

BONENG



P Planetary Gearbox Instruction

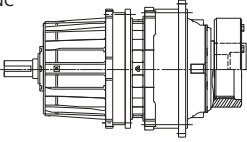
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Product range:

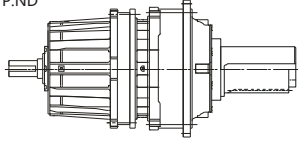
(P2N P3N P2S P3S P2L P2K P3K)

Size range: (7 – 36)

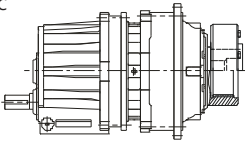
P.NA
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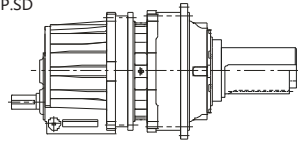
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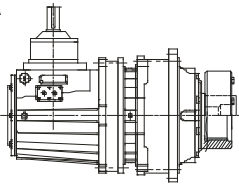
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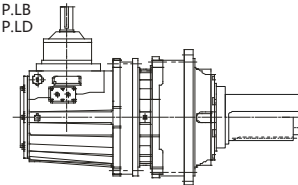
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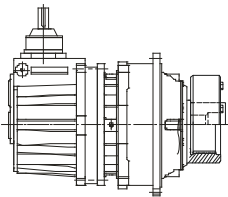
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P.LC



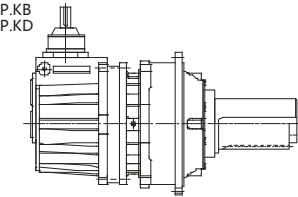
P.LB
P.LD



P.KA
P.KC



P.KB
P.KD



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Important notes

During installation, please pay attention to the safety notes and warning in this book!



Suggestions and useful information



Harmful situations:
Possible result: damage transmission device and the environment



If you conform to the regulations in this manual, there won't be any fault, at the same time, it can satisfy the requirements of quality defect claim. So before the transmission device starts working, please read this instruction.

This instruction book contains important installation and maintenance notes, please keep this instruction book in a place near the device for reference;

1 Safety information

Safety information mainly involve the applications of gearbox. When running gearbox, please note the relevant notes.

This instruction is an integral part of the gearbox supplied.

All persons involved in the installation, operation, maintenance and repair of the gearbox must have read the instructions and comply with them.

Conforming to the instruction strictly is a necessity for realizing non - fault running and performing any quality assurance requirement.

Under the premise of conforming to instruction, please pay attention to:

- National (Local) regulations for relevant safety and accident preventions;
- Special regulations and requirements of relevant devices;
- Warning and safety mark on device.

The following situations will cause human injury and property loss:

- Incorrect running;
- Wrong installation or operation;
- Dismatle the protect cover or housing against the instructions.

Any damage or stop caused by disregarding this instruction book will not be responsible by the company.

To seek for technical advance, we reserve the rights to modify the instructions. With continuous improvements, we will further improve its performance and safety performances on the foundation of keeping the basic characteristics.

2 Technical information

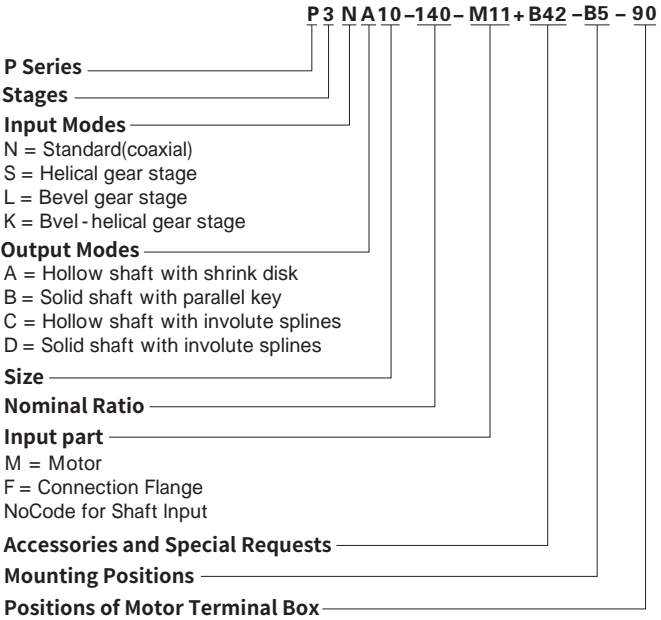
2.1 The name plate information

BONENG			
Type		RPM	
P_1	kW	T_2	N · m
n_1	RPM	i	kg
Oil	Wt.		
NO.	Date		

- Product type
- Output speed
(only for directly connected motor)
- Rated input power kW
(it means motor power for directly connected motor)
- Rated output torque N · m
- Rated input speed RPM
(it means motor speed for directly connected motor)
- Nominal ratio
- Lubrication oil viscosity
- Weight
- Product number
- Production date

