

减速机中英文使用说明书

Reducer instruction manual



本使用说明内容适合R系列斜齿轮减速电机、S系列斜齿轮—蜗轮减速电机、F系列平行轴斜齿轮减速电机、K系列斜齿轮—锥齿轮减速电机、摆线针轮减速机、T系列螺旋锥齿轮转向箱、H、B系列标准工业齿轮箱、蜗轮丝杆 升降机、RV系列蜗轮蜗杆减速机、MB系列无级变速机等齿轮类、蜗轮类、 摆线类产品。

This connect is suitable for the R Rigid tooth flank helical gear units, S Helical-worm gear units, F Parallel shaft helical gear units, K Helical-bevel gear units, Cycloid reducer, T Spiral bevel gear units, H. B Rigid tooth flank gear units, worm screw jack, RV Worm screw reducer, MB Speed variator and so on.

-、使用范围 Range of usage

1、使用环境温度一般-40℃~50℃,当环境温度低于0℃时,起动前应 将润滑油加热到0℃以上。

2、输入转速一般不大于1500rpm,高速输入订货时须特别说明。

3、一般情况下, R、F、H系列斜齿轮减速机线速度不大于 20m/s; S、 RV系列蜗轮蜗杆减速机线速度不大于 17m/s; K、T、B系列弧齿锥齿轮减速 机线速度不大于 15m/s。

4、适用于连续工作制,允许正反向运转,其中MB系列每分钟最多起动 次数为5次,梯形丝杆升降机负荷时间率不得超过20%ED,滚珠丝杆升降机 的负荷时间率不得超过30%ED。

5、直联电机时,要注意电动机对使用条件的限制。

1. Temperature of working atmosphere: -40 °C ~ 50 °C, when the ambient temperature are below 0 °C, the lubrication oil should be heated up to above 0 °C.

2. The input rotating speed should not higher than 1500r/m, WB. X. B Series cycloid reducer should not higher than 2000r/m.

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3. Generally, linear velocity of R. F Series helical gear reducer should not higher than 20m/s, linear velocity of RV. S Series worm speed reducer should not higher than 17m/s,linear velocity of R Series spiral bevel reducer should not higher than 15m/s.

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4. It is applicable for various working systems. and allows rotation in positive and negative direction. The number of starts of MB Series 5 times per minute at most, the load hour factor of trapezoidal screw jack 20% ED at most. The load hour factor of general ball screw 30% ED at most.

5. Pay attention to the limitation of using condition of motor during direct connection.

二、产品结构示意图 The structural drawing of product

R系列见图1, S系列见图2, K系列见图3, F系列见图4, H、B系列见 图5, T系列见图6

R Series structural drawing (PIC 1),

- S Series structural drawing (PIC 2),
- K Series structural drawing (PIC 3),
- F Series structural drawing (PIC 4),
- H.B Series structural drawing (PIC 5),

T Series structural drawing (PIC 6)



图1 R系列产品结构示意图 PIC 1 R Series The structural drawing of product 图2 S系列产品结构示意图

PIC 2 S Series The structural drawing of product

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17.Circlip II

20.Circlip III

23.Circlip I

25.Bearing IV

27.Gear I

28.Circlip II

29.Input gear

30.Motor seal

32.Motor

26.平键IV

28.轴用挡圈Ⅱ

29. 输入齿轮

30.电机油封

31.电机轴承

32.电机

27.齿轮 I

31.Motor bearing

24.Parallel key III

26.Parallel key IV

22.Worm

21.Bearing III

18.Output shaft seal 19.Cover II



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9.Circlip II 10.Output shaft seal 11.Parallel key II 12.Cover II 13.Circlip III 14.Bearing III 15.Parallel key III 16.Helical-bevel gear 17.Gear shaft III 18.Bearing IV 19.Circlip IV 20.Cover III 21.Breather valve 22.Bolts II 23.Cover 24.Housing 25.Circlip I 26.Input gear 27.Bolts II 28.Motor 29.Helical-bevel gear shaft 30.Bearing V 31.Circlip V 32.Bearing VI 33.Gear I 34.Parallel key IV 35.Circlip II 36.Motor seal 37.Motor bearing

