



TW
行星内藏式卷扬齿轮箱



TAILONG

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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.

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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”等殊荣。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.

行星内藏式卷扬齿轮箱 wich gearbox

概述Summary:

特点Characteristic

以其优越的品质和性能，在繁重工作条件和恶劣环境下经受过考验，其显著的优点和特点表现在：

- 内置式静态液压行星传动
- 结构紧凑、安全系数大、寿命长、结构模块化
- 安装维护简单、低噪音、高效率、换油方便

您可以将其布置在机械的任何位置上，特别是在窄小的情况下，它更是紧急的解决方案。

With its superior quality and performance, it has been tested under heavy working conditions and harsh environment

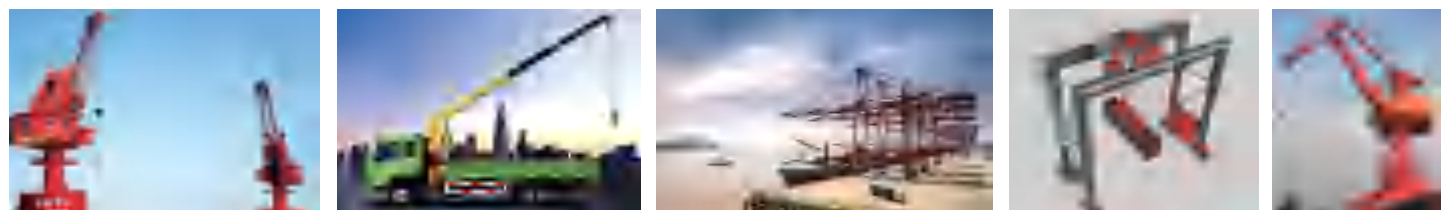
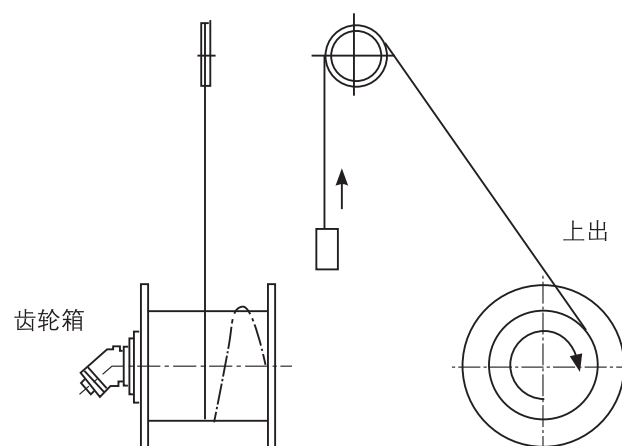
- Built in static hydraulic planetary drive
- Compact structure, large safety factor, long life and modular structure
- Simple installation and maintenance, low noise, high efficiency and convenient oil change

You can place it in any position of the machine, especially in the narrow case, it is an urgent solution.



应用场所 Application site

- | | |
|--------------|---|
| ● 汽车吊 | ● truck crane |
| ● 建筑起重机和输送设备 | ● construction cranes and conveying equipment |
| ● 货运和工作电梯 | ● freight and service elevators |
| ● 装载和转载起重机 | ● loading and unloading cranes |
| ● 船舶和甲板起重机 | ● ship and deck cranes |
| ● 拖车、救险车 | ● trailer and rescue vehicle |
| ● 船厂和港口起重机 | ● shipyard and port cranes |
| ● 海上平台起重机 | ● offshore platform crane |
| ● 集装箱龙门吊 | ● Container gantry crane |
| ● 平板运输车 | ● flatbed transporter |



注意事项！必须严格遵守以下各项！

Note: You must conform to the following instructions

- ▲ 样本中的结构示意图、外形图及其他附图只属范例，无严格比例要求。(未注尺寸单位均为mm)
- ▲ 所注重量仅为平均值，并不具有约束力。
- ▲ 为防止意外事故发生，所有旋转部件均按照使用者所在国家和地区的安全规范由购置方加罩保护。
- ▲ 试车之前必须认真阅读使用说明书。
- ▲ 齿轮箱在供货时已处于准运行状态，运行前需加注润滑油。
- ▲ 说明书中注油量只作为参考值，实际注油量应以油镜上的标记为准。
- ▲ 润滑油粘度应按齿轮箱使用工况及使用环境温度选取。
- ▲ 只能采用国际知名品牌的润滑油。

▲ All the construction figures, dimension drawings and other drawings in the catalogue are only the examples, no strict scale defined. (The unmarked dimension units are mm)

▲ The marked weight is only the average value, no binding.

the local safety regulations and laws.

▲ To avoid the accident, all the rotation components should be covered by customer according to the local safety regulations and laws.

▲ Read the instructions carefully before operating.

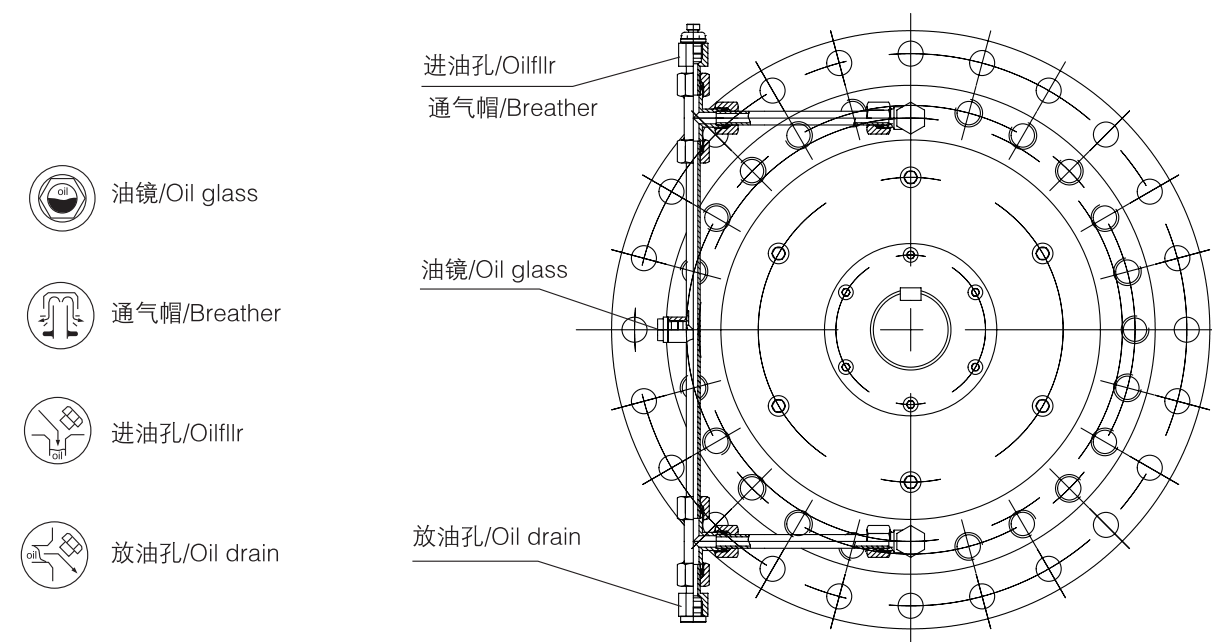
▲ Fill the lubrication oil before running.