Data on nameplate are very important, please read them carefully and keep them clean. When services are needed, please provide the product number, used time and fault details.

2.2 Type description



Accessories code recommended on the catalog.

Type designation is only for reference, special type, please consult.

2.3 Noise level of gearbox

Noise level conforms to relevant national standard, industrial standard and enterprise standard.

Inspection of noise is done according to sound density theory, it is inspected in a distance of 1 meter (the surface noise region).

Noise level is tested when gearbox is under good working situation with regulated rated input speed n_1 and rated input power p_1 stated on the name plate. If several figures are given, the highest speed and power values apply.

If the repeated measurement can't get the final result, you should apply the inspection result obtained from the test platform of our company.

Measurement of surface noise level doesn't include the noise of accessories of lubrication device

LPA Measuring - surface noise level LPA in db(A)

Type	IN	7	8	9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
P2N	25-40	79	81	83	83	84	84	84	85	85	85	86	86	86	87	87	87	87	87	87	87	87	87	88	88	88	88	88
P3N	140-280	/	/	80	80	80	80	81	81	81	81	82	82	82	83	83	83	83	84	84	84	84	84	84	85	85	85	85
P2S	45-56	79	81	83	84	85	87	88	90	92	93	94	95	95	97	97	98	98	99	99	100	100	101	101	102	102	103	103
	63-80	77	79	81	82	83	85	86	88	90	91	92	93	93	95	95	96	96	97	97	98	98	99	99	100	100	101	101
	90-125	75	77	79	81	82	84	85	86	89	89	90	91	91	93	93	94	94	95	95	96	96	97	97	98	98	99	99
P3S	280-355	/	/	74	75	76	78	79	81	82	83	84	85	86	87	87	88	88	89	89	90	90	91	91	92	92	93	93
	400-560	/	/	72	73	74	76	78	79	80	81	82	83	84	85	85	86	86	87	87	88	88	89	89	90	90	91	91
	630-900	/	/	70	71	72	74	76	77	78	79	80	81	82	83	83	84	84	85	85	86	86	87	87	88	88	89	89
P2L	31.5-45	79	81	83	84	85	86	88	89	90	92	93	95	95	96	96	97	97	98	98	99	99	100	100	101	101	102	102
	50-71	77	79	81	82	83	84	86	87	88	90	91	93	93	94	94	95	95	96	96	97	97	98	98	99	99	100	100
	80-100	76	78	80	81	82	83	85	86	87	89	90	92	92	93	93	94	94	95	95	96	96	97	97	98	98	99	99
P2K	112-160	75	77	79	81	83	85	87	89	91	92	94	95	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	180-250	72	74	76	78	80	82	84	86	88	89	91	92	93	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	280-560	69	71	73	75	77	79	81	83	85	86	88	89	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P3K	560-900	/	/	70	70	72	74	76	78	80	81	82	84	85	86	87	88	88	90	90	91	91	92	92	-	-	-	-
	1000-1600	/	/	68	68	69	71	73	75	76	77	78	80	81	82	83	84	84	86	86	87	87	88	88	-	-	-	-
	1800-4000	/	/	65	65	66	68	70	72	73	74	75	77	78	79	80	81	81	82	82	83	84	85	85	-	-	-	-

Note:

- (1)The sound level stated in the table was obtained by statistical calculation by our QC.The gearbox may be expected to comply with these sound levels with statistical probability.
- (2)The measuring surface sound pressure levels shown apply with a tolerance of +3 dB(A)for $n_1=1500$ 1/min.Atn $_1=750$ 1/min,the values will be as pr.2 - 3dB(A)lower.
- (3)When the measuring - surface soundlevel exceed the maximum value,the noise absorption must be applied.

