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丝杆升降机 HG 系列



海格尔控股有限公司

# 公司简介

## Brief Introduction

海格尔控股·源于1982年成立的杭州萧山楼塔减速机厂，是一家有着数位多年从事减速机制造的精英专业致力于传动设备（蜗轮减速机“WP系列、WD系列、WPW系、NMRV系列、RV系列、VF系列”，“R系列斜齿轮减速机、S系列斜齿轮蜗轮减速电机、F系列平行轴斜齿轮减速电机、K系列斜齿轮锥齿轮减速电机、T系列螺旋锥齿轮减速电机”，摆线针轮减速机，HG系列丝杆升降机，联轴器）研制、开发、生产和销售的企业团队。

成员企业及品牌：“海格尔传动、萬峰减速机、”

产品广泛用于物流、仓储、钢铁、冶金、橡塑、食品、饮料、建筑、印刷、包装、起重、纺织、化工、环保……等机械装备工业，很大限度地满足了各行各业的传动需求。工厂运行高效的组织管理、成本控制和质量检测。公司拥有完善的营销网络及自营进出口权，积极走产、学、研合作之路，与国内著名的大专院校和科研院所建立了合作关系，为解决各种传动问题提供了有力的保障。目前产品80%出口到欧美,东南亚,中东,非洲地区，与数家国外企业达成战略合作关系。

HZgear Sinodrive Co.,Ltd. found in 1982,It is a science and technology which strictly act as the modern enterprise rules. There was an outstanding scientific team in our company. All of them are engaging and specializing in making transmission equipment (Worm Gear Reducer"WP Series ,WD Series,WPW Series,NMRV Series,RV Series,VF Series",Helical Gear Reducer"R Series,S Series,K Series,F Series,T Series,"geared motor,Screw Jack,Coupling). Through the hardworking of all staff, our company has become a scientific research entity integration transmission equipment research, exploitation, production and sales.

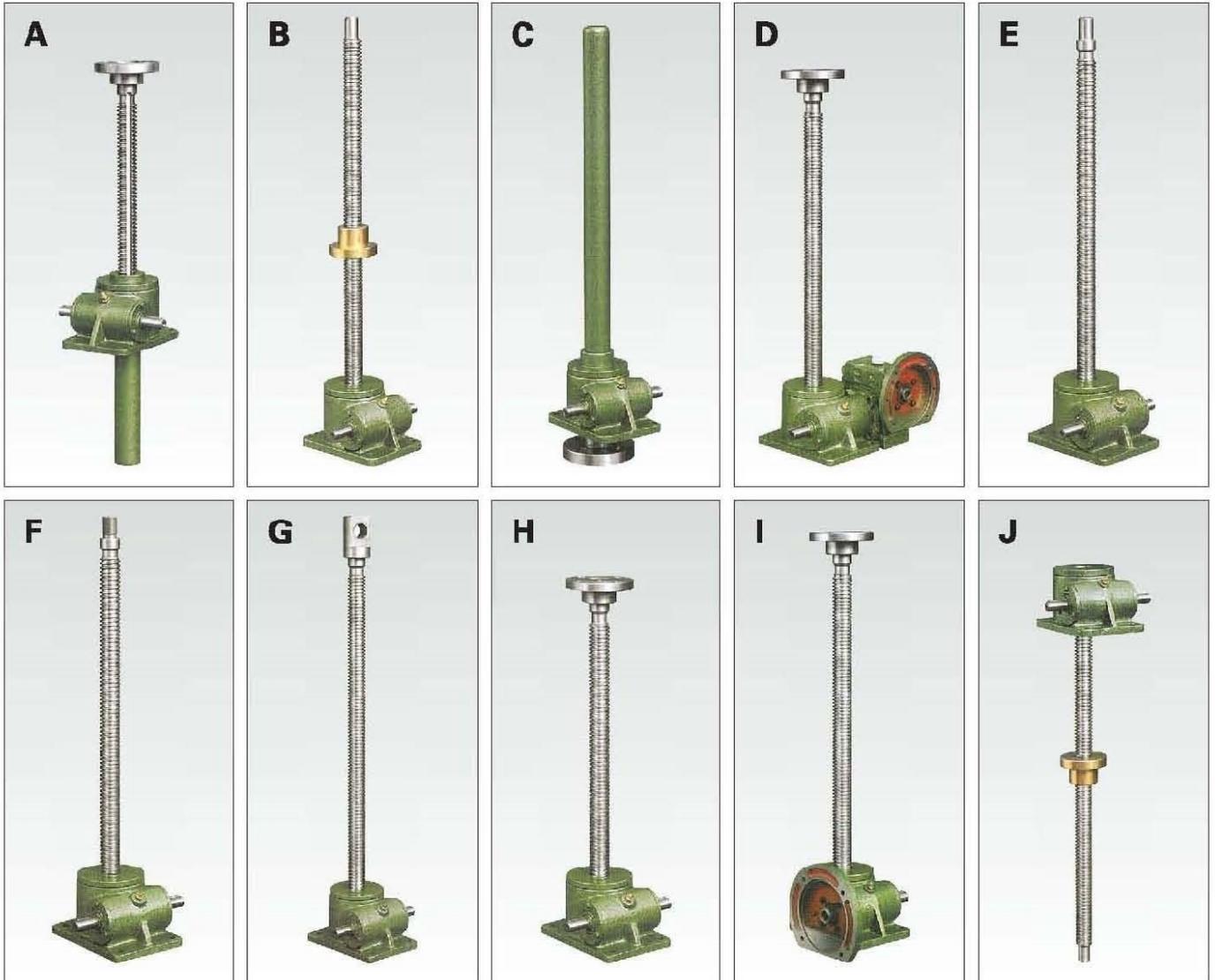
Holding corporation and brand “HZGEAR SINODRIVE、WANFENG REDUCER”

Our products apply widely in the transmission equipment of logistics, storage, steel, metallurgy, rubber, foodstuff, drink, construction, printing, packing, lift, textiles, chemical, green and so on. Our products can satisfy the requirements of transmission equipment on many areas diffusely.Our factory is efficiency under the high-standard management, the cost control and the quality testing. Our company have improved the network marketing . We have being cooperated with several famous universities and scientific institutes, it will ensure we can solve any problems on transmission equipment. At present, 80% of our products exports to Europe,South east Asia,and Middle East,Africa, and we still have the cooperation relationships with world top enterprises.

