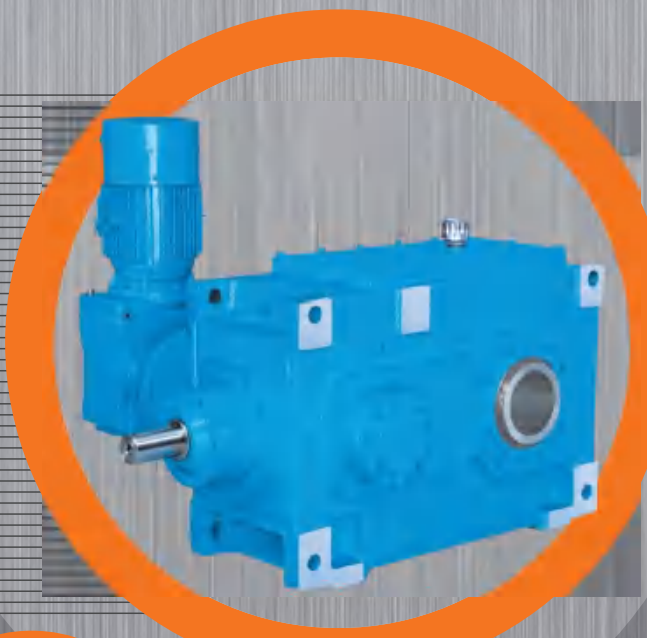
国家大型企业 NATIONAL LARGE ENTERPRISE

TLE斗式提升机减速机



TAILONG
MACHINERY

江苏泰隆机械集团公司
JIANGSU TAILONG MACHINERY GROUP COMPANY

江苏泰隆减速机股份有限公司
JIANGSU TAILONG DECELERATOR MACHINERY CO.,LTD.

中国供应链联盟 www.supplychainalliance.cn sales@tailonggearbox.com

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—1999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.

目 录
CATALOGUE

TLE斗式提升机用减速机
TLE Bucket elevator drives

一、概 述 Overview

我公司生产的TLE斗式提升机减速机广泛应用于水泥、港口、矿山、冶金、化工、建筑等行业的斗式输送机、升降卷扬机、提升机、带式输送级、货客用电梯、列板式输送机等各种输送机设备的驱动机械中。

TLE斗式提升机减速机包括主驱动B系列传动减速机和辅传减速电机。正常工作时主驱动电机工作，在关闭主驱动电机进行维修时，斗式传送的慢动作由辅传减速电机来完成。主、辅助驱动可以通过电控自动切换，不需要人工手动切换。主减速机装有逆止器可以防止斗式传动倒行，防止设备停车或故障维护时倒转。

主减速机速比范围20~71,我公司也可根据客户需要提供更大速比的主减速机。

Our products of TLE bucket elevator reducer are widely used as drives for bucket conveyors, lift winch, hoist, belt conveyor, passenger/goods elevators, and column plate conveyor and other conveyor equipment in the industries of cement, port, mining, metallurgy, chemical, and construction.

The bucket elevator reducer includes TLE series drive reducer and auxiliary transmission reducer motor. The main drive motor works in normal operation hours. In case that the main drive motor is turned off for maintenance, the slow motion of bucket transmission can be completed by the auxiliary transmission reducer motor. The main and auxiliary drives can be automatically switched by electronic control instead of manual switching. The main reducer is equipped with backstop to prevent the backward movement of bucket drive, and guard against the reverse operation during equipment parking or failure maintenance.

The main reducers products are in gear ratio range of 20~71. However, we can customize main reducers of greater ratio upon order of the customer.

注意事项 Attention

1、样本中的附图只属范例，并不要求严格一致。所有尺寸可能改进。

2、所注重量仅为平均值，不要求严格一致。

3、为防止发生事故，所有旋转部件应按安全规定加罩防护。

4、试车前，必须认真阅读使用说明书。减速机出厂时未加注润滑油。因此应按规定加注润滑油。

给出的加油量只作为参考值，实际油量应以油尺上的标记为准。

1.Illustrations are examples only and are not strictly bonding.Dimensions are subject to change.

2.The weithts are mean values and not strictly binding.

3.To prevent accidents,all rotating parts should be guarded according to loval and national safety regulations.

4.Prior to commissioning,the operating instructions must be observed.The gear units are delivered ready for operation but without oil filling.So specified oil should be filled.

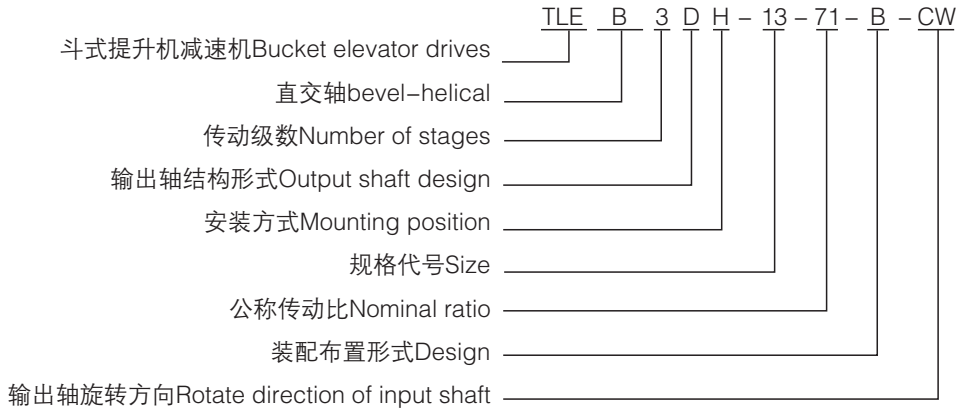
Oil quantities given are guide values only.The exact quantity of oil depends on the marks on the dipstick.

二、型号表示方法 Designation of types

主减速机型号 / 辅传减速电机型号1) Main gear unit type/Auxiliary gear motor type1)

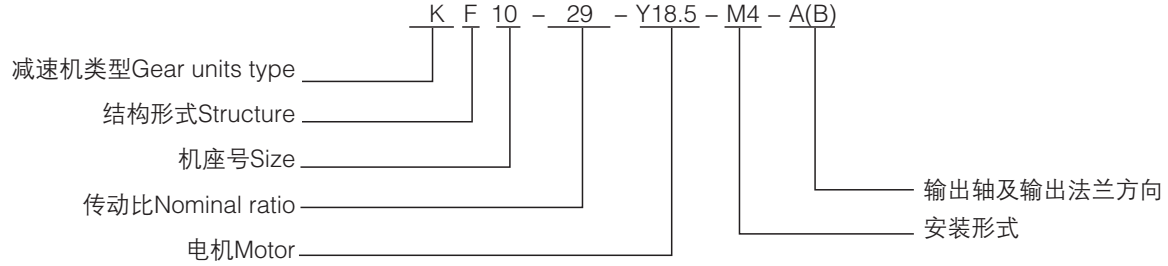
例 Example:TLEB3DH13–71–B–CW/KF10–29–Y18.5

主减速机型号说明Explanation of main gear unit type



型号说明	上例说明	Explanation of types	Explanation of above example
系列类型：TLEB直交轴系列	直交轴系列	Type:TLEB bevel-helical	bevel-helical
传动级数：3 三级	三级传动	Number of stages:3 3-stage	3-stage
输出轴结构形式 S 实心轴 H 空心轴 D带胀紧盘空心轴	带胀紧盘 空心轴输出	Output shaft design: S Solid shaft H Hollow shaft D Hollow shaft for shrink disk	Hollow shaft for shrink disk Output
安装方式：H卧式带底脚	卧式带底脚安装	Mouting positions:H Horizontal	Horizontal
规格代号：4~18	13机座号	Size:Size 4~18	Size 13
公称传动比：公称传动比i_N（见选型参数表）	公称传动比i_N=71	Nominal ratio:Nominal ratioi_N(see selection table)	Nominal ratioi_N=71
装配布置形式：B、D	装配布置形式为B	Design for assemble:B,D(see page)	Design B
输出轴旋转方向（面向输出轴方向看）： CW顺时针 CCW逆时针	输出轴为顺时针方向	Direction of rotation of input shaft:(viewing on input shaft) CW Clockwse, CCW Counter clockwise.	Direction of rotation of input shaft is clockwise

辅传减速电机型号说明2) Explanation of auxiliary gear motor type2)



型号说明	上例说明	Explanation of types	Explanation of above example
减速电机类型：螺旋锥齿轮减速电机	螺旋锥齿轮减速电机	Gear units type:Helical-bevel gear motor	Helical-bevel gear
结构形式：F轴伸法兰式	轴伸法兰式	Strucrure:F Flange mounted soild output shaft	Flange-mounted shaft output
机座号：04...12	10机座号	Size:04...12	Size:10
电机：电机功率	18.5普通电机	Motor:motor power	18.5kW Ordinary
传动比	29	Ratio	29

注： 主减速机规格确定后，依据辅传驱动为空载和载荷不同工作情况，辅传减速电机型号基本确定。

Note: Auxiliary gear motor type is basically determined depend on the auxiliary drive working under maintenance or under load conding main gear unit has been selected.

三、 选型指南 Guidelines for the selection

<table>
<tr><td>1.确定齿轮箱的类型及规格
1.Determination of gear unit type and size</td><td colspan="2">1.1计算传动比Find the transmission ratio
$is=\frac{n_1}{n_2}$
1.2确定齿轮箱的额定功率Determine nominal power rating of the gear unit
$P_N=P_2 x f_1 x f_2 x S_A$
如果不满足下列条件，请向我们咨询It is not necessary to consult us,if:
$3.33 x P_2 \geq P_N$
1.3校核最大扭矩，如峰值工作扭矩、起动扭矩或制动扭矩，看其是否满足要求
1.3Check for maximun torque.e.g.peak operating–,starting–or braking torque
$P_N \geq \frac{T_A x n_1}{9550} x f_3$
齿轮箱的规格和传动级数列在额定功率选型表中，可根据i_N和P_N确定。
Gear unit sizes and number of reduction stages are given in rating tables depending on i_N and P_N</td></tr>
<tr><td></td><td colspan="2">安装方式Mounting position</td></tr>
<tr><td></td><td>卧式安装Horizontal</td><td>立式安装Vertical</td></tr>
<tr><td>2.确定供油方式
2.Determination of oil supply</td><td>所有需要润滑的零部件均浸在润滑油中，或采用飞溅润滑方式。
All parts to be lubricated are lying in the oil .</td><td>可选润滑油供给方式：–浸油润滑
Possible oil supply variations:-Dip lubrication</td></tr>
<tr><td>3.确定所需要的热容量P_G
3.Determination of required thermal capacity P_G</td><td colspan="2">3.1 如满足以下条件，则齿轮箱可不带辅助冷却装置：
3.1 Adequate for gear units without auxiliary cooling,if:
$P_2 \leqslant P_G=P_{G1} x f_4 x f_6 x f_8 x f_9$
3.2 如满足以下条件，则齿轮箱带冷却风扇可满足要求
3.2 Adequate for gear units with fan cooling,if:
$P_2 \leqslant P_G=P_{G2} x f_4 x f_6 x f_8 x f_{10}$</td></tr>
</table>

符号说明 Key to symbols

E_D = 每小时工作周期，以百分比表示，如E_D=80%/h
Operating cycle per hour in%. e.g.E_D=80%/h

f1 = 工作机最低工况系数(表1)，
Factor for driven machine(table 1)，

f2 = 原动机系数(表2)。
Factor for prime mover(table 2)，

f3 = 峰值扭矩系数(表3)，
Peak to rque factor(table 3)，

f4,f5 = 环境温度系数(表4+表5)，
Thermal factors(tables 4+5)，

f6,f7 = 海拔高度系数(表6+表7)，
Factors for altitude(tables 6+7)，

S_A = 减速机安全系数(表8)，
Safety coefficient of speed reducer(tables 8)

f8 = 对于卧式安装齿轮箱：f8=1
For horizontal gear units：f8=1

f_9, f_{10} = 热容量系数(表10…13)，
Therm alcapacity factors(tables10…13)，

i = 实际传动比 Actual ratio

i_N = 公称传动比 Nominal ratio

i_S = 要求传动比Required ratio

n_1 = 输入转速(1/min)Input speed(1/min)

n_2 = 输出转速(1/min)Output speed(1/min)

P_G = 要求的热容量Required thermal capacity

P_{GA} = 齿轮箱的热容量，不带辅助冷却装置，13–14页
Thermal capacitv for gear units without auxlliary cooling，pages 13–14

P_{GB} = 齿轮箱的热容量，带冷却风扇，13–14页
Thermal capacity for gear units with fan cooling. Pages 13–14

P_N = 齿轮箱的额定功率(kw)，见选型表，11–12页
Nominal power rating of gear unit(kw)，see tables，pages 11–12

P_2 = 工作机的额定功率(kw)Power rating of driven machine(kw)

t = 环境温度(℃)Ambient temperature(℃)

T_A = 输入轴最大扭矩，如峰值工作扭矩、起动扭矩或制动扭矩(N.m)
Max.torque occurring on input shaft，e.g.peak operating–，starting–or braking