2.4 Temperature rising

When the ambient temperature is 40 °C, the running gearbox oil temperature is not exceeded 85 °C.

The allowable working temperature range of lubricating oil for gearbox is roughly as follows:

Mineral oil is about -10 ~+90 °C (Up to +100 °C at moment);

Synthetic oil is about -20 ~+100 °C (Up to +110 °C at moment);

2.5 Notes

(Following notes is related to the use of gearbox):

When installed outdoor, direct sunlight should be avoided, otherwise concentrated heat will affect the gearbox performance.

The gearbox must not be cleaned using high - pressure cleaning equipment.

All work such as inspection, maintenance and installation on gearbox should be done when gearbox is not in operation.

No welding work should be done on gearbox, the gearbox mustn't be used as an earthing point for welding work. Welding will cause irreparable damage to fine gear wheel and bearings.

If any changes are found during operation (for example, over heating or abnormal noise, etc), you should switch off driving device immediately.

All the rotating components should be equipped with protective cover to prevent accidental contact of staffs, such as couplings, hydraulic coupler, gear wheel, driving belt wheel, etc.

You should conform to the instructions on gearbox, for example, nameplate, arrow of the direction, etc. These nameplates and marks must be kept free from dirt and paint out all times.

During assembly or disassembly work, the damaged bolts should be changed with new bolts with the same strength and category.

The bad results caused by unreasonable application of couplings, self - modification to gear unit and application of the components of other companies are not included in " three - guarantee " services.

Depending on operation conditions of gearbox, the surface, lubrication oil and components of gearbox may reach high temperature, avoid being burnt.

When changing lubrication oil, take care to prevent scalding by hot oil.

Gearbox should be laid on dry wooden foundation with no vibration and be covered well. When storing the gearbox and any independent components, you should take anti - rust measures, avoid rusting, the gearbox should not be piled together when stored.

Unless there are other regulations in ordering contract, gearbox should not be stored or work in sites with strong acid, alkali, low temperature, high temperature and heavy polluted air, damp and the places with chemical articles.

When shifting the gearbox, take care to avoid the shaft ends knocked, otherwise the gearbox may be damaged. When lifting, don't use the front threads at the shaft ends to attach eyebolts for transport.

Spare parts must be purchased from BONENG.

3 Installation and dismantlement

3.1 Notes before installation



Confirm the gearbox in good condition(no damage during transporting or storing).

Confirm site environment conforms to nameplate content.

Standard ambient temperature of gearbox:

-20 ~+50 ; no oil, acid, harmful gas, steam, radioactive substances. etc.

If the storage time of gear unit is more than one year, the life of lubricant within the bearings will be shortened.



Installing outdoor should avoid direct sunshine. In case of concentrated heat to influence smooth running of gearunit.

Special gearbox: allocated according to ambient condition.

During planning period, you should reserve enough space to maintain or repair.

If the gearbox is fitted with a fan, there should be sufficient space for air intake.

3.2 Preparations

Completely clean the preservative and pollutants, etc on the surface of input/output shaft and flange; be sure not to damage the oil sealing by solvents immersion.

If the gearbox is stored for more than one year, the life of lubricant in bearing will be shortened.

Preparation of tools/materials: one group of spanner, torque spanner, assembly clamp tools, input and output fastening device, lubricant (anti - rust oil), medium of sealing bolts (thread locking adhesives).

3.3 Installation of gearbox

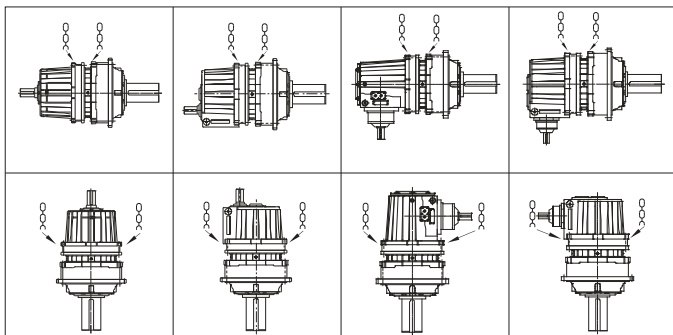
Foundation

Prepare rigid foundation or stable platform to install transmission device, at the same time, you should consider that the position of all parts will not change even if maximum torque is loaded on units. The foundation of gearbox should be horizontal and leveled. It must be designed in such a way that no resonance vibrations are set up and no vibration are transmitted from adjacent foundations steel structures on which the unit is to be mounted must be rigid. It must be designed according to the mass and torque taking into account the forces acting on the gearbox.

