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国家大型企业 NATIONAL LARGE ENTERPRISE

T A I L O N G

中国驰名商标
CHINA WELL-KNOWN TRADEMARK

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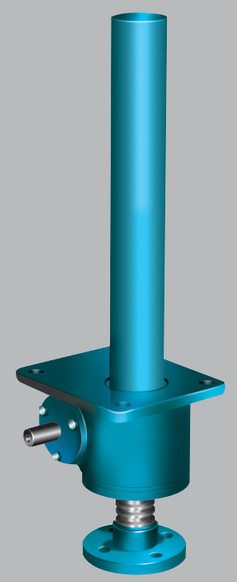
2008版



SWL蜗轮螺杆升降机

江 苏 泰 隆 机 械 集 团
JIANGSU TAILONG MACHINERY GROUP COMPANY
江苏泰隆减速机股份有限公司
JIANGSU TAILONG DECELERATOR MACHINERY CO.,LTD.

公司简介

泰隆集团地处扬子江畔的泰兴市区，是泰兴人引以为豪的国家大型企业。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，成为全国减变行业龙头老大。

集团现拥有总资产5.8亿元，固定资产3.6亿元，占地面积60万平方米，员工近2612人，专业工程技术人员896人，年销售额15亿元。从美国、德国、日本、俄罗斯等国家引进的大型数控磨齿机、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占48%。建立了全国同行业中检测功能最全、检测功率最大、仪器最先进的测试中心，创建了省级工程技术中心。公司产品在原有的平面二次包络蜗杆减速器、9000系列摆线针轮减速机、圆柱齿轮减速器、行星齿轮减速器等十几个系列，几十万种规格的基础上，采用先进的模块化、点线等技术开发出了TL模块化齿轮减速电机；TPB行星模块化减速器、重载模块式减速器、点线啮合减速器。多年来，起重机用硬齿面、中硬齿面减速器一直在为用户提供最佳的传动方案，在风力发电、水力发电领域捷足先登，做出了不菲的业绩。重载齿轮箱在建材行业、冶金行业成功得到了应用，开发出了建材行业的立式磨机及边缘传动磨机齿轮箱，冶金行业的开卷、卷取齿轮箱、三环减速器、星轮减速器。另外公司还为用户提供榨糖机齿轮箱、螺杆升降机、电动滚筒及各类非标齿轮箱。公司荣获“中国名牌”、“全国首批守合同重信用企业”、“全国重点高新技术企业”、“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”等殊誉，泰隆商标被评为“中国驰名商标”，在同行业中率先通过质量、环境、安全三位一体认证及ISO10012计量体系确认。

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 is located in Taixing urban area at the border of Yangtse River and it is a state-owned large-sized enterprise boasted by Taixing people. Under the leadership of Mr. Yin genzhang, a nation-wide excellent entrepreneur and a model worker of Jiangsu Province, after more than twenty years of operation with concentrated efforts, has proudly marched into the Top 500 enterprises in Chinese Mechanical Industry and has become the industry leader.

At present, the group owns a total assets of RMB 580m, and fixed of RMB 360m, and it covers an area of 600,000 square meters and owns almost 2,612 employees, including 896 technicians, the annual turnover surpasses 1b RMB. The introduced large-sized numerical controlled gear grinding machine, worm grinder, machining center and carbonitriding kiln and etc. advanced, precise and leading manufacturing facilities and inspection apparatus from USA, Germany, Japan and Russia has taken part 48% share in all. At the same time, the group has established a test center with the most complete test functions, the biggest test power, the most advanced instrument and the provincial science & technology park. At the basis of the primary secondary envelope, 9000 series cycloid pinwheel reducer, cylindrical gear, planetary reducer and so on, more than ten series, and several ten thousands specifications, adopting the advanced modularization, point-line technique, ultimately develop TL modular reducer, TPB planetary modular reducer, heavy load modular and point-line meshing decelerator. Along many years, harden-faced reducer for crane, moderate rigid reducer provide the best transmission project for customer all the times; On the other hand, at the wind and water power area, we have taken the swift-footed arrive first, and taken out outstanding success. The heavy load gearboxes has successfully applied in architecture, metallurgy industry, and developed vertical grinder, marginal transmission grinder gearbox which fit for architecture industry, open, convolute gearbox, three-ring, star reducer which special for metallurgy. In addition, the company also supply sugar mill gearbox, worm lifter, electrical roller and various non-standard gearboxes.

The company has been awarded successively with such honorable titles as“China top brand”, “National first batch of enterprise honoring contracts and keeping promises”, “National key new & hi-tech enterprise”, “National mechanical industry quality & benefit type enterprise”, “National mechanical industry QC award” and “National customer satisfaction service”. Tailong brand is recognized as “the Chinese famous brand” by national industrial and commercial bureau.It has taken the lead in passing the quality, environment and security three in one system certification and ISO10012 metering system certification.

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

SWL 蜗轮螺杆升降机JB/T8809-1998
SWL Worm and Worm Wheel Lifter

一、概述 Brief:

蜗轮螺杆升降机是通过蜗轮转动螺杆完成提升、下降、推进等功能，广泛应用于机械、冶金、建筑、水利、化工等各项行业，具有结构紧凑、体积小、安装方便、可靠性好、稳定性高、使用寿命长等优点。本系列升降机可自锁，承载能力在。2.5t—35t之间，最高输入转速1500r/min.工作温度在－20℃ －100℃之间。

Worm and worm wheel Lifter performs moving up,down and forward by worm driving. It is widely used in field of machinery, architecture, chemistry etc. The lifer has advantages of compact structure,small size, easy installation ,good reliability ,high stability and long life-span. It has self locking. The maximum loading capability is 2.5 to 35 ton and the mixmum input RPM is 1500r/m.

The environment working temperature is between-20℃ and 100℃.

二、型式和标记 Type and Earmark

2.1结构型式 Structurat mode

1型——螺杆作轴向移动（防旋转型）或旋转运动（基本型）螺杆轴向移动，用户自行安装防转装置 （见图1）

2型——螺杆作旋转运动螺杆上的螺母作轴向移动 （见图2）

Type1--Screw spins and rotate axially at the same time(see Figure 1)

Type2--Screw spins while nut on Screwis rotating axially(see Figure 2)

2.2装配型式 Assemblage mode

升降机每种结构型式又分为两种装配型式：

A型——螺杆 （或螺母） 向上移动 （见图1和图2）；

B型——螺杆 （或螺母） 向下移动 （见图1和图2）；

There are 2 assemblage modes available for each of elevator structural mode;

Type A--Screw(or nut) moves upwards (see Figure 1 and Figure 2);

Type A--Screw(or nut) moves downwards (see Figure 1 and Figure 2);

2.3螺杆头部型式 Screw head mode

——1型结构型式的螺杆头部分为Ⅰ型（圆柱型）、Ⅱ型（法兰型）、Ⅲ型（螺纹型）和Ⅳ（扁头型）四种型式（见图1）；

——2型结构型式的螺杆头部分为Ⅰ型（圆柱型）、Ⅲ型（螺纹型）两种型式（见图2）；

--There are 4 type available for the head of screw with Type 1 structural mode;Type Ⅰ (cylinder mode) Type Ⅱ (flange mode);Type Ⅲ (thread mode);and Type Ⅳ (flat head mode)(see Figure 1).