T_{2N} = 额定输出扭矩(kN.m)，11–12页
Nominal output torque(kN.m)，pages 11–12

计算示例 Calculation example

已知参数：
原动机
电机功率：P_1=75kW
电机转速：n_1=1500rpm
最大起动扭距：T_A=720N.m
工作机
斗式提升机功率：P2=66kW
转速：n2=26rpm
工作制：12小时/天
每小时起动次数：7
辅传驱动：载荷驱动
每小时工作周期：ED=100%
环境温度：30℃
室外安装（风速）：(w≥4m/s)
海拔高度：海平面
齿轮箱设计
直交轴齿轮箱
安装方式：卧式安装
输出轴d2:位于齿轮箱右侧（面对输入轴），即布置型式C
输出轴d2转动方向:逆时针

Known criteria:
Prime mover
Electric motor:P_1=75kW
Motor speed:n_1=1500rpm
Max.starting torque:T_A=720N.m
Driven machine
Bucket elevator drives:P2=66kW
Speed:n2=26rpm
Duty:12小时/天
Starts per hour:7
辅传驱动：载荷驱动
Operating cycle per hour:E_D=100%
Amvient temperature:30℃
Outdoor installation:(w≥4m/s)
Altitude:sea level
Gear unit design
Bevel–helical gear unit
Mounting position:horizontal
Output shaft d2:on right hand side design c
Direction of rotation of output shaft d2:counterclockwise

要求：齿轮箱的类型及规格 Required: type and size of gear unit

1.选择齿轮箱的类型及规格：Selection of gear unit type and size

1.1传动比计算：calculation of transmission ratio

$$i_s = \frac{n_1}{n_2} = \frac{1500}{26} = 57.7 \qquad i_N = 56$$

1.2确定额定功率 Determination of the gear unit nominal power rating

$$p_n \geq p_2 x f_1 x f_2 x S_A = 66x1.3x1x1.4 = 120kW$$

从额定功率表种选择：类型TLB3,规格10，对应的PN=122kW

Selected from power rating table:type TLB3,gear unit size 10,with P_N=122kW

$$3.33xP_2 \geq p_N \qquad 3.33x66 = 219.8kW > p_N$$

1.3检查起动扭矩 Checking the starting torque

$$p_N \geq \frac{T_A x n_1}{9550} x f3 \qquad \frac{720x1500}{9550} x 0.65 = 73.5kW \qquad p_N = 122kW > 73.5kW$$

2.确定热容量 Determination of thermal capacity

2.1根据表中给出的TLB3型齿轮箱参数，计算不带辅助冷却装置的齿轮箱热容量

2.1Thermal capacity for gear units without auxiliary cooling,acc.to table for type TLB3

$$P_G = P_{G1} x f_4 x f_6 x f_8 x f_9 \quad P_G = 78.9kW x 0.88 x 1 x 1 x (1.23 - 2.80 x 0.095 x 0.15) \quad P_G = 82.6kW$$
$$P_2 = 66kW < P_G = 82.6kW$$

结论：齿轮箱不带辅助冷却装置。可满足要求！

Conclusion: A gear unit without auxiliary cooling is sufficient!

服务系数 Service Factor

表1 工作机系数f1
table 1 Factor for driven machine f1

工作机 Driven machine	日工作小时数 Effective daily operating period under load in hours		
	≤0.5	0.5~10	> 10
输送机＊＊ Conveyors**			
斗式输送机 Bucket Conveyors	–	1.4	1.5
升降卷扬机 Hauling winches	1.4	1.6	1.6
提升机 Hoists	–	1.5	1.8
带式输送机≤150kW Belt conveyors≤150kW	1.0	1.2	1.3
带式输送机＞150kW Belt conveyors＞150kW	1.1	1.3	1.4

工作机 Driven machine	日工作小时数 Effective daily operating period under load in hours		
	≤0.5	0.5~10	> 10
货用电梯＊ Goods lifts*	–	1.2	1.5
客用电梯＊ Passenger lifts*	–	1.5	1.8
刮板式输送机 Apron conveyors	–	1.2	1.5
自动扶梯 Escalators	1.0	1.2	1.4
轨道车辆 Railway vehicles	–	1.5	–

注：＊）按最大扭距确定额定功率；
＊＊）检验热功率是绝对有必要的。

Note：＊）Designed power corresponding to max.torque;
＊＊）A check for thermal capacity is absolutely essential.

表2 Table 2	原动机系数 Factor for prime mover	f_2
电机，液压马达，气轮机 Electric motors,hydraulic motors,tubines		1.0
4–6缸，活塞发动机周期变化 1：100至1：200 Piston engines 4–6 cylinders cyclic variation 1:100 to 1:200		1.25
1–3缸，活塞发动机周期变化 最高达1：100 Piston engines 1–3 cylinders cyclic variation up to 1:100		1.5

表3 Table3	峰值扭矩系数 Peak torque factorr			f_3
	每小时峰值负荷次数 Load peaks per hour			
	1–5	6–30	31–100	>100
f_3 单向载荷 Steady direction of load	0.5	0.65	0.7	0.85
f_3 交变载荷 Altemating direction of load	0.7	0.95	1.10	1.25

表6 Table 6	海拔高度系数 Factor for altitude				f_6
不带辅助冷却装置或仅带冷却风扇 Without auxiliary cooling or with fan cooling					
系数 Factor	海拔高度(m，高于海平面) Altitude (metres above MSL)				
	高达 Up to	高达 Up to	高达 Up to	高达 Up to	高达 Up to
	1000	2000	3000	4000	5000
f_6	1.0	0.95	0.90	0.85	0.80

表7 Table 7	海拔高度系数 Factor for altitude				f_7
带冷却盘管或带冷却盘管和风扇 For cooling with cooling coil, or with fan and cooling coil					
系数 Factor	海拔高度(m，高于海平面) Altitude (metres above MSL)				
	高达 Up to	高达 Up to	高达 Up to	高达 Up to	高达 Up to
	1000	2000	3000	4000	5000
f_7	1.0	0.98	0.96	0.94	0.92

服务系数 Service Factor

表4 Table4	环境温度系数 Thermal factor				f_4
不带辅助冷却装置或仅带冷却风扇 Without auxiliary cooling or with fan cooling					
环境温度 Ambient temperature	每小时工作周期(E_D)百分比% Oprating cycle per hour(E_D)in %				
	100	80	60	40	20
10℃	1.14	1.30	1.32	1.54	2.04
20℃	1.00	1.06	1.16	1.35	1.79
30℃	0.87	0.93	1.00	1.18	1.56
40℃	0.71	0.75	0.82	0.96	1.27
50℃	0.55	0.58	0.64	0.74	0.98

表5 Table5	环境温度系数 Thermal factor				f_5
带冷却盘管或带冷却盘管和风扇 For cooling with cooling coil, or with fan and cooling coil					
环境温度 Ambient temperature	每小时工作周期(E_D)百分比% Oprating cycle per hour(E_D)in %				
	100	80	60	40	20
10℃	1.04	1.10	1.21	1.40	1.86
20℃	1.00	1.06	1.16	1.35	1.79
30℃	0.93	0.99	1.08	1.26	1.66
40℃	0.88	0.93	1.02	1.19	1.58
50℃	0.81	0.86	0.94	1.09	1.45

表8 Table 8	减速器安全系数 Safety coefficient of speed reducer		S_A
重要性与安全要求 Importance and safety requirements	一般设备，减速器失效仅引起单机停产且易更换备件 The failure of ordinary equipment and speed reducer can only result in production halts of single machine and repla cement of spare parts.	一般设备，减速器失效仅引起机组、生产线或全厂停产 The failure of ordinary equipment and speed reducer can only result in production halts of machnes,production lines or the whole factor.	高度安全要求，减速器失效引起设备、人身事故 Higher safety requirements,the failure of speed reducer can cause the incident of equipment and human body.
S_A	1.3–1.7	1.5–2.0	1.7–2.5

表10 不带辅助冷却装置齿轮箱的热容量系数 f9																
齿轮箱类型	n 1/min	速比i	狭小空间安装＊					室内大厅、大车间安装＊＊					室外安装＊＊＊				
			规格					规格					规格				
			1...6	7...12	13...18	19...22	23...26	1...6	7...12	13...18	19...22	23...26	1...6	7...12	13...18	19...22	23...26
TLEB3..	750	12.5...112	0.71	0.70	0.70	0.70		0.83	0.83	0.83	0.82		1.00	1.00	1.00	1.00	
	1000	12.5...112	0.76	0.74	0.71	0.70		0.90	0.89	0.86	0.84		1.09	1.09	1.07	1.05	
	1500	12.5...31.5 35.5...56 63...112	0.77 0.83 0.87	0.62 0.78 0.87	0.54 0.69 0.84	0.53 0.64 0.81		0.96 1.00 1.03	0.82 0.96 1.03	0.67 0.87 1.00	0.65 0.81 0.97		1.21 1.23 1.24	1.10 1.20 1.24	0.95 1.12 1.23	0.88 1.07 1.20	

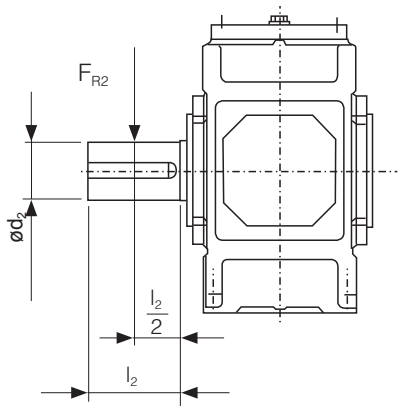
表11 带冷却风扇齿轮箱的装置热容量系数 f10																	
齿轮箱类型	n 1/min	速比i	狭小空间安装＊					室内大厅、大车间安装＊＊					室外安装＊＊＊				
			规格					规格					规格				
			4...6	7...12	13...18	19...22	23...26	4...6	7...12	13...18	19...22	23...26	4...6	7...12	13...18	19...22	23...26
TLEB2... TLEB3...	750	1.25...112	0.89	0.93	0.98	0.98		0.93	0.95	0.99	0.99		1.00	1.00	1.00	1.00	
	1000		1.07	1.13	1.16	1.18	....	1.11	1.15	1.17	1.17	....	1.18	1.19	1.19	1.19	....
	1500		1.41	1.46	1.45	1.44		1.43	1.47	1.45	1.44		1.49	1.51	1.47	1.46	

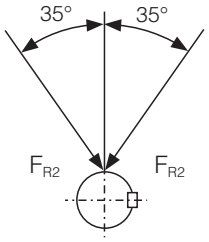
*)风速≥1m/s **)风速≥2m/s ***)风速≥3m/s ****)根据用户要求供货
—需要辅助冷却装置

减速机输出轴d2上允许的附加径向力1)
Permissible Additional Radial Forces on Output Shaft d2 1)

类型 TLEB3
Types TLEB3

作用力在轴端中部 Application of force on centre of shaft end





允许的作用力方向
Permissible direction of force

允许的附加径向力 FR2(kN),作用于输出端中部3)
Permissible additional radial forces FR2 in kN with application of force on center of shaft end

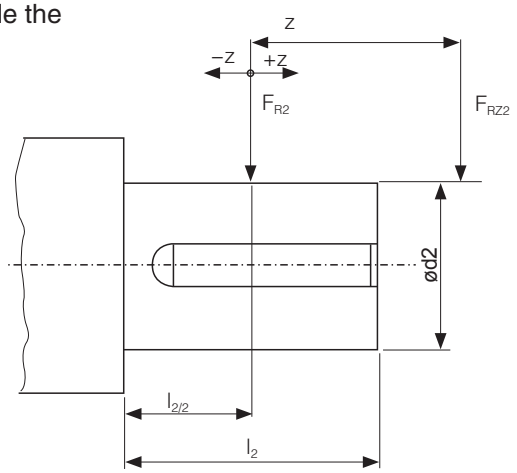
布置形式 Design	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
A/C	14	29	29	40	40	40	60	85	85	190	190	185	265	265	265
B/D	9	18	18	26	26	18	40	50	50	150	150	120	185	185	190

1)表中数据为最小值。如果给定了力的作用角和旋转方向，通常情况下，可允许承受较大的附加力。请与我们取得联系。
Values in tables are minimum values .If the angle of application of force and the direction of rotation are given,signif–icantly higher additional forces can mostly beallowed. Please consult us.
2)根据用户要求供货。On request.
3)当作用力不在轴端中部时，请参见第10页。For aplication of force outside the center of the shaft end. see page 10.
4)基础螺栓的最低性能等级为8.8级。基础必须干燥，不得有油脂。如用户要求，允许输入轴d1上附加径向力。
Use foundation bolts of min.Property class8.8.Foundation must be dry and grease–free. Permissible additional radial forces on input shaft d1 on request.