# HZGEAR SINODRIVE

## HG系列蜗轮丝杆升降机 HG Worm Gear Screw Jack

### 1. 产品图片 Products Pictures

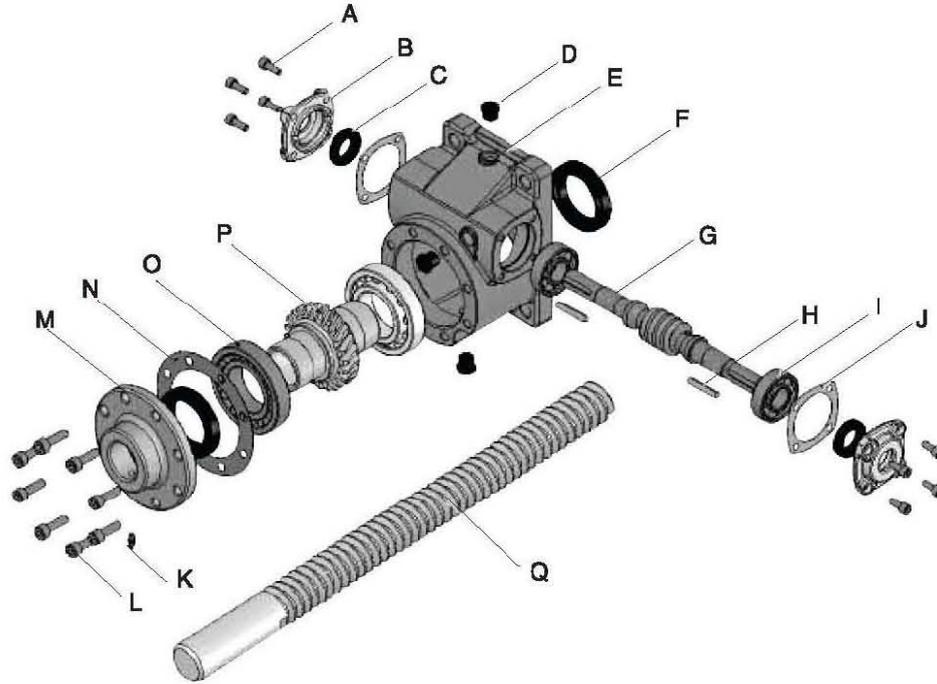


### 2. 产品概述 Product Overview

蜗轮丝杆升降机是通过蜗轮传动螺杆完成提升、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25KN-1200KN之间，最高输入转速1500r/min。工作环境温度在-20℃~100℃之间。

Worm gear screw jack is through the worm gear screw performs moving up ,down and forward by worm driving. It is widely used in fields 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 25KN-1200KN and the maximum input RPM is 1500r/m. The environment working temperature is between-20℃ and 100℃

### 3. 产品结构图 Product Structure



Number	名称 Name of parts	Number	名称 Name of parts
A	内六角螺丝 HEX. Screw	J	石棉垫片 Paper Packing
B	入力端盖 Input Shaft Cover	K	牛油嘴 Fittings
C	油封SC Oil Seal SC	L	内六角螺丝 HEX. Screw
D	放油螺栓 Oil Plug	M	出力端盖 output Shaft Cover
E	蜗轮箱 Outer Shell	N	石棉垫片 Paper Packing
F	油封TC Oil Seal TC	O	轴承 Taper Roller Bearing
G	蜗杆 Worm shefi	P	蜗轮 Worm wheel
H	键 Key	Q	丝杆 Screw
I	轴承 Ball Bearirtg		

### 4. 型式和标记 Type and Earmark

#### 4.1 安装方式 Mounting model

A和B型—丝杆同时作旋转运动和轴向移动(见图1);

E和F型—丝杆作旋转运动, 丝杆上的螺母作轴向移动(见图2)。

Type A and B —Screw spins and rotate axially at the same time (see Figure 1);

Type E and F —Screw spins while nut on screw is rotating axially (see Figure 2);

#### 4.2 运动形式 Movement model

升降机每种安装方式又分两种运动形式

A、C、E型—丝杆(或螺母)向上移动(见图1和图2);

B、D、F型—丝杆(或螺母)向下移动(见图1和图2);

There are two movement modes available for each of elevator mounting model:

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

Type B、 D、 F--Screw (or nut) moves downwards(see Figure 1 and Figure 2);

### 4.3 丝杆头部型式 Screw head mode

-- A和B 型结构型式的丝杆头部分为 R型(圆柱型)、 T 型(法兰型)、 S 型(螺纹型)和 H(扁头型)四种型式(见图1);

-- E和F 型结构型式的丝杆头部分为 R型(圆柱型)和 S型(螺纹型)两种型式(见图2)

--There are four types available for the head of screw with Type A and B structural mode; Type R (cylinder mode); Type T (flange mode); Type S (thread mode); and Type H (flat head mode)(see Figure 1).

--There are two types available for the head of screw with Type E and F structural mode; Type R (cylinder mode); Type S (thread mode).

### 4.4 传动比 Drive ratio

升降机分为三种传动比，即普通(P)和中速(Z)和慢速(M)。

There are three drive ratios available for elevator:common ratio (P) and middle ratio (Z) and slow ratio(M)

型号 Size	传动比 Ratio	传动比 Ratio	传动比 Ratio
HG025	1/6	1/12	1/24
HG050	1/8	1/12	1/24
HG100	3/23	1/12	1/24
HG150	3/23	1/12	1/24
HG200	1/8	1/12	1/24
HG250	3/32	1/12	1/32
HG350	3/32	1/16	1/32
HG500	1/11	1/16	1/32

### 4.5 丝杆的防护 Screw protection

A和B型升降机丝杆的防护分为：基本型、防旋转型( C 和 D )和带防护罩型(P);

E和F型升降机丝杆的防护分为：基本型和带防护罩型(P)

Protections available for Type A and B elevator are:basic type, anti-rotary type (E,F)or shielded type(P);

Protections available for Type E and F elevator are:basic type and shielded type(P);

