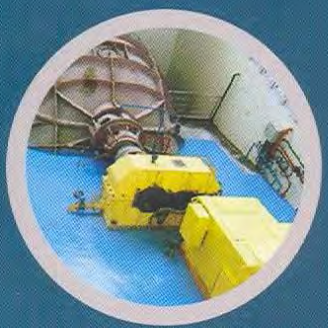
国家大型企业 NATIONAL LARGE ENTERPRISE

重载齿轮箱
HEAVY DUTY GEAR BOX

甘蔗糖厂压榨机
主减速齿轮箱



水机齿轮箱
（水电水泵用）

水泥磨齿轮箱

江苏泰隆机械集团
JIANGSU TAILONG MACHINERY GROUP COMPANY
江苏泰隆减速机股份有限公司
JIANGSU TAILONG DECELERATOR MACHINERY CO.,LTD.

公司简介

泰隆集团地处扬子江畔的泰兴市区，是泰兴人引以为豪的国家大型企业。泰隆集团东临沪宁高速，西靠南京禄口机场，南有江阴大桥，交通便捷，物流畅通，具有得天独厚的区位优势。

集团在全国优秀企业家、江苏省劳动模范董事长殷根章的领导下，经过 20 多年的悉心经营，昂首迈进了中国机械工业 500 强，成为全国减变行业排头兵企业。集团现拥有总资产 12.06 亿元，固定资产 6.92 亿元，占地面积 80 万平方米，员工 3162 人，专业工程技术人员 991 人。拥有美国、德国、日本、俄罗斯、奥地利等国家引进的大型数控磨齿机、大型数控镗铣床、蜗杆磨床、加工中心、碳氮共渗炉等一批高精尖的生产设备和检测设备达 48%。建立了全国同行业中检测功能最全、仪器最先进的 2000kW 测试中心，创建了江苏省技术中心、江苏省传动机械与控制工程技术研究中心、泰隆集团-哈工大工程技术研究中心、博士后科研工作站。公司的主导产品减速机在原有十几个系列，几十万种规格的基础上，采用先进的模块化、点线啮合等技术开发出了 TL 模块化齿轮减速电机、TXP 行星模块化减速器、重载模块化齿轮减速器、点线啮合减速器、立式磨机及边缘传动磨机齿轮箱、铝冶行业的联合开卷卷取齿轮箱、三环减速器、星轮减速器、风电齿轮箱、水力发电变速装置、核电循环水泵驱动变速装置等高新技术产品，以及各类特殊非标齿轮箱。泰隆工业园区已经成为国内最大的钢帘线设备生产基地，双叶、三叶罗茨风机及高温风机批量出口东南亚及欧美。

我们的产品成功应用于中华世纪坛、三峡大坝、嫦娥一号发射、杭州湾跨海大桥、北京奥体馆、上海世博会等国家重点工程。重点客户有宝钢集团、首钢集团、上海振华港机、燕山石化、葛州坝集团、北京水工、中国铝业、伊拉克泵站、桂林橡塑、乐山成发、三一重工等。

公司现为全国减速机标准化技术委员会秘书处单位，荣获“全国首批守合同重信用企业”，“国家重点高新技术企业”、“全国机械工业质量效益型先进企业”、“全国机械工业质量管理奖”、“全国用户满意服务”、“全国机械工业质量管理小组活动优秀企业”等殊誉。在同行业中率先通过了国家 AAAA 标准化良好行为企业认证、一级安全质量标准化机械制造企业认证、GB/T19022-2003 完善计量检测体系认证、ISO9001-2008 质量体系认证、ISO14001-2004 环境体系认证、OHSAS18001-2007 职业健康安全认证。产品通过矿用产品安全标志认证、起重行业型式试验认可认证，泰隆牌商标被国家工商总局认定为中国驰名商标，泰隆牌减速机被评为中国名牌产品。

泰隆人将遵循自己一贯的质量承诺、服务承诺和信誉承诺，把顾客满意当作我们的最高追求！

Company Brief

Tailong Group， located in Taixing city along riverside of the Yangzi River, is a national giant enterprise which Taixing people are proud of. Tailong Group is east to Highway of Shanghai-Nanjing, west to Nanjing Lukou airport and south to the Jiangyin Bridge. Convenient transportation and smooth physical distribution build the unparalleled location advantages for Tailong Group.

With effortful operation for over 20 years, Tailong Group, under leadership of national outstanding entrepreneur, chairman Mr. Yin genzhang, a model worker of Jiangsu Province, has developed in one of top 500 machinery industrial enterprises in China, playing a leading role in domestic reducer/transmission industry.