Fastening bolts or nuts must be tightened to the prescribed torque. For the correct torque, we recommend customer to use the bolts of the minimum strength class 8.8.

Lifting position

If the gearbox carry with loading disc, the locking disc must be axial fixed before swing.



⚠ Note: Forbid to use the shaft end screw as the hoisting point after it is installed with hoisting ring.

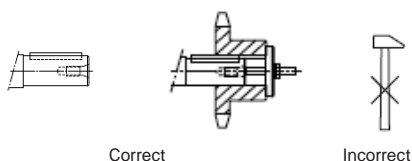
According to different installation forms, you should pay attention to:

For foundation installation, central height should be correct aligned, when connecting couplings, you should calibrate the coaxiality of the two shafts; for flexible couplings, the flotation value should not exceed the permissible range of couplings, for rigid connection, you should ensure form tolerance of each installation and connection; you should ensure shaft with enough rigidity for long shaft connection.

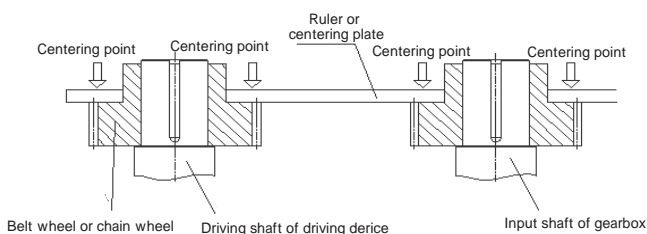
When installing flange, protruding (or concave) steps should inosculate with housing. For flange installation and ollow shaft connection, ensure the contour and position tolerance for connection.

When input shaft and output shaft of gearbox are installed with belt wheel or chain wheel, make sure the force transmission part of belt wheel or chain wheel be close to shaft shoulder as possible. As shown in the following diagram:

Press the drive components into the outer screw of output shaft, knock should be avoided.



When installing belt wheel or chain wheel, ensure input shaft is centered to driving device, ensure maximum axial deviation tolerance value of the four centering points in diagram be 1mm every 1000mm.



When installing belt wheel or chain wheel, ensure belt wheel and chain with certain tonus.



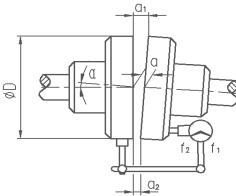
3.4 Assembly of coupling

The input drive end of gearbox should apply flexible coupling or hydraulic coupling.

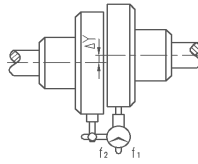
When output shaft of gearbox is solid shaft, you should apply flexible coupling.

If rigid coupling or other input and output elements which generate additional radial force or axial force (for example, gear wheel, belt wheel, fly wheel, hydraulic coupling, etc) are to be used, this should be marked in contract.

When input shaft is connected with driving shaft, ensure input shaft has the same axial center with driving shaft. Coaxiality deviation will increase mechanical vibration, cause damage to bearing and influence gear wheel contact. As shown in the following diagram, after input shaft is connected with driving shaft through coupling, you should adjust it with meter, after relevant inspection parameter satisfies the requirements in the following table "Coaxiality accuracy table", the equipment can be used.



Angle deviation inspection



Deviation inspection

Coaxiality accuracy table:

D Outer diameter	n<500r/min		500~1500r/min		>1500r/min	
	a1-a2	ΔY	a1-a2	ΔY	a1-a2	ΔY
$D \leq 100$	0.05	0.05	0.04	0.04	0.03	0.03
$100 < D \leq 200$	0.06	0.06	0.05	0.05	0.04	0.04
$200 < D \leq 400$	0.12	0.10	0.10	0.08	0.08	0.06
$400 < D \leq 800$	0.20	0.16	0.16	0.12	0.12	0.10



Instruction:

When circular velocity of coupling outer diameter is 30m/s or below, it should be statically balanced. When circular velocity of outer diameter exceeds 30m/s, it must be dynamically balanced.