--There are 2 type available for the head of screw with Type 2 structural mode;Type Ⅰ (cylinder mode) Type Ⅱ (thread mode)

2.4传动比 Drive ratio

升降机分为两种传动比，即普通(P)和慢速(M)。

There are 2 drive rations available for elevator :common ratio(P)and slow-speed ratio(M)

2.5螺杆的防护 screw protection

1型升降机螺杆的防护分为：基本型、防旋转型(F)和带防护罩型(Z)；

2型升降机螺杆的防护分为：基本型和带防护罩型(Z)；

2.6 标记示例 Example of earmark

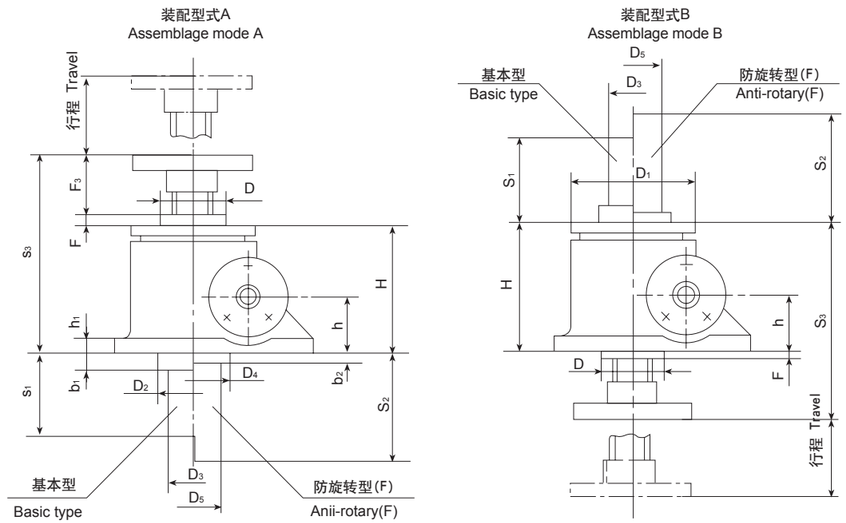
升降机 SWL2.5 M - 1 A Ⅱ - 500 FZ JB/T 8809 - 1998

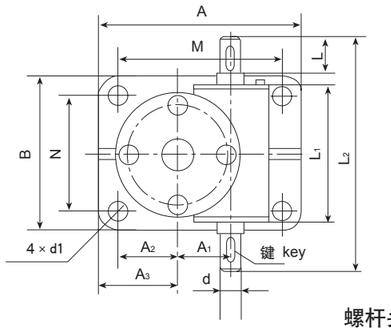
- 螺杆的防护型式代号召The code for worm maintenance（见2.5）
- 螺杆行程 Worm moving distance mm
- 螺杆头部型式代号 The code of warm head
- 装配型式代号 The code for installation
- 结构型式代号 The code for struture
- 传动比代号（慢速，普通P不注） The code for driving rate(P will not listed for low speed or ordinary models
- 型号（见表1和表2）Model(see chart 1 and chart 2)
- 名称 Name

三、尺寸 Dimension

1型升降机的外形结构尺寸见图1和表1，2型升降机的外形结构尺寸见图2和表2。
Fig 1 and chart 1 show the outer structure and dimension of lifter model 1.Fig 2 and Chart 2 and chart 2 show the outer structure and dimension of lifter model 2.

structure and dimension of lifter model 2





螺杆头部型式 Mode of screw head

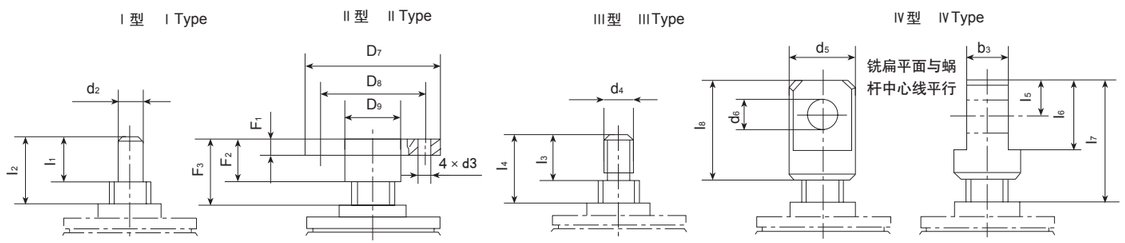


图1 1型结构型式 Type 1 structutal Mode

TAILONG MACHINERY

表1 Table1

型号Type			SWL2.5	SWL5	SWL10 SWL15	SWL20	SWL25	SWL35
S_1			行程＋85	行程＋95	行程＋75	行程＋90	行程＋95	行程＋85
S_2			行程＋100	行程＋110	行程＋90	行程＋115	行程＋145	行程＋130
S_3			150.5	193	230	262	317	350
A			165	212	235	295	350	430
B			120	155	200	215	260	280
M			135	168	190	240	280	360
N			90	114	155	160	190	210
H			97	130	150	176	217	240
h			45	61.5	70	87	102	115
h_1			12	14	16	20	25	30
d(k6)			16	20	25	28	32	38
d_1			14	17	21	28	35	35
键GB/T1096			5 × 5 × 32	6 × 6 × 32	8 × 7 × 36	8 × 7 × 36	10 × 8 × 50	10 × 8 × 70
L			36	36	42	42	58	80
L_1			110.5	132	172	213.5	221	265
L_2			190	228	280	322	355	430
D			48	65	80	100	130	150
D_1			98	122	150	185	205	260
D_2			70	90	100	120	150	180
D_3			45	60	76	83	114	121
D_4			98	110	130	170	200	210
D_5			60	70	95	108	133	140
A_1			45.2	56.2	66.8	72.5	97	120
A_2			50	58	63.5	95	95	135
A_3			65	80	86	122.5	130	170
b_1			20	25	27	35	30	35
b_2			20	18	18	31	40	40
F			8.5	12	6.5	6	8	10
螺杆头部形式 Mode of screw head mode		d2(k6)	20	25	40	50	70	80
	Ⅰ	l_1	30	40	50	60	63	80
		l_2	45	51	73.5	80	92	100
	Ⅱ	D_7	98	122	150	185	205	260
		D_8	75	85	105	140	155	200
		D_9	40	50	65	90	100	130
		d_3	14	17	21	26	27	33
		F_1	12	18	20	20	25	30
		F_2	30	40	50	60	63	80
		F_3	45	51	73.5	80	92	100
		d_4	M22 × 1.5-6g	M30 × 2-6g	M42 × 2-6g	M48 × 2-6g	M70 × 3-6g	M80 × 3-6g
	Ⅲ	l_3	30	40	50	60	63	80
		l_4	45	51	73.5	80	92	100
	Ⅳ	d_5	50	65	90	110	130	150
		d_6(H8)	25	35	50	60	70	80
		b_3	30	42	60	75	90	105
		l_5	25	37.5	50	60	70	80
		l_6	50	75	100	120	140	160
		l_7	85	117	153.5	170	204	240
		l_8	70	105	130	150	175	220