1.封盖 I 2.孔用挡圈 I 3.轴承 I 4.输出轴 5.平鍵 I 6.齿轮Ⅲ 7.轴套Ⅲ	8.轴承 Ⅱ 9.孔用挡圈 Ⅱ 10.输出轴油封 11.平键 Ⅱ 12.封盖 Ⅱ 13.孔用挡圈 Ⅲ 14.轴承 Ⅲ	15.平鍵Ⅲ 16.弧齿锥齿轮 17.齿轮轴Ⅲ 18.轴承Ⅳ 19.孔用挡圈Ⅳ 20.封盖Ⅲ 21.通气帽	22.螺栓 I 23.端盖 24.箱体 25.轴用挡圈 I 26.输入齿轮 27.螺栓 II 28.电机	29.弧齿锥齿轮轴 30.轴承 ∨ 31.孔用挡圈 ∨ 32.轴承 ∨1 33.齿轮 I 34.平键 Ⅳ 35.轴用挡圈 Ⅱ 36.电机油封
				37.电机轴承

图3 K系列产品结构示意图

PIC 3 K Series The structural drawing of product



37.齿轮Ⅲ

图4 F系列产品结构示意图

PIC 4 F Series The structural drawing of product





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1.Input shaft	10
2.Parallel key I	11
3.Input shaft seal	12
4.Bearing I	13
5.Input shaft seal	14
6.Bolts	15
7.Washer	16
8.Bearing II	17
9.Output flange	18

19.Washer 0.Bearing III .Parallel key II 20.Round screw nut 2.Output shaft seal I 21.Ring I 22.Parallel key IV 3.Ring II 4.Input flange cover 23.Parallel key V 5.Input flange 24.Output shaft seal II 6.Parallel key III 25.Bearing IV 7.Housing 26.Output helical 8.Input helical -bevel gear -bevel gear

图5 H、B系列产品结构示意图 PIC 5 H、B Series The structural drawing of product

图6 T系列产品结构示意图 PIC 6 T Series The structural drawing of product

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三、安装要求 Installation of whole units

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1 、底座式安装,应校准中心线标高,联轴器联接时,应校准两轴的同 轴度,柔性联轴器联接时浮动量不超过联轴器的允许范围,刚性联接时须保 证各安装联接的形位公差。

2 、法兰式安装,止口应配合良好,法兰式安装并配空心轴联接时,特 别应保证联接的形位公差。

3 、扭力臂安装,主动的空心轴与被动轴应配合良好,被动轴的浮动或 设备振动应小于弹性块允许的范围,力臂应固定并锁紧。

4 、输出轴加装联轴器、皮带轮、齿轮、链轮等件时,请勿重击,应用 输出轴外端螺孔,压入联接件。皮带轮、齿轮、链轮、搅拌式还需考虑径向 力。

5、空心轴与实心轴联接时(配合公差H7/h6),应涂防锈油。

6 、准备刚性好的基础或牢固的台架来安装传动设备,同时也需充分考 虑即使加上最大载荷也不至于改变装配好后各部件的位置。

7 、安装升降机时,台架面上的孔,在满足丝杆能方便通过的前提下, 应尽可能小。

8 、安装螺栓一般情况下采用 8.8 级,如果高温或振动冲击等情况,请 打圆柱销以免松动。

1. Choosing foot-mount, the height of center line should be calibrated, choosing coupling-connect, coaxiality should be calibrated, choosing flexible coupling, run-out should keep within permissible values, choosing rigid coupling contour and position tolerance should be guaranteed, choosing long coupling, rigidity of shaft should be enough.

2. Flange-mount, protruding or concave steps should inosculate with housings, using hollow shaft, contour and position tolerance at connection parts should be guaranteed.

3. Torque-arm-mount, hollow shafts should be fit with working shafts, run-out of working shafts and vibration of units should be within ranges of vibration values, torque arm should be fixed and locked. 4. Installation couplings.belt wheels, gears, chain gears on output shafts, please use screw hole in shaft end to press them in the correct position(see following pictures). and radial force should be considered in case of belt wheel. Chain gears and agitation mode.

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5. When connecting hollow shaft and solid shaft, please clean the surface and put anti-corrosive oil on it.

6. Please choose foundation with good rigidity or stable plat form to install transmission devices. In the meantime, also should take full consideration that the positions of all parts will not change even if maximum torque is loaded on units.

7. When installing screw jacks, the screw holes in mounting plate should be as small as possible up to bolts' diameter.

8. Generally fixing bolts adopt GBT8.8. In case of high temperature and vibration, please take anti-loose measures. The tightening torques of binding bolts as follows.

四、润滑及密封 Lubrication and sealing

1、密封性: 骨架双唇油封属于易损件,由于使用条件的较大差异,骨
 架油封的使用寿命很难确定,失效后须及时更换并补充新油。

2、润滑油:减速机一般采用油池飞溅润滑。对环境温度高于40℃或减速机工作时温度超过100℃时应采用循环油润滑。油池润滑的油面高度,规定当减速器静止不运转时,油面控制在圆油标中心以上的位置。

1. Sealing: The two-lip seal belongs to wearing parts; it's difficult to decide the useful time because of the different condition of the use condition, after invalidation, updating new oil timely.