### 4.6 标记示例 Example of earmark

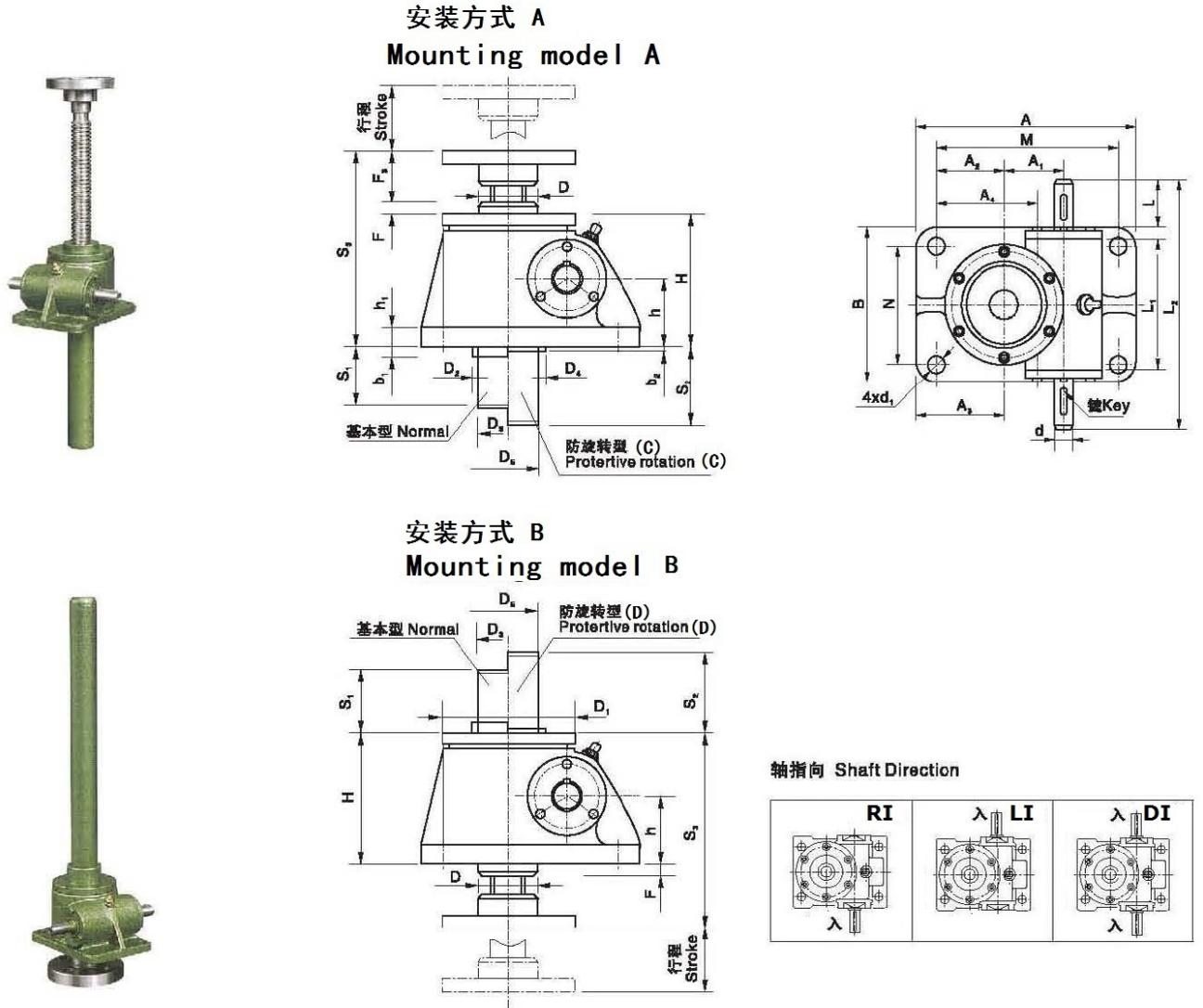
HG DA 025 24 A R 500 C P



## 5. 产品尺寸 Product Dimension

5.1 A和B型升降机的外形结构尺寸见图1和表1。

Fig 1 and Chart 1 show the outer structure and dimension of lifter model A and B.