▲ The oil quantity in the instructions is only for reference. The actual oil value should be done as the oil glass level.

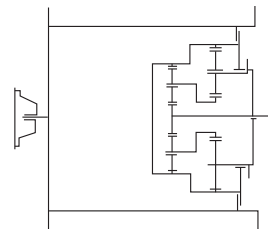
▲ The adhesiveness of lubrication is depended on the operating condition and the ambient temperature.

▲ Only choose the international famous brand lubrication oil.

产品功能标识 The functional label of gearbox

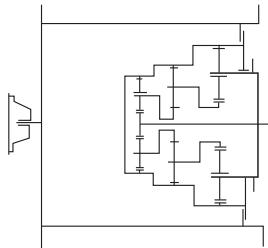


1 结构简图 Design and Construction



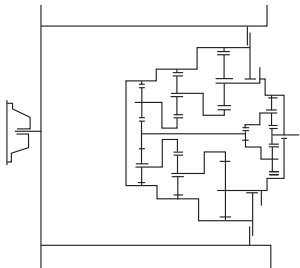
二级行星传动齿轮箱
额定输出扭矩: 11.6至155kN . m
钢丝绳负载: 67至408KN
公称减速比13至28
齿轮箱内置于滚筒
输入与输出旋转方向相反

2 stage planetary gearbox
Output torques: 11.6to 155 KN.m
Rope load; 67 to 408KN
Ratio fromi=13 to 28
Gearbox mounted inside winch drum
Input and output in opposite sense of



三级行星传动齿轮箱
额定输出扭矩: 25至236kN . m
钢丝绳负载: 116至566KN
公称减速比45至141
齿轮箱内置于滚筒
输入与输出旋转方向相反

3 stage planetary gearbox
Output torques: 25 to 236 KN.m
Rope load: 116 to 566 KN
Ratio fromi=45 to 141
Gearbox mounted inside winch drum.
Input and output in opposite sense of rotation



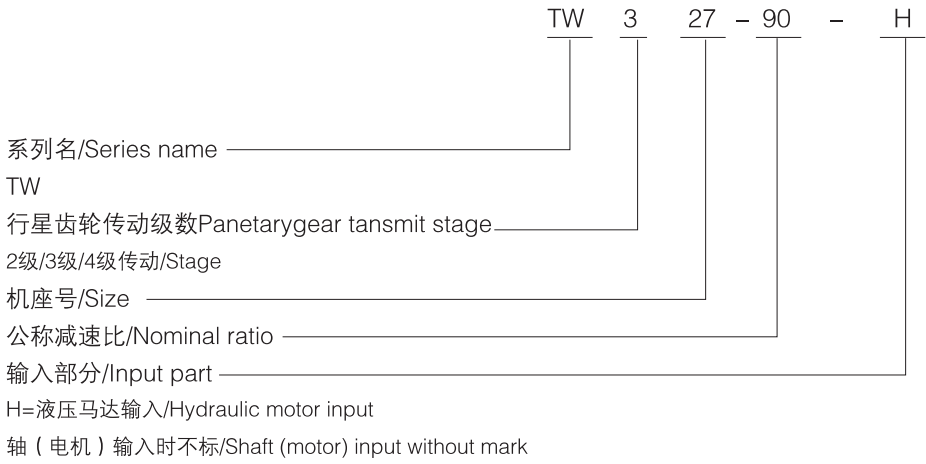
四级行星传动齿轮箱
额定输出扭矩: 47至1500kN . m
钢丝绳负载: 180至1950KN
公称减速比167至940
齿轮箱内置于滚筒
输入与输出旋转方向相反

4 stage planetary gearbox
Output torques: 47 to 1500 KN.m
Rope load: 180 to 1950 KN
Ratio from i=167 to 940
Gearbox mounted inside winch drum.
Input and output in opposite sense of rotaon

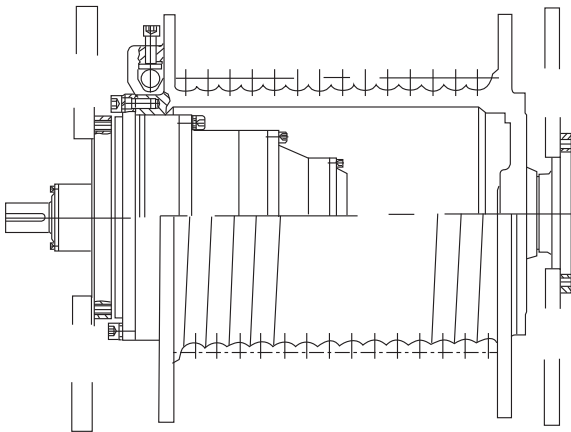
备注:各级传动的机械效率为98%，钢丝绳滚筒轴承及密封圈的机械效率为99%。
例如:两级行星卷扬机的总机械效率为 $\eta = 0.98 \times 0.98 \times 0.99 = 0.95$

Remark: Mechanical efficiency of every stage is 98%, bearings T0 rope drum and the seal rings mechanical efficiency is 99%
For example: the total mechanical efficiency for 2 stage winch planetary gearbox $\eta = 0.98 \times 0.98 \times 0.99 = 0.95$