At present, the group has total assets of RMB1206million, and fixed assets of RMB 692 million, and it covers an area of 800,000 square meters and more than 3000 employees, where professional technicians account for 991. 48% of our equipments are sophisticated and advanced manufacturing equipments and testing equipments such as large CNS gear grinding machine, large CNC boring and milling machine, worm grinder, machining centre, and carbonitriding furnace that are imported from USA, Germany, Japan, Russia, Australia and so on. Diameter of machining work piece reaches 5m to the maximum. Single reducer we produced reaches 120 tons to the maximum. We have established a 2000kW testing center with most complete testing function and most advanced instruments of the industry national wide, and established a provincial engineering technical center，mechanical transmission and control Engineering Research Center of Jiangsu Province, Tailong Group - Harbin Technology Engineering Research Center and a post-doctoral research station. The dominant product, the reducer is available in decades of series and several hundred thousand specifications. Equipped with advanced modular and dot line engagement technology, we have additionally developed series of high tech products such as TL modular gear retarded machine, TXP modular planet reducer, heavy load modular gear retarded machine, dot line engaged reducer, vertical grinder and edge drive grinder gearbox, joint, open-book, take-up gearbox used for aluminum metallurgy industry, three ring gear reducer, planetary wheel speed reducer, wind driven gearbox, transmission for hydro-power generation, nuclear circling pump driven gearbox, and various special non-standard gearboxes. Tailong Industrial Park has become the largest steel cord production base of national wide. Our two-vane and three-vane Roots blowers and high temperature blower are exported to South East Asia, Europe and America in batches.

Our products are successfully used in the China Millennium Monument, the Three Gorges Dam, the Chang’e launch, Hangzhou Bay Bridge, Beijing Olympic Gymnasium, the Shanghai World Expo and other national key projects. Key customers include Baosteel Group, Shougang Group, Shanghai Zhenhua Port Machinery, Yanshan Petrochemical, Gezhouba Group, Beijing hydraulic, China aluminium, Iraqi pump station, Guilin Rubber, Leshan Chengfa, Sany Heavy Industry and so on.

The company is now a secretariat unit for national technical committee for standardization of reducer. We are ever granted as “national first contract respecting and credit-keeping enterprise”, “national key high-tech enterprise”, “national high quality and efficiency unit in machinery industry”, “quality management award of national machinery industry”, “national custom satisfied service”, “excellent enterprise of quality management team activity of national machinery industry” and so on. We are certified as the good enterprise with better standardization with national AAAA certification and the first grade safety quality standardized machinery manufacturing enterprise and have passed such certifications as GB/T 19022-2003 perfect measurement test system, ISO 9001-2008 quality system, ISO 14001-2004 environment system, and OHSAS 18001-1999 occupational health and safety. Our products are certified with safety marks for mining products and recognized pass lifting industry type test. Tailong brand is recognized as the Chinese famous brand by national industrial and commercial bureau and Tailong reducer is awarded as the Chinese famous brand product.

Tailong people will keep to its persistent quality guarantee, service guarantee and credit, satisfying customer as our topmost pursuit.

水机齿轮箱（水电水泵用）

一、概述

水机用增（减）速齿轮箱是我公司的强项。启动早，多年前已着手技术开发，解决了利用水电增速齿轮箱防电机飞逸的快速脱开技术，引起了水利部领导及新闻媒体的极大关注和赞扬，使水轮机通过增速齿轮箱提高发电机转速（大大减少电机极数）在实际应用中成为可能（限于低水头、大流量机组），由此带来中小水电水利投资的极大经济效益。

本公司这类产品主要针对低水头大流量的轴伸、竖井、灯泡贯流机组和立轴式轴流机组。对斜轴式（15°、30°、45°）机组

二、产品介绍

1.基本参数

①功率允许范围：从200～30000〔kW〕

②允许传递最大扭矩：300tm(3x10³kNm)

③速比i：对单级行星传动　3.2≤i≤6.3(6.3≤i≤12.5可用一级平行轴加一级行星式)