### 丝杆头部型式 Type of screw head

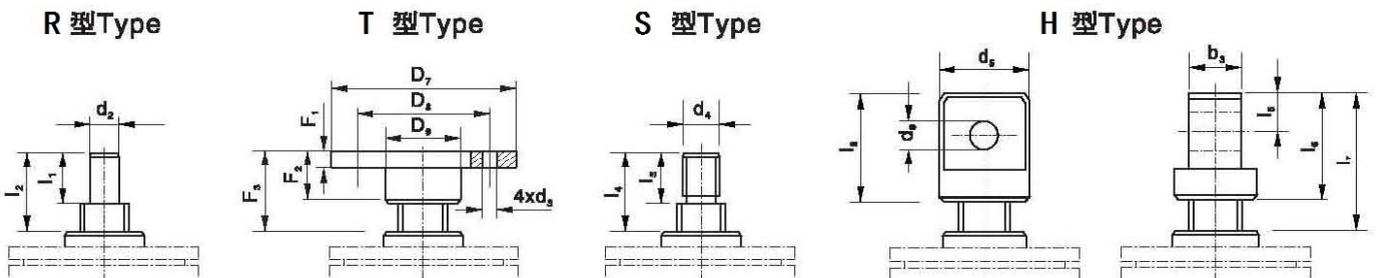


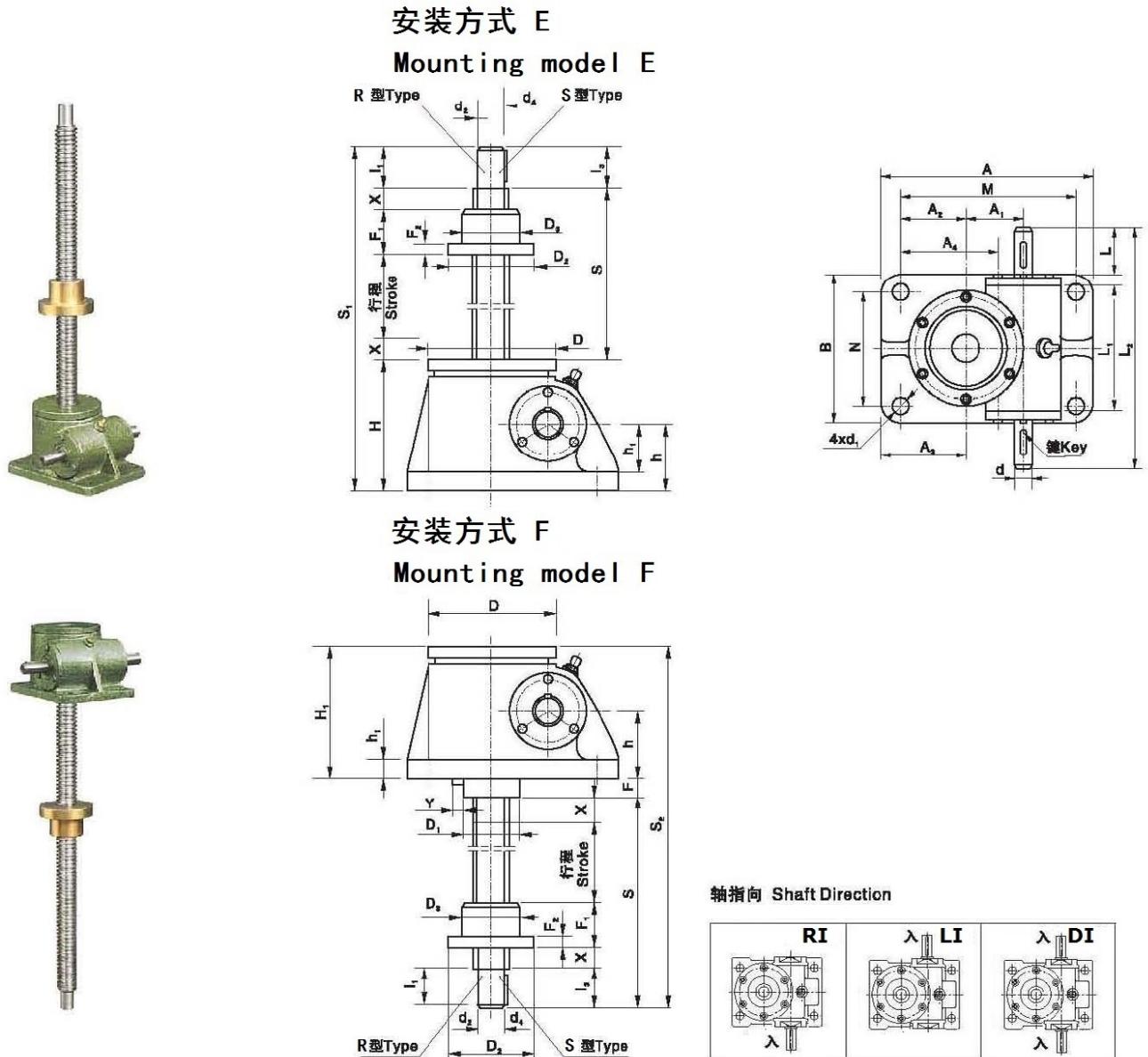
图1 A和B型安装方式 Type A and B Mounting mode

表(Table)1 mm

型号 type	HG025	HG050	HG100 HG150	HG200	HG250	HG350	HG500	HG1000	HG1200		
S <sub>1</sub>	行程+20	行程+20	行程+20	行程+20	行程+20	行程+20	行程+20	行程+20	行程+20		
S <sub>2</sub>	行程+110	行程+110	行程+150	行程+190	行程+205	行程+250	行程+285	行程+350	行程+400		
S <sub>3</sub>	150.5	193	230	262	317	350	416	550	570		
A	165	212	235	295	350	430	475	527.1	526		
B	120	155	200	215	260	280	500	526	622		
M	135	168	190	240	280	360	385	622	412		
N	90	114	155	160	190	210	406	412	508		
H	97	130	150	176	217	240	280	360	360		
h	45	61.5	70	87	102	115	121	155	155		
h <sub>1</sub>	12	14	16	20	25	30	32	38	42		
d(k6)	16	20	25	28	32	38	38	45	48		
d <sub>1</sub>	14	17	21	28	35	35	45	48	48		
键GB 1096	5x5x32	6x6x45	8x7x45	8x7x45	10x8x50	10x8x70	10x8x90	14x9x90	14x9x90		
L	-	-	42	42	58	80	100	100	100		
L <sub>1</sub>	110.5	132	172	213.5	221	265	310	380	380		
L <sub>2</sub>	190	228	280	322	355	430	558	610	610		
D	48	65	80	100	130	150	170	240	240		
D <sub>1</sub>	98	122	150	185	205	260	300	420	420		
D <sub>2</sub>	70	90	100	120	150	180	220	310	310		
D <sub>3</sub>	45	60	76	83	114	121	145	180	220		
D <sub>4</sub>	98	110	130	170	200	210	260	370	370		
D <sub>5</sub>	50x50	60x60	80x80	80x80	120x120	150x150	150x150	200x200	250x250		
A <sub>1</sub>	45.2	56.2	66.8	72.5	97	120	135	190	190		
A <sub>2</sub>	50	58	63.5	95	95	135	160	166	166		
A <sub>3</sub>	65	80	86	122.5	130	170	205	223	223		
A <sub>4</sub>	-	-	-	-	-	-	-	206	206		
b <sub>1</sub>	20	25	30	35	35	35	45	60	60		
b <sub>2</sub>	20	18	12	31	19	40	25	30	30		
F	8.5	12	6.5	6	8	10	20	36.5	40		
丝杆头型式 Screw head form	R	d <sub>2</sub> (k6)	20	25	40	50	70	80	95	130	150
		l <sub>1</sub>	30	40	50	60	63	80	90	120	140
		l <sub>2</sub>	45	51	73.5	80	92	100	120	150	170
	T	D <sub>7</sub>	98	122	150	185	205	260	300	370	400
		D <sub>8</sub>	75	85	105	140	155	200	225	280	310
		D <sub>9</sub>	40	50	65	90	100	130	150	200	230
		d <sub>3</sub>	14	17	21	26	27	33	39	48	48
		F <sub>1</sub>	12	18	20	20	25	30	35	75	80
		F <sub>2</sub>	30	40	50	60	63	80	90	120	140
		F <sub>3</sub>	45	51	73.5	80	92	100	120	150	170
	S	d <sub>4</sub>	M22x1.5-6g	M30x2-6g	M42x2-6g	M48x2-6g	M70x3-6g	M80x3-6g	M95x3-6g	M130x4-6g	M150x4-6g
		l <sub>3</sub>	30	39	50	60	63	80	90	120	140
		l <sub>4</sub>	45	51	73.5	80	92	100	120	150	170
	H	d <sub>5</sub>	50	65	90	110	130	150	180	220	260
		d <sub>5</sub> (H8)	25	35	50	60	70	80	80	90	95
		b <sub>3</sub>	30	42	60	75	90	105	120	160	180
l <sub>5</sub>		25	37.5	50	60	70	80	80	90	100	
l <sub>6</sub>		50	75	100	120	140	160	160	180	200	
l <sub>7</sub>		85	117	153.5	170	204	240	270	330	360	
l <sub>8</sub>	70	105	130	150	175	220	240	300	335		

5.2 E 和 F 型升降机的外形结构尺寸见图2和表2。

Fig 2 and Chart 2 show the outer structure and dimension of lifter model E and F .