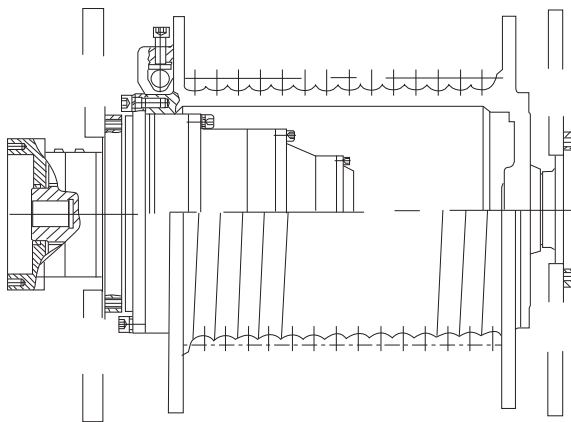
2 型号表示方法 Type description



3 输入方式 Input modes



轴 (电机) 输入，水平安装/Motor input foot mounted



液压马达输入，水平安装/Hydraulic motor input, foot mounted

产品配备电动机、液压马达两种模块化输入系统。
液压马达输入时，输入轴为DIN 5480规格 的花键轴，带具有压力释放弹簧装置的液压多片式驻车制动系统。该制动安全装置是独立的活塞或制动器，其释放压力最小为15bar，最大承压为300bar,系统残留压力小于0.5bar。
详细接口尺寸需和公司技术部门联系确认。

备注:TW全系列行星齿轮内藏式卷扬齿轮箱可适配各种马达，如高速马达(单个或2—3个驱动单元)、摆线马达、低速大扭矩马达，能满足客户不同的应用与需求，具体使用请垂询。

TW with electric motor input and hydraulic motor input.
When hydraulic motor is input, the input shaft is a DIN 5480 spline shaft, equipped with the hydraulic pressure release and loose-spring multi disc brake parking system. This brake safety device is a self contained piston or brake with a minimum release pressure of 15 bar, the maximum pressure is 300 bar. System residual pressure is less than 0.5 bar.

Remark: TW complete range can be equipped with kinds of motors, such as high speed motor Single or 2-3 drive units), cycloidal motor, low speed with big torque motor etc, can meet customer' s different demands. For details, please consult Boneng.

4 选型说明 Type

4.1使用说明 Operation instruction

TW行星齿轮箱额定动态输出扭矩 T_{dynmax} 按欧洲起重机械联合会标准FEM (FEM–Federation Europeenne de la Manutention)第三版第一章，驱动机构等级M5,负载分组L2 (P=常数, =15rpm)，工况等级T5分组设计。工作环境温度+20℃。

如果卷扬机构分级为其它工作级别，则其所需输出扭矩必须采用系数K进行修正。

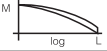
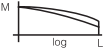
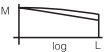
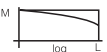
T_2 : 输出扭矩/Outputtorque(N·m)
 F_{nom} :单绳拉力/Single rope pull (N)
 D_w :相应卷绕直径/Rope strands diameter (m)

$$T_2 = \frac{F_{nom} \cdot D_w}{2}$$

T_{2k} :修正后的输出扭矩/output torque with multiplid factor (N . m)
K: 工况系数(设备分组工况系数) /application factor (the relative factor for drive unit group and load conditions)
 $T_{2k} = T_2 \cdot K$
注:齿轮箱选型时 T_{2k} 必须 $\leq T_{dyn\ max}$ (设计扭矩或样本扭矩) Note: $T_{2k} \leq T_{dyn\ max}$ (design torque or sample torque)

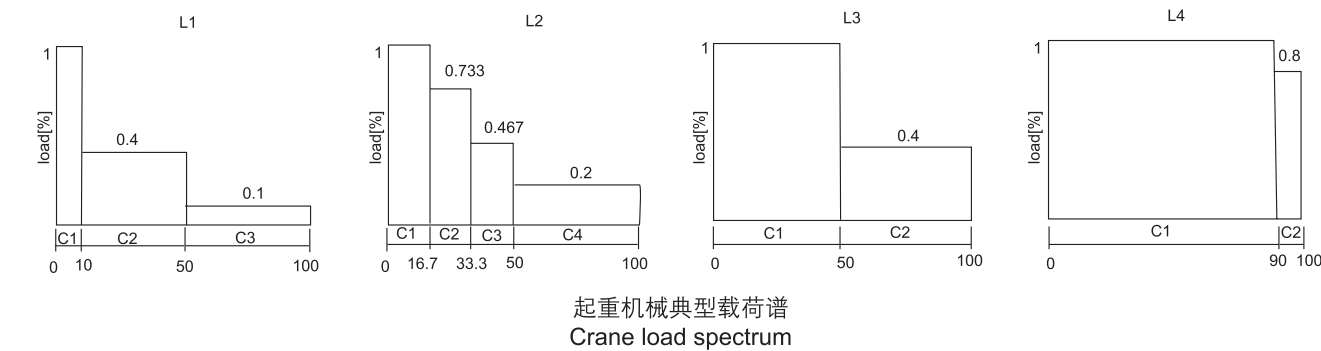
4.2 工况系数（机构利用等级和载荷状态分级）

Applicaiton factor K(running time classification and load conditions)

工况等级 Running time classification	运行时间级别/Symbol	T2	T3	T4	T5	T6	T7	T8
	一年内，日平均工作时间（小时） Mean running time per day in hours,related to one year	0.25至/to 0.5	0.5至/to 1	1至/to 2	2至/to 4	4至/to 8	8至/to 16	多于/Over 16
	使用寿命（小时）8年，200天/年 Life in hours 8 years,200 days/year	400至/to 800	800至/to 1600	1600至/to 3200	3200至/to 6300	6300至/to 12500	12500至/to 25000	25000至/to 50000
负载情况 Load conditions	集合系数/Collective coefficient Km	设备分组工况系数/Drive unit class Application Factor K						
L1	 至/to 0.125	M1 0.90	M2 0.90	M3 0.90	M4 0.92	M5 0.92	M6 1.1	M7 1.36
L2	 0.125至/to 0.250	M2 0.90	M3 0.92	M4 0.96	M5 1	M6 1.07	M7 1.3	M8 1.6
L3	 0.250至/to 0.500	M3 1.05	M4 1.09	M5 1.17	M6 1.23	M7 1.28	M8 1.53	M8 1.89
L4	 0.500至/to 1.000	M4 1.32	M5 1.36	M6 1.46	M7 1.53	M8 1.58	M8 1.8	M8 2.22

4.3 起重机械典型载荷谱

Typical load spectrum for crane



6.1 Operation instruction

TW rated dynamic output torques $T_{dyn\ max}$ are based on FEM Standards section 1, 3rd edition (FEM - Federation Europeenne de la Manutention). Drive unit group M5, load conditions L2 (P=constant, =15rpm), running time classification T5. Ambient temperature +20 °C.