减速机输出轴d2上允许的附加径向力1)
Permissible Additional Radial Forces on Output Shaft d2 1)

类型 TLEB3
TypesTLEB3

作用力不在轴端中部
Application of force outside the centre of the shaft end



$F_{RZ2}=F_{R2}XK$

F_{RZ2} 允许的轴端外部径向力
F_{RZ2} Permissible external radial force

F_{R2} 允许的附加径向力根据24页上的表确定
F_{R2} Permissible additional radial force acc.to table page 24

K作用力系数根据下表确定
K Factor of application of force acc.to table

作用力系数K Factor of application of force K															
规格 Size	距离Z(mm) Distance Z in mm														
	−200	−150	−100	−75	−50	−25	0	25	50	75	100	150	200	250	300
3					1.21	1.09	1.00	0.85	0.74	0.65	0.58	0.48			
4					1.17	1.08	1.00	0.86	0.76	0.68	0.62	0.52	0.44		
5+6				1.22	1.14	1.06	1.00	0.88	0.79	0.72	0.66	0.56	0.49	0.43	
7+8				1.19	1.12	1.06	1.00	0.89	0.81	0.74	0.68	0.58	0.51	0.46	0.41
9+10			1.22	1.15	1.10	1.05	1.00	0.90	0.82	0.76	0.70	0.61	0.54	0.48	0.44
11+12			1.18	1.13	1.08	1.04	1.00	0.91	0.84	0.78	0.73	0.64	0.57	0.51	0.47
13+14		1.24	1.15	1.11	1.07	1.03	1.00	0.92	0.86	0.80	0.75	0.67	0.60	0.55	0.50
15+16		1.20	1.12	1.09	1.06	1.03	1.00	0.93	0.87	0.82	0.77	0.69	0.63	0.58	0.53
17+18	1.25	1.17	1.11	1.08	1.05	1.03	1.00	0.94	0.88	0.84	0.79	0.72	0.66	0.60	0.56

四、辅传驱动Auxiliary Drive

类型 TLEB3　Type TLEB3
规格 4...18　Size 4...18

依据不同的使用要求，每种规格的减速机有两种辅传驱动型式：
1)空载驱动
斗式提升机空载（空斗）时，辅传减速机驱动斗式提升机以较低转速同向转动。
2)载荷驱动
斗式提升机满载（满斗）时，辅传减速机驱动斗式提升机以较低转速同向转动。
辅传驱动结构设计
辅传减速机为KF系列带直联电机的锥齿轮减速电机，通过中间法兰与主减速机相联接，超越离合器与主减速机相连实现自动离合。超越离合器在中间法兰内部，有独立油润滑和加润滑脂润滑两种方式。KF锥齿轮减速电机也为独立油润滑方式，出厂前已加注润滑油。

Dependent on the case of application,for each gear unit size two different auxiliary drives are available:
1)Maintenance Drive
The motor of the auxiliary drive is dimensioned in such a way that the bucket elevator can be operated with empty buckets at low speed in the same direction of rotation.
2)Operation under load
The motor of the auxiliary drive is dimensioned in such a way that the bucker elevator can be operated with full buckets at low speed in the same direction of rotation.

Design of auxiliary drives
The auxiliary drive is a bevel-helical gear motor type KF,which is flanged to the main gear unit by means of an intermediate flange and is coupled to the main gear units via an overrunning clutch.The overrunning clutch is located in the intermediate flange,and lubricated with its own oil or grease.
The bevel-helical gear motor type FK has an own oil filling and is supplied filled with oil.

主减速机 Main gear unit	空载驱动 Maintenance drive						载荷驱动 Operation under load					
	1) n_3 〔min^{-1}〕	1) T_3 〔kNm〕	2) 齿轮减速电机 Geared motor	P_M 〔kW〕	输出轴 dx1 〔mm〕	i	1) n_3 〔min^{-1}〕	1) T_3 〔kNm〕	2) 齿轮减速电机 Geared motor	P_M 〔kW〕	输出轴 dx1 〔mm〕	i
4	2.5	2.7	KF04–35.39–Y0.75	0.75	30x60	35.39	2.5	3.9	KF05–35.7–Y1.1	1.1	35x70	35.7
5	2.5	5.3	KF05–35.7–Y1.5	1.5	35x70	35.7	3.3	6.5	KF06–27.28–Y2.2	2.2	40x80	27.28
6	2.0	6.6	KF05–35.7–Y1.5	1.5	35x70	35.7	2.7	8.1	KF06–27.28–Y2.2	2.2	40x80	27.28
7	3.0	6.6	KF06–30.22–Y2.2	2.2	40x80	30.22	3.1	11.5	KF07–29.27–Y4	4	50x100	29.27
8	2.4	8.3	KF06–30.22–Y2.2	2.2	40x80	30.22	2.5	14.5	KF07–29.27–Y4	4	50x100	29.27
9	2.9	9.4	KF07–30.89–Y3	3.0	50x100	30.89	2.5	20.0	KF08–36.52–Y5.5	5.5	60x120	36.52
10	2.3	11.7	KF07–30.89–Y3	3.0	50x100	30.89	2.0	25.1	KF08–36.52–Y5.5	5.5	60x120	36.52
11	2.3	11.8	KF07–40.04–Y3	3.0	50x100	40.04	2.7	36.0	KF09–34.23–Y11	11	70x140	34.23
12	1.8	15.0	KF07–40.04–Y3	3.0	50x100	40.04	2.2	45.8	KF09–34.23–Y11	11	70x140	34.23
13	2.1	17.3	KF08–44.02–Y4	4.0	60x120	44.02	3.3	51.0	KF10–29–Y18.5	18.5	90x170	29
14	1.7	21.7	KF08–44.02–Y4	4.0	60x120	44.02	2.6	63.9	KF10–29–Y18.5	18.5	90x170	29
15	2.1	16.9	KF08–44.02–Y4	4.0	60x120	44.02	3.5	78.0	KF12–27.68–Y30	30	110x210	27.68
16	1.9	19.2	KF08–44.02–Y4	4.0	60x120	44.02	3.0	88.5	KF12–27.68–Y30	30	110x210	27.68
17	2.1	17.2	KF08–44.02–Y4	4.0	60x120	44.02	3.4	97.5	KF12–27.68–Y30	37	110x210	27.68
18	1.8	20.0	KF08–44.02–Y4	4.0	60x120	44.02	2.9	113.2	KF12–27.68–Y30	37	110x210	27.68
减速机布置型式Design of gear units												
主减速机TLEB布置型式：D Design of main gear unit TLEB:D 齿轮减速电机KF输出轴方向：A Output shaft direction of gear motor KF:A							主减速机TLEB布置型式：B Design of main gear unit TLEB:B 齿轮减速电机KF输出轴方向：B Output shaft direction of gear motor KF:B					

注：1)辅传驱动输入时主减速机输出轴上转速、转矩（50Hz,n_1=1500min^{-1}）;
2)齿轮减速电机KF规格。
Note:1)Output speed and torque on main gear unit output shaft in case of input via auxiliary drive(50Hz,n_1=1500min^{-1});
2)Gear motor KF size.

五、传动能力表 Transmission capacity table

主传动参数 Main drive paramefers			4		5		6		7		8	
n_1 (r/min)	n_{2N} (r/min)	i_N	T_{2N} (kN·m)	P_{1N} (kW)	T_{2N} (kN·m)	P_{1N} (kW)	T_{2N} (kN·m)	P_{1N} (kW)	T_{2N} (kN·m)	P_{1N} (kW)	T_{2N} (kN·m)	P_{1N} (kW)
1500	75.8	20	6.6	52	11	86	13.2	104	20.5	161	23.9	186
1000	50			35		58		69		107		125
1500	67.7	22.4	6.6	46	11	77	13.8	97	21.5	144	24.8	174
1000	44.6			31		52		65		97		117
1500	60	25	6.6	41	11	69	14.5	91	20.5	129	25.5	160
1000	40			28		46		61		86		107
1500	53.6	28	6.6	37	11	62	14.5	82	20.5	116	25.5	144
1000	35.7			25		41		55		77		96
1500	47.6	31.5	6.6	33	11	55	14.5	73	20.5	103	25.5	128
1000	31.7			22		37		49		69		85
1500	42.3	35.5	6.6	29	11	48	14.5	64	20.5	90	25.5	112
1000	28.2			19		32		43		60		75
1500	37.5	40	6.6	26	11	44	14.5	58	20.5	82	25.5	101
1000	25			17		29		38		54		67
1500	33.3	45	6.6	23	11	38	14.5	50	20.5	71	25.5	88
1000	28.2			15		26		33		47		59
1500	30	50	6.6	21	11	35	14.5	46	20.5	64	25.5	80
1000	20			14		23		30		43		53
1500	26.8	56	6.6	19	11	31	14.5	41	20.5	58	25.5	72
1000	17.9			12		21		27		38		48
1500	23.8	63	6.6	17	11	28	14.5	36	20.5	50	25.2	64
1000	15.9			11		18		24		33		42
1500	21.1	71	6.6	14.5	11	24	14.5	32	20.5	44	25.2	56
1000	14.9			9.7		16		21		30		38

注：n_3为辅助传动4极电机输入时转速。 Note:n_3 is the speed when 4–pole motor of auxiliary drive inputs.

主传动参数 Main drive paramefers			9		10		11		12		13	
n_1 (r/min)	n_{2N} (r/min)	i_N	T_{2N} (kN·m)	P_{1N} (kW)	T_{2N} (kN·m)	P_{1N} (kW)	T_{2N} (kN·m)	P_{1N} (kW)	T_{2N} (kN·m)	P_{1N} (kW)	T_{2N} (kN·m)	P_{1N} (kW)
1500	75.8	20	34	26.7	39.3	30.9	60	471	68	534	88	691
1000	50			17.8		20.6		314		356		461
1500	67.7	22.4	34	23.9	41	28.8	100	426	72	508	88	617
1000	44.6			160		19.3		283		339		415
1500	60	25	34	214	43	27.0	60	327	75	471	88	553
1000	40			142		18.0		251		314		369
1500	53.6	28	34	192	43	24.3	60	339	75	424	88	498
1000	35.7			128		16.2		226		283		332
1500	47.6	31.5	34	171	43	21.6	60	302	75	377	88	442
1000	31.7			114		14.4		201		251		295
1500	42.3	35.5	34	150	43	18.9	60	264	75	320	88	387
1000	28.2			100		12.6		176		220		258
1500	37.5	40	34	135	43	17.1	60	239	75	298	88	350
1000	25			89		11.3		132		196		230
1500	33.3	45	34	117	43	14.9	60	202	75	259	88	304
1000	28.2			78		99		138		173		203
1500	30	50	34	107	43	135	100	188	75	236	88	276
1000	20			71		90		126		157		184
1500	26.8	56	34	96	43	122	60	170	75	212	88	249
1000	17.9			64		81		112		141		165
1500	23.8	63	34	85	43	108	100	151	75	188	88	221
1000	15.9			57		72		100		125		147
1500	21.1	71	34	75	43	92	60	122	75	165	88	194
1000	14.9			59		63		89		122		130

注：n_3为辅助传动4极电机输入时转速。 Note:n_3 is the speed when 4–pole motor of auxiliary drive inputs.

主传动参数 Main drive paramefers			14		15		16		17		18	
n_1 (r/min)	n_{2N} (r/min)	i_N	T_{2N} (kN・m)	P_{1N} (kW)	T_{2N} (kN・m)	P_{1N} (kW)	T_{2N} (kN・m)	P_{1N} (kW)	T_{2N} (kN・m)	P_{1N} (kW)	T_{2N} (kN・m)	P_{1N} (kW)
1500	75.8	20	103	809	153	1202	167	1312	200	1574	240	1885
1000	50			539		806		824		1045		1252
1500	67.7	22.4	106	744	153	1033	173	1214	200	1402	240	1684
1000	44.6			499		721		815		942		1131
1500	60	25	109	685	153	981	173	1082	200	1251	240	1308
1000	40			457		641		725		838		1005
1500	53.6	28	109	616	153	865	173	928	200	1131	240	1357
1000	35.7			411		577		652		256		905
1500	47.6	31.5	109	548	153	769	173	870	200	1805	240	1206
1000	31.7			365		512		580		670		894
1500	42.3	35.5	109	479	153	623	173	261	200	880	240	1055
1000	28.2			320		449		507		586		704
1500	37.5	40	109	434	153	609	173	688	200	796	240	955
1000	25			385		486		453		524		628
1500	33.3	45	109	377	153	528	173	598	200	691	240	829
1000	28.2			251		352		399		461		533
1500	30	50	109	342	153	481	173	543	200	628	240	754
1000	20			228		320		362		419		503
1500	26.8	56	109	308	153	433	173	489	200	56.5	240	679
1000	17.9			204		282		324		375		450
1500	23.8	63	109	274	153	385	173	435	200	503	240	603
1000	15.9			181		255		286		333		400
1500	21.1	71	109	240	153	336	173	380	200	440	240	528
1000	14.9			143		226		255		285		354

注：n_3为辅助传动4极电机输入时转速。 Note:n_3 is the speed when 4–pole motor of auxiliary drive inputs.