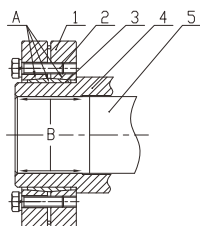
3.5 The installation and teardoun of locking plate

When hollow shaft of gearbox is equipped with locking plate, you should first cover locking plate on hollow shaft, then finish the installation of driving shaft of driven device, you should not screw the fastening bolts on locking plate before installing the driving shaft of driven device.



The locking plate being supplied can be directly installed, you can't tear it down before the first stress.

Before installing locking plate, ensure the bore of hollow shaft and the machine shaft must be absolutely free of grease in the area of the shrink disk seat.



- 1 Outer ring
- 2 Fastening bolt
- 3 Inner ring
- 4 Hollow shaft
- 5 Driven shaft
- A Greased
- B Absolutely grease - free

When screwing the bolts on locking plate, it is forbidden to screw it according to adjacent order, you should screw fastening bolts along with equilateral triangle order according to installation requirements of locking plate. During each circulated screwing process, each bolt can only screw 1/4 circle.

The installation bolt strength grade is not less than 8.8, In case of high temperature or vibration impact, please take anti - loosing measures on screw joints. The screw torque of each fastening bolt as follows:

Bolt	The max. Pretighting torque for each bolt ($\mu=0.1$)		Bolt	The max. Pretighting torque for each bolt ($\mu=0.1$)	
	strength Grade 10.9 Nm	strength Grade 12.9 Nm		strength Grade 10.9 Nm	strength Grade 12.9 Nm
M6	12	14.5	M20	470	570
M8	29	35	M24	820	980
M10	58	70	M27	1210	1450
M12	100	121	M30	1640	1970
M14	160	193	M33	2210	2650
M16	240	295	M36	2850	3420

When disassembling the hollow shaft of gearbox equipped with locking plate, the loosing of locking plate is reversed to fastening direction. Finish disassembly of driving shaft of driven device according to the above method after tearing down locking plate.

When disassembling locking plate, you should pay attention :



It is forbidden to loose bolts according to the adjacent order.

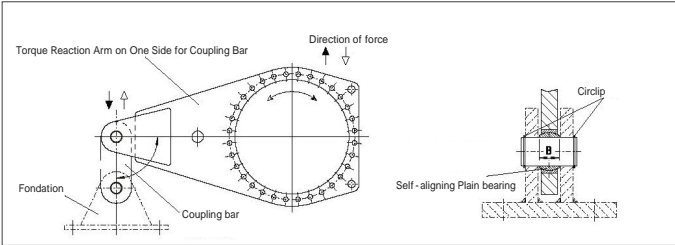
When outer ring of locking plate can't separate from inner ring, you can screw a few bolts into disassembly screw, separate inner ring from outer ring.

3.6 Torque reaction arm installation

The torque reaction arm bears the torque from the driven machine.

Torque arm on one side

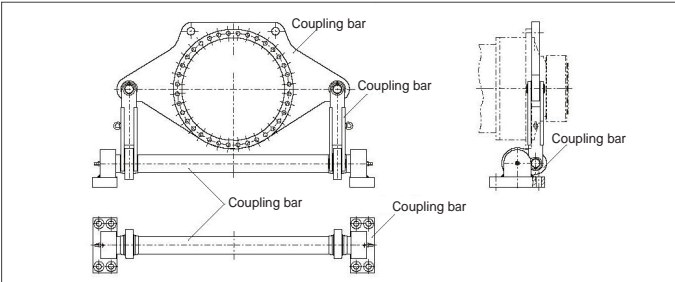
Using Torque reaction arm on one side for coupling bar, the self-aligning plain bearing or flexible bush must be used.



If need the detaile data,please consult the relative technical drawing about the gearbox.

Torsion shaft support

When using torsion shaft support,th torque is bore by bar and coupling bar,this structure ensures the bearing on the driven machine free of shearing force,except the weight itself.Below illustration is for your reference.



If need detailed data,please consult the technical drawing about gearbox.

The base for bearing can be mounted either on vertical wall or on horizontal foundation.





4 Mounting position

4.1 General description of mounting position

The mounting position details and type selection, please refer BONENG selection manual.

