Oil seal lip worn-out	Replace oil seal
	Shaft of oil seal worn-out	Replace input or output shaft
	Too much oil	Discharge adequate oil as indication
Tooth surface of worm gear sets abrade extra-quickly	Oil screw plug loose	Tighten oil screw plug
	Oil gauge damaged	Replace oil gauge
	Over load	Adjust to proper loading
	Lubricant not according with requirement	Replace proper lubricant
Screw surface of worm gear sets abrade extra-quickly	Lubricant shortage	Replace oil as indication
	Not replace lubricant in time according to requirement, oil deteriorates	Replace oil in time according to requirement
	Overheating while running	1.Deal with it as "Overheating" 2.Adopting proper measures to make environment temperature fall
	Overloading	Adjust to proper load
	Lubricant shortage or gone bad	Wash-over dirty oil and refill proper lubricant
	There is transverse load	Add direction setting

Note : Short-term oil/grease leakage at the oil seal is possible in the run-in phase(24 hours running time).

Appendix

Lubricant capacity of WP series (L)

Table 4

Size	Type	WP(D, K)A	WP(D, K)S	WP(D, K)X, O	WPW(D)
40		0.1	0.2	0.2	0.2
50		0.2	0.4	0.5	0.4
60		0.3	0.5	0.6	0.5
70		0.6	0.9	1.2	0.8
80		1	1.3	1.5	1.5
100		1.7	2.7	3.9	2.6
120		2.8	4.5	5.8	4.5
135		4.5	7.2	8.6	5.6
147		4.2	7	11.1	-
155		5.9	10.3	14.2	11.7
175		7.5	12.1	16.7	13.9
200		12.2	18.9	27.2	16.7
250		22	33.9	48.9	30

Lubricant capacity of JRST series (L)

Table 5

Installation \ Type	025	030	040	050	063	075	090	110	130	150
B3	0.02	0.04	0.08	0.15	0.3	0.55	1	3	4.5	7
B6 B7								2.5	3.5	5.4
B8								2.2	3.3	5.1
V5								3	4.5	7
V6								2.2	3.3	5.1

Lubricant capacity of JRSS series (L)

Table 6

Type	35	40	50	60	60B	70	100	120	130	150
Oil capacity	0.06	0.1	0.2	0.35	0.4	0.5	1.5	2.2	3.5	4.0

Note:

★ The specified fill quantities are recommended values. The precise values vary with the number of stages and reducer ratio. When filling, it is essential to check the oil level plug since it indicates the precise oil capacity. The following tables show guide values for lubricant fill quantities.

★ Before lifter is used, lubrication must be put into house and screw shaft must be brush in lubricant.

Selecting lubricant of WP series

Table 7

Ambient temp	Load	ISO VG	GB3141 -82		Mobil	AGMA	中国石油
-30°C ~ -15°C	commonly	VG-100	N100	Shell Tivila 100	Gear 627XP	5	CKE/P100
	Heavy	VG-150	N150	Shell Tivila 150	Gear 629XP	7	CKE/P150
-15°C ~ 5°C	commonly	VG-150	N150	Shell Tivila 150	Gear 629XP	7	CKE/P150
	Heavy	VG-220	N220	Shell Tivila 220	Gear 630XP	7EP	CKE/P220
5°C ~ 25°C	commonly	VG-220	N220	Shell Tivila 220	Gear 630XP	7EP	CKE/P220
	Heavy	VG-320	N320	Shell Tivila 320	Gear 632XP	6	CKE/P320
25°C ~ 40°C	commonly	VG-320	N320	Shell Tivila 320	Gear 632XP	6	CKE/P320
	Heavy	VG-460	N460	Shell Tivila 460	Gear 634XP	8	CKE/P460
40°C ~ 65°C	commonly	VG-460	N460	Shell Tivila 460	Gear 634XP	8	CKE/P460
	Heavy	VG-680	N680	Shell Tivila 680	Gear 636XP	8EP	CKE/P680