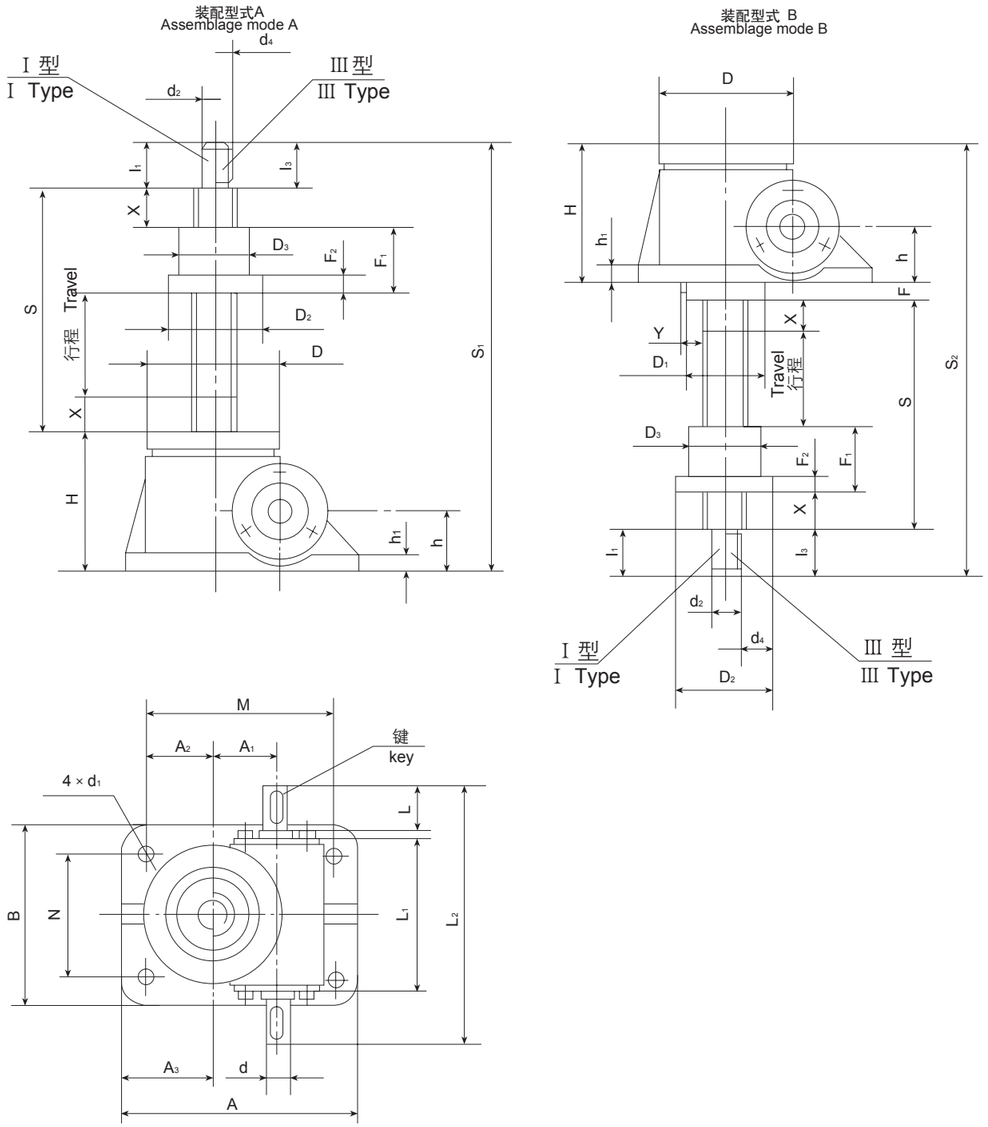


图2　2型结构型式　　Type 1 structural mode

表2　Table

型号Type			SWL2.5	SWL5	SWL10 SWL15	SWL20	SWL25	SWL35
S			行程＋85	行程＋100	行程＋125	行程＋150	行程＋170	行程＋205
S_1			行程＋215	行程＋269	行程＋325	行程＋386	行程＋450	行程＋525
S_2			行程＋238.5	行程＋299	行程＋359	行程＋425	行程＋502	行程＋570
A			165	212	235	295	350	430
B			120	155	200	215	260	280
M			135	168	190	240	280	360
N			90	114	155	160	190	210
H			97	130	150	176	217	240
h			45	61.5	70	87	102	115
h_1			12	14	16	20	25	30
d(k6)			16	20	25	28	32	38
d_1			14	17	21	28	35	35
键GB/T1096			5 × 5 × 32	6 × 6 × 32	8 × 7 × 36	8 × 7 × 36	10 × 8 × 50	10 × 8 × 70
L			36	36	42	42	58	80
L_1			110.5	132	172	213.5	221	265
L_2			190	228	280	322	355	430
D			98	122	150	185	205	260
D_1			68	83	110	140	160	180
A_1			45.2	56.2	66.8	72.5	97	120
A_2			50	58	63.5	95	95	135
A_3			65	80	86	122.5	130	170
F			26.5	30	34	39	52	45
安全裕度X			20	20	25	25	25	30
Y			3	3	1	3	3	4
活动螺母 Moving nut		D_2	80	87	110	120	155	190
		D_3(hg)	50	70	90	90	130	150
		F_1	45	60	75	100	120	145
		F_2	15	18	25	30	35	35
螺杆头部形式 Mode of screw head mode	Ⅰ	d_2(k6)	20	25	40	50	70	80
		l_1	30	40	50	60	63	80
	Ⅲ	d_4	M22 × 1.5-6g	M30 × 2-6g	M42 × 2-6g	M48 × 2-6g	M70 × 3-6g	M80 × 3-6g
		l_3	30	40	50	60	63	80

四、性能参数 Specification

4.1升降机的主要性能参数应按表3.The main specification the lifter is listed in chart 3

表2　Table2

型号Type	SWL2.5	SWL5	SWL10 SWL15	SWL20	SWL25	SWL35
最大起升力kN Maximum hoisting force kN	25	50	100/150	200	250	350
最大拉力kN Maximum tensile kN	25	50	99	166	250	350
蜗轮蜗杆传动比(P) Worm wheel and worm screwdrive ratio(P)	6：1	6：1	8 1/3：1	8：1	10 2/3：1	10 2/3：1
蜗杆每转行程mm Worm wheel travel per turm(mm)	1.0	1167	1.44	1.5	1.5	1.5
蜗轮蜗杆传动比(M) Worm wheel and worm screwdrive ratio(M)	24：1	24：1	24：1	24：1	32：1	32：1
蜗杆每转行程mm Worm wheel travel per turm(mm)	0.250	0.292	0.5	0.5	0.5	0.5
蜗杆扭距N.m Worm screw torque N.m	见附录B （提的附录） See Attachment B(Hanging)					
拉力负荷时螺杆的最大伸长mm Maximum elongation of worm screw with tensile load mm	1500	2000	2500	3000	3500	4000
压力负荷时螺杆的最大伸长mm Maximum elongation of worm screw with compressive load mm	见附录C （提的附录） See Attachment C(Hanging)					
侧向力负荷时螺杆的最大伸长mm Maximum elongation of worm screw with side force load mm	见附录D （提的附录） See Attachment D(Hanging)					
最大许用功率kW Maximum allowable power kW	0.55	1.1	2.6	3.7	4.8	6.0
普通比(P)总效率% Total efficiency of common ratio(p)%	23	21	23	21	19	18
慢速比(M)总效率% Total efficiency of slow-speed ratio(p)%	14	12	15	13	11	11
润滑油量kg Lubricant quantity	0.1	0.25	0.5	0.75	1.1	1.9
不加行程的重量kg Weight without travel added	7.3	16.2	25	36	70.5	87
螺杆每100mm的重量kg Weight of screw per100mm	0.45	0.82	1.67	2.15	4.15	5.2

注：Note
1.最大许用功率是在环境温度为20℃、工作持续率为20%/h的条件下的参数；
1.Maximum allowable power is a parmeter applicable for the condition that ambientis 20℃ and service continuity rate is20%/h;
2.总功率为润滑条件下的参数；2.Total power is a parameter applicable for grease lubrication;
3.工作环境温度-20 ~ +80℃；3.Ambient temperature for service;
4.在静止状态一般可以自锁。 4.Usuallyself-lock may function at staic status.