丝杆头部型式 Type of screw head

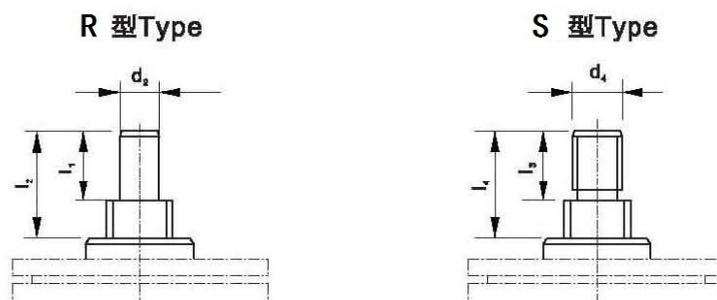
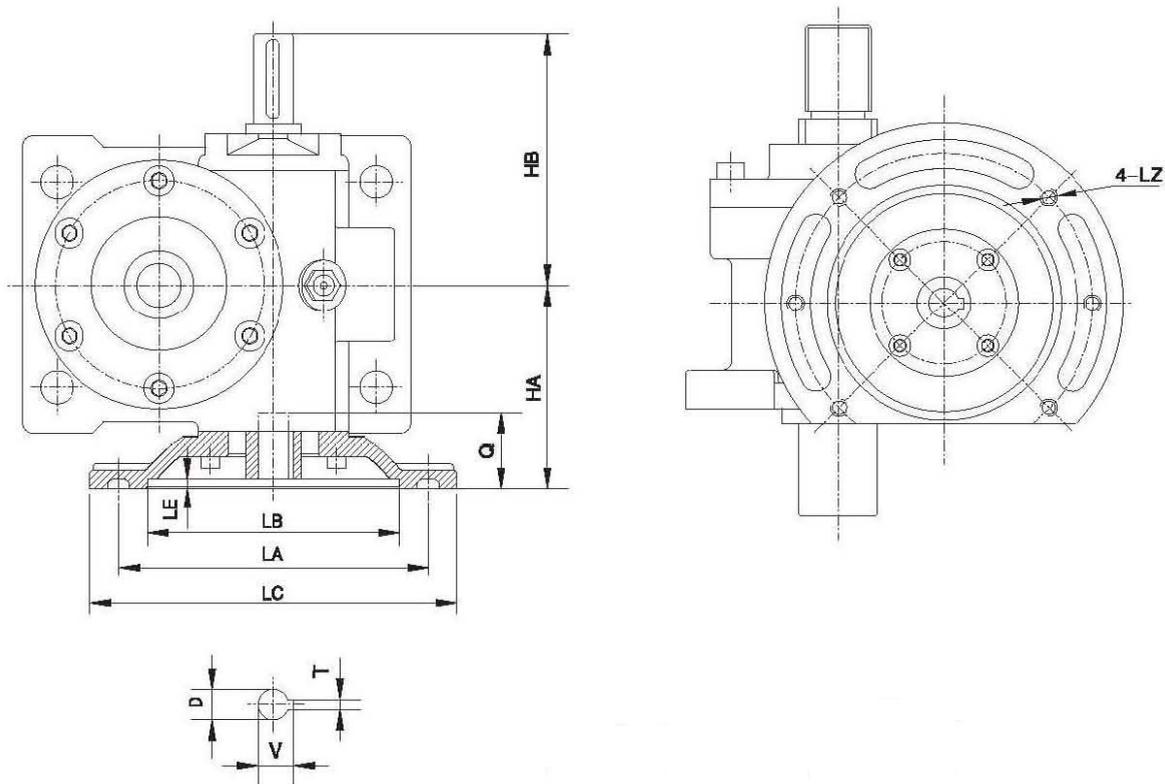