If the hoisting winch is classified as other working grades, the output torque must be multiplied by the factor K.

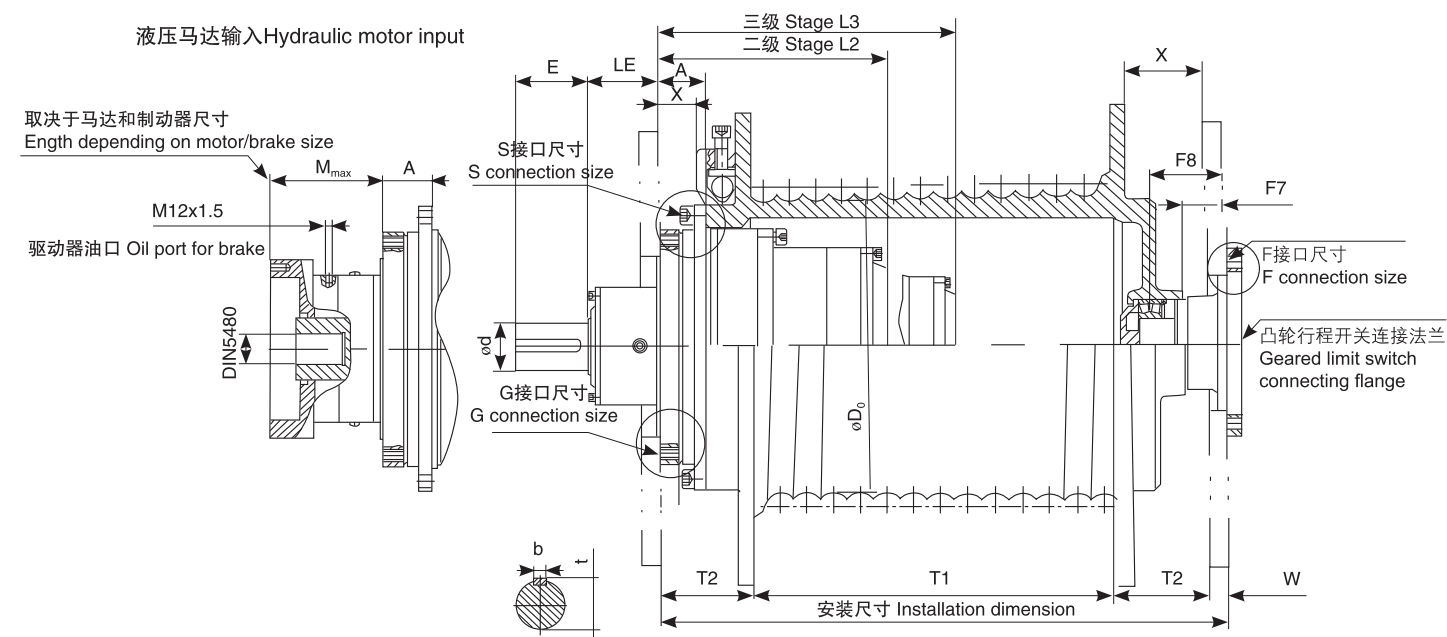
4.4设备分级指导 参见FEM标准第三版第一章

Classification Guidance According FEM section 1,3rd edition

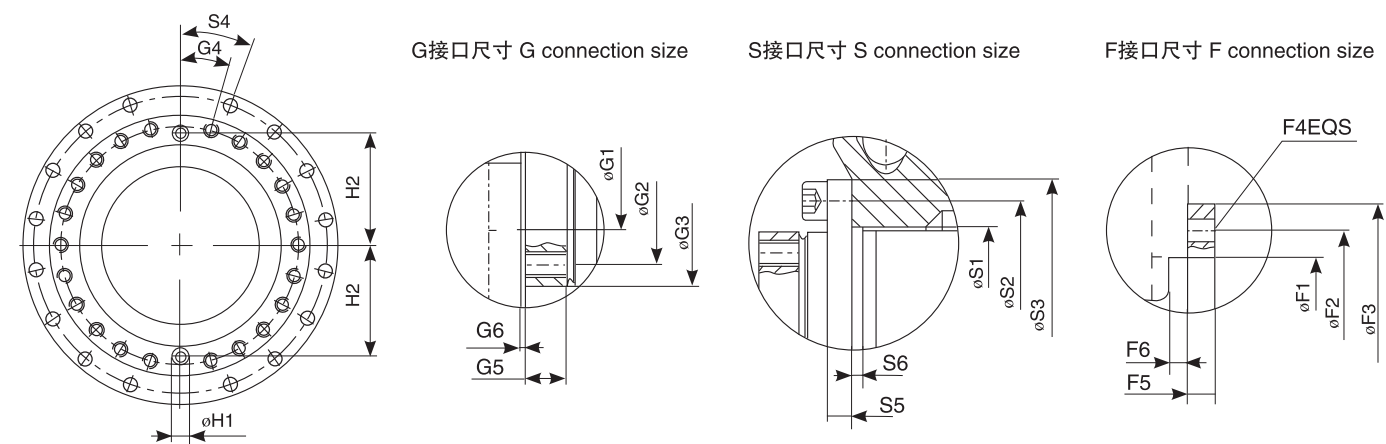
起重机类型/ Type of Crane (name)	工作元件 Working accessories	驱动机构类型/Type of mechanism				
		起升 Hoisting	回转 Slewing	变幅 Luffing	小车运行 Traverse	大车运行 Travel
安装用起重机/ Erection cranes		M2-M3	M2-M3	M1-M2	M1-M2	M2-M3
桥式起重机/ Bridge crane	吊钩/Hook duty	M5-M6	M4	—	M4-M5	M5-M6
桥式起重机/ Bridge crane	抓斗或磁铁 Grab or magnet	M7-M8	M6	—	M6-M7	M7-M8
车间用起重机/ Workshop cranes	抓斗或磁铁 Grab or magnet	M6	M4	—	M4	M5
天车，夯锤起重机。废钢场起重机 Crane, Ram crane, Scrap mill crane	吊钩或磁铁 Hook or magnet	M8	M6	—	M6-M7	M7-M8
卸料桥，集装箱用门式起重机 Unloading bridge, Container gantry crane	吊钩/Hook	M6-M7	M5-M6	M3-M4	M6-M7	M4-M5
其它门式起重机(带小车和/或转台) Other gantry crane(with crab and/or slewing jib crane)	抓斗或磁铁 Grab or magnet	M4-M5	M4-M5	—	M4-M5	M4-M5
卸料桥，集装箱用门式起重机 (带小车或转台) Unloading bridge, Container gantry crane(with crab and/or slewing jib crane)	吊钩/Hook	M8	M5-M6	M3-M4	M7-M8	M4-M5
船台起重机船坞起重机，拆卸用起重机 Shipyards crane, Dock crane, Disassembly crane	吊钩/Hook	M5-M6	M4-M5	M4-M5	M4-M5	M5-M6
港口起重机(可转动，门式)，浮式起重机浮式起重架 Docksides cranes (slewing, on gantry, etc., floating cranes and pontoon derricks		M6-M7	M5-M6	M5-M6	—	M3-M4
港口起重机(可转动，门式)，浮式起重机，浮式起重架 Docksides cranes (slewing, on ganty, etc., floating cranes and pontoon derricks	抓斗或磁铁 Grab or magne	M7-M8	M6-M7	M6-M7	—	M4-M5
浮式起重机和浮式起重架，用于非常高的负荷 (一般在100t以上) Floating cranes and pontoon derricks for very heavy oads (usually greater than 100 t)		M3-M4	M3-M4	M3-M4	—	—
甲板起重机/Deck cranes	吊钩/Hook	M4	M3-M4	M3-M4	M2	M3
甲板起重机/Deck cranes	抓斗或磁铁 Grab or magnet	M5-M6	M3-M4	M3-M4	M4-M5	M3-M4
塔式起重机用于建筑工地 Tower cranes for building		M4	M5	M4	M3	M3
门式塔架/ Derricks		M2-M3	M1-M2	M1-M2	—	—
铁路起重机，批准用于铁路维修 Railway cranes allowed to run in train		M3-M4	M2-M3	M2-M3	—	—
车辆起重机/ Mobile cranes	吊钩/Hook	M3-M4	M3-M4	M2-M3	—	—