对二级行星传动　12.5≤i≤25

对单级平行轴传动　2≤i≤6

对二级平行轴传动　6≤i≤25

对立轴式（或直角式）　5≤i≤25

④转速n：任意不加限制。

⑤效率η:对单级行星传动　η≥99%

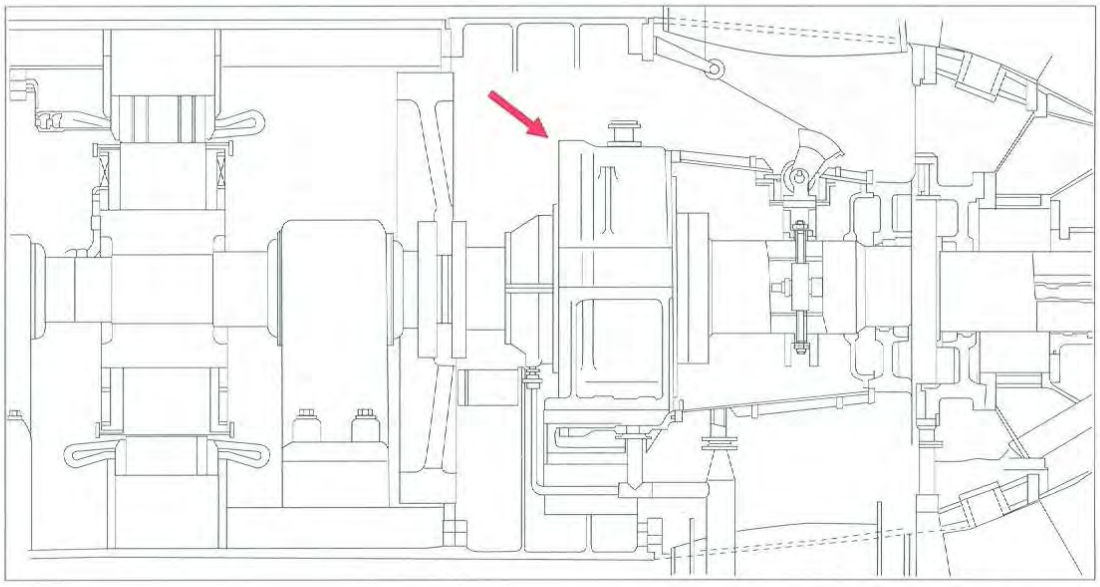
对二级行星传动　η=(97.5–98)%

对单级平行轴传动　η≥99%

对二级平行轴传动　η=(97.75–98)%

对立轴式传动（行星加双向推力轴承）　η≥98%

对直角传动（螺伞加行星）　η=(97.5–97.75)%



□ 灯泡机组纵剖面图(80年代投运至今)
箭头所示为我公司国内首座带行星增速器的某灯泡贯流机组的增速齿轮箱

2.功率P〔kW〕扭矩Mk〔$k_N \cdot m$〕的换算：

①公司允许传递最大扭矩为Mkmax=300tm=3x10³kNm

②对应允许传递功率为：$P=n_{水} x M_{kmax} \div 0.974 = n_{水} x300 \div 0.974 = 308x\ n_{水}$〔kW〕

例如：当$n_{水}$=100〔r/min〕时，P=30800〔kW〕

当$n_{水}$=60〔r/min〕时，P=18480〔kW〕

③以上P和Mk对水电机组指的是水轮机组出轴功率和扭矩，对水泵机组，指的是水泵输入功率和扭矩。

④对水电机组，发电机输出功率$P_{电}=P x \eta_{齿} x \eta_{电}$〔kW〕

对水泵机组，电动机输出功率$P_{电}=P \div \eta_{齿} \div \eta_{电}$〔kW〕

3.对行星传动齿轮箱最佳性价比设计：

①3.5≤i≤5.5　太阳轮行星轮级及行星轮内齿轮级接近等强度设计）

i低于3几乎无法设计，高于6.3因不等强度而不经济(但不是不能设计)。

②对竖井贯流及灯泡贯流机组，采用行星传动几乎是唯一选择。(因为齿轮箱输入输出轴为同一轴线，最适合竖井和灯泡体内布置)

4.特殊结构设计：

在很大程度上与市场通用型行星齿轮增（减）速箱不同：

1)内齿轮与箱体各独立，是重要的浮动均载件（通用型则两者合二为一）；

2)全部设计制造完全按各工业用户不同设计参数要求，度身量衣专门非标设计，而非通用型则套来套去凑合着应付；

3)太阳轮浮动均载；

4)采用角变位设计，使强度的分配合理化（大大提高相对薄弱的太阳轮一行级的强度）；

5)润滑冷却油路系统（指齿轮箱内部）的设计我公司产品最具特色，各内部摩擦目的的各润滑点全部畅通，而通用型是淋浴式的（各润滑摩擦点油无法保证，潜在隐患很大），两者优劣有天壤之别；