Selecting lubricant of JRST series

Table 8

Reducer size	25-90	110-150	
Type of lubrication oil	Synthetic lubrication oil	Mineral lubrication oil	
Ambient temperature °C	-25 ~ +50	-5 ~ +40	-5 ~ +40
ISO VG	ISO VG 320	ISO VG 460	ISO VG 220
AGIP	TELIUM VSF320	BLASIA 460	BLASIA 220
SHELL	TIVELA OIL SC320	OMALA OIL 460	OMALA OIL 220
ESSO	S220	SPARTAN EP460	SPARTAN EP220
MOBIL	GLYGOYLE 30	MOBIL GEAR 634	MOBIL GEAR 630
CASTROL	ALPHASYN PG320	ALPHA MAX 460	ALPHA MAX 220
BP	ENERGOL SG-XP320	ENERGOL GR-XP460	ENERGOL GR-XP220

Selecting lubricant of JRSS series

Table 9

Worm shaft speed (r/min)	Lubricant
1500 ~ 1800	ISOVG680
300 ~ 1500	ZNG-1 or ZNG-2

JRT GEAR UNITS & GEARMOTORS



JRTR
Helical Inline Gearmotors
Size:19-189
Ratio:3.37-289.74
Input power:0.12-250kW
Output torque:2.4-56494Nm



JRTF
Parallel Shaft-Helical Gearmotors
Size:39-169
Ratio:3.77-281.71
Input power:0.12-250kW
Output torque:3.5-37125Nm

JRH INDUSTRIAL GEAR UNITS



JRH
Parallel Shaft Gear Units
Size:3-28
Ratio:1.25-450
Input power:4.3-10515kW
Output torque:2300-1400000Nm



JRH
Helical-Bevel Gear Units
Size:4-28
Ratio:5-400
Input power:2.8-4908kW
Output torque:5500-1400000Nm

JRP PLANETARY GEAR UNITS



JRP
Planetary Gear Units
Size:9-36
Ratio:25-4000
Input power:0.4-12934kW
Output torque:22000-2600000Nm



JRP
Planetary Gear Units
Size: 01-8
Ratio:3.08-3460
Input power:0.02-192kW
Output torque:1000-13000Nm

JRW WORM GEAR UNITS



JRW
Worm Gears
Size:30-150
Ratio:7.5-100
Input power:0.1-25.8kW
Output torque:13-1550Nm



JRW
Worm Gears
Size:25-150
Ratio:7.5-100
Input power:0.06-15kW
Output torque:2.6-1760Nm

JD THREE PHASE ASYNCHRONOUS MOTORS



JD
IEC Standard Motors
Size:63-315
Power:0.12-200kW
Efficiency:
IE2 , IE3 , IE4 (0.75-200kW)



JDP
Motors
Size:63-315
Power:0.12-200kW
Efficiency:
IE2 , IE3 , IE4 (0.75-200kW)

JC INTELLIGENT DRIVE SOLUTIONS



JC
Intelligent Drive Solutions
Industrial Drive Solutions incl
Reducers, Motors, Converters,
Sensors, Internet of Things, etc.



JCI
Intelligent Monitoring System
Monitoring Items: Vibration, Temperature,
Humidity, Air Pressure, Voltage,
Current, geographical location, etc.

OPTIONAL DRIVES



JRESR Stainless
Steel Helical Gearmotors
Size:37-67
Ratio:3.41-199.81
Input power:0.18-7.5kW
Output torque: 26-670Nm



JRESK Stainless
Steel Helical-Bevel Gearmotors
Size:37-67
Ratio:3.98-145.14
Input power:0.18-5.5kW
Output torque:12-910Nm



JRG
Transfer Case
Size:0401, 1501
Ratio:0.589,0.659,0.756,0.825
Max Output Torque
(Pump):1390Nm
Max Output Torque
(Working Shift) :40000Nm



JTA
Shaft Mounted Gear Units
Size: 80/90-100/120
Ratio: 5-31.5
Power: 11-45kW
Torque: 6600-10500Nm