备注：仅列出了卷扬机构的一些典型应用仅供参考 Note:Above are only some typical applications for hoisting winch.

5 外形尺寸 Dimension drawing



型号 Type TW	公称数据输出扭矩 Nominal gearbox ratings output torque(KN.m)			G接口尺寸G Flange connection 齿轮箱与钢结构连接螺栓强度等级 10.9 10.9 Gearbox to frame bolts class 10.9						S接口尺寸S Flange connection 齿轮箱与滚筒连接螺栓强度等级 8.8 8.8 Gearbox to drum bolts class 8.8						F接口尺寸F Flange connection 滚筒法兰与钢结构连接螺栓强度等级 8.8 8.8 Gearbox to frame bolts class 8.8							
	T动态 单绳	T静态 最大	单绳 拉力	G1	G2	G3	G4	G5	G6	S1	S2	S3	S4	S5	S6	F1	F2	F3	F4	F5	F6	F7	F8
	Tdyn max	Tstatic max	Fnom KN	止口 Location	分度圆 Pitch diameter	外径 Outer diameter	分度 Fixing			止口 Location	分度圆 Pitch diameter	外径 Outer diameter	分度 Fixing			止口 Location	分度圆 Pitch diameter	外径 Outer diameter	分度 Fixing				
20	11.6	18.5	69	200h7	255±0.2	285	20° 16°M16	25	5	295h7	320±0.2	340	15° 24°ø14	12	9	175h7	200±0.2	225	60° 6°ø11	15	10	30	64
22	19.4	31	98	230h7	280±0.2	315	15° 22°M16	25	5	330h7	360±0.2	390	20° 18°ø18	16	9	200h7	230±0.2	260	60° 6°ø14	18	12	35	71
24	25.5	41	119	270h7	320±0.2	355	15° 22°M16	25	5	370h7	400±0.2	430	15° 24°ø18	16	9	200h7	230±0.2	260	60° 6°ø14	18	12	35	71
25	36	57.5	147	300h7	350±0.2	385	15° 22°M20	30	5	400h7	440±0.2	480	20° 18°ø22	20	9	230h7	260±0.2	290	60° 6°ø18	18	15	40	78
26	48	77	184	330h7	390±0.2	425	15° 22°M20	30	5	440h7	480±0.2	520	15° 24°ø22	20	9	260h7	310±0.2	360	60° 6°ø22	25	15	50	92
27	63	101	220	355h7	420±0.2	460	15° 22°M24	38	5	470h7	520±0.2	560	20° 18°ø26	24	9	260h7	310±0.2	360	60° 6°ø22	25	15	50	92
29	105	168	313	430h7	480±0.2	530	15° 22°M24	38	5	550h7	590±0.2	630	15° 24°ø26	24	9	300h7	350±0.2	400	60° 6°ø22	30	15	50	104
31	155	248	408	515h7	565±0.2	615	15° 24°M30	47	5	640h7	690±0.2	750	15° 24°ø33	30	9	325h7	375±0.2	425	60° 6°ø26	35	15	70	134
32	236	377	566	580h7	630±0.2	680	15° 24°M30	47	5	700h7	755±0.2	815	15° 24°ø23	30	9	325h7	375±0.2	425	60° 6°ø26	35	15	70	134
33	311	497	660	670h7	720±0.2	770	12° 30°M30	47	5	790h7	840±0.2	890	12° 30°ø33	30	9	375h7	435±0.2	500	60° 6°ø33	40	15	80	144
34	406	649	787	720h7	770±0.2	820	10° 36°M30	47	5	850h7	900±0.2	950	10° 36°ø33	30	9	375h7	435±0.2	500	60° 6°ø33	40	15	80	144
36	644	1030	1073	840h7	900±0.2	960	10° 36°M36	56	5	1000h7	1055±0.2	1120	10° 36°ø39	36	9	430h7	490±0.2	550	60° 6°ø33	40	15	90	180
38	1100	1760	1520	1060h7	1140±0.2	1210	10° 36°M30	78	26	1240h7	1320±0.2	1390	10° 36°ø33	45	13	600h7	680±0.2	750	30° 12°ø33	50	20	80	180
40	1500	2400	1950	1160h7	1240±0.2	1310	10° 36°M30	78	26	1340h7	1420±0.2	1490	10° 36°ø33	45	13	600h7	680±0.2	750	30° 12°ø33	50	20	80	180