图2 E和F型安装方式 Type E and F Mounting model

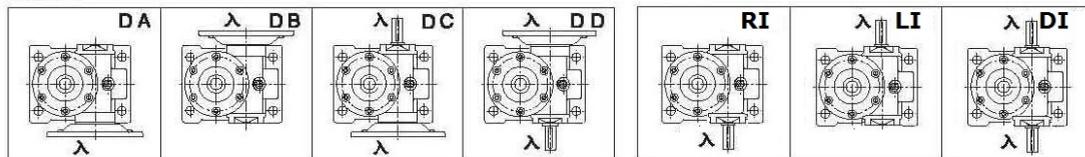
表(Table)2 mm

型号 Type	HG025	HG050	HG100 HG150	HG200	HG250	HG350	HG500	HG1000	HG1200	
S	行程+85	行程+100	行程+125	行程+150	行程+170	行程+205	行程+250	行程+320	行程+330	
S <sub>1</sub>	行程+215	行程+270	行程+335	行程+404	行程+476	行程+535	行程+603	行程+815	行程+845	
S <sub>2</sub>	行程+238.5	行程+300	行程+359	行程+430	行程+513	行程+580	行程+685	行程+880	行程+910	
A	165	212	235	295	350	430	475	526	526	
B	120	155	200	215	260	280	500	622	622	
M	135	168	190	240	180	360	385	412	412	
N	90	114	155	160	190	210	406	508	508	
H	100	131	160	194	226	250	290	375	375	
H <sub>1</sub>	97	131	150	181	211	250	280	360	360	
h	45	61.5	70	87	102	115	121	155	155	
h <sub>1</sub>	12	14	16	20	25	30	32	38	42	
d(k6)	16	20	25	28	32	38	38	45n6	48n6	
d <sub>1</sub>	14	17	21	28	35	35	45	48	48	
键GB 1096	5x5x32	6x6x32	8x7x45	8x7x45	10x8x50	10x8x70	10x8x90	14x9x90	14x9x90	
L	-	-	42	42	58	80	100	100	100	
L <sub>1</sub>	110.5	132	172	213.5	221	265	314	380	380	
L <sub>2</sub>	190	228	280	322	355	430	558	610	610	
D	98	122	150	185	205	260	300	420	420	
D <sub>1</sub>	68	83	110	140	160	180	200	260	260	
A <sub>1</sub>	45.2	56.2	66.8	72.5	97	120	135	190	190	
A <sub>2</sub>	50	58	63.5	95	95	135	160	166	166	
A <sub>3</sub>	65	80	86	122.5	130	170	205	223	223	
A <sub>4</sub>	-	-	-	-	-	-	-	206	206	
F	26.5	30	34	39	52	45	65	80	80	
安全裕度X Safety factor	20	20	25	25	25	30	40	50	50	
Y	3	3	1	3	3	4	5	6	6	
滑 动 螺 母 Moving nut	D <sub>2</sub>	80	87	110	120	155	190	220	300	330
	D <sub>3</sub> (h9)	50	70	90	90	130	150	180	240	260
	F <sub>1</sub>	45	60	75	100	120	145	170	220	270
	F <sub>2</sub>	15	18	25	30	35	35	50	70	80
R 球 面 球 头 螺 母 Screw head form	d <sub>2</sub> (k6)	20	25	40	50	70	80	95	130	150
	l <sub>1</sub>	30	40	50	60	80	80	108	127	130
S	d <sub>4</sub>	M22x1.5-6g	M30x2-6g	M42x2-6g	M48x2-6g	M70x3-6g	M80x3-6g	M95x3-6g	M130x4-6g	M150x4-6g
	l <sub>a</sub>	30	39	50	60	63	80	90	120	140

### 5.3 HGD 型结构型式 HGD Type structure types



#### 轴指向 Shaft Direction



型号 Size	法兰规格 Flange size	HA	HB	LA	LB	LC	LE	LZ	D	Q	TxV
HG025	71B5	85	102.5	130	110	160	4	M8	14	33	5x16.3
HG050	80B5	111	120	165	130	200	4	M10	19	42	6x21.8
HG100	90B5	138	150	165	130	200	4.5	M10	24	52	8x27.3
HG150	90B5	138	150	165	130	200	4.5	M10	24	52	8x27.3
HG200	100B5	156	161	215	180	250	5	M12	28	63	8x31.3
HG250	112B5	160	177.5	215	180	250	5	M12	28	63	8x31.3
HG350	132B5	202	215	265	230	300	5	M12	38	63	10x41.3

## 6. 性能参数 Specification

### 6.1 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(Table)3 mm

型号 Type	HG025	HG050	HG100 HG150	HG200	HG250	HG350	HG500	HG1000	HG1200
最大起升力 (kN) Maximum hoisting force	25	50	100/50	200	250	350	500	1000	1200
最大拉力 (kN) Maximum tensile force	25	50	99	166	250	350	500	1000	1200
丝杆螺纹尺寸 Screw thread size	Tr30x6	Tr40x7	Tr58x12	Tr65x12	Tr90x16	Tr100x18	Tr120x20	Tr160x23	Tr180x25
蜗轮蜗杆传动比 (P) Worm wheel and worm screw drive ratio	6:1	8:1	3/23	8:1	3/32	3/32	11 :1	12:1	12:1
蜗杆每转行程 (mm) Worm screw travel per turn	1.0	0.875	1.565	1.56	1.5	1.875	1.818	1.92	2.083
蜗轮蜗杆传动比 (M) Worm wheel and worm screw drive ratio	24:1	24:1	24:1	24:1	32:1	32:1	32:1	36:1	36:1
蜗杆每转行程 (mm) Worm screw travel per turn	0.250	0.292	0.5	0.5	0.5	0.625	0.625	0.638	0.694
蜗杆扭矩 (N.m) Worm screw torque	见附录B (提示的附录) See Attachment B (hanging)								
拉力负荷时丝杆的最大伸长 (mm) Maximum elongation of worm screw with tensile load	1500	2000	2500	3000	3500	4000	5500	6500	7000
压力负荷时丝杆的最大伸长 (mm) Maximum elongation of worm screw with compressive load	见附录C (提示的附录) See Attachment C (hanging)								
侧向力负荷时丝杆的最大伸长 (mm) Maximum elongation of worm screw with side force load	见附录D (提示的附录) See Attachment D (hanging)								
最大许用功率 (KW) Maximum allowable power	1.45	2.59	3.47	4.02	5.38	13.06	13.9	28.5	62
普通比(F)总效率% Total efficiency of common ratio (p)%	23	21	23	21	19	18	15	13	12
慢速比(M)总效率% Total efficiency of slow-speed ratio (M)%	14	12	15	13	11	11	11	10	8
润滑油量 Kg Lubricant quantity	0.1	0.25	0.5	0.75	1.1	1.9	2.2	2.5	2.5
不加行程的重量 (Kg) Weight without travel added	7.3	16.2	25	36	70.5	87	420	1010	1350
丝杆每100mm的重量 (Kg) Weight of screw per 100 mm	0.45	0.82	1.67	2.15	4.15	5.20	7.45	13.6	17.3

注: 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。

2. 总功率为油脂润滑条件下的参数。

3. 工作环境温度-20℃~80℃。

4. 在静止状态一般可以自锁。

Note: 1. Maximum allowable power is a parameter applicable for the condition that ambient temperature is 20℃ and service continuity rate is 20%/h.

2. Total power is a parameter applicable for grease lubrication.

3. Ambient temperature for service.

4. Usually self-lock may function at static status.

6.2 丝杆传动的许用起升速度、扭矩和功率按表4~表13。

The allowable temperature raise, torsion and efficiency of the worm driving are listed in Chart 4 to Chart 13.

