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SC200/200BZ-A中速变频施工升降机

SC200/200BZ-A Mid-speed Freq

Conversion Construction Hoist

# 技术标书

## Tender Book

中联重科建筑起重机械有限责任公司







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SC200/200BZ-A(4S2063)中速变频施工升降机  
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## 1. 公司简介 Introduce of Zoomlion

中联重科股份有限公司（简称中联重科）专业从事工程机械研发、制造与销售，产品覆盖建筑及工程起重设备、混凝土机械、高等级公路施工及养护设备等领域，为全球产品链最齐备的工程机械企业。中联重科携世界顶尖的行业技术、13大类别、66个产品系列、800多个品种的工程机械产品和全球研发、制造和营销服务体系，为客户提供工程机械整体解决方案。公司成立20年来，年均复合增长率超过65%，为全球增长最为迅速的工程机械企业，现有员工19000多人，2011年在全球工程机械行业排名第七位，在中国机械工业100强排名第五。

Zoomlion heavy industry science and technology co., ltd (Zoomlion for short) is specialized in researching, manufacturing and selling of construction machinery, such as hoisting equipment of construction and engineering, concrete machinery, equipment for highway construction or maintenance, etc. There are 13 types, 66 series and more than 800 kinds of products in Zoomlion with advanced technical, global research, manufacture and marketing system, which is convenient to provide service for users. The compound growth rate is larger than 65% in the 20 years from the company set up. It grows the fastest in the world in construction machinery industry. There are at least 19000 employers. It ranks 7th in global construction machinery industry, and ranks 5th in 100 top mechanical industry in china.

中联重科拥有多年施工升降机设计与研究经验，是施工升降机技术归口单位，行业技术覆盖率达80%。Zoomlion owns rich experience in design and research construction hoist. It is specialized department of construction hoist technical. The coverage fraction of the construction hoist technical is 80% in Zoomlion.

## 2. 遵循的主要标准 Main standard followed

GB/T 3811—2008	《起重机设计规范》<Design rules for cranes>
GB 26557—2011	《吊笼有垂直导向的人货两用施工升降机》<Builders hoists for persons and materials with vertically guided cage>
EN 12159-2012	《带垂直导轨式吊笼的人货两用施工升降机》(当产品铭牌标注CE标识时)<Builders hoists for persons and materials with vertically guided cage> (When there are CE sign on the name plate)

## 3. 产品概述 Summarize

中速施工升降机 4S2063 在安全、智能、节能、人性化四个方面做了进一步提升。主要细分为：1、防坠落、防溜车、用电安全等安全方面的提升；2、人脸识别、故障自诊、自动平层等智能方面的提升；3、减速机传动系统效率高、使用维护成本低等节能方面的提升；4、吊笼运行平稳噪音小、滚轮及背轮的全防松免润滑设计等人性化方面的提升。

中速施工升降机 4S2063 产品的诞生，将进一步扩大公司在施工升降机行业的领先地位。

Mid-speed 4S2063 construction hoist has been further improved in the security, intelligence,

energy-saving and humanized. The main subdivisions are: 1, safe aspect upgraded, such as anti-falling, anti-sliding and electrical safety etc. 2, intelligent upgraded, such as face recognition, fault self-diagnosis and automatic flat layer etc. 3, energy-saving upgraded, such as the high efficiency transmission system of reducer and low maintenance cost etc. 4, humanized upgraded, such as hoist stable operation and low noise, full anti-loose and non-lubrication design of the back wheel and idler wheel etc.