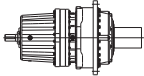
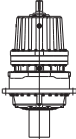
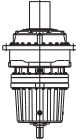








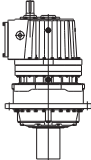
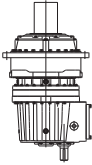








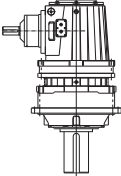
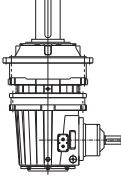








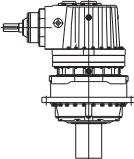
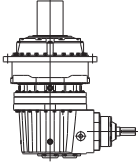
4.2 Specified description of mounting position

The symbol of mounting position and its meaning:

symbol		Meaning	
		Breather	Oil filler
		Oil glass	
		Oil drain	

4.3 Identification of gearbox mounting position

It is possible to mount the gearbox in different positions; these are shown diagrammatically below as a drive shaft and are provided with an identification number:

Horizontal		Vertical	
1 Coaxial	P.N.  B5	 V1	 V3
2 Helical -planetary	P.S.   B51   B52   B53   B54	 V11	 V31
3 Bevel -planetary	P.L.   B51   B52   B53   B54	 V11	 V31
4 Bevel -helical -planetary	P.K.   B51   B52   B53   B54	 V11	 V31

5 Lubrication/Cooling/Heating

5.1 Lubrication

Lubrication selection:

Under the premise of the same viscosity level and category, you can choose internationally famous brand.

If you need to change the recommended viscosity level, please consult.

The following table lists the lubrication oil brand and ambient temperature corresponding to product specification.

Ambient temperature	-20 ~ +40	+30 ~ +50
Viscosity brand number	VG320	VG460



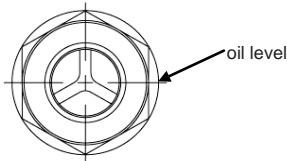
When ambient temperature is lower than -10 , you have to use synthetic oil.

To ensure lifespan of the products, we recommend synthetic oil.

When ambient temperature exceeds the above range, please consult technical department of BONENG.

Quantity of lubrication oil fill:

This quantity is a recommended value. According to the difference of gear unit level and ratio, the oil filling quantity is different. Please pay attention to oil ruler scale as the indication of oil filling.



Following table lists the suggested oil value according to the gearbox mounting position.

5.2 Oil quantity

Oil level(L)							
Type	P2N..	P2L..	P2S..	P2K..	P3N..	P3S..	P3K..
07	5	5	5	5	/	/	/
08	5.5	5.5	5.5	5.5	/	/	/
09	6	6	6	6	7	7	7
10	8	8	8	8	9	9	9
11	12	12	12	12	13	13	13
12	16	16	16	16	17	17	17
13	20	20	20	20	21	21	21
14	32	32	32	32	33	33	33
16	40	40	40	40	42	42	42
17	56	56	56	56	60	60	60
18	66	66	66	66	70	70	70
19	82	82	82	82	85	85	85
20	75	75	75	75	75	75	75
21	110	110	110		115	115	115
22	95	95	95		105	105	105
23	150	150	150		155	155	155
24	125	125	125		135	135	135
25	190	190	190		195	195	195
26	160	160	160		170	170	170
27	245	245	245		250	250	250
28	205	205	205		220	220	220
29	305	305	305		310	310	310
30	255	255	255		280	280	280
31	380		380		390	390	
32	315		315		360	360	
33	460		460		470	470	
34	380		380		480	480	
35	645		645				
36	535		535				

Note:

- 1) When ambient temperature is between -10 ~+40 ,VG320 (ISO viscosity class) should be used for P series and accessory code is V32.
- 2) The above oil levels are for P..N in mounting position B5 and P.K/P.L/P.S in mounting position B53. Other positions on request.

5.3 Cooling

If required, planetary gearboxes are fitted either with oil - water coolers or oil - air coolers. The required water connection must be provided by the user. To ensure optimum cooling performance, the specified direction of flow in the cooling unit must be observed. The cooling - water inlet and outlet must not be reversed. The pressure of the cooling water must not exceed 8 bar.