六、额定热容量 Rated thermal capacityes(kW)

i_N		4		5		6		7		8		9		10		11	
		1000	1500	1000	1500	1000	1500	1000	1500	1000	1500	1000	1500	1000	1500	1000	1500
20	PGA	32.4	34	44.6	45.6	51.9	52.6	68.9	68.8	79.4	78	92.8	89.8	105	100	126	112
	PGB	56.1	72.1	81.3	103	93.5	118	127	161	145	182	179	223	203	251	280	339
22.4	PGA	31.6	33.3	44	45.1	50.4	51.4	66.8	672	77.4	76.7	90.7	88.6	97.5	93.9	122	110
	PGB	54.6	70.3	80	101	90.7	115	123	155	141	177	175	218	186	231	266	324
25	PGA	30.1	31.9	41.8	43.3	48.6	50.1	65	66.2	74.7	75.2	87.3	86.9	94.3	92.8	117	109
	PGB	51.7	66.7	75.5	96.6	86.9	110	119	151	134	170	166	209	178	223	250	307
28	PGA	29	30.9	40.6	42.5	48	50	62.1	64.1	72.7	74.4	83.9	85	92.7	93.1	113	109
	PGB	49.4	63.9	72.7	93.3	85.5	109	112	143	130	165	157	199	174	220	238	296
31.5	PGA	27.5	29.4	38.6	40.7	45.5	47.8	59.2	61.7	70.3	72.7	80.6	82.7	89.1	90.7	108	106
	PGB	46.8	60.7	68.7	88.5	80.6	103	106	136	125	160	149	190	165	210	225	282
35.5	PGA	25.9	27.8	36.4	38.6	44	46.4	56.4	59.1	67	69.8	76.9	79.6	85.3	87.7	105	105
	PGB	43.8	56.8	64.3	83	77.5	99.8	100	129	119	152	141	181	156	199	215	271
40.0	PGA	22.6	24.3	31.7	33.7	41.8	44.3	49.4	52	64.1	67.1	72.1	75	81.6	84.4	996	100
	PGB	38.1	49.4	55.5	71.6	73.3	94.6	87.1	112	112	144	131	168	149	191	201	255
45.0	PGA	22.1	23.8	30.9	32.9	39.3	41.8	48	50.8	60.9	64	66.4	69.4	77.7	80.8	91.6	93.2
	PGB	37.2	48.3	54	69.8	68.5	88.5	84.1	108	106	137	120	154	140	180	184	234
50.0	PGA	22.4	24.2	30.8	33	34.4	36.8	47.6	50.7	53.6	56.9	65.5	69.3	73.1	77	92.4	95.8
	PGB	37.4	48.7	53.3	69.2	59.4	76.9	82.5	106	92.5	119	117	151	131	169	181	232
56.0	PGA	20.7	22.4	28.5	30.7	33.6	36.2	44.3	47.5	52.1	55.7	60.7	64.8	67.7	72	84.5	88.9
	PGB	34.4	44.8	49.3	64	57.8	75.1	76.7	99.5	89.6	116	108	140	120	155	164	211
63.0	PGA	19.9	21.6	27.4	29.5	33.4	36	42.8	46.1	51.5	55.2	58.7	62.8	66.5	71	81.7	86.3
	PGB	33.1	43.2	47.3	61.6	57.1	74.2	74.1	96.2	88.1	114	104	135	117	151	158	203
71.0	PGA	18.4	20	26.1	28.2	30.8	33.3	40.8	43.9	47.8	51.4	55	59	61.7	65.9	75.7	80.2
	PGB	30.7	40	44.9	58.5	52.6	68.4	70.5	91.7	81.7	106	97.8	126	108	140	146	189

PGA：齿轮箱不带任何冷却装置时的额定热容量；
PGB：齿轮箱仅带冷却风扇冷却时的额定热容量。

PGA:Nominal thermal capacity for gear units without any cooling equipment.
PGB:Nominal thermal capacity for gear units only with cooling fan.

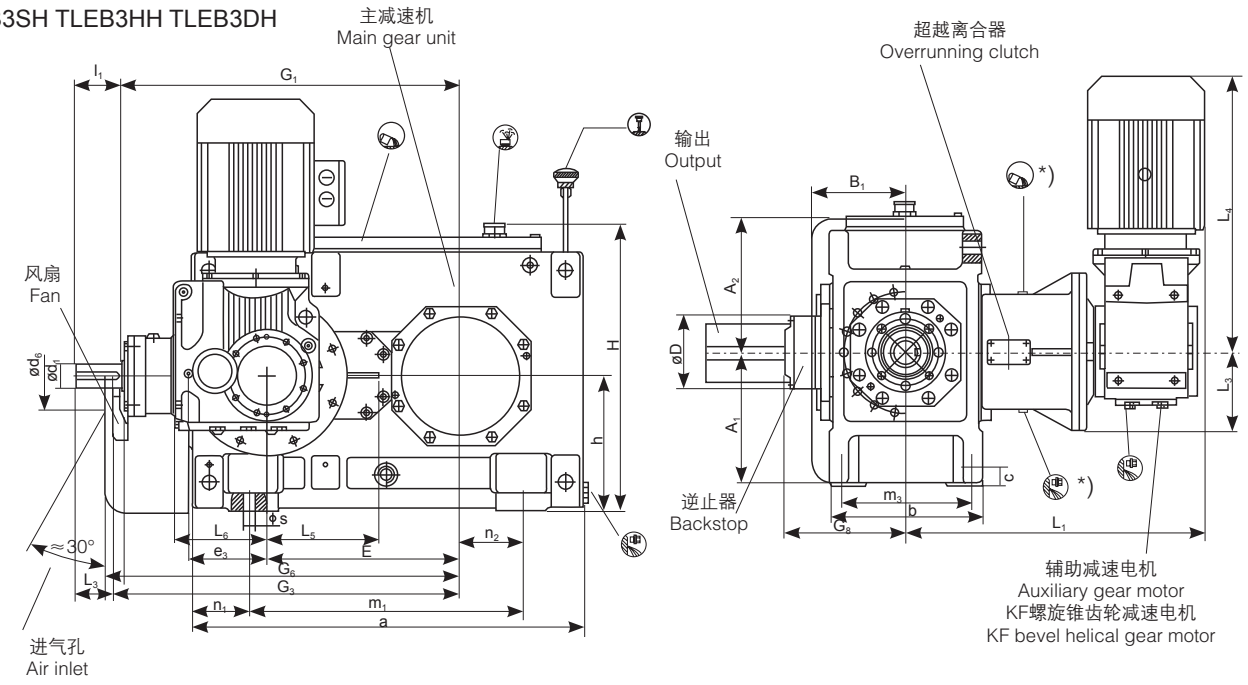
i_N		12		13		14		15		16		17		18	
		1000	1500	1000	1500	1000	1500	1000	1500	1000	1500	1000	1500	1000	1500
20	PGA	147	124	159	126	180	140	212		223		234		246	
	PGB	323	385	367	428	413	480	513	568	548	599	662	708	700	736
22.4	PGA	148	128	154	126	185	148	210		219		236		243	
	PGB	324	388	349	412	417	489	498	559	528	586	646	702	675	722
25	PGA	144	130	149	128	176	150	204	153	222	160	234		250	
	PGB	309	375	329	395	390	466	466	537	513	585	607	681	661	732
28	PGA	140	131	144	131	172	155	205	168	216	172	239	183	248	182
	PGB	295	363	312	380	373	452	453	535	480	562	569	689	621	711
31.5	PGA	133	129	139	131	165	154	196	170	215	183	232	190	250	199
	PGB	276	344	296	365	350	430	423	508	468	558	557	658	608	712
35.5	PGA	128	125	135	130	159	151	192	173	205	181	228	196	241	203
	PGB	262	328	284	353	332	412	407	495	435	526	538	644	569	677
40.0	PGA	122	121	128	125	152	147	183	168	199	180	220	194	236	204
	PGB	246	310	267	334	315	392	383	469	419	510	508	614	548	657
45.0	PGA	117	118	119	117	147	144	171	160	190	176	206	187	228	203
	PGB	236	298	244	306	301	377	352	434	395	484	470	572	520	629
50.0	PGA	112	115	122	124	141	142	178	174	179	174	219	210	216	204
	PGB	221	281	244	310	283	358	356	445	363	453	478	593	481	594
56.0	PGA	103	108	113	117	131	135	165	167	186	186	205	203	228	225
	PGB	203	260	223	285	258	330	325	411	365	461	438	552	488	612
63.0	PGA	103	108	109	114	133	138	159	162	171	173	198	199	211	211
	PGB	198	255	214	275	259	332	309	393	333	422	419	529	447	563
71.0	PGA	94.8	99.9	103	107	122	127	151	155	164	167	187	190	204	205
	PGB	180	232	201	258	236	302	292	372	318	404	393	498	426	539

七、外形与安装尺寸 Outline and installation dimensions

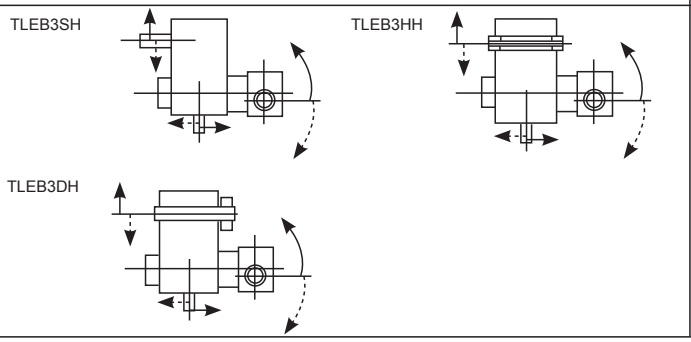
三级 Three stage
类型Type TLEB3
规格Size 4...12

直交轴减速机带辅传空载驱动
Bevel-helical gear units With auxiliary drive Maintenance drive

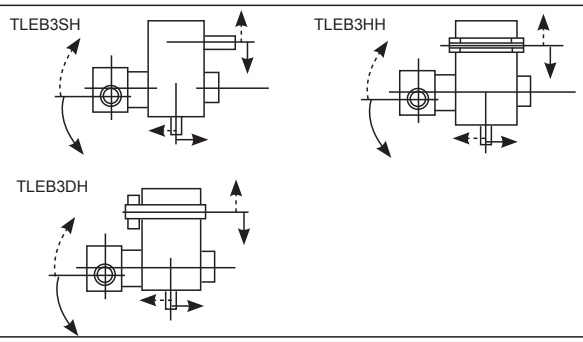
TLEB3SH TLEB3HH TLEB3DH



主减速机TLEB布置形式：D
Design of main gear unit TLEB:D
齿轮减速电机KF输出轴方向：A
Output shaft direction of gear motor KF:A

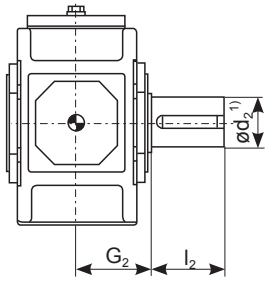


主减速机TLEB布置形式：D
Design of main gear unit TLEB:D
齿轮减速电机KF输出轴方向：B
Output shaft direction of gear motor KF:B

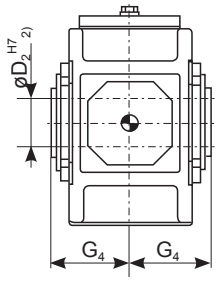


输出轴 Output shaft

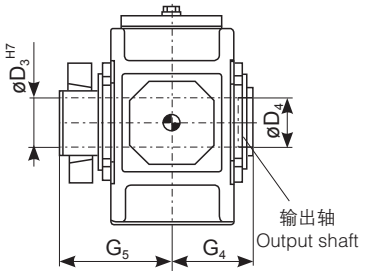
TLEB3SH
实心轴 Solid shaft



TLEB3HH
空心轴 Hollow shaft



TLEB3DH
带胀紧盘的实心轴Hollow shaft for shrink disk



1)m6≤ø100 n6＞ø100
有关平键和中心孔，参见第30页
2)键槽GB/T1096–2003

1)m6≤ø100 n6＞ø100
For parallel key and for center hole,see page 30
2)Keyway GB/T1096–2003

*)仅当采用国外超越离合器时加注润滑油，若采用国产逆止器、超越离合器时则加注润滑脂。
*)Fill lubrication only when selecting imported overrunning clutch,if domestic backstop and overrunning clutch are used please fill grease.