2. Lubrication: generally, gear units should adopt splash lubrication. It should adopt circulation oil If the ambient temperature above 40° C or reducer working temperature above 100° C. The grease surface splash

lubrication should be above the center of oil scale when the reducer keep still.

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*R、F、K、T、H、B系列齿轮类减速机的润滑一般采用中负荷工业齿轮油, 牌号见表1

* Generally, R. F. K. T. H. B Series gear reducer adopt the moderate lode industrial gear oil, check the oil number on table 1

中负荷工业齿轮油(表1)

Moderate lode industrial gear oil (table 1)

输入功率(KW) Output power	≤ 1.5	2.2~7.5	11 ~ 22	≥ 30
润滑油牌号 Oil number	Chronic Contraction Contraction Contraction Contraction	1.5 (2001-05-025/25/25/25/25/25/25/25/25/25/25/25/25/2	 Data star i statu data stratica da la superiori da la superiori. 	N320、N460或N680 N320. N460 or N680

*S、RV系列蜗轮类减速机的润滑一般采用蜗轮蜗杆油,牌号见表2

* The lubrication of S. RV Worm reducer adopt worm gear oil. check the oil number on table 2

蜗轮蜗杆油(表2)

Worm gear oil (table 2)

输入功率(KW) Output power	≤ 1.5	2.2 ~ 7.5	≥ 11
润滑油牌号 Oil number	320	320或460 320 or 460	460

* 摆线类减速机小机型(X4以下)采用油脂润滑,建议采用4#二硫化钼锂 基脂,出厂时机内已加满。中等以上机型(X5以上)采用油浴循环润滑, 建议采用50#机械油或90#工业齿轮油,出厂时未加,用户在开机前应接油 标注入润滑油。

*MB无级变速机必须使用Ub-3牵引液。

* 蜗轮丝杆升降机一般采用3#二硫化钼锂基润滑脂。

以上所选用的润滑油可以满足一般使用要求。若有特殊要求或有经验的 用户,可另行选择其它牌号的润滑油。环境温度低时应降低牌号。 一般来说,润滑油牌号由小增大时,对减速机性能有如下影响;

A、 温度升度, 线速度高时程度较明显; B、效率降低;

C、 噪声降低; D、密封性能加强; E、蜗轮或齿轮承载能力增加。

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3 、新机在使用运转400小时后,应更换一次润滑油并清理内部油污。 以后的换油周期在正常情况下为:变速机专用油2000小时;齿轮油8000小时。使用环境恶劣或8小时以上连续工作制的场合,应缩短换油时间。

4 、 严禁不同品质的润滑油混合使用。因为混合使用时可能发生化学反应从而降低或失去润滑作用。

* The small type of Cycloid reducer (under X 4) adopt grease lubrication, you'd better adopt number 4 molybdenum disulphide grease. all machines have enough lubrication before leaving factory. Above middle type (above X 5) adopt lubrication by oil circulation, you'd better adopt number 50 machinery oil or number 90 industry gear oil. No oil before leaving factory, users have to fill oil before the machine start up.

* MB Speed variator must use UB-3 traction liquid.

* Worm screw jack must use number 3 molybdenum disulphide grease

The lubrication, which selected can satisfy the ordinary require. If there is special require or experienced user can use other oil. choose the low number oil when the ambient temperature is low.

Generally, the lubrication influence the reducer when the lubrication number increasing as the following:

- A. When the temperatures increase and linear velocity.
- B. Efficiency decrease.
- C. Noise decrease.
- D. Leak tightness increase.
- E. Carrying capacity of worm and gear increase.

3. New machine working after 400 hours, the oil should be changed and remove the deposits and old oil. The replace cycle: oil of variator: 2000 hours. Gear oil: 8000 hours. The vile using environment or over 8 hours continuous

work-places should shorten the time for oil.

4. Different lubrication using mixed is prohibiting strictly, it may reduce the efficiency of the lubrication for the chemical reaction.