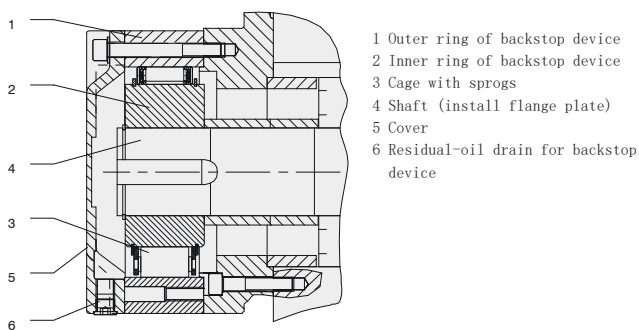
If the gearbox is out of work for a longer period or if there is a danger of the water freezing, it must be drained off. Remove any remaining water with compressed air.

5.4 Cooling

For standard gearbox the working ambient temperature is $-20 \sim +50$ °C, when the temperature is under -10 °C, it needs to be preheated or running without load. When the gearmotor temperature is over $+10$ °C, gearbox can be operated with load.

5.5 Backstop

In some situations, the gearbox should equip mechanical backstop. This can make gearbox run to one direction during operation. The rotation direction is marked in input and output end of gearbox with arrow. Backstop mechanism is installed on mounting flange plate of gearbox, it is sealed, with no oil leakage. It is united with lubrication oil circulation system.



Note:

To avoid damaging backstop device or gearbox, the motor should not run to the forbidden direction, pay attention to the instruction on gearbox. Before motor wiring, you should determine rotation direction of three - phase power source with a phase - sequence indicator, connect motor wire according to the regulated rotation direction.

6 Application

6.1 Fill the lubrication oil

Our products are not filled with lubrication oil when delivered. You should fill lubrication oil according to instruction book before running.



On the position marked with this symbol, fill lubrication oil into gearbox.



6.2 Check the device

Check oil level, cooling of lubrication oil or the sealingness of oil supply system.

Inspect the status of cooling device and check the shut-off valve.

For the gearbox equipped with backstop device, inspect whether wiring of motor is correct.

Inspect whether shaft sealing is effective.

Check whether the rotating components contact with other components.

6.3 Start

For the gearbox equipped with motor oil pump, make sure open oil pump motor before starting the device.

Check whether the running direction under free status is correct (supervise whether there is abnormal grinding noise when the shaft is running).

During running inspection, you should ensure no output component on shaft, open relevant supervision and protection device at the same time.

If there is abnormal running phenomenon (for example, temperature rise, noise, vibration, etc), you should turn off the motor and check out the reason.

Contact with BONENG when necessary.


7 Checks and maintenance

7.1 Check and maintenance regularly

Users should make regular maintenance to gearbox . Check the status of lubrication oil regularly, clean vent cap, fan, cooling coil and the surface of gear unit, keep the gearbox clean, ensure normal running of gearbox.

7.2 Periods of checks and maintenance

Check oil temperature	Daily
Check abnormal noise of gearbox	Daily
Check oil level	Monthly
Check for leaks gearbox	Monthly
Check oil for water content	After working 400 hours, at least once a year
First oil change after starting	After working 400 hours
Subsequent oil changes	After every 5000 hours
Clean oil filter	Every 3 months
Clean ventilation cap	Every 3 months
Clean fan, fan cowl and gearbox cabinet	Do with oil changing
Check lubrication oil air cooler	Do with oil changing
Check lubrication oil water cooler	Do with oil changing
Check tightness of fastening bolts	The first time after changing oil, then change oil every two times
Full - aspect inspection to gearbox	About every 2 year, do with oil changing
Clean ventilation screw	Every 3 months

 The listed periods are determined on working condition of gearbox. These periods are average values under the following conditions:

Daily working hour: 24 hours

Loading factor: 100%

Speed of input device 1500 RPM

Maximum temperature 90 (only mineral oil)

100 (only synthetic oil)

7.3 Notes for checks and maintenance:

Cut off power source, prevent electric shock, wait for cooling of gearbox. Inspection of oil level: Please refer the oil glass level and fill the oil to the middle level of oil glass .

Oil inspection: remove oil drain plug, take some samples, inspect oil viscosity index; if the oil is not clean, change it.

Oil changing:

It is forbidden to mix different lubricants.

After cooling, oil viscosity will increase, it is harder to drain off oil. change before cooling.

Put an oil picking plate under oil plug, tear down oil plugventilation cap, install oil plug after removing oil.