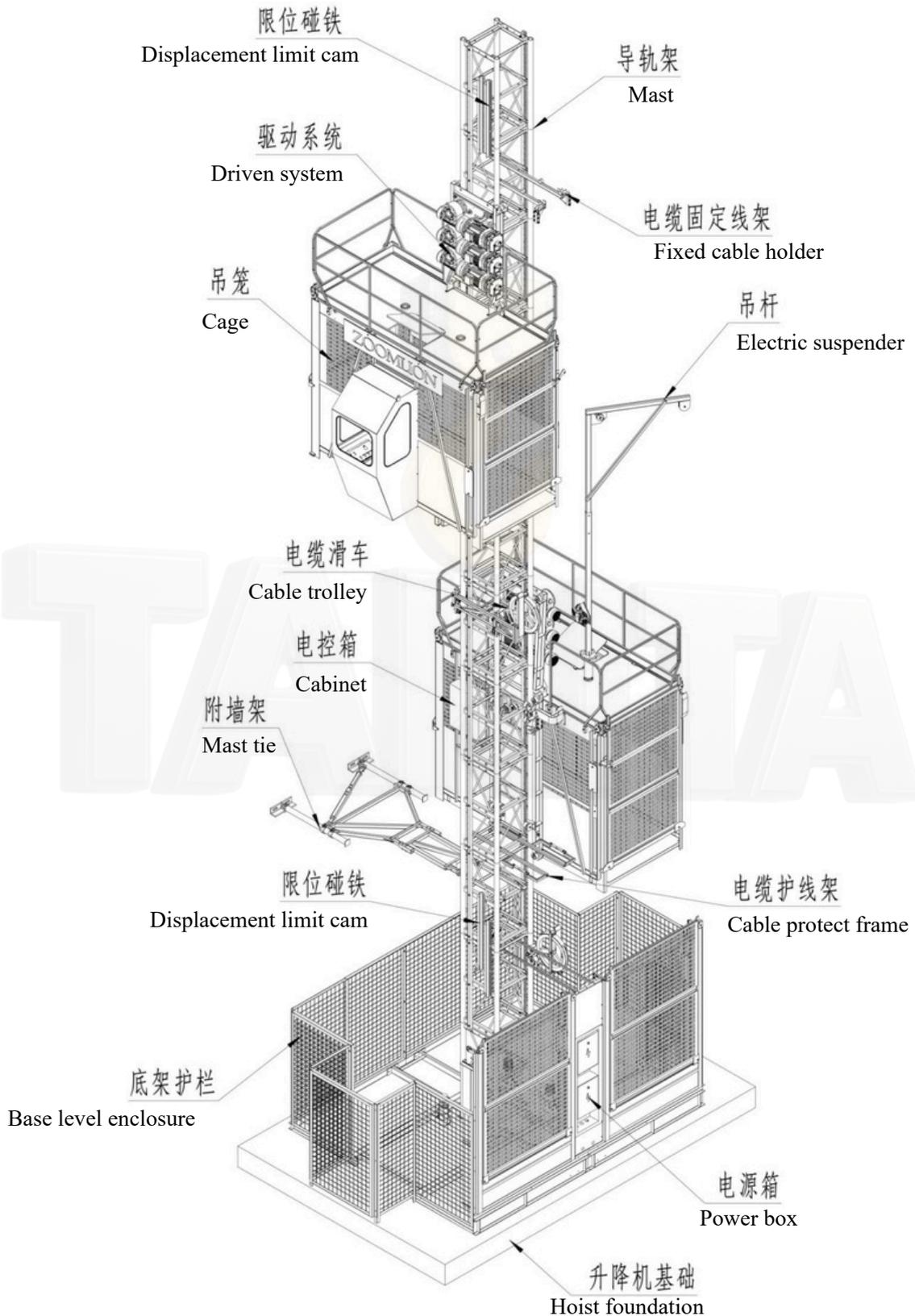
While the burned of Mid-speed 4S2063 construction hoist will enlarge the leader position in construction hoist market.



#### 4. 简图Overall drawing of construction hoist

##### 4.1 中联重科SC200/200BZ-A(4S2063) (电缆滑车式) 示意图

Overall drawing of SC200/200BZ-A(4S2063) construction hoist (type of cable trolley guide).