安装尺寸Installation dimension																								型号 Type TW
轴（电机）输入/shaft (motor)input									液压马达 输入 Hydraulic motor input Mmax	A	L		T1min		D ₀ 近似/ approx min	X min	T ₂	W 推荐 suggestion	油管接口 Oil pump connection		重量Weight (kg)			
2级/Stage			3级/Stage			4级/Stage																		
d	E	LE	d	E	LE	d	E	LE				2级/ stage L2	3级/ stage L3	2级/ stage	3级/ stage					H1	H2	2级/ stage	3级/ stage	
55m6	110	98.5	-	-	-	-	-	-	183	60	300	-	240	-	340	15	95	15	26	117	120	-	-	20
55m6	110	85	-	-	-	-	-	-	171	60	315	-	255	-	390	15	100	15	26	132	140	-	-	22
75m6	140	135.5	65m6	140	117.5	-	-	-	207	60	350	489	290	430	440	20	100	20	26	152	210	245	-	24
75m6	140	118	65m6	140	100	-	-	-	189	75	366	506	295	435	480	20	120	20	30	168	245	275	-	25
95m6	170	139.5	65m6	140	104.5	65m6	140	238	209	75	426	555	355	480	520	20	120	20	30	184	365	385	415	26
95m6	170	135	65m6	140	100	65m6	140	233.5	204	90	431	560	345	475	570	20	140	20	30	195.5	400	415	445	27
110m6	210	165	95m6	170	165	75m6	140	281	209	90	507	685	420	595	670	25	145	25	30	233	630	720	730	29
110m6	210	142	95m6	170	142	75m6	140	258	186	110	530	708	425	600	770	30	180	30	38	235	805	890	920	31
-	-	-	110m6	210	130	75m6	140	251	321	110	-	800	-	695	830	30	180	30	38	268	-	1320	1360	32
-	-	-	-	-	-	110m6	210	381	462	110	-	928	-	820	930	40	180	40	38	298	-	-	1970	33
-	-	-	-	-	-	110m6	210	377.5	458	120	-	932	-	815	1030	40	200	40	38	335	-	-	2195	34
-	-	-	-	-	-	110m6	210	264	345	120	-	1045	-	970	1200	50	240	50	38	385	-	-	2920	36
-	-	-	-	-	-	160m6	300	421	457	130	-	1415	-	1320	1360	50	240	60	45	497	-	-	6650	38
-	-	-	-	-	-	160m6	300	392	307	130	-	1444	-	1650	1530	50	240	60	45	545	-	-	7660	40

1)H1, H2在结构上留有通孔用于通气和放油, 用户卷筒支撑板要留孔便于油管通过, 具体尺寸请垂询。

1) H1 and H2 have through holes in the structure for ventilation and oil discharge. The user's drum support plate should have holes for the oil pipe to pass through. Please consult for the specific size.

6 速比与承载能力 Ratio and carrying capacity

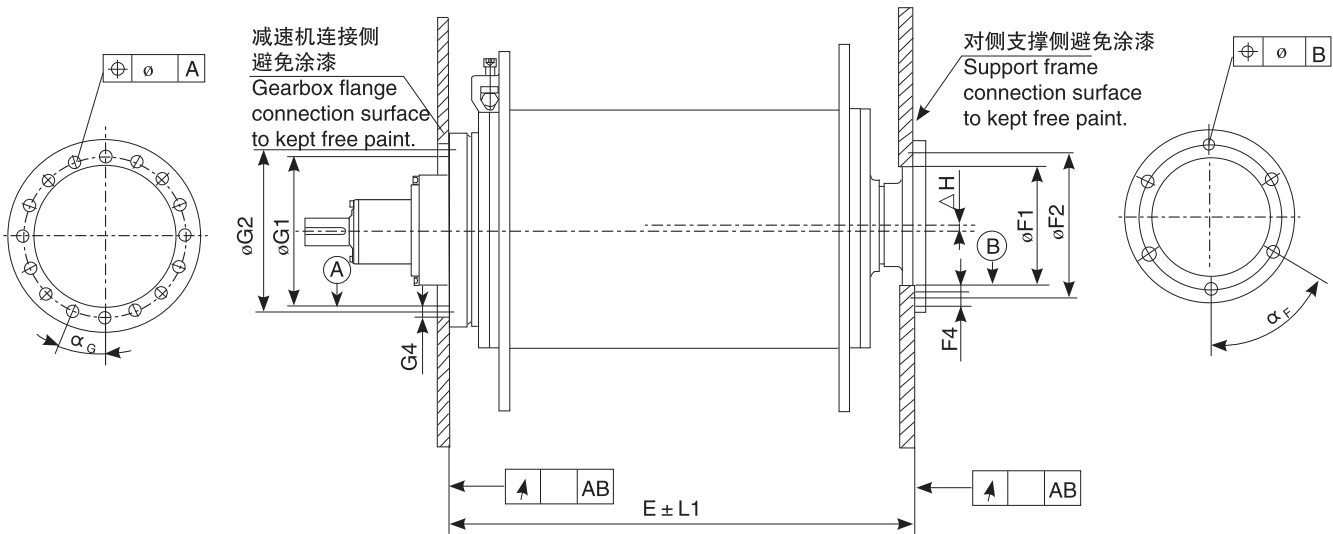
公称减速比 Nominal ratio	型号Type TW	20	22	24	25	26	27	29	31	32	33	34	36	38	40
i_N	T动dynamic kN·m	11.6	19.4	25.5	36	48	63	105	155	236	311	406	644	1100	1500
	T静Static kN·m	18.5	31	41	57.5	77	101	168	248	377	497	649	1030	1760	2400
13	2级Stage	☆	☆	☆	☆	☆	☆	☆	☆						
15		☆	☆	☆	☆	☆	☆	☆	☆						
18		☆	☆	☆	☆	☆	☆	☆	☆						
20		☆	☆	☆	☆	☆	☆	☆	☆						
23		☆	☆	☆	☆	☆	☆	☆	☆						
28		☆	☆	☆	☆	☆	☆	☆	☆						
45	3级Stage			☆	☆	☆	☆	☆	☆	☆					
52				☆	☆	☆	☆	☆	☆	☆					
59				☆	☆	☆	☆	☆	☆	☆					
71				☆	☆	☆	☆	☆	☆	☆					
79				☆	☆	☆	☆	☆	☆	☆					
84				☆	☆	☆	☆	☆	☆	☆					
90				☆	☆	☆	☆	☆	☆	☆					
105				☆	☆	☆	☆	☆	☆	☆					
120	4级Stage			☆	☆	☆	☆	☆	☆	☆					
141				☆	☆	☆	☆	☆	☆	☆					
167						☆	☆	☆	☆						
192						☆	☆	☆	☆	☆	☆	☆			
220						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
262						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
273						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
293						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
313						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
334						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
349	4级Stage					☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
374						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
393						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
417						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
445						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
476						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
509						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
532						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
559						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
594						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
625	4级Stage					☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
678						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
699						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
798						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
841						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆
940						☆	☆	☆	☆	☆	☆	☆	☆	☆	☆