4.2螺杆传动的许用起升速度、扭距和功率按表4 ~ 表10。

The allowable temperature raise, torsion and effciency of the worm driving are listed in chart 4 to chart 10.

注：表4 ~ 表10中的参数适用于环境温度为20℃、工作持续率为20%/h或30%/10min的条件下；对粗线范围内的参数，使用时螺杆会产生过热，应严加注意。

Note:Paramenters listed in Table 4~table 10 are applicable for the condition that ambient temperature is 20℃ and service continuity rate is 20%/h or 30%/10min. For those paramenters within bold line, screw may overheat during service,so it should beclosely monitored.

表4　Table4　(SWL2.5)

蜗杆速度 Worm screw N r/min	起升速度 Hoisting speedev v m/min	起升力 Hoistingforce kN																					
		25			20			15			10			5			2.5			1			
		P		M	P		M	P		M	P		M	P		M	P		M	P		M	
		N.m	kw	kw	N.m	kw	kw	N.m	kw	kw	N.m	kw	kw	N.m	kw	kw	N.m	kw	kw	N.m	kw	kw	N.m	kw
1500	1.500	18	2.7	0.375	14	2.2	0.89	11	1.7	0.67	6.9	1.10	2.9	3.5	0.54	1.4	0.22	4.4	0.7	1.9	0.3	2.2	0.11	1.0	0.2
1000	1.000	18	1.8	0.250	14	1.5	0.60	11	1.1	0.45	6.9	0.72	2.9	3.5	0.36	1.4	0.15	4.4	0.5	1.9	0.2	2.2	0.07	1.0	0.1
750	0.750	18	1.4	0.188	14	1.1	0.45	11	0.82	0.33	6.9	0.54	2.9	3.5	0.27	1.4	0.11	4.4	0.3	1.9	0.2	2.2	0.06	1.0	0.1
500	0.500	18	0.91	0.125	14	0.72	0.30	11	0.54	0.22	6.9	0.36	2.9	3.5	0.18	1.4	0.07	4.4	0.2	1.9	0.1	2.2	0.05	1.0	0.1
300	0.300	18	0.54	0.075	14	0.43	0.18	11	0.33	0.13	6.9	0.22	2.9	3.5	0.11	1.4	0.05	4.4	0.1	1.9	0.1	2.2	0.05	1.0	0.1
200	0.200	18	0.36	0.050	14	0.29	0.12	11	0.22	0.09	6.9	0.14	2.9	3.5	0.07	1.4	0.05	4.4	0.1	1.9	0.1	2.2	0.05	1.0	0.1
100	0.100	18	0.18	0.025	14	0.14	0.06	11	0.11	0.05	6.9	0.07	2.9	3.5	0.05	1.4	0.05	4.4	0.1	1.9	0.1	2.2	0.05	1.0	0.1
50	0.050	18	0.09	0.013	14	0.07	0.05	11	0.05	0.05	6.9	0.05	2.9	3.5	0.05	1.4	0.05	4.4	0.1	1.9	0.1	2.2	0.05	1.0	0.1

表5　Table5　(SWL5)

蜗杆速度 Worm screw N r/min	起升速度 Hoisting speedev v m/min	起升力 Hoistingforce kN																					
		50			40			30			20			10			5			2.5			
		P		M	P		M	P		M	P		M	P		M	P		M	P		M	
		N.m	kw	kw	N.m	kw	kw	N.m	kw	kw	N.m	kw	kw	N.m	kw	kw	N.m	kw	kw	N.m	kw	kw	N.m	kw
1500	1.750	44.2	6.9	0.438	35.4	5.6	3.0	26.5	4.2	1.7	17.7	2.8	1.2	8.8	1.4	0.6	4.4	0.7	0.3	2.2	0.3	1.0	0.2
1000	1.167	44.2	4.6	0.292	35.4	3.7	2.0	26.5	2.8	1.1	17.7	1.9	0.8	8.8	0.9	0.4	4.4	0.5	0.2	2.2	0.2	1.0	0.1
750	0.875	44.2	3.5	0.219	35.4	2.8	1.5	26.5	2.1	0.82	17.7	1.4	0.6	8.8	0.7	0.3	4.4	0.3	0.1	2.2	0.2	1.0	0.1
500	0.583	44.2	2.3	0.146	35.4	1.9	1.0	26.5	1.4	0.54	17.7	0.9	0.4	8.8	0.5	0.2	4.4	0.2	0.1	2.2	0.1	1.0	0.1
300	0.350	44.2	1.4	0.088	35.4	1.1	0.6	26.5	0.8	0.30	17.7	0.6	0.2	8.8	0.3	0.1	4.4	0.1	0.1	2.2	0.1	1.0	0.1
200	0.233	44.2	0.9	0.058	35.4	0.7	0.4	26.5	0.6	0.22	17.7	0.4	0.2	8.8	0.2	0.1	4.4	0.1	0.1	2.2	0.1	1.0	0.1
100	0.117	44.2	0.5	0.029	35.4	0.4	0.2	26.5	0.3	0.11	17.7	0.2	0.1	8.8	0.1	0.1	4.4	0.1	0.1	2.2	0.1	1.0	0.1
50	0.058	44.2	0.2	0.015	35.4	0.2	0.1	26.5	0.1	0.1	17.7	0.1	0.1	8.8	0.1	0.1	4.4	0.1	0.1	2.2	0.1	1.0	0.1

表6 Table6 (SWL10)

蜗杆速度 Worm screw n r/min	起升速度 Hosisting speedew v m/min		起 升 力 Hosistingforce kN																							
			100				80				60				40				20				10		5	
			P		M		P		M		P		M		P		M		P		M		P		M	
	P	M	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw
1500	2.348	0.750	108	17	53	8.3	87	14	43	6.7	65	11	32	5.0	44	6.8	22	3.3	22	3.4	11	1.7	11	1.7	5.3	0.8	5.4	0.9	2.7	0.4
1000	1.565	0.500	108	12	53	5.6	87	9.1	43	4.4	65	6.8	32	3.3	44	4.5	22	2.2	22	2.3	11	1.1	11	1.1	5.3	0.6	5.4	0.6	2.7	0.3
750	1.174	0.375	108	8.5	53	4.2	87	6.8	43	3.3	65	5.1	32	2.5	44	3.4	22	1.7	22	1.7	11	0.8	11	0.9	5.3	0.4	5.4	0.4	2.7	0.2
500	0.783	0.250	108	5.7	53	2.8	87	4.5	43	2.2	65	3.4	32	1.7	44	2.3	22	1.1	22	1.1	11	0.6	11	0.6	5.3	0.3	5.4	0.3	2.7	0.1
300	0.470	0.150	108	3.4	53	1.7	87	2.7	43	1.3	65	2.0	32	1.0	44	1.4	22	0.7	22	0.7	11	0.3	11	0.3	5.3	0.2	5.4	0.2	2.7	0.1
200	0.313	0.100	108	2.3	53	1.1	87	1.8	43	0.9	65	1.4	32	0.7	44	0.9	22	0.4	22	0.5	11	0.2	11	0.2	5.3	0.1	5.4	0.1	2.7	0.1
100	0.157	0.050	108	1.1	53	0.6	87	0.9	43	0.40.	65	0.7	32	0.3	44	0.5	22	0.2	22	0.2	11	0.1	11	0.1	5.3	0.1	5.4	0.1	2.7	0.1
50	0.078	0.025	108	0.6	53	0.3	87	0.5	43	0.2	65	0.3	32	0.2	44	0.2	22	0.1	22	0.1	11	0.1	11	0.1	5.3	0.1	5.4	0.1	2.7	0.1