外形与安装尺寸 Outline and installation dimensions

三级 Three stage
类型Type TLEB3
规格Size 4...12

直交轴减速机带辅传空载驱动
Bevel-helical gear units With auxiliary drive Maintenance drive

规格 Size	辅传减速电机 Auxiliary gear motor	尺寸mm Dimensions in mm 输入轴 Input shaft												G1	G3
		i_N=20–45			i_N=20–56			i_N=50–71			i_N=63–71				
		d_1	l_1	l_3	d_1	l_1	l_3	d_1	l_1	l_3	d_1	l_1	l_3		
4	KF04-35.39-Y0.75	30	70	50				25	60	40				500	520
5	KF05-35.7-Y1.5	35	80	60				28	60	40				575	595
6	KF05-35.7-Y1.5				35	80	60				28	60	40	610	630
7	KF06-30.22-Y2.2	45	100	80				35	80	60				690	710
8	KF06-30.22-Y2.2				45	100	80				35	80	60	735	755
9	KF07-30.89-Y3	55	110	80				40	100	70				800	830
10	KF07-30.89-Y3				55	110	80				40	100	70	850	880
11	KF07-40.04-Y3	70	135	105				50	110	80				960	990
12	KF07-40.04-Y3				70	135	105				50	110	80	1030	1060

规格 Size	尺寸mm Dimensions in mm 减速器 Gear units												
	a	A_1	A_2	b	B_1	c	d_6	e_3	E	G_6	G_8 [5]		h	H
4	565	195	200	215	143	28	110	110	270	530	193	188*	200	445
5	640	220	235	255	168	28	130	130	315	605	218	213*	230	512
6	720	220	235	255	168	28	130	130	350	640	218	213*	230	512
7	785	275	275	300	193	35	165	160	385	720	273	266*	280	602
8	890	275	275	300	193	35	165	160	430	765	273	266*	280	617
9	925	315	325	370	231	40	175	185	450	845	347	327*	320	697
10	1025	315	325	380	231	40	175	185	500	895	347	327*	320	697
11	1105	370	385	430	263	50	190	225	545	1010	397	342*	380	817
12	1260	370	385	430	263	50	190	225	615	1080	397	342*	380	825

规格 Size	尺寸mm Dimensions in mm 减速器 Gear units										
	m_1	m_3	n_1	n_2	s	L_3	L_4	L_5	L_6	$D^{5)}$	
4	355	180	105	85	19	103	459	137	112	132	132*
5	430	220	105	100	19	125	502	165	132	160	150*
6	510	220	105	145	19	125	502	165	132	160	150*
7	545	260	120	130	24	150	536	210	140	195	190*
8	650	260	120	190	24	150	536	210	140	195	190*
9	635	320	145	155	28	160	556	255	180	230	210*
10	735	320	145	205	28	160	556	255	180	230	210*
11	775	370	165	180	35	180	556	315	180	280	210*
12	930	370	165	265	35	180	556	315	180	280	210*

规格 Size	尺寸mm Dimensions in mm 输入轴 Input shaft									润滑油 Lubrication		重量 Weight	
	TLEB3SH			TLEB3HH		TLEB3DH				KF	TLEB3	KF[3]	TLEB3/ KF[4]
	d_2 [1]	G_2	l_2	D_2	G_4	D_3	D_4	G_4	G_5	(L)	(L)	(kg)	(kg)
4	80	140	170	80	140	85	85	140	205	2.2	10	36	262
5	100	165	210	95	165	100	100	165	240	3	16	52	402
6	110	165	210	105	165	110	110	165	240	3	17	52	457
7	120	195	210	115	195	120	120	195	280	3.6	30	66	649
8	130	195	250	125	195	130	130	195	285	3.6	33	66	734
9	140	235	250	135	235	140	140	235	330	6	45	92	1017
10	160	235	300	150	235	150	155	235	350	6	48	92	1147
11	170	270	300	165	270	165	170	270	400	6	79	92	1582
12	180	270	300	180	270	180	185	270	405	6	84	92	1857

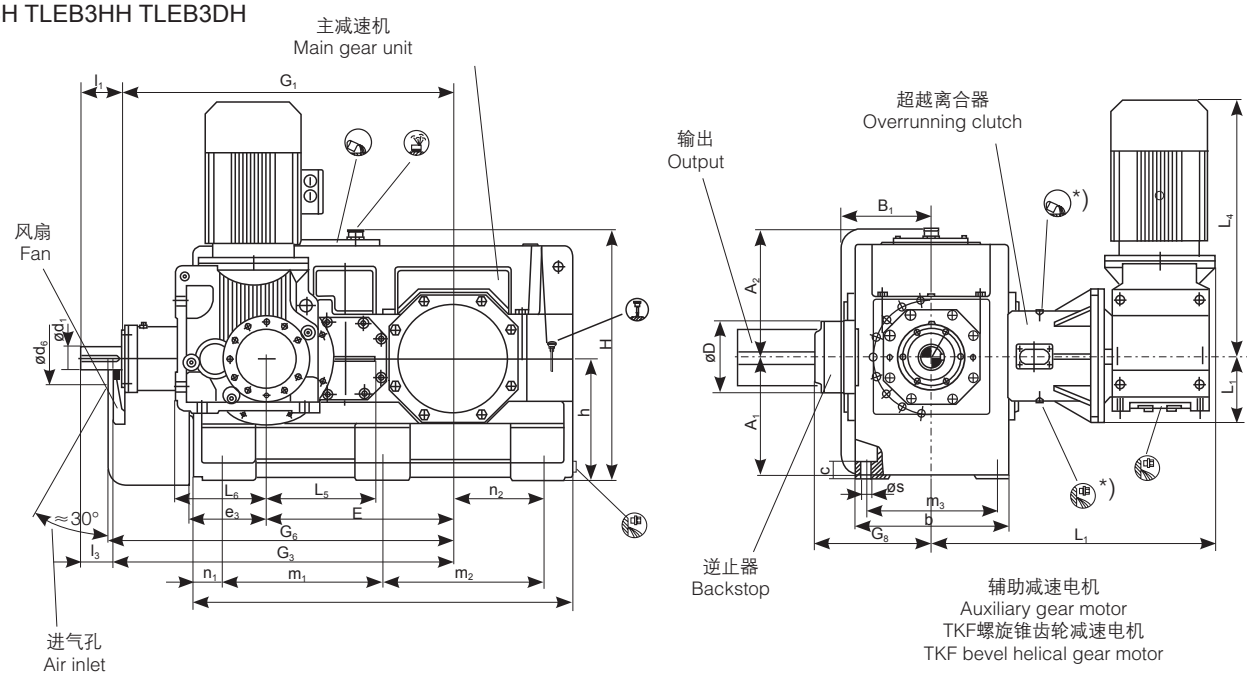
3)KF减速电机重量（不含润滑油重量）；
4)主减速机与辅传减速电机组合总重量（不含润滑油重量）。
3)Weight of gear motor KF (oil weight not included);
4)Gross weight of combination of main gear unit and auxiliary gear motor(oil weight not included).

外形与安装尺寸 Outline and installation dimensions

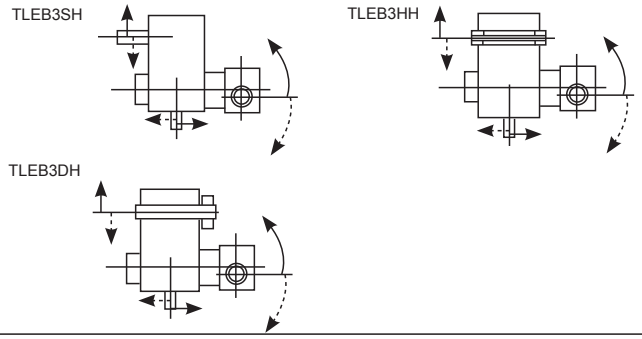
三级 Three stage
类型Type TLEB3
规格Size 13...18

直交轴减速机带辅传空载驱动
Bevel-helical gear units With auxiliary drive Maintenance drive

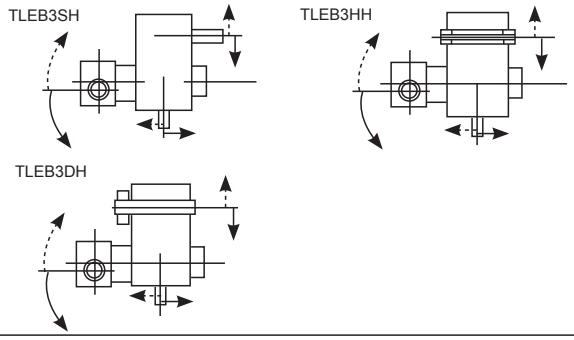
TLEB3SH TLEB3HH TLEB3DH



主减速机TLEB布置形式：D
Design of main gear unit TLEB:D
齿轮减速电机KF输出轴方向：A
Output shaft direction of gear motor KF:A

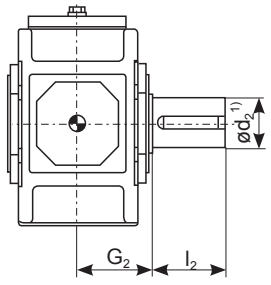


主减速机TLEB布置形式：D
Design of main gear unit TLEB:D
齿轮减速电机KF输出轴方向：B
Output shaft direction of gear motor KF:B

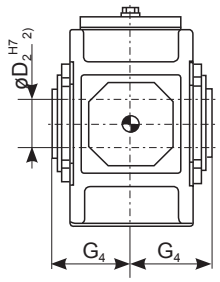


输出轴 Output shaft

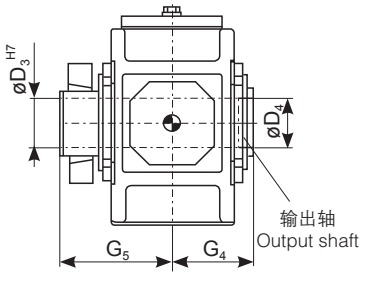
TLEB3SH
实心轴 Solid shaft



TLEB3HH
空心轴 Hollow shaft



TLEB3DH
带胀紧盘的实心轴Hollow shaft for shrink disk



1)m6≤ø100 n6＞ø100
有关平键和中心孔，参见第30页
2)键槽GB/T1096–2003

1)m6≤ø100 n6＞ø100
For parallel key and for center hole,see page 30
2)Keyway GB/T1096–2003

*)仅当采用国外超越离合器时加注润滑油，若采用国产逆止器、超越离合器时则加注润滑脂。
*)Fill lubrication only when selecting imported overrunning clutch,if domestic backstop and overrunning clutch are used please fill grease.

外形与安装尺寸 Outline and installation dimensions

三级 Three stage
类型Type TLEB3
规格Size 13...18

直交轴减速机带辅传空载驱动
Bevel-helical gear units With auxiliary drive Maintenance drive

规格 Size	辅传减速电机 Auxiliary gear motor	尺寸mm Dimensions in mm 输入轴 Input shaft																		G1	G3
		i_N=20–45			i_N=20–50			i_N=20–56			i_N=50–71			i_N=56–71			i_N=63–71				
		d_1	l_1	l_3	d_1	l_1	l_3	d_1	l_1	l_3	d_1	l_1	l_3	d_1	l_1	l_3	d_1	l_1	l_3		
13	KF08-44.02-Y4	80	165	130							60	140	105							1125	1160
14	KF08-44.02-Y4							80	165	130							60	140	105	1195	1230
15	KF08-44.02-Y4	90	165	130							70	140	105							1367	1402
16	KF08-44.02-Y4				90	165	130							70	140	105				1413	1448
17	KF08-44.02-Y4	110	205	165							80	170	130							1560	1600
18	KF08-44.02-Y4				110	205	165							80	170	130				1620	1660

规格 Size	尺寸mm Dimensions in mm 减速器 Gear units												
	a	A_1	A_2	b	B_1	c	d_6	e_3	E	G_6	G_8 [5]		h	H
13	1290	425	475	550	325	60	210	265	635	1180	453	433*	440	935
14	1430	425	475	550	325	60	210	265	705	1250	453	433*	440	935
15	1550	485	520	625	365	70	210	320	762	1420	500	476*	500	1035
16	1640	485	520	625	365	70	210	320	808	1470	500	476*	500	1035
17	1740	535	570	690	395	80	230	370	860	1620	532	508*	550	1145
18	1860	535	570	690	395	80	230	370	920	1680	532	508*	550	1145

规格 Size	尺寸mm Dimensions in mm 减速器 Gear units											
	m_1	m_2	m_3	n_1	n_2	s	L_3	L_4	L_5	L_6	D [5]	
13	545	545	475	100	305	35	190	628	362	212	320	290*
14	545	685	475	100	375	35	190	628	362	212	320	290*
15	655	655	535	120	365	42	200	628	443	212	400	290*
16	655	745	535	120	410	42	200	628	443	212	400	290*
17	735	735	600	135	390	42	225	628	520	212	400	290*
18	735	855	600	135	450	42	225	628	520	212	400	290*

规格 Size	尺寸mm Dimensions in mm 输入轴 Input shaft									润滑油 Lubrication		重量 Weight	
	TLEB3SH			TLEB3HH		TLEB3DH				KF	TLEB3	KF [3]	TLEB3/ KF [4]
	d_2 [1]	G_2	l_2	D_2	G_4	D_3	D_4	G_4	G_5	(L)	(L)	(kg)	(kg)
13	200	335	350	190	335	190	190	335	480	11.9	145	126	2547
14	210	335	350	210	335	210	215	335	480	11.9	155	126	2917
15	230	380	410	230	380	230	235	380	550	11.9	230	126	3902
16	240	380	410	240	380	240	245	380	550	11.9	240	126	4127
17	250	415	410	250	415	250	260	415	600	11.9	315	126	5168
18	270	415	470	275	415	280	285	415	600	11.9	325	126	5673