Inject new oil of the same brand, oil quantity should be the same with installation direction (see nameplate); if the brand number is different, consult after - sales department.

Inspect oil level at oil glass,install vent cap.

8 Fault treatment

8.1 Fault, reason and measures

Maintenance work should be done by qualified staff.

Fault	Reason	Measure
Big noise at the fastener of gearbox	Fastner looses	Tighten bolt/nut to regulated torque. Replace the damaged bolt/nut.
Noise change of gearbox	Teeth of gear is damaged	Contact with customer service department. → Check all the gears, change the damaged components.
	Bearing interval is too large	Contact wth customer service department →Adjust bearing interval.
	Bearing is damaged	Contact with customer service department. →Change the damaged bearings.
Operating temperature is too high	Oil level in cabinet is too high.	Check oil level, if necessary, adjust it.
	Oil is too old.	Contact with customer service department. →Check the last time of oil changing, if necessary, change it.
	Oil is badly contaminated.	Contact with customer service department →Change oil
	On gear unit equipped with lubrication oil cooling system: Flow of coolant is too low or too high	Adjust the valve of inflow and outflow pipelines. Check free flow of water cooling device.
	Temperature of coolant is too high	Check the temperature and adjust according to requirements
	Oil flows through water cooling device is too low, reason: Oil filter is seriously clogged	Clean oil filter
	Mechanical fault of oil pump	Contact with customer service department. →Check whether the function of oil pump is normal. →Repair or change into a new one.
	On gearbox equipped with fan: Air inlet and/or cabinet of fan cover are badly contaminated	Clean fan cover and cabinet

Fault	Reason	Measure
Temperature of bearing is too high	Oil level in gearbox cabinet is too high or too low	Check oil level under room temperature and topup oil according to requirements
	Oil is too old	Contact with customer service department. →Check the last time of oil changing.
	Mechanical fault of oil pump	Contact with customer service department. →Check whether oil pump works normally. Repair or change a new oil pump
	Bearing is damaged	Contact with customer service department. →Check the data obtained from vibration measurement by operators →Check and change bearing according to requirements
Amplitude of bearing rises	Bearing is damaged	Contact with customer service department →Check and change bearing according to requirements.
	Gear is damaged	Contact with customer service department →Check and change gear according to requirements.
Temperature of backstop device is too high Backstop is ineffective.	Backstop device is damaged.	Contact with customer service department. →Check and change backstop device according to requirements.
Gearbox leaks oil	Sealing at cabinet cover or joint is not good	Check sealing part and the joint, if necessary, change into a new one. Seal the joint part.
	Radial shaft sealing ring is ineffective.	Contact with customer service department. →Change into a new radial sealing.
There is water in oil	Oil fams in pump	Check water contamination with test tube. Analyze oil in lab.
	Lubrication oil cooler or cooling coil is ineffective	Contact with customer service department. →Find out and repair the leaking part. →Change cooler or cooling coil.
	Gearbox occurs the cold air from ventilation, thus forming frost.	Protect the gearbox with appropriate thermal insulation material. Close air outlet or change its direction on structure.
Pressure supervision device alarms (gear unit equipped with pressure lubrication, lubrication oil water cooling device and air cooling device)	Oil pressure is less than 0.5bar	Check oil height under room temperature, fill in oil according to requirements. Check oil filter, change according to requirements. Contact with customer service department. →Check whether oil pump function is normal. →Repair or change oil pump.
Indicator of double changing filter sends alarms	Double changing filter clogged	Change the filter according to instructions, remove clogged filter element and clean it.
Fault of oil supply system		Check the instructions of oil supply system in instruction book.

For the faults can't be removed by customers, please contact with after-sales department of the company.

9 After-sales service

For the various kinds of transmission devices, if there is any quality problem, don't tear down components, you should illustrate the situation, then contact with after-sales department of the company, confirm about the problems, then apply ideal method to deal with them.

Type: _____

Production date: _____

Number: _____

Time being used: _____

Site or main machine name: _____

Manufacturer of main machine: _____

Quality problem description: _____

User company: _____

Address: _____

Telephone: _____ Fax: _____

Postcode: _____ Contact: _____

After-sales service telephone of Boneng: _____

Fax: _____

NOTE: _____

P Planetary Gearbox Instruction

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