表7 Table7 (SWL15)

蜗杆速度 Worm screw n r/min	起升速度 Hosisting speedew v m/min		起 升 力 Hosistingforce kN																							
			150				100				80				60				40				20		10	
			P		M		P		M		P		M		P		M		P		M		P		M	
	P	M	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw
1500	2.348	0.750	163	26	92	15	108	17	53	8.3	87	14	43	6.7	65	11	32	5.0	44	6.8	22	3.3	22	3.4	11	1.7	11	1.7	5.3	0.8
1000	1.565	0.500	163	17	92	9.6	108	12	53	5.6	87	9.1	43	4.4	65	6.8	32	3.3	44	4.5	22	2.2	22	2.3	11	1.1	11	1.1	5.3	0.6
750	1.174	0.375	163	13	92	7.2	108	8.5	53	4.2	87	6.8	43	3.3	65	5.1	32	2.5	44	3.4	22	1.7	22	1.7	11	0.8	11	0.9	5.3	0.4
500	0.783	0.250	163	8.5	92	4.8	108	5.7	53	2.8	87	4.5	43	2.2	65	3.4	32	1.7	44	2.3	22	1.1	22	1.1	11	0.6	11	0.6	5.3	0.3
300	0.470	0.150	163	5.1	92	2.9	108	3.4	53	1.7	87	2.7	43	1.3	65	2.0	32	1.0	44	1.4	22	0.7	22	0.7	11	0.3	11	0.3	5.3	0.2
200	0.313	0.100	163	3.4	92	1.9	108	2.3	53	1.1	87	1.8	43	0.9	65	1.4	32	0.7	44	0.9	22	0.4	22	0.5	11	0.2	11	0.2	5.3	0.1
100	0.157	0.050	163	1.7	92	1.0	108	1.1	53	0.6	87	0.9	43	0.4	65	0.7	32	0.3	44	0.5	22	0.2	22	0.2	11	0.1	11	0.1	5.3	0.1
50	0.078	0.025	163	0.9	92	0.5	108	0.6	53	0.3	87	0.5	43	0.2	65	0.3	32	0.2	44	0.2	22	0.1	22	0.1	11	0.1	11	0.1	5.3	0.1

表8 Table8 (SWL20)

蜗杆转速 Worm screw speed n r/min	起升速度 Hosisting speedew v m/min		起 升 力 Hosistingforce kN																							
			200				160				120				100				75				50		25	
			P		M		P		M		P		M		P		M		P		M		P		M	
	P	M	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw
1500	2.250	0.750	228	36	123	20	182	29	98	16	137	22	74	12	114	18	62	9.6	86	14	46	7.2	57	8.9	31	4.8	29	4.5	16	2.4
1000	1.500	0.500	228	24	123	13	182	19	98	11	137	15	74	7.7	114	12	62	6.4	86	8.9	46	4.8	57	6.0	31	3.2	29	3.0	16	1.6
750	1.125	0.375	228	18	123	9.6	182	15	98	7.7	137	11	74	5.8	114	8.9	62	4.8	86	6.7	46	3.6	57	4.5	31	2.4	29	2.2	16	1.2
500	0.750	0.250	228	12	123	6.4	182	9.5	98	5.1	137	7.1	74	3.8	114	6.0	62	3.2	86	4.5	46	2.4	57	3.0	31	1.6	29	1.5	16	0.8
300	0.450	0.150	228	7.1	123	3.8	182	5.7	98	3.1	137	4.3	74	2.3	114	3.6	62	1.9	86	2.7	46	1.4	57	1.8	31	1.0	29	0.9	16	0.5
200	0.300	0.100	228	4.8	123	2.6	182	3.8	98	2.1	137	2.9	74	1.5	114	2.4	62	1.3	86	1.8	46	1.0	57	1.2	31	0.6	29	0.6	16	0.3
100	0.150	0.050	228	2.4	123	1.3	182	1.9	98	1.0	137	1.4	74	0.8	114	1.2	62	0.6	86	0.9	46	0.5	57	0.6	31	0.3	29	0.3	16	0.2
50	0.075	0.025	228	1.2	123	0.6	182	1.0	98	0.5	137	0.7	74	0.4	114	0.6	62	0.3	86	0.4	46	0.2	57	0.3	31	0.2	29	0.1	16	0.1

表9 Table9 (SWL25)

蜗杆转速 Worm screw speed n r/min	起升速度 Hosisting speedew v m/min		起 升 力 Hosistingforce kN																							
			250				200				160				120				100				75		50	
			P		M		P		M		P		M		P		M		P		M		P		M	
	P	M	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw	N.m	kw
1000	1.500	0.500	314	33	181	19	252	27	145	16	201	22	116	13	151	16	87	9.1	126	14	73	7.6	95	9.9	55	5.7	63	6.6	37	3.8
750	1.125	0.375	314	25	181	15	252	20	145	12	201	16	116	9.1	151	12	87	6.8	126	9.9	73	5.7	95	7.4	55	4.3	63	4.9	37	2.8
500	0.750	0.250	314	17	181	9.5	252	14	145	7.6	201	11	116	6.1	151	7.9	87	4.5	126	6.6	73	3.8	95	4.9	55	2.8	63	3.3	37	1.9
400	0.600	0.200	314	14	181	7.6	252	11	145	6.1	201	8.4	116	4.8	151	6.3	87	3.6	126	5.3	73	3.0	95	3.9	55	2.3	63	2.6	37	1.5
300	0.450	0.150	314	9.9	181	5.7	252	7.9	145	4.5	201	6.3	116	3.6	151	4.7	87	2.7	126	3.9	73	2.3	95	3.0	55	1.7	63	2.0	37	1.1
200	0.300	0.100	314	6.6	181	3.8	252	5.3	145	3.0	201	4.2	116	2.4	151	3.2	87	1.8	126	2.6	73	1.5	95	2.0	55	1.1	63	1.3	37	0.8
100	0.150	0.050	314	3.3	181	1.9	252	2.6	145	1.5	201	2.1	116	1.2	151	1.6	87	0.9	126	1.3	73	0.8	95	1.0	55	0.6	63	0.7	37	0.4
50	0.075	0.025	314	1.6	181	0.9	252	1.3	145	0.8	201	1.1	116	0.6	151	0.8	87	0.5	126	0.7	73	0.4	95	0.5	55	0.3	63	0.3	37	0.2