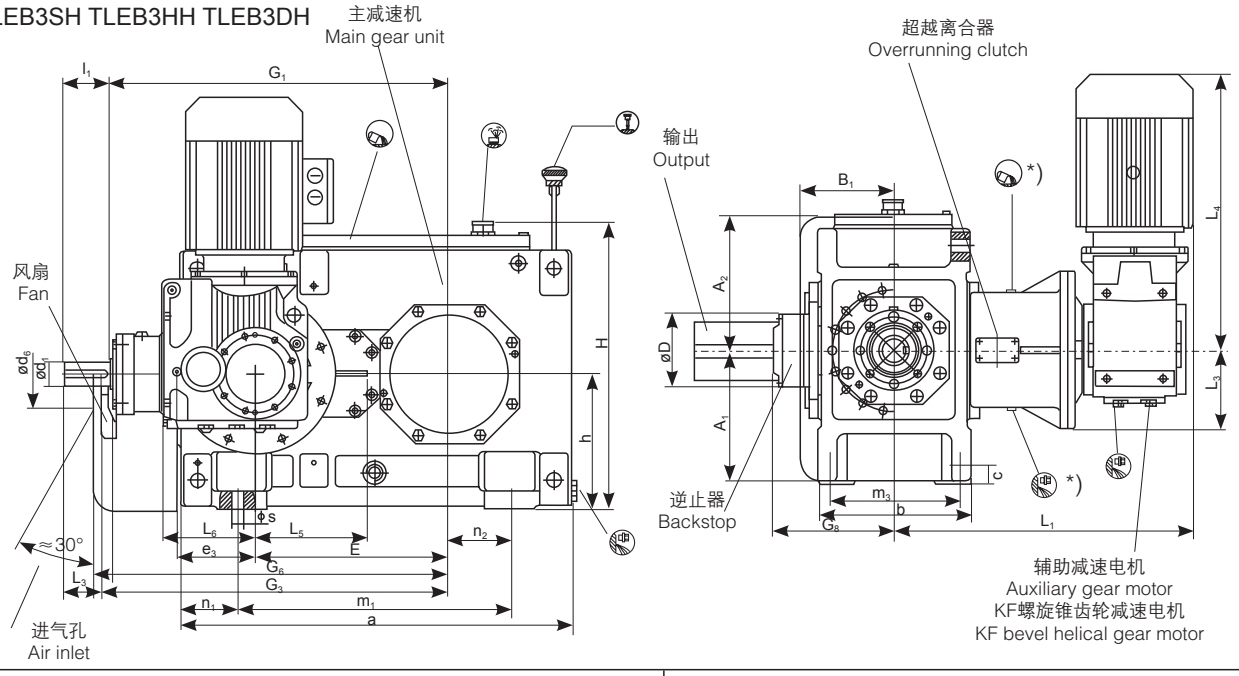
3)KF减速电机重量（不含润滑油重量）；
4)主减速机与辅传减速电机组合总重量（不含润滑油重量）。
3)Weight of gear motor KF (oil weight not included);
4)Gross weight of combination of main gear unit and auxiliary gear motor(oil weight not included).

外形与安装尺寸 Outline and installation dimensions

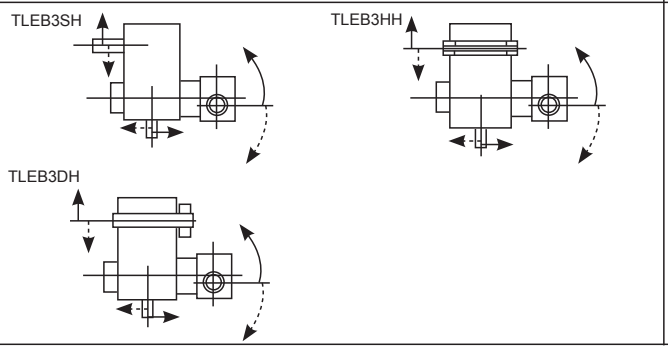
三级 Three stage
类型Type TLEB3
规格Size 4...12

直交轴减速机带辅传载荷驱动
Bevel-helical gear units With auxiliary drive Operation under load

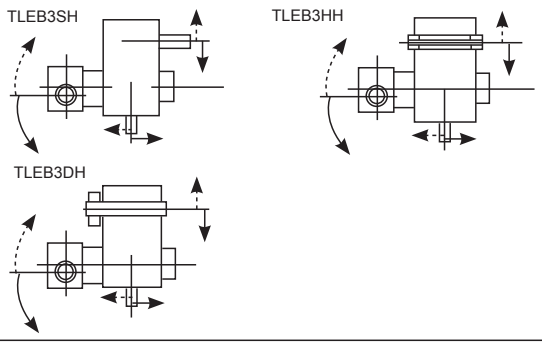
TLEB3SH TLEB3HH TLEB3DH



主减速机TLEB布置形式：D
Design of main gear unit TLEB:D
齿轮减速电机KF输出轴方向：A
Output shaft direction of gear motor KF:A

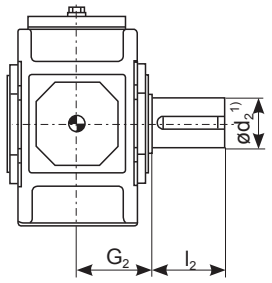


主减速机TLEB布置形式：D
Design of main gear unit TLEB:D
齿轮减速电机KF输出轴方向：B
Output shaft direction of gear motor KF:B

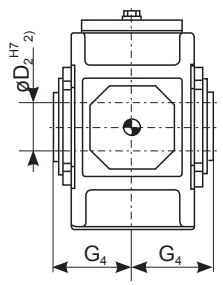


输出轴 Output shaft

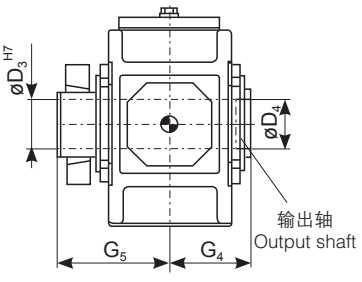
TLEB3SH
实心轴 Solid shaft



TLEB3HH
空心轴 Hollow shaft



TLEB3DH
带胀紧盘的实心轴Hollow shaft for shrink disk



1)m6≤ø100 n6＞ø100
有关平键和中心孔，参见第30页
2)键槽GB/T1096–2003

1)m6≤ø100 n6＞ø100
For parallel key and for center hole,see page 30
2)Keyway GB/T1096–2003

*)仅当采用国外超越离合器时加注润滑油，若采用国产逆止器、超越离合器时则加注润滑脂。
*)Fill lubrication only when selecting imported overrunning clutch,if domestic backstop and overrunning clutch are used please fill grease.

外形与安装尺寸 Outline and installation dimensions

三级 Three stage
类型Type TLEB3
规格Size 4...12

直交轴减速机带辅传载荷驱动
Bevel-helical gear units With auxiliary drive Operation under load

规格 Size	辅传减速电机 Auxiliary gear motor	尺寸mm Dimensions in mm 输入轴 Input shaft												G1	G3
		i_N=20–45			i_N=20–56			i_N=50–71			i_N=63–71				
		d_1	l_1	l_3	d_1	l_1	l_3	d_1	l_1	l_3	d_1	l_1	l_3		
4	KF05-35.7-Y1.1	30	70	50				25	60	40				500	520
5	KF06-27.28-Y2.2	35	80	60				28	60	40				575	595
6	KF06-27.28-Y2.2				35	80	60				28	60	40	610	630
7	KF07-29.27-Y4	45	100	80				35	80	60				690	710
8	KF07-29.27-Y4				45	100	80				35	80	60	735	755
9	KF08-36.52-Y5.5	55	110	80				40	100	70				800	830
10	KF08-36.52-Y5.5				55	110	80				40	100	70	850	880
11	KF09-34.23-Y11	70	135	105				50	110	80				960	990
12	KF09-34.23-Y11				70	135	105				50	110	80	1030	1060

规格 Size	尺寸mm Dimensions in mm 减速器 Gear units												
	a	A_1	A_2	b	B_1	c	d_6	e_3	E	G_6	G_8 5)		h	H
4	565	195	200	215	143	28	110	110	270	530	193	188*	200	445
5	640	220	235	255	168	28	130	130	315	605	218	213*	230	512
6	720	220	235	255	168	28	130	130	350	640	218	213*	230	512
7	785	275	275	300	193	35	165	160	385	720	273	266*	280	602
8	890	275	275	300	193	35	165	160	430	765	273	266*	280	617
9	925	315	325	370	231	40	175	185	450	845	347	327*	320	697
10	1025	315	325	380	231	40	175	185	500	895	347	327*	320	697
11	1105	370	385	430	263	50	190	225	545	1010	397	342*	380	817
12	1260	370	385	430	263	50	190	225	615	1080	397	342*	380	825

规格 Size	尺寸mm Dimensions in mm 减速器 Gear units										
	m_1	m_3	n_1	n_2	s	L_3	L_4	L_5	L_6	D 5)	
4	355	180	105	85	19	125	447	137	132	132	132*
5	430	220	105	100	19	125	536	165	140	160	150*
6	510	220	105	145	19	125	536	165	140	160	150*
7	545	260	120	130	24	125	693	210	180	195	190*
8	650	260	120	190	24	125	693	210	180	195	190*
9	635	320	145	155	28	175	674	255	212	230	210*
10	735	320	145	205	28	175	674	255	212	230	210*
11	775	370	165	180	35	225	806	315	265	280	210*
12	930	370	165	265	35	225	806	315	265	280	210*

规格 Size	尺寸mm Dimensions in mm 输入轴 Input shaft									润滑油 Lubrication		重量 Weight	
	TLEB3SH			TLEB3HH		TLEB3DH				KF	TLEB3	KF 3)	TLEB3/ KF 4)
	d_2 1)	G_2	l_2	D_2	G_4	D_3	D_4	G_4	G_5	(L)	(L)	(kg)	(kg)
4	80	140	170	80	140	85	85	140	205	3	10	50	283
5	100	165	210	95	165	100	100	165	240	3.6	16	66	424
6	110	165	210	105	165	110	110	165	240	3.6	17	66	479
7	120	195	210	115	195	120	120	195	280	6	30	98	689
8	130	195	250	125	195	130	130	195	285	6	33	98	774
9	140	235	250	135	235	140	140	235	330	11.9	45	150	1105
10	160	235	300	150	235	150	155	235	350	11.9	48	150	1235
11	170	270	300	165	270	165	170	270	400	21.5	79	248	1821
12	180	270	300	180	270	180	185	270	405	21.5	84	248	2096

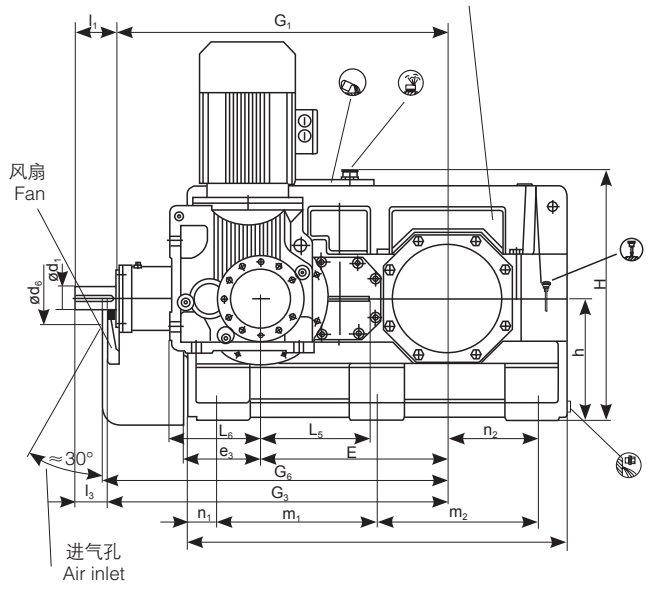
3)KF减速电机重量（不含润滑油重量）；
4)主减速机与辅传减速电机组合总重量（不含润滑油重量）。
3)Weight of gear motor KF (oil weight not included);
4)Gross weight of combination of main gear unit and auxiliary gear motor(oil weight not included).