### HG025

表(Table)4

蜗杆转速 Worm speed r/min	起升速度 Hoisting speed m/min		起升力 hoisting force KN																											
			25				20				15				10				5				2.5				1			
			P		M		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																		
1500	1.500	0.375	18	2.7	7.1	1.2	14	2.2	5.7	0.89	11	1.7	4.3	0.67	6.9	1.10	2.9	0.45	3.5	0.54	1.4	0.22	1.7	0.27	0.71	0.11	0.7	0.11	0.28	0.05
1000	1.000	0.250	18	1.8	7.1	0.74	14	1.5	5.7	0.60	11	1.1	4.3	0.45	6.9	0.72	2.9	0.30	3.5	0.36	1.4	0.15	1.7	0.18	0.71	0.07	0.7	0.07	0.28	0.05
750	0.750	0.188	18	1.4	7.1	0.56	14	1.1	5.7	0.45	11	0.82	4.3	0.33	6.9	0.54	2.9	0.22	3.5	0.27	1.4	0.11	1.7	0.14	0.71	0.06	0.7	0.05	0.28	0.05
500	0.500	0.125	18	0.91	7.1	0.37	14	0.72	5.7	0.30	11	0.54	4.3	0.22	6.9	0.36	2.9	0.16	3.5	0.18	1.4	0.07	1.7	0.09	0.71	0.06	0.7	0.06	0.28	0.06
300	0.300	0.075	18	0.54	7.1	0.22	14	0.43	5.7	0.18	11	0.33	4.3	0.13	6.9	0.22	2.9	0.09	3.5	0.11	1.4	0.05	1.7	0.05	0.71	0.05	0.7	0.05	0.28	0.05
200	0.200	0.050	18	0.36	7.1	0.15	14	0.29	5.7	0.12	11	0.22	4.3	0.09	6.9	0.14	2.9	0.06	3.5	0.07	1.4	0.05	1.7	0.05	0.71	0.05	0.7	0.05	0.28	0.05
100	0.100	0.025	18	0.18	7.1	0.07	14	0.14	5.7	0.06	11	0.11	4.3	0.05	6.9	0.07	2.9	0.05	3.5	0.05	1.4	0.05	1.7	0.05	0.71	0.05	0.7	0.05	0.28	0.05
50	0.050	0.013	18	0.09	7.1	0.05	14	0.07	5.7	0.05	11	0.05	4.3	0.05	6.9	0.05	2.9	0.05	3.5	0.05	1.4	0.05	1.7	0.05	0.71	0.05	0.7	0.05	0.28	0.05

### HG050

表(Table)5

蜗杆转速 Worm speed r/min	起升速度 Hoisting speed m/min		起升力 hoisting force KN																											
			50				40				30				20				10				5				2.5			
			P		M		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										
1500	1.750	0.438	44.2	6.9	19.3	3.0	35.4	5.6	15.5	2.4	26.5	4.2	11.8	1.8	17.7	2.8	7.7	1.2	8.8	1.4	3.9	0.6	4.4	0.7	1.9	0.3	2.2	0.3	1.0	0.2
1000	1.167	0.292	44.2	4.6	19.3	2.0	35.4	3.7	15.5	1.6	26.5	2.8	11.8	1.2	17.7	1.9	7.7	0.8	8.8	0.9	3.9	0.4	4.4	0.5	1.9	0.2	2.2	0.2	1.0	0.1
750	0.875	0.219	44.2	3.5	19.3	1.5	35.4	2.8	15.5	1.2	26.5	2.1	11.8	0.9	17.7	1.4	7.7	0.6	8.8	0.7	3.9	0.3	4.4	0.3	1.9	0.2	2.2	0.2	1.0	0.1
500	0.583	0.146	44.2	2.3	19.3	1.0	35.4	1.9	15.5	0.8	26.5	1.4	11.6	0.6	17.7	0.9	7.7	0.4	8.8	0.5	3.9	0.2	4.4	0.2	1.9	0.1	2.2	0.1	1.0	0.1
300	0.350	0.088	44.2	1.4	19.3	0.6	35.4	1.1	15.5	0.5	26.5	0.8	11.8	0.4	17.7	0.6	7.7	0.2	8.8	0.3	3.9	0.1	4.4	0.1	1.9	0.1	2.2	0.1	1.0	0.1
200	0.233	0.058	44.2	0.9	19.3	0.4	35.4	0.7	15.5	0.3	26.5	0.6	11.6	0.2	17.7	0.4	7.7	0.2	8.8	0.2	3.9	0.1	4.4	0.1	1.9	0.1	2.2	0.1	1.0	0.1
100	0.117	0.029	44.2	0.5	19.3	0.2	35.4	0.4	15.5	0.2	26.5	0.3	11.6	0.1	17.7	0.2	7.7	0.1	8.8	0.1	3.9	0.1	4.4	0.1	1.9	0.1	2.2	0.1	1.0	0.1
50	0.058	0.015	44.2	0.2	19.3	0.1	35.4	0.2	15.5	0.1	26.5	0.1	11.6	0.1	17.7	0.1	7.7	0.1	8.8	0.1	3.9	0.1	4.4	0.1	1.9	0.1	2.2	0.1	1.0	0.1

### HG100

表(Table)6

蜗杆转速 Worm speed r/min	起升速度 Hoisting speed m/min		起升力 hoisting force KN																											
			100				80				60				40				20				10				5			
			P		M		P		M		P		M		P		M		P		M		P		M		P		M	
			P	M	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	0.4	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	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

### HG150

表(Table)7

蜗杆转速 Worm speed r/min	起升速度 Hoisting speed m/min		起升力 hoisting force KN																											
			150				100				80				60				40				20				10			
			P		M		P		M		P		M		P		M		P		M		P		M		P		M	
			P	M	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

## HG200

表(Table)8

蜗杆转速 Worm speed r/min	起升速度 Hoisting speed m/min		起升力 hoisting force KN																											
			200				160				100				75				50				25							
			P		M		P		M		P		M		P		M		P		M		P		M					
			P	M	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	9.6	98	6.1	137	7.1	74	3.9	114	6.0	62	3.2	86	4.6	46	2.4	57	3.0	31	1.6	29	1.6	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	0.6	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

## HG250

表(Table)9

蜗杆转速 Worm speed r/min	起升速度 Hoisting speed m/min		起升力 hoisting force KN																											
			250				200				160				120				100				75				50			
			P		M		P		M		P		M		P		M		P		M		P		M		P		M	
			P	M	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	83	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	83	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	83	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	83	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	83	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	83	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	83	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	83	0.3	37	0.2

## HG350

表(Table)10

蜗杆转速 Worm speed r/min	起升速度 Hoisting speed m/min		起升力 hoisting force KN																											
			350				300				250				200				150				100				50			
			P		M		P		M		P		M		P		M		P		M		P		M		P		M	
			P	M	N.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	87	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	87	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	87	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	87	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	87	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	87	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	87	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	87	0.3	36	0.3