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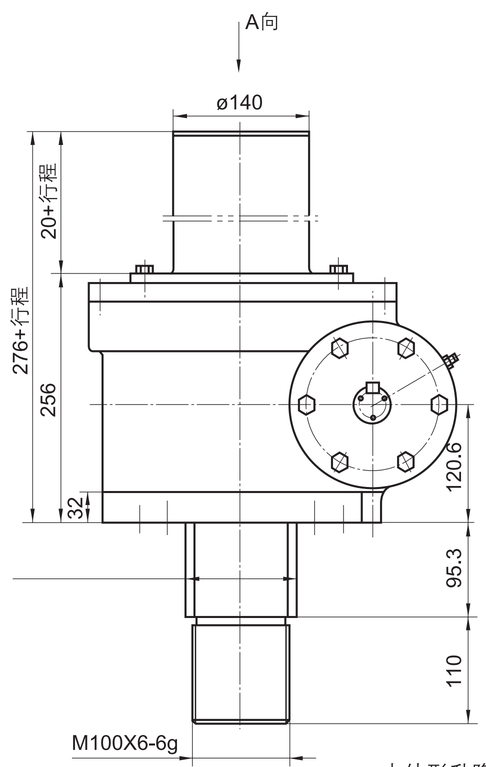
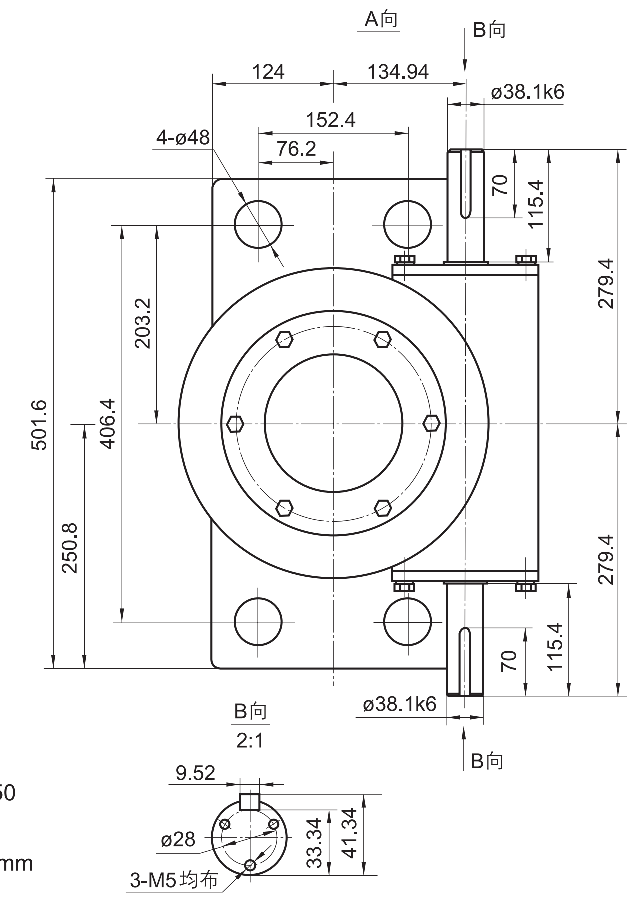
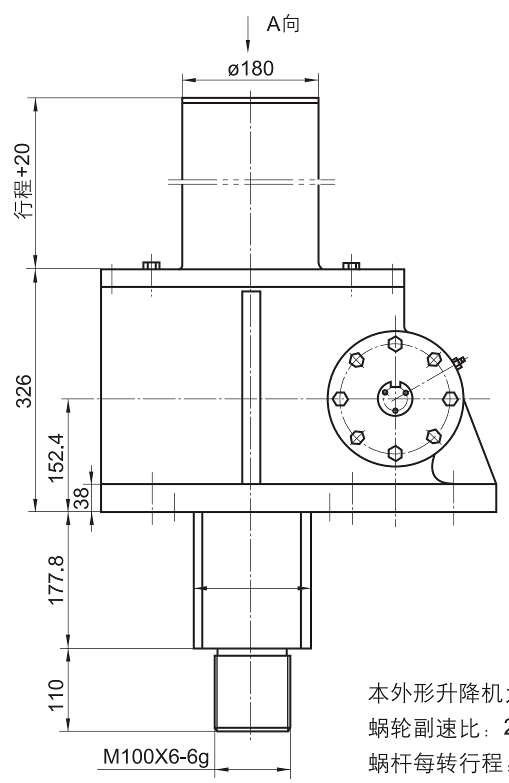
表10 Table10 (SWL35)

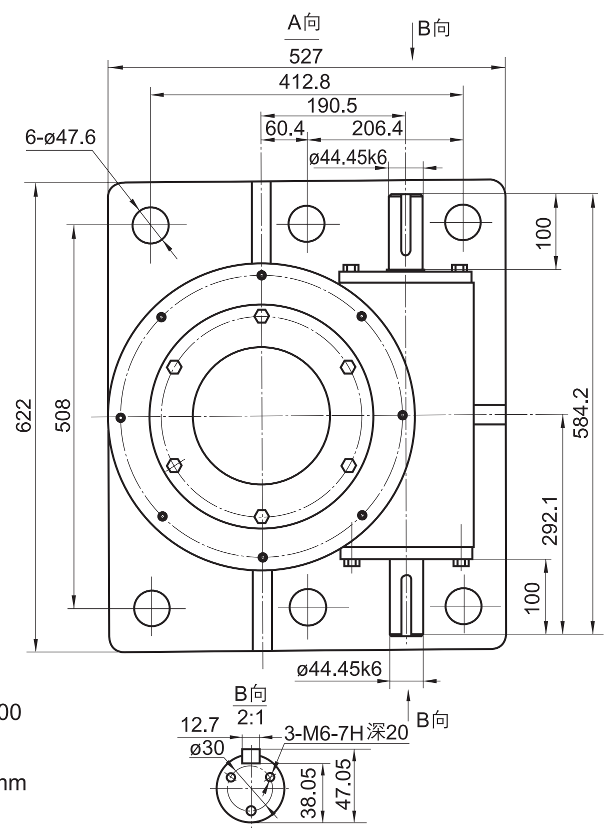
蜗杆转速 Worm screw speed n r/min	起升速度 Hosisting speedew v m/min P	起升速度 Hosisting speedew v m/min M	起升力 Hosistingforce kN 350 P N.m	350 P kw	350 M N.m	350 M kw	300 P N.m	300 P kw	300 M N.m	300 M kw	250 P N.m	250 P kw	250 M N.m	250 M kw	200 P N.m	200 P kw	200 M N.m	200 M kw	150 P N.m	150 P kw	150 M N.m	150 M kw	100 P N.m	100 P kw	100 M N.m	100 M kw	50 P N.m	50 P kw	50 M N.m	50 M kw
1000	1.500	0.500	464	49	253	27	398	42	217	23	332	35	181	19	266	28	145	16	199	21	109	12	133	14	73	7.6	67	6.9	36	3.8
750	1.125	0.375	464	37	253	20	398	32	217	17	332	26	181	15	266	21	145	12	199	16	109	8.5	133	11	73	5.7	67	5.2	36	2.8
500	0.750	0.250	464	25	253	14	398	21	217	12	332	18	181	9.5	266	14	145	7.6	199	11	109	5.7	133	6.9	73	3.8	67	3.5	36	1.9
400	0.600	0.200	464	20	253	11	398	17	217	9.1	332	14	181	7.6	266	12	145	6.1	199	8.3	109	4.5	133	5.6	73	3.0	67	2.8	36	1.5
300	0.450	0.150	464	15	253	8.0	398	13	217	6.8	332	11	181	5.7	266	8.3	145	4.5	199	6.3	109	3.4	133	4.2	73	2.3	67	2.1	36	1.1
200	0.300	0.100	464	9.8	253	5.3	398	8.4	217	4.5	332	7.0	181	3.8	266	5.6	145	3.0	199	4.2	109	2.3	133	2.8	73	1.5	67	1.4	36	0.8
100	0.150	0.050	464	4.9	253	2.7	398	4.2	217	2.3	332	3.5	181	1.9	266	2.8	145	1.5	199	2.1	109	1.1	133	1.4	73	0.8	67	0.7	36	0.4
50	0.075	0.025	464	2.5	253	1.3	398	2.1	217	1.1	332	1.8	181	0.9	266	1.4	145	0.8	199	1.0	109	0.6	133	0.7	73	0.4	67	0.3	36	0.3