## 5. 主要参数 main parameters

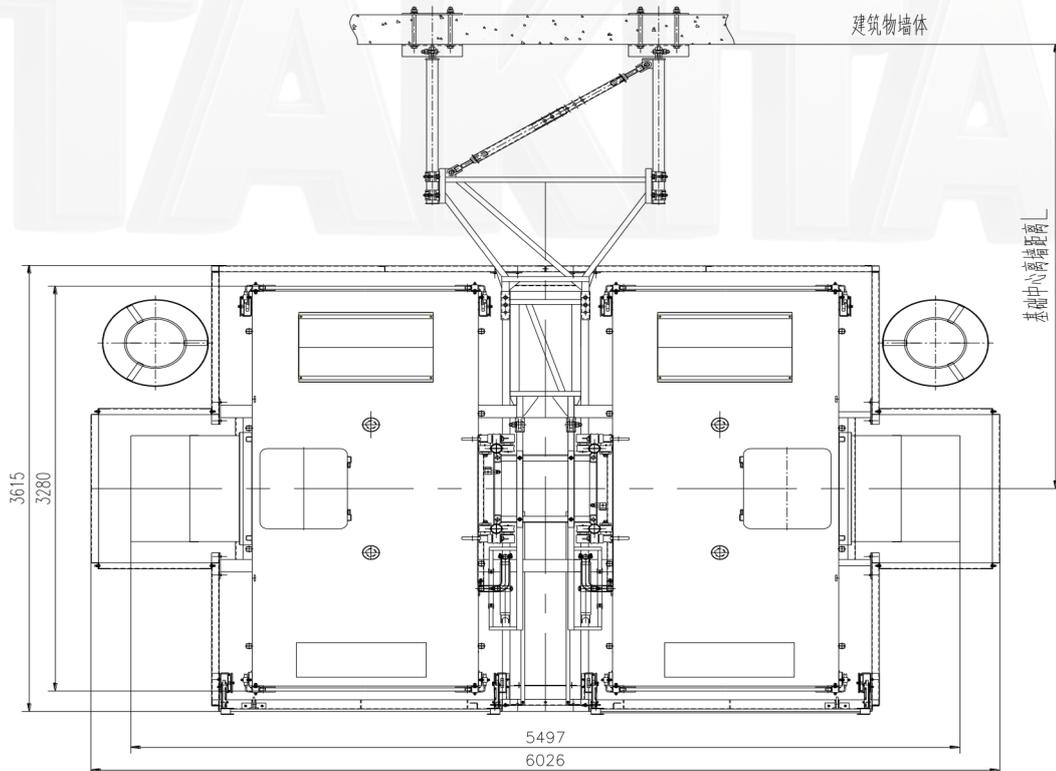
### 5.1基本参数basic parameters

项目Item	参数parameters	SC200/200BZ-A (高笼highcage)	SC200/200BZ-A (矮笼short cage)			备注 Remark
		4S2063				
额定载重量 (kg) Rated load (kg)		2×2000或2×24人 2×2000 or 2×24people				
额定安装载重量 (kg) Rated installing load		2×1000				
额定速度(m/min) Rated speed(m/min)		0~63				
减速器速比 ratio		1:13.47				
最大提升高度(M) Max. hoist height		493				
吊笼空间(长×宽×高)(m×m×m) Cage size (length×width×height)		3.2×1.5×2.5	3.2×1.5×2.2			
电源电压(V) Supply voltage		380±5% 87Hz				
电机功率(kW) Motor power		2×3×18.5				JC=25%
额定工作电流(A) Rated working current		2×3×36				
电源容量(kVA) Power capacity		2×90				
标准节重量(kg) Weight of mast section		84.5	86	88	810	650×650×1508mm
		145	160	180	195	
吊笼自重 (含驱动系统) (kg) Dead weight of cage(including drive system)		2×2500				
安全器型号 Type of safety device		SAJ50-1.4				

## 5.2主要部件重量Weight of main part

序号 No.	零部件名称 Name	重量 (kg) Weight(kg)	序号 No.	零部件名称 Name	重量 (kg) Weight(kg)
1	导轨架 mast	145(4.5mm)	6	附着装置 Mast tie	134(IIA)
		160(6mm)			145(IIB)
		180(8mm)			160 (IIC)
		195(10mm)			140(IID)
2	驱动单元 Drive units	220	7	吊笼总成 cage	1470
3	固定线架 Fixedcableholder	11	8	护线架 Cableprotectframe	11
4	电动吊杆 jib	135	9	电缆滑车 cable guide	34
5	驱动体 Drive system	308	10	底架围栏 Base frame and enclosure	1270

## 5.3外形尺寸图outline dimensional drawing



其中图中尺寸L根据工地实际情况选用附墙的类型而定。

L is determined by the type of mast tie according to the situation of building site.