6)本公司产品的油密封是又一重大特殊设计——非接触式密封为主，永不磨损，从无一台漏油；

7)箱体底与基础之间采用可微调整结构，充分保证现场接触找中的质量和方便；

8)采用双保险冷却润滑，一旦甩负荷可立即自动投入自润滑工作使电停车事故处理期间齿轮箱仍能正常安全运行，而无须采用昂贵的高位油箱；

9)齿轮箱分上下箱，方便现场检测，而通用型是整体圆筒式，现场根本无法揭盖，甚至要整箱拉回制造厂才行；

10)前后两端联轴器部具弹性补充能力（高速端为齿式，低速端为尼龙棒销式）；

11)对特殊要求的客户采用昂贵的SKF轴承和螺杆式立轴泵；

12特殊情况下（如高速大功率）则将提供双排斜齿轮式行星结构，但要加价25～30%以降低噪音和提高承载能力。

5.特殊工艺措施：

1)严格控制每台行星齿轮箱各行星轮的相对重量误差为其重量1%以内，以保证残余不平衡重量产生的离心力mrw^2对双振动的影响控制在0.03mm以内。

2)严格控制同台各行星轮的公法线长度动量，以保护运转的平稳性和降低噪音。

3)严格控制关键部套转架各行星孔的形位和尺寸误差，如下：

①取各行星轮孔距公差$f_1 \leq 0.043$(比标准值小～1/2)

②取行星架孔距公差$f_2 \leq 0.03$(比标准值小～1/2)

③取各行星轮与太阳轮的中心距公差$fn \leq 0.03$(比标准值小～1/2)

4)内齿轮加工尺寸到位后，再额外多插齿50～100圈以进一步消除周节积累误差，以减噪音。

5)转架全部加工结束后（装入行星轮、轴承、…等），做静平衡试验，控制其残余不平衡值在25g-cm以下，保证运转平稳降低噪音。

6)当齿轮圆周速度低于20m/s时，采用N220#极压齿轮油，当齿轮圆周速度在20～30m/s时，采用N100#极压齿轮油以进一步降低噪音，

7)太阳轮和行星轮全部采用高强度合金结构渗碳钢20CrMnMo或20CrNi2Mo，并采用渗碳淬火磨齿达到：齿面硬度为HRC60±2，齿轮精度高于ISO5级水平。

8)内齿轮采用高强度合金结构调质钢35CrMo或42CrMo，达到：齿面硬度为HB255～285，齿轮精度为ISO6级～7级。

6、用户质量保证：（制造厂额定转速空载试车）

1)双振幅振动值≤0.03mm；

2)噪音值≤85db(A)。

3)轴承温升（或齿轮箱进油口误差）≤35℃；

4)齿轮箱设计寿命：

对5000kW 以上机组为35年（或20万小时），对5000kW以下机组为25年（或15万小时）。

注：

①以上寿命不包括外购的行星轮轴承，若用户愿采用昂贵而长寿的瑞典SKF轴承则至多只须换一次行星轴承即可达到上述寿命；

②本公司产品无易损件，因此不须提供备件。

三、订货须知

客户：单位名称及部门；联系人姓名，职务（或职称）；电话号；传真号；邮编；地址

机组情况：一、水电还是水泵机组？

二、轴伸？竖井？灯泡贯流式？（或其它如立轴式，斜轴式…等）？

三、定桨？转桨？

四、台数？

五、额定功率（水电指水轮机输出功率，水泵指电机输出功率）

六、水机及电机转速

七、订货范围（除齿轮箱外是否同时供应冷却润滑稀油站及电机侧和水机侧联轴器）。

八、是否提供外形尺寸图。

九、年使用小时数。

十、机组运行所在地（当地气温与稀油站设计有关）

1. Summarize

Increasing (decreasing) speed gearbox for hydropower is the strong item of our company. Start early, we have already started to technology development many years ago, solved using the technology of hydropower growth gearbox prevent motor fly variants of the rapid withdraw, enable the turbine through growth gearbox improve generator speed (greatly reduce motor extreme number) in actual application to be possible (limited to low head, big flow unit), so it can take great economic benefits for the middle or small hydropower investment.

This kind of product in our company mainly aimed at low head big flow of shaft stretch, silo, bulb cross flow units and vertical shaft-type axial flow units, the inclined shaft-type (15°,30°,45°) units.