本外形升降机为QWL50
蜗轮副速比：24/2
蜗杆每转行程：1.583mm
丝杠旋向：左旋





本外形升降机为QWL100
蜗轮副速比：29/2
蜗杆每转行程：1.586mm
丝杠旋向：左旋

注：本厂还承接各种各样的非标升降机的设计、制造，欢迎垂询。

附 录 A Attachment A

(提示的附录)(Hanging)

升降机驱动功率的计算

permitted radial force on worm shaft end

A1 驱动功率 A1 driving power:

$$P=\frac{F_a \cdot U}{60\eta}$$

式中:P 驱动程序 driving power, kW;
Fa 起升力(或拉力) hosting force, kN;
U 起升速度, hosting speed m/min;
η 传递总效率(见表A1和表A2) Total efficiency of transmission (see Table A1 and Table A1).

A2 驱动扭距 A2 driving torque:

$$M_t=9550\frac{P}{n}$$

式中:Mt 驱动扭矩 driving torque, N.m;
P 驱动功率 driving power, kW;
n 转速, rotate speed , r/min;

表A1 油脂润滑时的总效率η
Table A1 The final efficiency when thick grease lubrication η

型号 Type	SWL											
	2.5	2.5M	5	5M	10/15	10M/15M	20	20M	25	25M	35	35M
η	0.23	0.14	0.21	0.21	0.23	0.15	0.21	0.13	0.19	0.11	0.18	0.11

表A2 油脂润滑时的总效率η(仅用于2型)
Table A2 The final efficiency when thick grease lubrication on worm(only for model 2)

蜗杆转速 Worm screw r/min	型号 Type SWL											
	2.5	2.5M	5	5M	10/15	10M/15M	20	20M	25	25M	35	35M
1500	0.283	0.214	0.257	0.188	0.290	0.236	0.273	0.275	0.262	0.210	0.248	0.204
1000	0.279	0.206	0.252	0.180	0.285	0.227	0.286	0.217	0.257	0.200	0.243	0.195
750	0.276	0.201	0.249	0.175	0.282	0.222	0.266	0.212	0.253	0.194	0.240	0.189
500	0.272	0.194	0.245	0.168	0.277	0.215	0.262	0.205	0.249	0.187	0.236	0.183
300	0.267	0.187	0.241	0.161	0.272	0.207	0.257	0.198	0.243	0.179	0.231	0.175
100	0.257	0.172	0.231	0.146	0.261	0.191	0.247	0.183	0.233	0.164	0.222	0.160
50	0.251	0.164	0.225	0.138	0.255	0.183	0.242	0.175	0.226	0.155	0.216	0.152

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附 录 B Attachment B

(提示的附录)(Hanging)

蜗杆轴伸的许可径向力

Calculation of the lifer efficiency

B1 蜗杆轴伸上，由于安装齿轮、链轮或带轮所产生的径向力，其最大许用力与起升力和型号有关。在1/2处所许用的最大径向力和扭矩见图B1和表B1。

B1 As gear, chain wheel and pulley are mounted on worm shaft end, it makes radial force F1. The maximum allowadle force is depend on lifting force and model. The maximum allowable radial force and trosion at 1/2 position are shown in Fig B1 and B2.

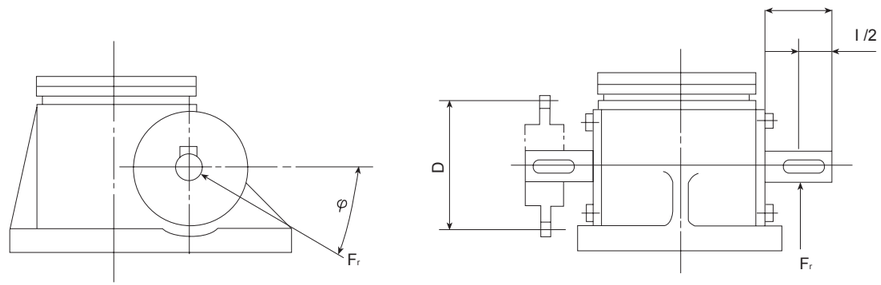

图 B1 Figure B1

表 B1 Table B1

型号 Type	F_{max} N	M_{tmax} N.m
SWL2.5/2.5M	350	18
SWL5/5M	750	44.2
SWL10/10M/15/15M	1000	10.8
SWL20/20M	1300	182
SWK25/25M	2000	314
SWL35/35M	2300	398

注：表中参数是按 $\varphi \approx 30°$ 或330° 计算的。Note:Parameters listed in the table are calculated according to the temperature of 30℃ or 330℃

B2 齿轮或带轮的最小直径。The minimum diamter of gear and pulley

$$D_{min}=19100\times\frac{P}{F_{rmax}n}=\frac{2M_t}{F_{rmax}}$$

式中：D_{min} ——齿轮或带轮的最小直径 minimum diameter of gear wheel or belt wheel,m;
P ——驱动功率 driving power,kw;
F_{max} ——最大径向力 maximum radial force,N;
n ——蜗杆转速 worm screw speed,r/min;
M_t ——驱动扭矩 driving torque,N.m

附 录C Attachment C

(提示的附录)(Hanging)

蜗杆长度与极限负荷的关系

The relation of worm length andloading limit

在欧拉负荷 I 和 II 情况下，螺杆长度与极限负荷的关系见图C1～C4.

Under condition of load I and II , the relation of worm length load limit is shown in Chart C1 to Chart C4.