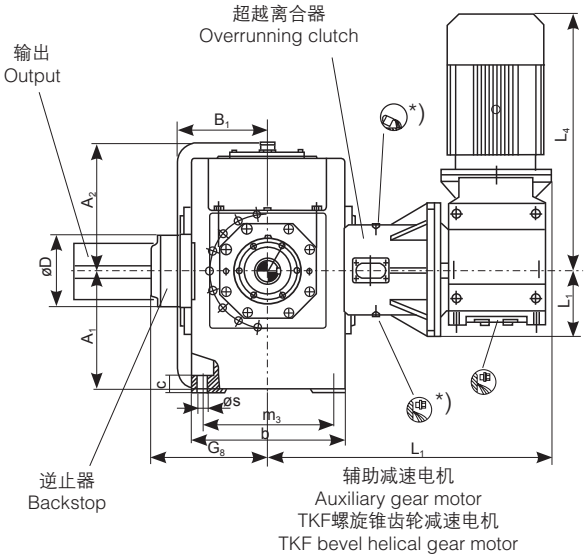
外形与安装尺寸 Outline and installation dimensions

三级 Three stage
类型Type TLEB3
规格Size 13...18

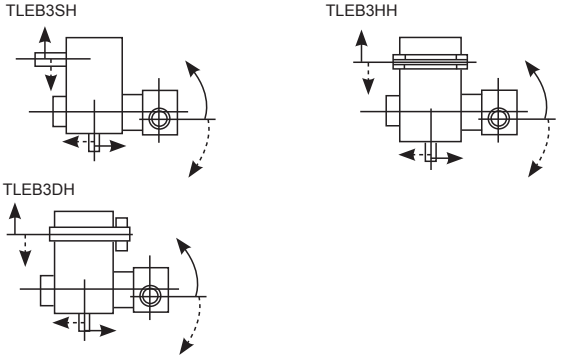
直交轴减速机带辅传载荷驱动
Bevel-helical gear units With auxiliary drive Operation under load

TLEB3SH TLEB3HH TLEB3DH 主减速机
Main gear unit

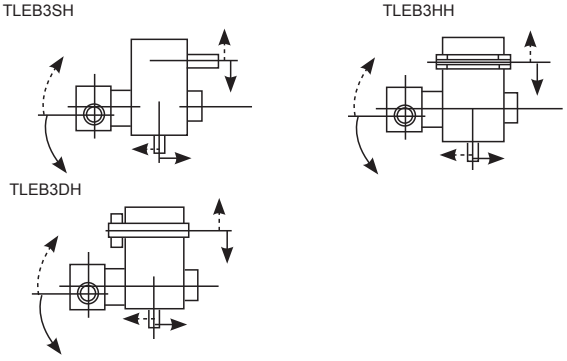




主减速机TLEB布置形式：D
Design of main gear unit TLEB:D
齿轮减速电机KF输出轴方向：A
Output shaft direction of gear motor KF:A

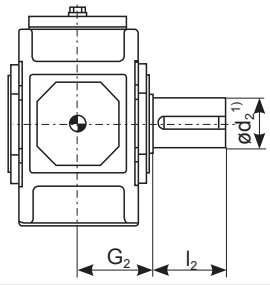


主减速机TLEB布置形式：D
Design of main gear unit TLEB:D
齿轮减速电机KF输出轴方向：B
Output shaft direction of gear motor KF:B

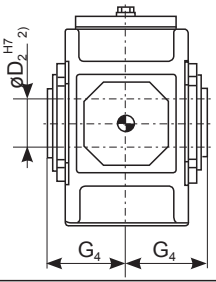


输出轴 Output shaft

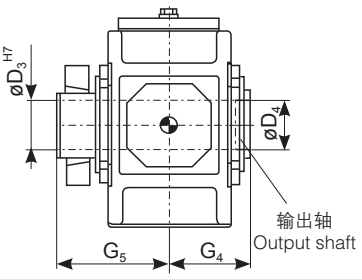
TLEB3SH
实心轴 Solid shaft



TLEB3HH
空心轴 Hollow shaft



TLEB3DH
带胀紧盘的实心轴Hollow shaft for shrink disk



1)m6≤ø100 n6＞ø100
有关平键和中心孔，参见第30页
2)键槽GB/T1096–2003

1)m6≤ø100 n6＞ø100
For parallel key and for center hole,see page 30
2)Keyway GB/T1096–2003

*)仅当采用国外超越离合器时加注润滑油，若采用国产逆止器、超越离合器时则加注润滑脂。
*)Fill lubrication only when selecting imported overrunning clutch,if domestic backstop and overrunning clutch are used please fill grease.

外形与安装尺寸 Outline and installation dimensions

三级 Three stage
类型Type TLEB3
规格Size 13...18

直交轴减速机带辅传载荷驱动
Bevel-helical gear units With auxiliary drive Operation under load

规格 Size	辅传减速电机 Auxiliary gear motor	尺寸mm Dimensions in mm																		
		输入轴 Input shaft																	G1	G3
		i_N=20–45			i_N=20–50			i_N=20–56			i_N=50–71			i_N=56–71			i_N=63–71				
		d_1	l_1	l_3	d_1	l_1	l_3	d_1	l_1	l_3	d_1	l_1	l_3	d_1	l_1	l_3	d_1	l_1	l_3		
13	KF10-29-Y18.5	80	165	130							60	140	105							1125	1160
14	KF10-29-Y18.5							80	165	130							60	140	105	1195	1230
15	KF12-27.67-Y30	90	165	130							70	140	105							1367	1402
16	KF12-27.67-Y30				90	165	130							70	140	105				1413	1448
17	KF12-27.67-Y37	110	205	165							80	170	130							1560	1600
18	KF12-27.67-Y37				110	205	165							80	170	130				1620	1660

规格 Size	尺寸mm Dimensions in mm													
	减速器 Gear units													
	a	A_1	A_2	b	B_1	c	d_6	e_3	E	G_6	G_8 [5]		h	H
13	1290	425	475	550	325	60	210	265	635	1180	453	433*	440	900
14	1430	425	475	550	325	60	210	265	705	1250	453	433*	440	900
15	1550	485	520	625	365	70	210	320	762	1420	500	476*	500	1000
16	1640	485	520	625	365	70	210	320	808	1470	500	476*	500	1000
17	1740	535	570	690	395	80	230	370	860	1620	532	508*	550	1110
18	1860	535	570	690	395	80	230	370	920	1680	532	508*	550	1110

规格 Size	尺寸mm Dimensions in mm											
	减速器 Gear units											
	m_1	m_2	m_3	n_1	n_2	s	L_3	L_4	L_5	L_6	D [5]	
13	545	545	475	100	305	35	225	934	362	315	320	290*
14	545	685	475	100	375	35	225	934	362	315	320	290*
15	655	655	535	120	365	42	275	1048	443	375	400	290*
16	655	745	535	120	410	42	275	1048	443	375	400	290*
17	735	735	600	135	390	42	275	1068	513	375	400	290*
18	735	855	600	135	450	42	275	1068	513	375	400	290*

规格 Size	尺寸mm Dimensions in mm									润滑油 Lubrication		重量 Weight	
	输入轴 Input shaft									KF	TLEB3	KF [3]	TLEB3/ KF [4]
	TLEB3SH			TLEB3HH		TLEB3DH							
	d_2 [1]	G_2	l_2	D_2	G_4	D_3	D_4	G_4	G_5	(L)	(L)	(kg)	(kg)
13	200	335	350	190	335	190	190	335	205	11.9	145	126	2547
14	210	335	350	210	335	210	215	335	240	11.9	155	126	2917
15	230	380	410	230	380	230	235	380	240	11.9	230	126	3902
16	240	380	410	240	380	240	245	380	280	11.9	240	126	4127
17	250	415	410	250	415	250	260	415	285	11.9	315	126	5168
18	270	415	470	275	415	280	285	415	350	11.9	325	126	5673

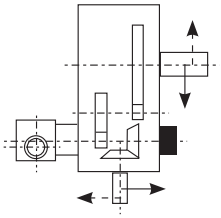
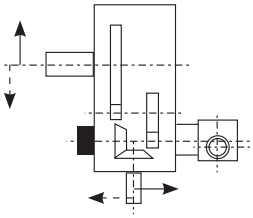
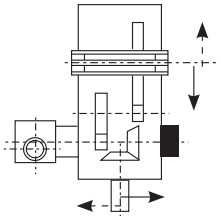
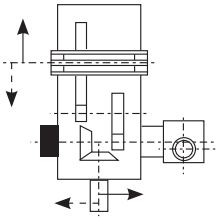
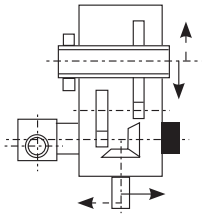
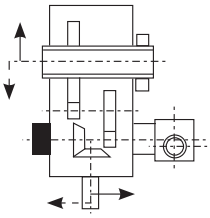
3)KF减速电机重量（不含润滑油重量）；

4)主减速机与辅传减速电机组合总重量（不含润滑油重量）。

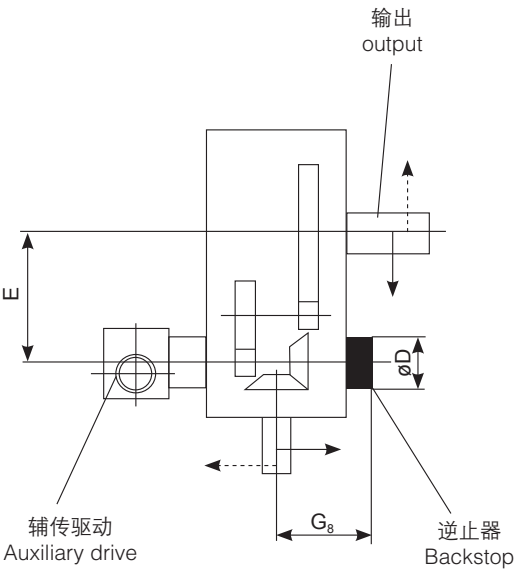
3）Weight of gear motor KF (oil weight not included);

4)Gross weight of combination of main gear unit and auxiliary gear motor(oil weight not included).

逆止器 Backstops

标准逆止器布置及输入输出转向关系 Standard backstop arrangement and dependence of direction of rotation		
类型 Type	布置型式 Design 规格Sizes4...18	
	B	D
TLEB3SH		
TLEB3HH		
TLEB3DH		

型号Type					
规格 Size	E mm	G_8 mm		D mm	
4	270				
5	315				
6	350				
7	385				
8	430				
9	450				
10	500				
11	545				
12	615				
13	635				
14	705				
15	762				
16	808				
17	860				
18	920				



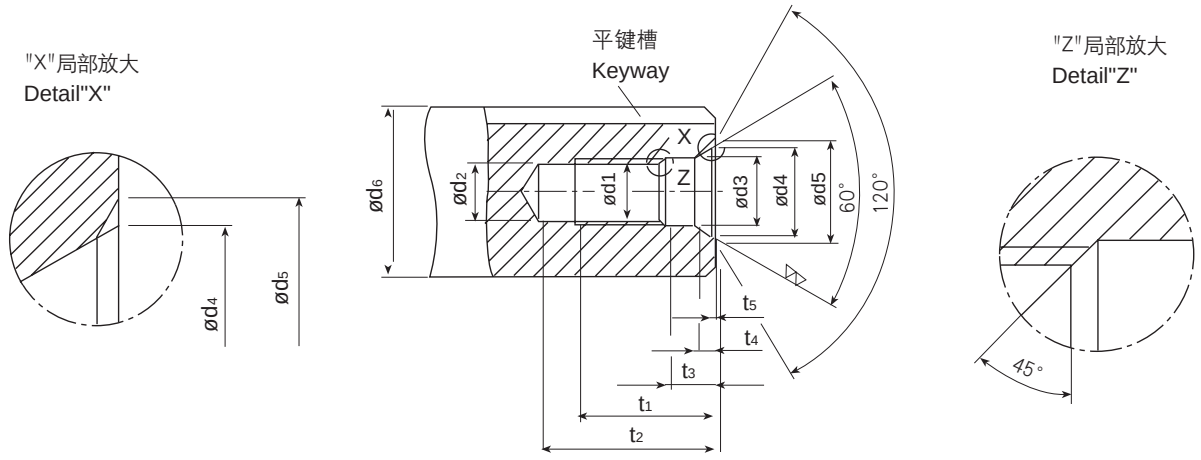
注：图中的G_8和D尺寸请咨询技术部门。

The dimension of G_8 and D in drawing must be asked R&D department.

八、C 型轴端中心孔 Centre Holes Form C in Shaft Ends

符合GB4459.5–1999标准 Meet GB4459.5-1999 standards

C型中心孔 Form C
锥孔，带一段直孔和护锥沉孔 Tapped hole, with straight running face and counterbore



推荐尺寸 Recommended diameters d_6 1)		C型 From C											
大于 above	至 to	C中心孔 C–Centering	d_1	d_2	d_3	d_4	d_5	t_1 +2	t_2 min.	t_2 max.	t_3 +1	t_4 ≈	t_5 ≈
mm			mm										
16	21	C6	M6	5	6.4	9.6	10.5	16	20	22	5	2.8	0.4
21	24	C8	M8	6.8	8.4	12.2	13.2	19	25	28	6	3.3	0.4
24	30	C10	M10	8.5	10.5	14.9	16.3	22	30	34	7.5	3.8	0.6
30	38	C12	M12	10.2	13	18.1	19.8	28	37	42	95	4.4	0.7
38	50	C16	M16	14	17	23	25.3	36	45	50	12	5.2	1.0
50	85	C20	M20	17.2	21	28.4	31.3	42	53	59	15	6.4	1.3
85	130	C24	M24	21	25	34.2	38	50	63	68	18	8	1.6
130*	225*	C30	M30*	26.5	31	44	48	60	77	83	17	11	1.9
225*	320*	C36	M36*	32	37	55	60	74	93	99	22	15	2.3
220*	500*	C42	M42*	37.5	43	65	71	84	105	111	26	19	2.7

1)工件加工后最终尺寸　1)Diameter of the finished work piece
*)不是根据GB4459.5–1999确定的尺寸　*) Dimensions not acc.to GB4459.5–1999

九、平键和键槽 Parallel keys and keyways

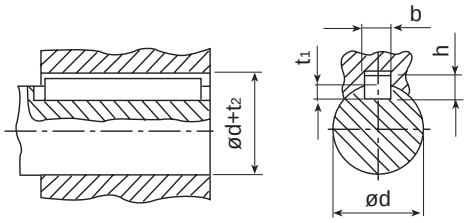
轴与孔配合精度的选择Selection of shaft - hole fit accuracy

轴与孔配合精度的选择 Selection of shaft – hole fit accuracy				
选择ISO配合精度 Selection of ISO fits	轴 shaft d		轴公差 Shaft tolerance	孔公差 Bore tolerance
	大于 Above mm	至 To mm		
轴公差根据OMITER 标准确定 Shaft tolerance acc. To Omiter standard		100	m6	H7
	100		n6	

对于重载工件条件，如带载反向回转，建议采用比较紧密的配合，轮毂槽宽度亦应选择ISOP9公差等级。
For heavy–duty operating conditions,e.g. reversing under load, it is recommended that a tighter fit and for the hub deyway wicth the ISO P9 tolerance is selected.