2. Product intro

2.1 basal data

Power bound 200~3000[kW]

Allow transmission maximal torque 300tm(3×103kNm)

Ratio i： First planetary drive 3.2≤i≤6.3（6.3≤i≤12.5 with first parallel shaft and first planetary model）

Second planetary drive 12.5≤i≤25

First parallel shaft drive 2≤i≤6

Second parallel shaft drive 6≤i≤25

Vertical shaft（or orthogonal） 5≤i≤25

Speed n：All

Efficiency η： First planetary drive η ≥99%

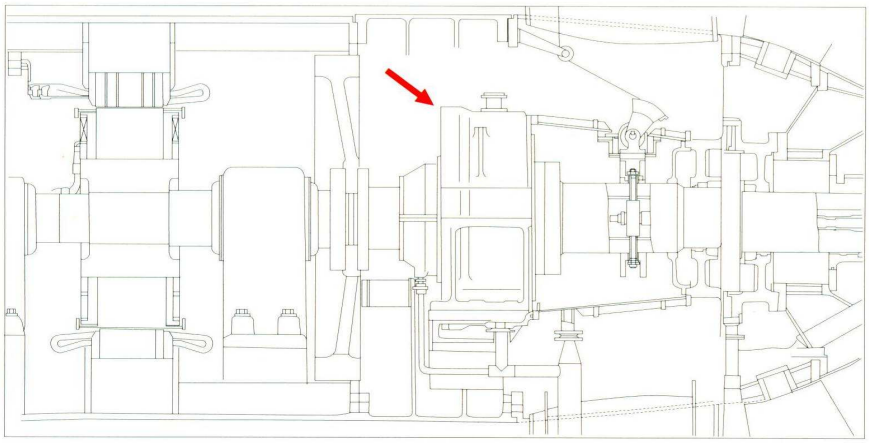
Second planetary drive η =(97.5-98)%

First parallel shaft drive η ≥99%

Second parallel shaft drive η =(97.5-98)%

Vertical shaft drive（planetary and bidirectional thrust bearing） η ≥98%

0rthogonal drive（screw umbrella and planetary） η =(97.5-97.75)%



□Sectional arrangement drawing for bulb unit(put into operation from 1980s to now)

The arrow showed the national first step-up gear of bulb turbine generator unit with planet gear speeder in our company.

2.2 Power P[kW]and torque M_k[K_N • m] conversion

Company allowed transmission maximal torque M_{kmax}=300tm=3×10^3kN • m

Corresponding allowed transfer power P=$n_{水}$×M_{kmax}÷0.974=$n_{水}$×300÷0.974=308×$n_{水}$[kW]

For example, when $n_{水}$=100[r/min], P=30800[kW]

When $n_{水}$=60[r/min], P=18480[kW]

Above P and M_k of hydro turbine refers to the shaft power and torque of the turbines, of pump unit, refers to the input power and torque.

To hydro turbine units, generators output power $P_{电}$=P× $\eta_{齿}$× $\eta_{电}$[kW]

To pump unit, motor output power $P_{电}$=P÷ $\eta_{齿}$÷ $\eta_{电}$[kW]

2.3 For planetary transmission gearbox optimal performance and price ratio design

3.5≤*i*≤5.5 The sun wheel planetary wheel level and planetary gear wheels level near equal strength design.

i lower than 3 almost impossible to design, higher than 6.3 for different strength so that have not economic (but not cannot design)

For silo and bulb cross flow units, using planetary transmission is nearly the only choice. (Because the gearbox output shaft is in the same axes with input shaft, it's the most suitable for silo and bulb inside decorate).

2.4 Special structural design

It's more different from the universal planetary reducer (increasing) gearbox in the market.

1) Internal gear with cabinet each independent and is an important floating loading pieces. (The universal is both together).

2) All design manufacture completely according to each industrial users with different design data requirements, degrees stature clothing special non-standard design, rather than universal is set to patchily manage.

3) The sun wheel is floating uniform loading

4) Use angle deflection design, and make intensity distribution rational (greatly improve the intensity of relatively weak sun round line level).

5) The products of our company is most distinctive in the design of lubrication cooling systems (refers to gearbox internal), the internal friction of all lubricating points is all purpose, and universal is shower type (oil of each lubrication friction cannot assure, potential hidden trouble is great), both have the great different.

6) Our company product's oil seal is another major special design--non-contact seal is main, never wear and tear and no leakage.

7) Between body bottom and foundation can use the differentiable adjusting structure, which can guarantee the quality and on-site remove for convenience.

8) Adopt double insurance cooling lubrication, once load rejection can immediately auto-cast self-lubricating work to make gearbox still normal safe operate during electricity parking accident treatment, without using expensive high tank.

9) The gearbox contains above and underside box, convenient the field detection, and universal is integral cylindrical, on-site couldn't cover, even the whole case back to the manufacturer to dispose.

10) Before and after the ends of elastic coupling have the ability of spring supplement

(high-speed end is dentate, low-speed end is nylon rods triturated.
11) For special requirements of customers can use expensive SKF bearing and screw pump of vertical shaft.
12) Under special circumstances (such as high speed high-power) we will provide double row helical triturated according to the structure, but the planet mark-ups 25% ~ 30% to reduce noise and improve the bearing capacity.