## 6. 产品优势优点

### 6.1 安全 Safe

- a) 零速悬停，降低制动器失效风险；

Zerospeedhoveringisadoptedtoreducebrakefailurerisk.

- b) 降压降速，电压降低或突然失压时不溜车；

Thevelocityvarieswithvoltage,whichkeepsthecagefromslidingin case of voltage drop or power loss.

- c) 闭环控制，控制精度更高、起制动更平稳、控制更安全；

Closed-loopcontrolsystem,whichismuchmoreprecise,safeandstableinstartingandbreaking.

- d) 宽立柱设计，侧滚轮，前后勾轮均包裹在内部，并采用双支撑,安全系数高；

Widthcolumnisdesignedtowrapwheelinside.Anddoublebracingwere adopted to increase safety factor.

- e) 主令开关，自带零位保护，有效防止人为或系统误动作；

Control switch with zero protection to avoid wrong action of personal or system.

- f) 电控系统具有防粘连设计，增加安全冗余，防止冲顶/冲底/下坠的风险（若接触器粘连，将触发保护接触器动作，断电）

Anti-adhesion is designed for electrical control system, which adds safety redundancy function and prevents rushing out, shock underside or wrong running.

- g) 采用双制动接触器进行制动，具有双保险，更安全。

Adopt double brake contactor to brake, more safety.

- h) 每个电机独立热保护，任何一个电机过流都会触发热保护，防止电机烧坏

Thermal protection for every motor separately. When motor is overcurrent, thermal protection will be touched off to prevent the motor broken.

- i) 防止冲顶，保证运行安全，尤其是提高设备拆装时的安全性

Prevent rushing out device, ensure running safety, and especially improve the safety of installing and dismantling.

- j) 下电箱正面配置急停按钮，便于在紧急情况快速切断电源

There is emergency button on the electrical box to cut off power in emergency situation.

- k) 控制回路采用变压器隔离，防止因触电而发生危险；

The control circuit is insulated by transformer to prevent danger because of electric shocking.

- l) 下电箱配置主控空气开关，有效防止主电缆破皮而引发安全事故

There is air switch on the electrical box to prevent accident because of main cable broken.

### 6.2 智能 Intelligent

- a) 人脸识别认证，权限分级管理；

Equipped with face identification, graded management of authority.



b) 基于故障自诊断技术实现百余种故障诊断、智能显示；

More than 100 kinds of failures can be real-time detected and displayed on the screen based on fault self-diagnosis.

c) 手自一体操作系统，手动自动自由切换，自动平层精度达5mm；

It has two operation modes: namely manual operation and automatic leveling operation, manual and automatic can be exchanged freely, the control accuracy reaches 5mm.



### 6.3 节能 Energy-saving

a) 减速机效率达95%，减速机终身只需换一次油；

The efficiency of the reducer reaches 95% and the reducer just need to renew the oil once in the life cycle.

b) 电机效率达90%；

The efficiency of the motor reaches 90%.

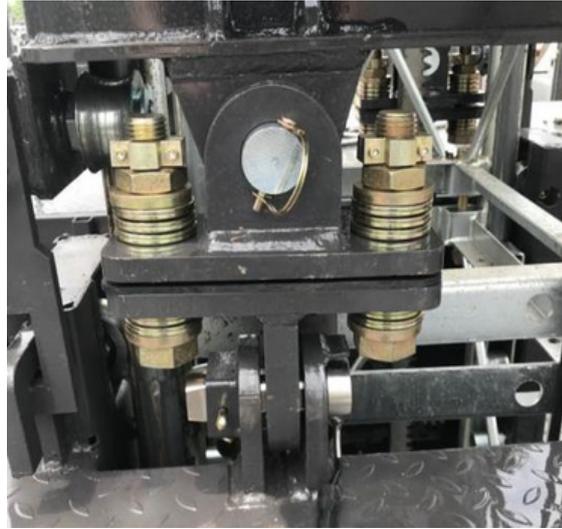


### 6.4 人性化 Humanization

a) 首创偏置单吊点柔性连接，运行平稳，互换性好；

The industry's first single flexible connection technology between the cage and drive system which gives

very smooth operating and interchangeability.



b) 全系滚轮、背轮防松设计，减少振动磨损，延长使用寿命；

All the rollers and back wheels are designed with locking function which reduces the vibration and abrasion, thus service life is increased.

c) 全系滚轮、背轮免润滑，无需注油维护；

No need for oil maintenance because of non-lubrication rollers and back wheels.