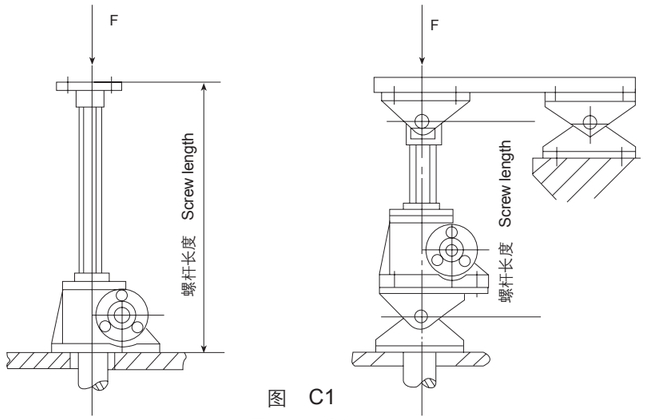

图 C1

Figure C1

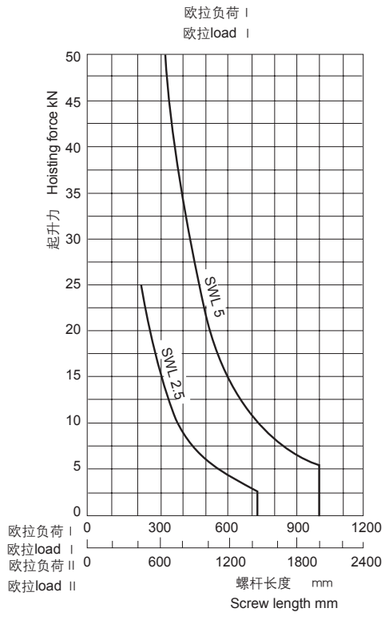

图 C2 Figure C2

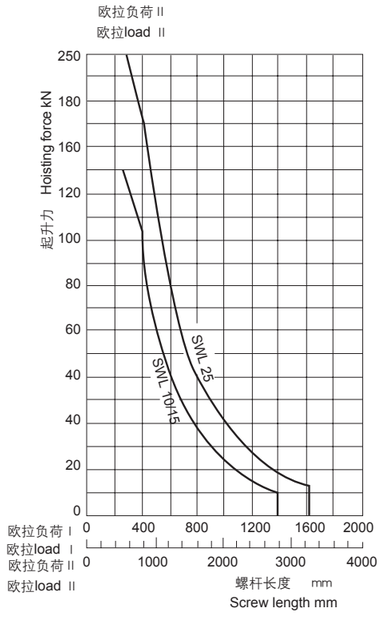

图 C3 Figure C3

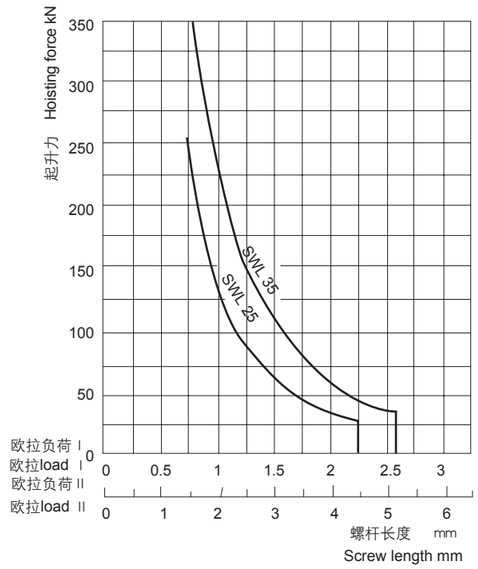

图 C4 Figure C4

附 录D Attachment D

(提示的附录)(Hanging)

螺杆许用侧向力Fs,和轴向力Fa与行程的关系

The relation of worm allowable side force Fs, axial force Fa and moving distance

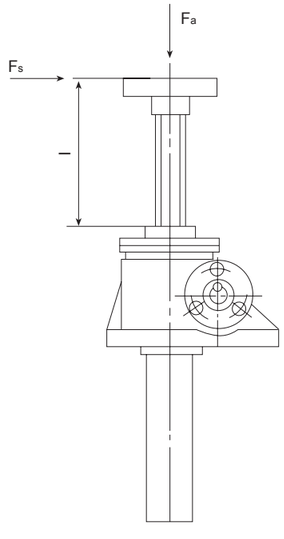

图 D1 Figure D1

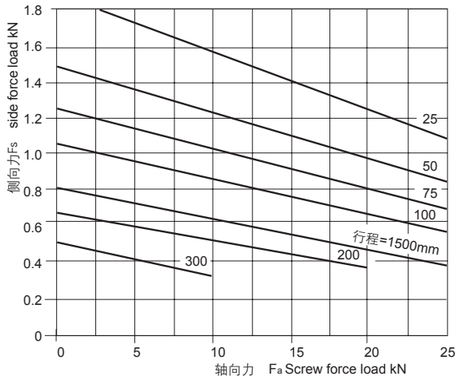

图 D2 Figure D2 SWL2.5

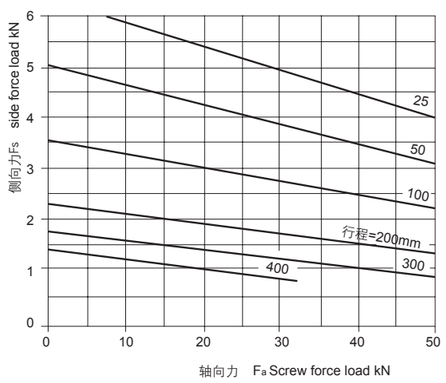

图 D3 Figure D3 SWL5

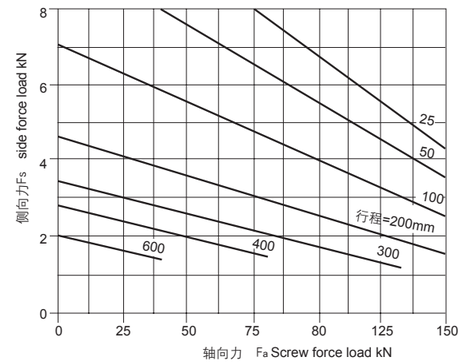

图 D4 Figure D4 SWL10/15

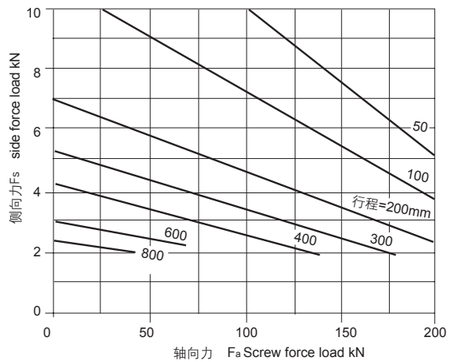

图 D5 Figure D5 SWL20

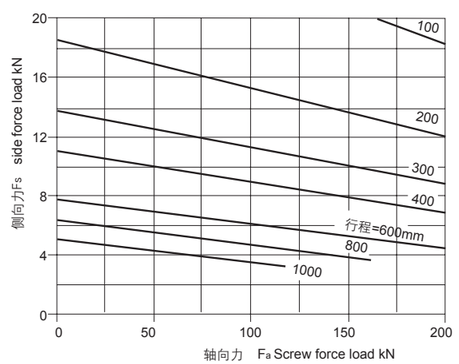

图 D6 Figure D6 SWL25

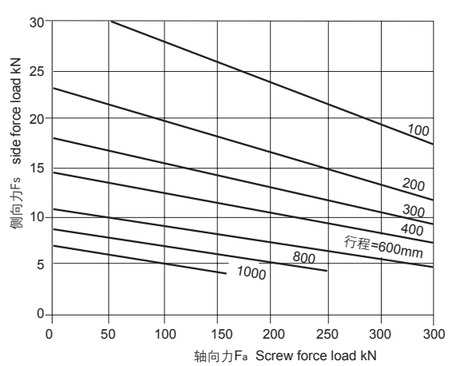

图 D7 Figure D7 SWL35

附 录E Attachment E

(提示的附录)(Hanging)

工作持续率与环境温度的关系

The relation of duration and environment temperature

工作持续率与环境温度的关系见表E1。
环境温度超过40℃时，应考虑减小工作持续率。
chart E1 tells the relation between working duration and environment temperature.
When environment temperature exceeds 40℃，the working duration duration should be reduced.

表E1 Table E1

环境温度℃ Ambient temperature℃	50	60	70	80
许用最大工作持续率 Maximum allowable service contionuity rate %/h	18	15	10	5
许用最大工作持续率 Maximum allowable service contionuity rate %/10min	36	30	20	10