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五、使用与保养 Use and maintenance

1、开机前应检查机内油面是否符合要求,按提示松开或换上通气帽使 之通气顺畅,并检查转动是否灵活。

2、负载试车前要空载运行半小时左右,确认空载无故障后方可加载运 行。试车应经常检查运转情况:不得有异常冲击,振动,不得渗、漏油,温 升不得超过60℃,最高油温不得超过100℃(日常工作时也应进行检查)一 切正常方可正式工作。

3、工作中发现异常情况应停机检查,查明、排除故障后方可继续工作。 时常检查润滑油情况,注意补足油量,及时更换变质的润滑油。

4 、若出现安装方位变动,一般情况下调换油镜、油塞、通气帽即可。

5、减速器应经常保持清洁,外表面不得堆积灰尘、脏物以免影响散热。

6、贮存:在干燥通风、室温环境中存放。当贮存期超过三个月时应作 防锈处理。放置一年左右的机器,使用时要检查油封是否老化,油品是否变 质。

1. Checking the oil level if it's in line with the require before the machine is running, loose or change the vent cap for ventilate unhindered and checking the rotating if it's flexible or not.

2. It should be running unloaded half an hours before running loaded, checking the running condition on trial run: no exceptional shock, percussion. No oil leak. The temperature is limited to 60° C. the oil is limited to 100° C. (It should be checking in routine work as well) it can be running until everything is standing by.

3. It must be stopped immediately for check once if you find any problem during running the gear units, check the condition of the oil. fill the oil, change the lubrication when it's deteriorated.

4. If mounting position changed, the position of breathe screw. Oil level. Oil drain plug will be change with each other as usual.

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5. Gear units should be keeping clean. No dust accumulated on the surface in case of influencing radiator.

6. Store it in the environment of dry ventilate and room temperature when the storage time exceed 3 months, treat it with rustproof, check the oil closure and oil whether it had gone bad when the machine is placed for 1 year.

故障、原因和措施 Malfunction, cause and measure

维修工作一定要由经过培训的素质合格的人员谨慎地进行。

故 障 Malfunction	原 因 Causes	措 施 Measures
在减速机的紧固 件处有大的噪声 High noise at tightening parts	紧固件松动了 Loose of tightening parts	将螺栓/螺母拧紧到规定的扭矩。 更换损坏了的螺栓/螺母。 Tighten nut bolt to correct state. Replace damaged nut/bolt.
减速机的噪声变化 Changing noise	齿轮的轮齿发生了损坏 Teeth of gears get damaged	和客户服务部联系。 检查所有零件上齿,更换损坏了的零件。 Consult after-sales department. Check teeth of gears and replace damaged one.
	轴承间隙过大 Clearance of bearings too big	和售后服务部联系。 调整轴承的间隙。 Consult after-sales department. Adjust the clearance of bearings.
	轴承损坏 Bearings get damaged	和客户服务部联系。 更换损坏的轴承。 Consult after-sales department. Replace damaged bearings.
	箱体里面的油面过高或过低 Oil level is too high or low	在室温下检查油面的高度并按需加油。 Check oil level at room temperature and add on reduce oil.
	油过于陈旧 Oil is used too long	和售后服务部联系。 一检查上次换油的时间。 Consult after-sales department. Check the date that oil be replaced last time.
	油泵的机械故障 Malfunction of oil pump	和售后服务部联系。 检查油泵的工作是否常,修理或换新的油泵。 Consult after-sales department. Check if pump works normally, repair or replace it.

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故 障 Malfunction	原 因 Causes	措 施 Measures
轴承温度升高 Bearing temperature rise	轴承损坏 Bearing damage	和售后服务部联系。 一查阅操作人员在振动测量中所获得的数据。 一检查并按需更换轴承。 Consult after-sales department. —Look up the date about vibration. —Check and replace it on request.
	箱体里面的油过高 Oil level is too high	检查油面的高度,如果有必要的话,调整。 Check oil level, and adjust if necessary.
	油过于陈旧 Oil is used too long	和售后服务部联系。 检查上一次换油的时间,如果有必要的话就更换。 Consult after-sales department. Check the date that oil was repced last time, replace it if necessary.
	油受到严重污染 Oil is polluted seriously	和售后服务部联系。 一换油。 Consult after-sales department. —Replace oil.
工作温度过高 Working temperature too high	在配备了润滑油冷却系统的减速 机上: 冷却剂的流量过低或者过高 Flux of cooling material is too high or low	全面调节进口和出口管道的阀门。 检查水冷装置的自由流量。 Adjust entrance and exit valves. Check the flux of water cooling devices.
	通过水冷装置的油流过低。 其原因是:滤油器严重堵塞 Oil flux through water cooling devices is too low	清理滤油器。 Clean oil filter.
	油泵的机械故障 油泵搅坏 Malfunction of oil pump oil pump damage	和售后服务部联系。 一检查油泵的功能是否正常。 一修理或者换新。 Consult after-sales department. —Check of oil pump works normally. —Repair or replace it.
	在配备了风扇的减速机上: 风扇罩的空气入口和/或箱 体严重污染 Entrance of fan shield and housing polluted seriously	清理风扇罩和箱体。 Cleanse fan shield and housing.
	配备了冷却螺旋管的减速机: 冷却螺旋管里面结垢 Residues in cooling coil	和售后服务部联系。 一清理或者更换螺旋管。 Consult after-sales department. —Clean or replace cooling coil.
轴承处的振幅升高 Swing at bearing higher-	轴承损坏 Bearing is damaged	和售后服务部联系。 —检查并按需更换轴承。 Consult after-sales department. —Check and replace bearing.
	齿轮损坏 Gear is damaged	和售后服务部联系。 —检查并按需更换齿轮。 Consult after-sales department. —Check and replaces gears.