## 7. 配置

### 7.1基本配置

(■表示标配, □表示选配, 下同)

(■standard configuration, □optional configuration)

1.传动装置 drive sytem
<ul style="list-style-type: none"> <li>■变频电机High-efficiency motor</li> <li>■高效率涡轮蜗杆减速机 High-efficiency worm gear reducer</li> </ul>
2.供电方式 power supply
<ul style="list-style-type: none"> <li><input type="checkbox"/>电缆高滑车式cable trolley</li> <li><input type="checkbox"/>滑触线式sliding contact wire</li> </ul>
3.施工升降机安全装置safety device
<ul style="list-style-type: none"> <li>■行程限位limit switch</li> <li>■防坠安全器safety device</li> <li>■门限位door limit switch</li> <li>■防冲顶限位Prevent running to top device</li> <li>■天窗限位skylight limit switch</li> </ul>
4.附墙架 mast tie
<ul style="list-style-type: none"> <li>■II型D附墙 <input type="checkbox"/> (型) (3.0m 3.6m) II-type D masttie(3.0m 3.6m)</li> <li>C附墙 <input type="checkbox"/> Va型附 (3.4m 4.2m) II-type C masttie(3.4m 4.2m)</li> <li>着装置 (1.8m 2.1m) II-type Va masttie(1.8m 2.1m)</li> <li><input type="checkbox"/>Vb型附着装置 (2.1m 2.4m) II-type Va masttie(2.1m 2.4m)</li> <li><input type="checkbox"/>其他附着 other types</li> </ul>
5.选配功能
<ul style="list-style-type: none"> <li><input type="checkbox"/>维修节mast section for maintain</li> <li><input type="checkbox"/>自动加油机oiling machine</li> <li><input type="checkbox"/>吊杆 jib</li> </ul>
6.智能控制系统 intelligent control system
<ul style="list-style-type: none"> <li>■人脸识别Face recognition</li> <li>■自动平层automatic leveling</li> <li>■故障诊断Fault diagnosis</li> <li>■故障显示Status displaying</li> <li>■无线楼呼Wireless integrated landing call system</li> </ul>
7.升降机远程管理系统 remote management system
<ul style="list-style-type: none"> <li>■设备管理Equipment management</li> <li>■故障报警Failure warning</li> <li>■状态查询Status inquiry</li> <li>■维保管理Maintenancemanagement</li> <li>■GPS定位GPS location</li> <li>■远程监控Remote control</li> <li>■工程管理Project management</li> </ul>

## 7.2涂装配置

序号	部件名称	涂装
1	标准节 Mast section	■热浸锌 hot-dip galvanizing
2	吊笼 cage	■电泳漆 electrophoretic paint □热浸锌 hot-dip galvanizing
3	附着装置 Mast tie	■电泳 electrophoretic paint
4	底架 Baseframe	热浸锌 ■ hot-dip galvanizing
5	外围栏 Base enclosure	热浸锌 hot-dip galvanizing
6	驱动系统 Drive system	■电泳 electrophoretic paint

## 7.3主要供应商配置

序号 No.	名称 Designation	代号 Code on drawing	品牌 brand	备注 remark
1	电机 Motor	YZZP132C2A-4C-5/ YZZP132C2A-4C1-5	通润 Tongrun	
2	减速机 Reducer	SJ125MAX-5	通润 Tongrun	
3	防坠安全器 Safety device	SAJ50-1.4	上海建科院	
4	变压器 Transformer	T1	国产 MadeinChina	
5	变压器 Transformer	T2	国产 MadeinChina	
6	空气开关 Air switch	QF	正泰 CHNT	
7	继电器 Relay	KA1~KA16	霍尼韦尔 Honeywell	
8	变频器 Frequency converter	CS200-4T55GB-ZLF	汇川 Inovance	
9	热断路器 ThermalCircuit Breaker	KCE	正泰 CHNT	
10	接触器 Contactor	KM, KM1	施耐德 Schneider	
11	接触器 Contactor	KM3, KM4	施耐德 Schneider	
12	控制器 Contactor	HLC	海川 Haichuan	
13	开关电源 SwitchPower Supply	AC/DC	明纬 MW	
14	断路器 Circuit Breaker	QF2~QF9	正泰 CHNT	
15	相序继电器 PhaseSequence Relay	KAP	正泰 CHNT	
16	主令控制器 Master Controller		国产 MadeinChina	
17	坠落试验箱 Dropping Test Box	TNTA1-6	国产 MadeinChina	