2.5 Special process measures
1) Strict control the relative weight error of per planet gearbox's planetary wheel for its weight 1%, in order to ensure that influence of centrifugal force mrw^2 produced by the residual unbalanced weight to double vibration controlled in 0.03 mm within
2) Strict control mouthed tan-gent length momentum of the planetary wheel, and to protect the operation steadiness and reduce noise.
3) Strict control key department sets of turn-off each planet hole's form and position and size error, as follows:
①Take the planets wheel pitch tolerance $f_1 \leqslant 0.043$(smaller than standard~1/2)
②Take planet shelf pitch tolerances $f_2 \leqslant 0.03$(smaller than standard~1/2)
③Take the planets wheel and the sun wheel center distance tolerance $f_n \leqslant 0.03$(smaller than standard~1/2)
4) Internal gear processing size in place, then extra insert tooth 50 to 100 circle to further eliminate weeks to minus section accumulation error, so can reduce noise.
5) Turning rack end (all processing into the planet wheel, bearings,... etc), do static balance test, control their value of remnants imbalance is under 25g-cm, ensure run placidly and reduce noise.
6) When gear circumference speed below 20m/s, adopt N220 # extreme pressure gear oil, when gear circumference speed in 20 ~ 30m/s, adopt N100 # extreme pressure gear oil to further reduce noise.
7) The sun wheel and the planet wheel all adopt high-strength alloy structural carburizing steels 20CrMnMo or 20CrNiMo, and grind gear with carburizing and quenching to reach: The tooth surface hardness is HRC60±2, the class of precision is higher than ISO5.
8) Internal gear adopts high-strength alloy structural steel with quenching and tempering 35CrMo or 42CrMo, achieve that tooth surface hardness is HB255 ~ 285, the class of precision is ISO6 ~ 7.

2.6 Consumer quality assurance：(Rating speed no-load run test in factory)
1) Double amplitude vibration value$\leqslant 0.03$mm
2) Noise value$\leqslant$85dB(A)
3) Bearing temperature (or gearbox enter oil mouth error)$\leqslant$35℃
4) Gearbox design life
To 5000kW above unit as 35 years or 20 million hours, to 5000kW below unit as 25 years or 15 million hours
Note:
① The above life is not including outsourcing planets wheel bearings, if users may adopt the expensive and longevity Swedish SKF bearing can at most simply change once planets bearing to achieve the above life
② Our company product is without wearing parts, so need not provide spare parts

3. Bespoke product notice

Customer：Unit name and department; linkman name and business (or title); Tel; Fax; Zip; Address

Unit circumstance: 1) hydropower or pump unit?

2) Shaft stretch, shaft stretch, silo, bulb cross flow (or other such as vertical shaft type, inclined shaft type...etc)

3) Surely slurry or turn slurry

4) Quantity

5) Rating power (hydropower refers to output power of the turbine, pump refers to output power of the motor)

6) Speed of the turbine or motor

7) The scope of the order (provide the cooling lubrication oil station and turbine or motor side couplings except the gearbox)

8) Whether provide the formal dimension

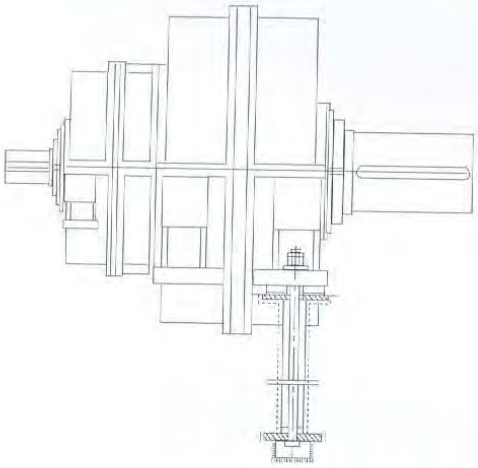
9) Use hours in one year

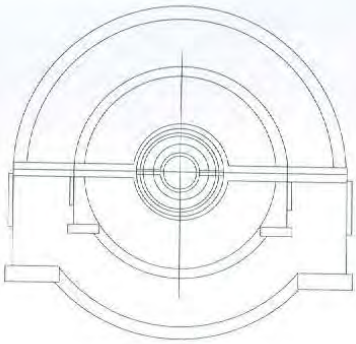
10) Locus of the unit running(located the local temperature and design of the lubrication oil station)

四、水机（水电、水泵）齿轮箱部分代表性机组型式的实例产品

Gearbox for hydropower(generator, water pump) part representative examples of units type products.