备注Note: 1.未注减速比请垂询! For ratios not listed,please contact!
2.上表中扭矩Tdyn不能作为连续工作制场所时选型依据,一般仅为上表的1/2左右,详情请垂询。
The torque tdyn in the above table can not be used as the basis for the selection of continuous working places. Generally, it is only about 1 / 2 of the above table. Please contact us for details.

7 安装要求 Assemble method

为了保证卷扬机的正常运转,卷扬齿轮箱与支撑钢结构的安装孔必须对中,并且法兰安装面必须与其垂直。
钢结构安装孔与法兰安装面之间的相对位置在工作中、环境影响及外力作用下不允许有过大的改变。卷扬机支撑钢结构的制造公差及允许的最大变形见下表。

To ensure correct operation of the winch, the winch gearbox must be in the same line with the frame fixing hole centers and the flange pieces square to the base plate. The relative location between mounting central hole and flange mounting surface shouldn't be changed more when they are operating in different environment and outer force, The working tolerance and allowed max. deflectionad the support frame are given in the accompanying table.



型号 Type TW	齿轮箱连接侧 Gearbox flange connection			对侧支撑侧 Support frame connection			L1	组装长度L1上中轴线的最大允许偏差 ΔH Maximum permitted deciation ΔH from the central line in relation to L1							型号 Type TW
	 AB	 ϕ A	α_G	 AB	 ϕ B	α_F		250	500	750	1000	1500	2000	2500	
20	0.1	0.4	20°	0.2	0.3	60°	2	0.1	0.2	0.2	0.3	0.4			20
22	0.1	0.4	15°	0.2	0.3	60°	2		0.2	0.2	0.3	0.4			22
24	0.1	0.4	15°	0.2	0.3	60°	2			0.2	0.3	0.4	0.5		24
25	0.1	0.5	15°	0.4	0.5	60°	2			0.2	0.3	0.4	0.5		25
26	0.1	0.5	15°	0.4	0.5	60°	3			0.2	0.3	0.4	0.5		26
27	0.1	0.5	15°	0.4	0.5	60°	3				0.3	0.4	0.5		27
29	0.1	0.5	15°	0.4	0.5	60°	3				0.3	0.4	0.5		29
31	0.2	0.5	15°	0.6	0.5	60°	3				0.3	0.4	0.5		31
32	0.2	0.5	15°	0.6	0.5	60°	3				0.3	0.4	0.5	0.7	32
33	0.2	0.5	12°	0.6	0.5	60°	3				0.3	0.4	0.5	0.7	33
34	0.2	0.5	10°	0.6	0.5	60°	3				0.3	0.4	0.5	0.7	34
36	0.3	0.5	10°	0.8	0.5	60°	3				0.3	0.4	0.5	0.7	36
38	0.3	0.5	10°	0.8	0.5	30°	3					0.4	0.5	0.7	38
40	0.3	0.5	10°	0.8	0.5	30°	3					0.4	0.5	0.7	40

8 润滑说明 Lubrication

8.1润滑油推荐表 Lubricating oil recommendation table

润滑油(重负荷工业齿轮油)粘度牌号选用

Lubrication viscosity (heavy industrial gear oil)

环境温度/Ambient temperature°C	-20°C~+40°C	+30°C~+50°C
粘度牌号/Viscosity	VG320	VG460

注: 1.支撑结构轴端轴承采用脂润滑。

2.上表中粘度牌号为40°C温度下的ISO– VG粘度。

3.环境温度低于–10°C必须使用合成油。

4.为保证产品寿命，实际使用中建议使用合成油。

5.若环境温度超出上述范围，敬请垂询。

Note: 1.The bearing on the support frame is lubricated by grease.

2. Above table viscosity is only for the temperature under 40°C.

3. Ambient temperature is -10°C, must use synthetic oil.

4. To make sure the long using life, we suggest to use synthetic oil.

5. If the ambient temperature is not in the range of table, please consult TAILONG.

8.2 油量表Oil level:

油量表Oil level(L)														
机型Gear unit type	TW20	TW22	TW24	TW25	TW26	TW27	TW29	TW31	TW32	TW33	TW34	TW36	TW38	TW40
级数Stage														
2	3	3	5	6	9	10	16	19	–	–	–	–	–	–
3	–	–	6	7	10	11	20	22	33	–	–	–	–	–
4	–	–	–	–	11	12	21	23	35	60	62	75	185	205

注: 1.减速机一般都不带润滑油出厂，在设备运行前，请先加入合适的润滑油。

2.表中润滑油量为参考值，润滑油液位应达到润滑硬管油镜中部。

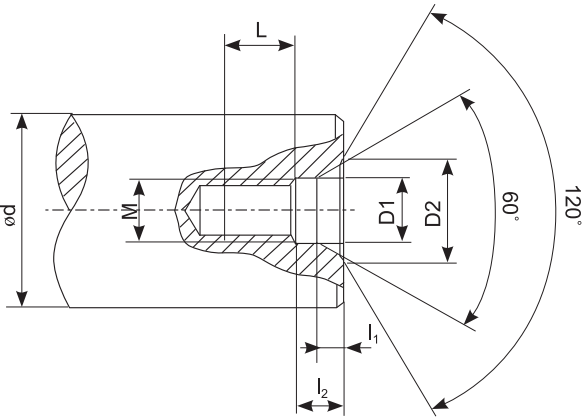
Note:

1. The reducer is usually delivered without lubricating oil. Please add proper lubricating oil before the equipment is running.