18	人脸识别器 Face recognition device		海川 Haichuan	
19	行程开关 Travel Switch	SZL-WL-S-C01AH-ZL	霍尼韦尔 Honeywell	
20	行程开关 Travel Switch	YBLX-K3/20S/T	正泰 CHNT	



## 8 主要易损件清单 Spare parts list

序号 No.	名称 designation	零件编码 Part number	型号规格 type	数量		备注 Remark
				QTY		
1	驱动齿轮 Transmission gear	000402005A0107001		3	6	
2	背轮总成 Back wheel assembly	000402005A0105000		3	6	
3	安全器背轮 Back wheel for safety device	000402006A0119200		1	2	
4	双滚轮总成 Double idle wheel assembly	000402006A0118000		4	8	
5	侧滚轮总成 Side idle wheel assembly	000402006A0106000		2	4	
6	侧双滚轮 Side double idle wheel assembly	000402406C0105000		2	4	4
7	勾轮总成 idle wheel assembly	000402005B0102000		4	8	
8	电机 Motor	1020005749		2	4	
		1020005750		1	2	
8*	电机 Motor (with the encoder)	1020005727		2	4	
		1020005728		1	2	
9	减速器 Reducer	1020005751		3	6	
10	防坠安全器 Safety device	1021500590	SAJ50-1.4	1	2	
11	盘式刹车片 Disc brake pad	SPZ180.2-1	221C	3	6	电动机用 Used for motor
12	胶条 Block gine	000402011A0100001				
13	腰滚轮总成 Waist idle wheel assembly	000402013A0101000		3/4	6/8	电缆滑车用 Used for cable tackle
14	滚轮总成 idle wheel assembly	000402013A0103000		2	4	电缆滑车用 Used for cable tackle
15	滑轮 Pulley wheel	000402013A0100004		1	2	电缆滑车用