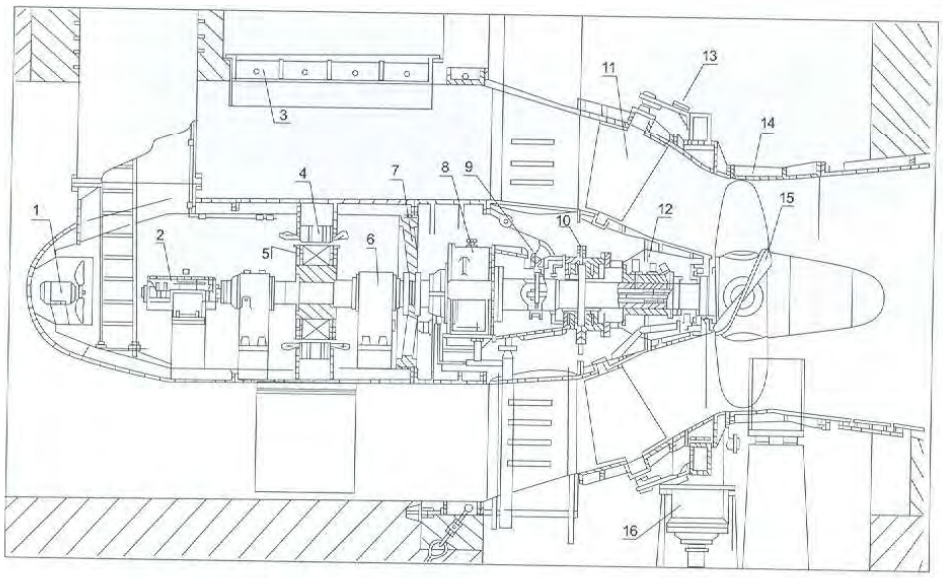
序号 No.	用户 Consumer	齿轮箱形式 Shape of the gearbox	计算功率 Count power kW	台数 Qty.	速比 Ratio	油站 Oil station	备注 Remark
1	湖南铁山嘴泵站 Hunan Tieshanzui pumping station	单级平行轴 Single parallel shaft	2000	3	750/136	125	无锡日立泵 Wuxi rili pump
2	湖南会同县高涌洞电站 Hunan huitong county gaoyong power plant	单级行星式 Single planetary	2320	4	166.7/750	125	江西东元 Jiangxi dongyuan
3	江西修水县龙潭峡电站 Jiangxi xiushui county long pond gorge power plant	单级行星式 Single planetary	2345	3	156.25/750	125	江西东元 Jiangxi dongyuan
4	江西浮梁县樟树坑电站 Jiangxi fuliang county camphor pit power plant	单级行星式 Single planetary	2750	4	157.894/750	125	江西东元 Jiangxi dongyuan
5	福建回龙电站 Fujian huilong power plant	单级行星式 Single planetary	2000	2	157.894/750	125	萧山春江 Xiaoshan chunjiang
6	安徽黄山新安江站 Anhui Huangshan xinan river power plant	单级行星式 Single planetary	2200	3	150/750	125	河南瑞发 Henan ruifa
7	泰国 Thailand	单级行星式 Single planetary	4600	2	187.5/1000	250	泰国 Thailand
8	宜州市佑岸水电站 Yizhou city youan water and power plant	单级行星式 Single planetary	2200	3	185/750	125	桐庐富春江 Tonglu fuchun river
9	辽宁红沿河核电站 Liaoning hongyanhe nuclear power plant	单级立式行星 Single vertical planetary	5900	4	994/180	400	美国福斯 America FLS
10	福建宁德核电站 Fujian ningde nuclear power plant	单级立式行星 Single vertical planetary	6700	4	994/168	400	美国福斯 America FLS