2. The amount of lubricating oil in the table is the reference value, and the lubricating oil level should reach the middle of the oil mirror of the lubricating pipe.

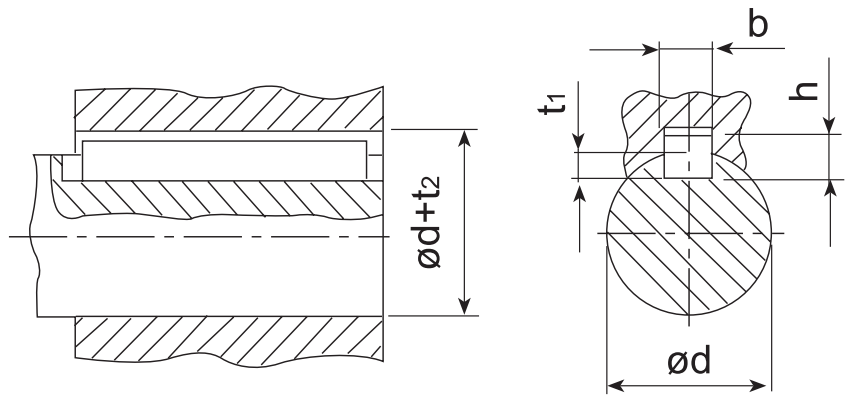
9 轴端中心孔 Shaft end central hole

轴端C型螺纹中心孔/C type screw central hole



d	M	L	l2	l1	D1	D2
7<d≤10	M3	10	2.6	1.8	3.2	5.8
10<d≤13	M4	10	3.2	2.1	4.3	7.4
13<d≤16	M5	10	4	2.4	5.3	8.8
16<d≤21	M6	12	5	2.8	6.4	10.5
21<d≤24	M8	12	6	3.3	8.4	13.2
24<d≤30	M10	15	7.5	3.8	10.5	16.3
30<d≤38	M12	20	9.5	4.4	13	19.8
38<d≤50	M16	25	12	5.2	17	25.3
50<d≤85	M20	30	15	6.4	21	31.3
85<d≤130	M24	35	18	8	25	38
130<d≤225	M30	45	18	11	31	48

10 平键与键槽尺寸 Key and keyway dimension



d	b	h	t ₁	d+t ₂
8<d≤10	3	3	1.8	d+1.4
10<d≤12	4	4	2.5	d+1.8
12<d≤17	5	5	3	d+2.3
17<d≤22	6	6	3.5	d+2.8
22<d≤30	8	7	4	d+3.3
30<d≤38	10	8	5	d+3.3
38<d≤44	12	8	5	d+3.3
44<d≤50	14	9	5.5	d+3.8
50<d≤58	16	10	6	d+4.3
58<d≤65	18	11	7	d+4.4
65<d≤75	20	12	7.5	d+4.9
75<d≤85	22	14	9	d+5.4
85<d≤95	25	14	9	d+5.4
95<d≤110	28	16	10	d+6.4
110<d≤130	32	18	11	d+7.4
130<d≤150	36	20	12	d+8.4
150<d≤170	40	22	13	d+9.4
170<d≤200	45	25	15	d+10.4
200<d≤230	50	28	17	d+11.4
230<d≤260	56	32	20	d+12.4

11 设计参数表 Parameter table

公司名称/Company name: _____

地址/Address: _____

联系人/Contact: _____

电话/Tel: 传真/Fax: _____

应用/Application: _____ (举例e.g.岸桥/Quaycrane, 克令吊/crane, 汽车吊/mobile crane, 船载起重等/ship off shrore harhoe cranes)

用于/Used for: _____ (举例/e.g.主卷扬/Hoisting, 副卷扬luffing, 牵引机pulling winch)

工况概述/Operating condition	技术参数Technical data
卷筒上拉力(第一层) /Drum over pull (first rope layenF1: [KN]	卷筒直径/Diameter of rope drum:[mm]
最外层拉力/Top rope layer line pull F2:	(第一层/first rope layer)
最大测试载荷第() 层Max testingloadingnumberofropelayerF:[KN]	钢丝绳直径/Rope diameter d:[mm]
额定载荷下绳的速度/Rope speed with rated loading V:[m/min]	卷筒螺旋方向/Drum lead:: ☐ 右/right ☐ 左/left
空载时绳的速度/Rope speed without loading V:[m/min]	☐ 普通绳槽/normal groove
卷筒上绳的数量/Rope numbers on the drum n:	☐ 特殊绳槽/special groove
卷筒上总的绳拉力/Total line pull at drum F:[KN]	☐ 光筒/grooveless
钢丝绳长度/RopelengthLs:[mm] (including 3 safety turns)	钢丝绳固定位置/Position of rope anchor: ☐ 齿轮箱驱动端/driveside ☐ 齿轮箱驱动端对面/opposite to drive
速比/Ratio i:	卷筒长度或两档板间距/Lenghofdrumbtveenangesl2 :[mm]

分类按/Classify as FEM1 .001---ISO4301

设备分组/Drive unit group M: _____

起重等级/The load spectrum L: _____

工作时间等级/Running time classification T: _____

驱动单元/Drive unit _____

☐电机驱动/electric motor drive:
型号/Type: _____
功率/Power P: _____[KW]
额定转速i/Rated speed n: _____[rpm]
启动转矩/Starting torque MA: _____[Nm]
极限转矩/Breakdown torque Tk: _____[Nm]
启动时间/Starting time ED: _____[%]
每小时启动/Starting per hour: _____

☐液压马达驱动/hydraulic motor drive
型号/Type: _____
有效流量/Available oil flow q_v : _____[L/min)
有效压力差/Available pressure difference ΔP: _____[bar]
排量/DisplacementV : _____[cm³]

制动/Brake	
类型/Apply ☐ 驻车制动/parking brake	应用类型/Actuation ☐ 液压 /hydraulically 工作压力最小/Min. release pressure _____[bar] 工作压力最大/Max. release pressure _____[bar]
☐ 工作制动/service braking	☐ 电力/磁力 electric/ magnetic

- ☐齿轮箱/gearbox
- ☐液压马达/hydraulic motor
- ☐制动器/brake
- ☐电机/motor

备注和特殊要求/Remarks and special requests: _____