平键紧固方式，采用无锥度联接。
Drive type fastening without taper action

平键和键槽根据GB/T 1096–2003标准确定
Parallel key and keyway acc.to GB/T1096–2003

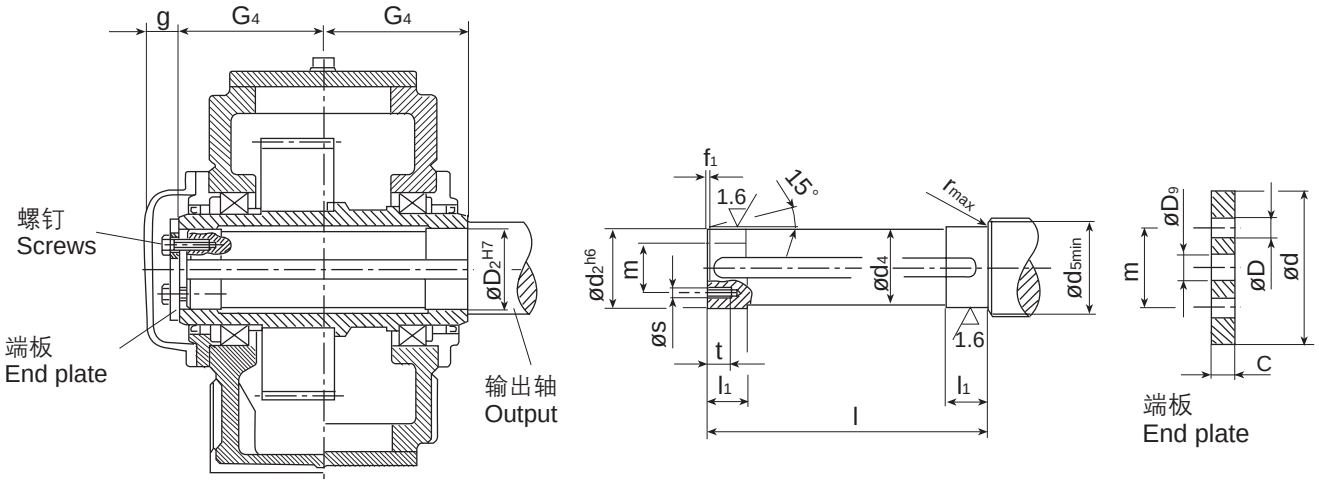


1重载工作条件下轮毂平键键槽宽度b的公差带应按ISOJS9或ISOP9确定。
1) The tolerance zone for the hub keyway width b for parallel keys is ISO JS9,or ISO P9 for heavy–duty operating conditions.

平键 Parallel keys						
	直径 Diameter d		宽度1) Width 1) b 1) mm	高度 Height h mm	轴键槽深度 Depth of keywey in hub t_1 mm	轮毂键槽深度 Depth of keyway in hub $d+t_2$ GB/T1095–1979 mm
	大于 Above mm	至 To mm				
	17	22	6	6	3.5	d+2.8
	22	30	8	7	4	d+3.3
	30	38	10	8	5	d+3.3
	38	44	12	8	5	d+3.3
	44	50	14	9	5.5	d+3.8
	50	58	16	10	6	d+4.3
	58	65	18	11	7	d+4.4
	65	75	20	12	7.5	d+4.9
	75	95	22	14	9	d+5.4
	85	95	25	14	9	d+5.4
	95	110	28	16	10	d+6.4
	110	130	32	18	11	d+7.4
	130	150	36	20	12	d+8.4
	150	170	40	22	13	d+9.4
	170	200	45	25	15	d+10.4
	200	230	50	28	17	d+11.4
	230	260	56	32	20	d+12.4
	260	290	63	32	20	d+12.4
	290	330	70	36	22	d+14.4
	330	380	80	40	25	d+15.4
	380	440	90	45	28	d+17.4

十、带平键联接的空心轴 Hollow Shaft for Parallel Key Connections

类型TLEB3 Type TLEB3
规格 4...18 Sizes 4...18



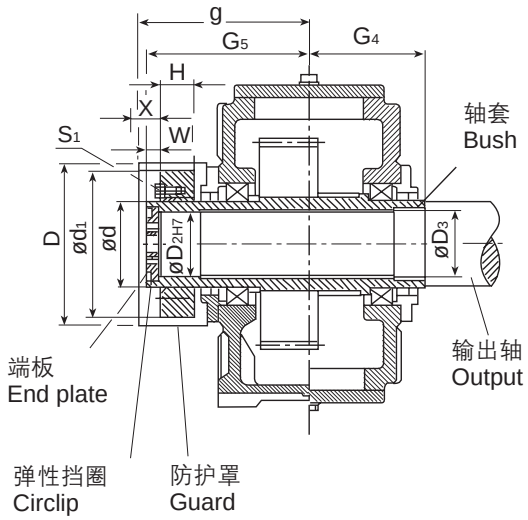
类型TLEH2,TLEH3,TLEH4,TLEB3,TLEB4 Type TLEH2,TLEH3,TLEH4,TLEB3,TLEB4																			
齿轮箱规格 Gear unit size	工作机驱动轴[1] Driven machine shaft									端板 End plate					螺钉 Screw		空心轴 Hollow shaft		
	d_2	d_4	d_5	f_1	l	l_1	r	s	t	c	D	D_9	d	m	规格Size	数量 Qty.	D_3	G_4	G_5
	mm																mm		
4	80h6	79.5	88	4	278	35	1.2	M10	18	10	11	22	100	60	M10x25	2	80	140	35
5	92h6	94.5	105	5	328	40	1.6	M10	18	10	11	26	120	70	M10x25	2	95	165	40
6	105h6	104.5	116	5	328	45	1.6	M10	18	10	11	26	120	70	M10x25	2	105	165	40
7	115h6	114.5	126	5	388	50	1.6	M12	20	12	13.5	26	140	80	M12x30	2	115	195	40
8	125h6	124.5	136	6	388	55	2.5	M12	20	12	13.5	26	150	85	M12x30	2	125	195	40
9	135h6	134.5	147	6	467	60	2.5	M12	20	12	13.5	33	160	90	M12x30	2	135	235	45
10	150h6	149.5	162	6	467	65	2.5	M12	20	12	13.5	33	185	110	M12x30	2	150	235	45
11	165h6	164.5	177	7	537	70	2.5	M16	28	15	17.5	33	195	120	M16x40	2	165	270	45
12	180h6	179.5	192	7	537	75	2.5	M16	28	15	17.5	33	220	130	M16x40	2	180	270	45
13	190h6	189.5	206	7	667	80	3	M16	28	18	17.5	33	230	140	M16x40	2	190	335	45
14	210h6	209.5	226	8	667	85	3	M16	28	18	17.5	33	250	160	M16x40	2	210	335	45
15	230h6	229.5	248	8	756	100	3	M20	38	25	22	39	270	180	M20x55	4	230	380	60
16	240h6	239.5	258	8	756	100	3	M20	38	25	22	39	280	180	M20x55	4	240	380	60
17	250h6	249.5	270	8	826	110	4	M20	38	25	22	39	300	190	M20x55	4	250	415	60
18	275h6	274.5	295	9	826	120	4	M20	38	25	22	39	330	210	M20x55	4	275	415	60

1)工作机驱动轴材质：40Cr或强度更加高的钢。平键不在我们的供货范围之内。如果需要的话，请另行订货。
Material of driven machine shaft:40Cr or higher strength. Parallel key does not belong to our scope of supply. Please order separately,if required.

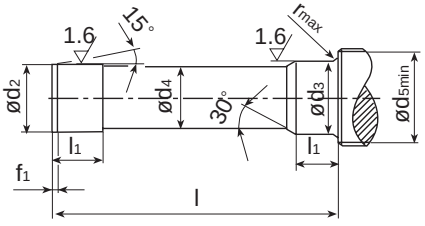
十一、带胀紧盘连接的空心轴 Hollow Shaft For Shrink Disk

类型 TLEB3 TypeTLEB3　规格 4...18 Sizes 4...18

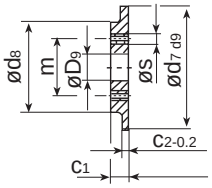
X=要求预留的力矩扳手空间
X=Space required for torque wrench



用于胀紧盘联接的工作机驱动轴。
工作机表面不得沾有机油或润滑脂
Driven machine shaft for shrink disk connection.Driven machine shaft must be free of oil or grease.



工作驱动轴的C型中孔（通孔）由GB145—1985确定。
Driven machine shaft with centre hole form C (tapped hole) acc.to GB145-1985



端板
End plate

齿轮箱规格 Gear unit size	工作机驱动轴[2] Driven machine shaft								端板 End plate								弹性挡圈 Ring Circlip	空心轴 Hollow shaft				胀紧盘[1] Shrink disk					螺钉 Screw
	d_2	d_3	d_4	d_5	f_1	l	l_1	r	c_1	c_2	d_7	d_8	D_9	m	s	数量 Qty.	GB89/ 3.2–86	D_2	D_3	G_4	G_5	类型 Type	d	d_1	H	W	s_1
	mm																mm										
4	$85g_6$	$85h_6$	84.5	95	4	326	48	2	17	7	90	70	22	50	M8	2	90x3	85	85	140	205	110–32	110	185	39	20	M12
5	$100g_6$	$100h_6$	99.5	114	5	383	53	2	20	8	105	80	26	55	M10	2	105x4	100	100	165	240	125–32	125	215	53	20	M12
6	$110g_6$	$110h_6$	109.5	124	5	383	58	3	20	8	115	85	26	60	M10	2	115x4	110	110	165	240	140–32	140	230	58	50	M14
7	$120g_6$	$120h_6$	119.5	134	5	453	68	3	20	8	125	90	26	65	M12	2	125x4	120	120	195	280	155–32	155	263	62	23	M14
8	$130g_6$	$130h_6$	129.5	145	6	458	73	3	20	8	135	100	26	70	M12	2	135x4	130	130	195	285	165–32	165	290	68	23	M16
9	$140g_6$	$145m_6$	139.5	160	6	539	82	4	23	10	130	110	33	80	M12	2	150x4	140	145	235	330	175–32	175	300	68	28	M16
10	$150g_6$	$155m_6$	149.5	170	6	559	92	4	23	10	160	120	33	90	M12	2	160x4	150	155	235	350	200–32	200	340	85	28	M16
11	$165f_6$	$170m_6$	164.5	185	7	644	112	4	23	10	175	130	33	90	M12	2	175x4	165	170	270	400	220–32	220	370	103	30	M20
12	$180f_6$	$185m_6$	179.5	200	7	649	122	4	23	10	190	140	33	100	M16	2	190x4	180	185	270	405	240–32	240	405	107	30	M20
13	$190f_6$	$195m_6$	189.5	213	7	789	137	5	23	10	200	150	33	110	M16	2	200x4	190	195	335	480	260–32	260	430	119	30	M20
14	$210f_6$	$215m_6$	209.5	233	8	784	147	5	28	14	220	170	33	130	M16	2	220x5	210	215	335	480	280–32	280	460	132	30	M20
15	$230f_6$	$235m_6$	229.5	253	8	899	157	5	28	14	240	180	39	140	M16	2	240x5	230	235	380	550	300–32	300	485	140	35	M24
16	$240f_6$	$445m_6$	239.5	263	8	899	157	5	28	14	250	190	39	150	M20	2	250x5	240	245	380	550	320–32	320	520	140	35	M24
17	$250f_6$	$260m_6$	249.5	278	8	982	177	5	30	14	265	200	39	150	M20	2	265x5	250	260	415	600	340–32	340	570	155	35	M24
18	$280f_6$	$285m_6$	279.5	306	9	982	177	5	30	14	290	210	39	160	M20	2	290x5	280	285	415	670	360–32	360	590	162	35	M24

类型TLEH2D,TLEH3D TLEH4D TLEB3D,TLEB4D, Types TLEH2D,TLEH3D TLEH4D TLEB3D,TLEB4D

1)胀紧盘不在我们的供货范围之内。如有需要的话，请另行订货。
Shrik disk does not belong to our scope of supply.Please order separately,if required.
2)工作机驱动轴材质：40Cr或强度更高的钢。根据用户要求，胀紧盘可布置在工作机侧。工作机驱动轴尺寸函索即复。
Material of driver machine shaft:40Cr or higher strength.Shrink disk on machine side on request.Shrink disk is supplied as loose item. Dimensions of machine shaft on request.