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故 障 Malfunction	原 因 Causes	措 施 Measures
止回装置的温度过高 止回功能的失效 Temperature of anti-backstop too high and it becomes malfunction	止回装置损坏 Anti-backstop becomes malfunction	和售后服务部联系。 —检查并按需更换止回装置。 Consult after-sales department. —Replace anti-backstop.
减速机漏油 Oil-leak of gear unit	箱体盖或者联接 处的密封不良 Sealing at cover and connection notin good state	检查密封和连接处,如果必要的话, 更换新的。将连接处密封好。 Check air-proof and connection part, Replace them if necessary, and seal up connection part.
	径向轴封环失效 Shaft seal is malfunction	和售后服务部联系。 一换新的径向密封环。 Consult after-sales department. —Replace it.
	油中有杂物 Mixer in oil	用试管检查油的状态是否有水分存在。 实验室分析油。 Classify if there is water in oil by using tube. Analyse oil in laboratory.
油中有水 Water in oil	润滑油冷却器或者 冷却螺旋管失效 Cooling coil is of mal-fanction	和售后服务部联系。 一找出并修理泄漏之处。 一更换冷却器或者螺旋管。 Consult after-sales department. —Find out and repair leakage place. —Replace cooling coil
	减速机受到机器间通风过 来的凉空气而产生凝露 Cool air will cause water drop in gear unit.	用合适的保温材料将减速机保护起来。 关闭空气的出口或者在结构上改变其方向。 Shelter gear units with proper

注:对于客户自己无法排除的故障请和我公司售后服务部联系。

Note: Please contact after-sales department, if malfunction can not be removed by consumer s tehmselves.

七、装箱单 Packing list

- 1、减速机
- 2、通气帽(用特制油塞时则不提供)
- 3、合格证
- 4、产品使用说明书
- 1. Gear units
- 2. Vent cap (no offer special vent cap)
- 3. Certification
- 4. Operation manual

八、质量承诺 Commitment to quality

本公司确保向用户提供满足合同要求的可信性产品。

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严格执行"三包","三包"期外,保证用户的配件供应。

接到用户的质量投诉、24小时作出明确答复;需到现场时,48小时内派 出人员,直至问题解决方止。

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做好用户咨询,售前售后服务争创一流。

The company promise to offer the customer satisfy and creditability Products.

We practice "three packs" (the guaranteed repair, replacement, recovering.) after three packs, we promise to offer the repair parts.

We have to reply in 24 hours after receiving the complaints of client. And send maintenance staff in 48 hours if possible.

Do good work on consultation, getting the top-grade repurchase and after-sale customer service.



本产品经检验,质量符合相应技术标准的规定,评定合格,准予出厂。

The product has been tested to be qualified to the standard, and is allowed to release.

检验员: Inspector:

出厂日期**:** Release date:

谢谢您选用本公司产品,请您在使用产品时,填写好此卡传真或寄往本公司,您将得 到快捷、完善的售后服务。

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使用说明书

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Thank you for choosing our products, Fill up this form, please. And fax to our company or send by post, u will get the shortcut and perfect after-sale service.

型号	出 厂 编 号	生产日期
Type	Release date	D a t e
购进日期	使 用	日 期
Purchase date	Date of	actual use

在使用产品进程中,如发现产品在结构性能,制造质量,零件及所需附近件,包装运输等 方面有任何不足之处,以及在实际使用中所遇到问题等,敬请与本公司保持联系。

If you find any structural performance. Quality parts packing and transport are lacking or have any problem during actual use, please contact our company.

单 位 名 称 INDCOOPE	电话 TEL	
通讯地址 A D D	邮 编 CODE	