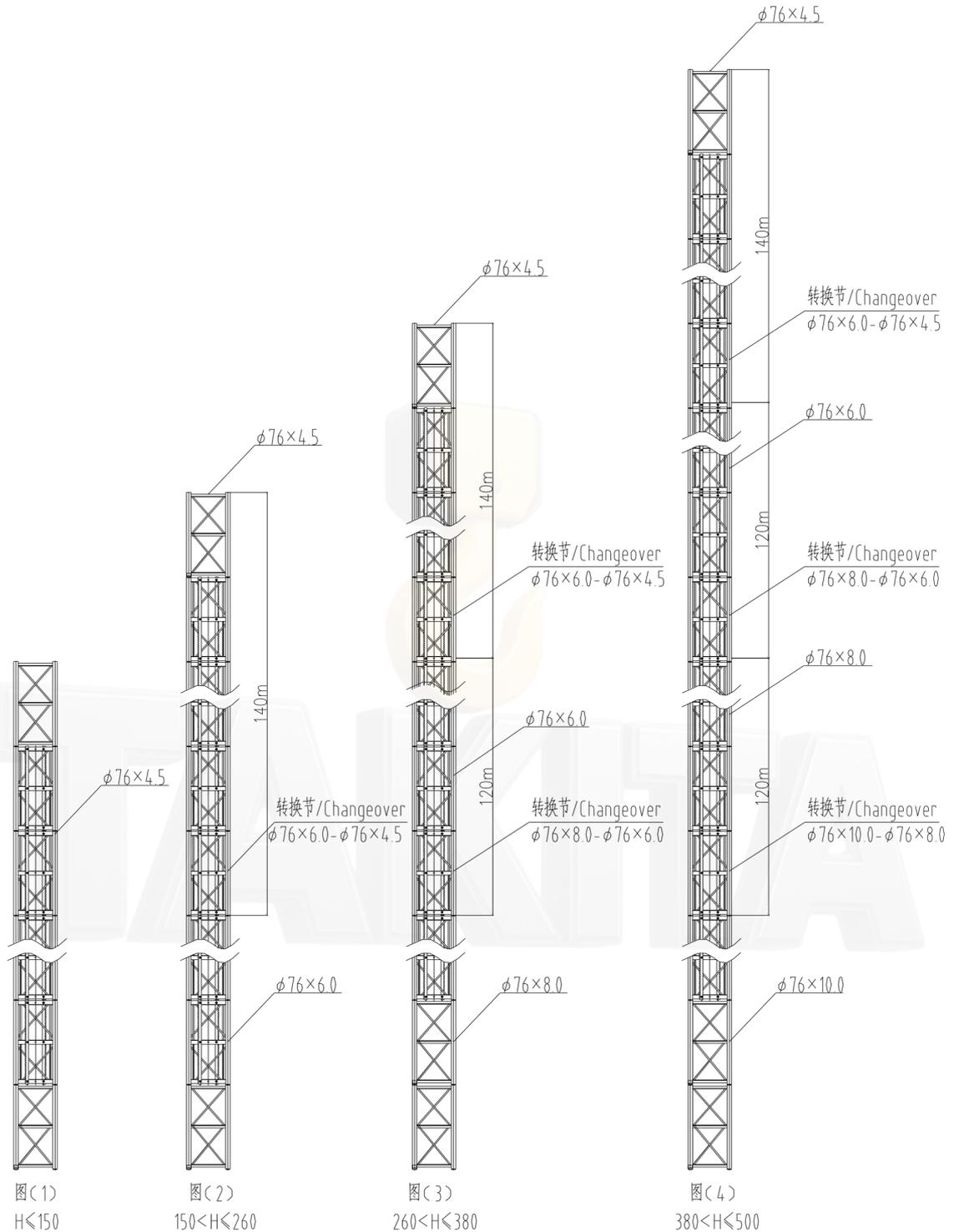
						Used for cable tackle
16	开关电源 Switching power supply	1021904237	RS-25-24	1	2	
17		1021904238	RS-25-12	1	2	
18		1020903206	NEID-35B	1	2	
19	接触器 Contactor	1020301031	LC1-D09M7C	2	4	
20	接触器 Contactor	1020301069	LC1-D95M7C	1	2	
21	热继电器 Thermorelay	1020304360	NR4-63 20-32A	2	4	
22	变压器 Transformer	1021904137	BK-1000W-A	1	2	
23	主令控制器 Master controller	1020103585	SK10-3	1	2	
24	空气开关 Air switch	1020605205	NXM-125S/33 00 100	1	2	
25	变压器 Transformer	1021904136	BK-160W-A	1	2	
26	电铃 bell	1020403051	UC4-100 220V	1	2	
27	笼顶操作盒 Operator box on the top of cage	1020810542	BZANH-4	1	2	
28	行程限位 Travel limit	1029805103	SZL-WL-S-C 01AH-Z	6	12	
29	极限开关 Limit switch	1029805108	JK18-125	1	2	
30	编码器 Encoder	1020202185	EI100H30-102 4-BR30Y3-ZL	1	2	

## 9 随机文件清单 File list

序号 No.	名称 designation 产品合格证	数量 QTY	备注 remark 原件
1	Product qualification certificate	1	Original copy
2	特种设备制造许可证 Special equipment manufacturing license	1	复印件加盖公章 Copies with official seal
3	使用说明书 Operation manual	1	印刷品 print
4	电气原理图 Electrical	1	复印件 Copies
5	基础图 Foundation drawing	1	复印件 Copies
6	超载保护器合格证 Overload protection qualification certificate	2	原件（吊笼电控箱内） Original copy (incage cabinet)
7	防坠安全器合格证 Safety device qualification certificate	2	原件 Original copy
8	防坠安全器检测报告 Safety device test report	2	原件 Original copy
9	防坠安全器使用说明书 Safety device operation manual	1	印刷品 print
10	发货清单 Shipping list	1	原件 Original copy

## 10、标准节主弦管壁厚配置图

The configuration for thickness of main chord of mast section



注：内导轨架安装高度

Note: H is the installed height of mast.