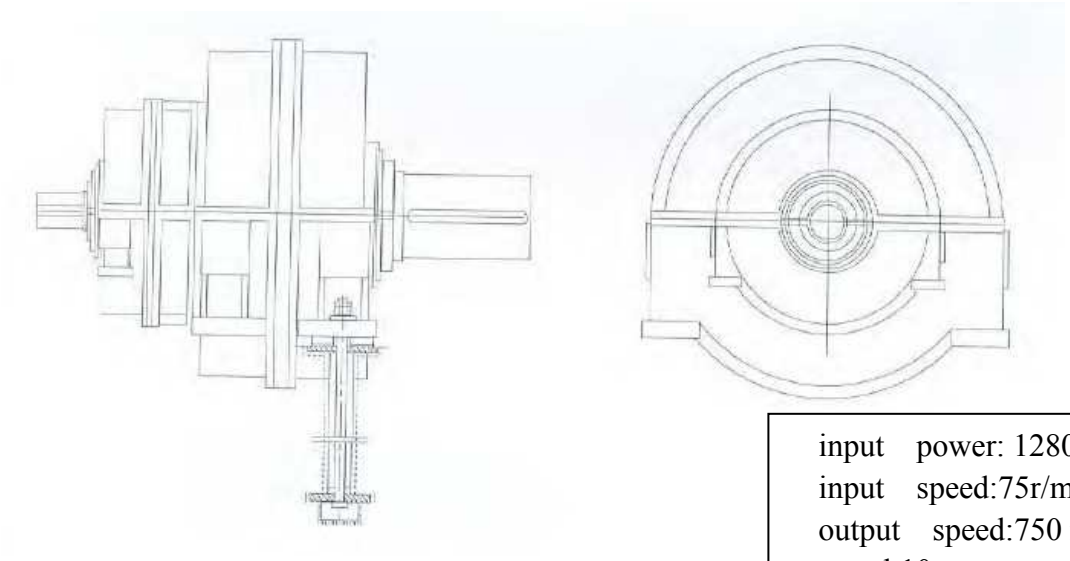
项目：巴基斯坦真纳水电站齿轮增速箱外形
目前世界最大竖井贯流水电机组配套（计算功率20500kW）两级行星齿轮箱

	代号	数量
输入功率	kW	12800
输入转速	r/min	75
输出转速	r/min	750
增速速比		10
使月系数	Ka	16
噪音	dB(A)	≤85



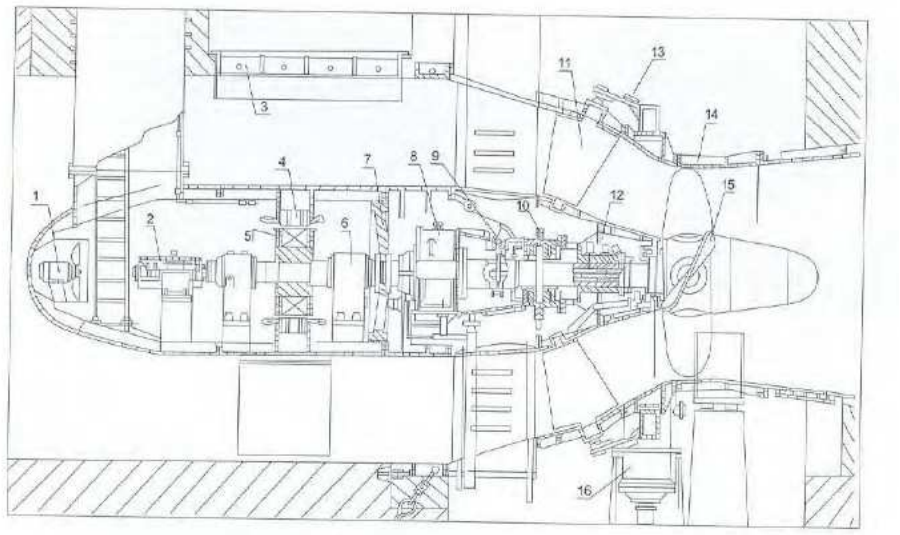
▲ 带行星齿轮增速的灯泡水电机组，用于世界第三亚洲第一的江厦潮汐水电站

1. 通风机
2. 励磁机
3. 发电机吊孔盖板
4. 发电机定子
5. 发电机转子
6. 发电机轴承
7. 飞轮
8. 行星齿轮增速器
9. 桨叶恢复机构
10. 双向推力轴承
11. 锥形导叶
12. 径向轴承受油器
13. 控制环
14. 转轮室
15. 水轮机桨叶
16. 导叶接力器



input power: 12800 kW
input speed:75r/min
output speed:750 r/min
speed:10
use factor:16Ka
noise:≤85dB(A)

Project: Shape of the step-up gearbox in hydropower station of Pakistan.
The double-stage planetary gearbox for the world's largest pit type tubular turbine hydropower generation units(rated output 20500kW) by now.



The bulb hydraulic generator set with planet gear speeder, used in tidal power plant of jiangxia which is the third in the world and the first in Asia.

1. Fan 2. Exciter 3. Generator lifting hole cover-board 4. Generator stator
5. Generator rotor 6. Generator bearing 7. Freewheel 8. Planet gearbox
9. paddle regain institution 10. Two-direction thrust bearing
11. Conical liquid diversion baffle 12. Transverse bearing oil receiver
13. Adjustable ring 14. Chamber for runner
15. paddle of hydroturbine 16. Guide vane servomotor