## HG500

表(Table)11

蜗杆转速 Worm speed r/min	起升速度 Hoisting speed m/min		起升力 hoisting force KN																											
			500				450				400				350				300				200				100			
			P		M		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	1.6	0.625	848	88	448	47	764	80	401	42	679	71.1	353	37	594	62.2	316	33.1	509	53.3	271	28.4	339	35.5	180	18.9	169	17.7	90	9.4
1000	1.2	0.469	848	67	448	35.5	764	60	401	31	679	53.3	353	28.4	594	45.8	316	24.8	509	39.9	271	21.3	339	26.7	180	14.2	169	13.4	90	7.1
750	0.8	0.313	848	44	448	23.7	764	40	401	21	679	35.5	353	18.9	594	31	316	16.6	509	26.2	271	14.2	339	17.7	180	9.5	169	8.9	90	4.7
500	0.64	0.25	848	35	448	18.9	764	32	401	17	679	28.4	353	15.2	594	24.8	316	13.3	509	21.3	271	11.4	339	14.2	180	7.6	169	7.1	90	3.8
300	0.48	0.188	848	26	448	14.2	764	24	401	12.8	679	21.3	353	11.4	594	18.6	316	9.9	509	16	271	8.5	339	10.7	180	5.7	169	5.3	90	2.9
200	0.32	0.125	848	18	448	9.5	764	16	401	8.5	679	14.2	353	7.5	594	12.4	316	6.8	509	10.6	271	5.7	339	7.1	180	3.7	169	3.5	90	1.8
100	0.16	0.06	848	8.9	448	4.5	764	8	401	4	679	7.1	353	3.6	594	6.2	316	3.2	509	5.3	271	2.8	339	3.5	180	1.8	169	1.7	90	0.9
50	0.08	0.03	848	4.4	448	2.2	764	4	401	2	679	3.5	353	1.8	594	3.1	316	1.6	509	2.6	271	1.3	339	1.7	180	0.9	169	0.8	90	0.45

## HG1000

表(Table)12

蜗杆 转速 Worm speed r/min	起升速度 Hoisting speed m/min		起升力 hoisting force KN																											
			1000				900				800				700				600				400				200			
			P		M		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	1.588	0.639	1938	203	1012	106	1747	183	915	98	1554	162	813	85	1359	142	711	74	1165	122	611	64	776	81	406	42.6	388	40.6	203	21.3
750	1.189	0.479	1938	152	1012	80	1747	137	915	72	1554	122	813	64	1359	106	711	55	1165	91	611	48	776	61	406	32	388	30.5	203	16
500	0.793	0.319	1938	102	1012	53	1747	91	915	48	1554	81	813	42	1359	71	711	37	1165	61	611	32	776	41	406	21	388	21	203	10.5
400	0.635	0.255	1938	81.4	1012	42.5	1747	73	915	38	1554	65	813	34	1359	58	711	29	1165	48	611	25.5	776	32	406	17	388	16	203	8.5
300	0.476	0.192	1938	61	1012	32	1747	55	915	28.8	1554	49	813	25	1359	42	711	22	1165	36	611	19.2	776	24	406	12.7	388	12	203	6.3
200	0.317	0.128	1938	40.6	1012	21	1747	36	915	19.2	1554	32.5	813	17	1359	28	711	15	1165	24	611	12.8	776	18	406	8.5	388	8	203	4.2
100	0.159	0.064	1938	20.3	1012	10.6	1747	18.3	915	9.6	1554	16	813	8.5	1359	14	711	7.5	1165	12	611	6.4	776	8	406	4.3	388	4	203	2.1
50	0.08	0.032	1938	102	1012	5.3	1747	9.1	915	4.8	1554	8	813	4.2	1359	7	711	3.8	1165	6	611	3.2	776	4	406	2.1	388	2	203	1.05

## HG1200

表(Table)13

蜗杆 转速 Worm speed r/min	起升速度 Hoisting speed m/min		起升力 hoisting force KN																											
			1200				1000				900				800				600				400				200			
			P		M		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	2.083	0.694	3315	347	1656	173	2762	289	1380	144	2486	260	1242	130	2206	231	1104	115	1657	173	828	86.5	1103	115	552	57.5	551	57.5	276	28.8
750	1.563	0.521	3315	260	1656	130	2762	217	1380	108	2486	196	1242	97	2206	173	1104	86	1657	130	828	65	1103	86	552	43	551	43	276	21.5
500	1.042	0.347	3315	173	1656	87	2762	144	1380	72	2486	130	1242	65	2206	115	1104	57	1657	86	828	43.5	1103	57	552	28.5	551	28.5	276	14.2
400	0.833	0.277	3315	138	1656	69	2762	115	1380	57	2486	104	1242	51	2206	92	1104	46	1657	69	828	34.5	1103	46	552	23	551	23	276	11.5
300	0.625	0.208	3315	104	1656	52	2762	86	1380	43	2486	78	1242	39	2206	69	1104	35	1657	52	828	26	1103	34.5	552	17.5	551	17.5	276	8.7
200	0.417	0.139	3315	69	1656	34	2762	58	1380	28	2486	52	1242	26	2206	46	1104	23	1657	34.5	828	27	1103	23	552	11.5	551	11.5	276	5.7
100	0.208	0.089	3315	34	1656	17	2762	29	1380	14	2486	28	1242	13	2206	23	1104	11.5	1657	17	828	8.5	1103	11.5	552	5.7	551	5.7	276	2.8
50	0.104	0.035	3315	17	1656	8.5	2762	14.5	1380	7	2486	13	1242	6.5	2206	11.5	1104	5.7	1657	8.5	828	4.2	1103	5.7	552	2.8	551	2.8	276	1.4

注：表4-表13中的参数适用于环境温度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，使用时丝杆会产生过热，应严加注意。  
 Note: Parameters listed in Table 4-Table 13 are applicable for the condition that ambient temperature is 20℃ and service continuity rate is 20%/h or 30%/10min. For those parameters within bold line, screw may overheat during service, so it should be closely monitored.

## 7. 附录 Attachment

### 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—驱动功率 Driving power, kW;

F<sub>a</sub>—起升力(或拉力) Hoisting force, kN;

u—起升速度, Hoisting speed m/min;

η—传递总效率(见表A1和表A2) Total efficiency of transmission (see Table A1 and Table A2)

#### A2 驱动扭矩 A2 driving torque

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

式中：M<sub>t</sub>—驱动扭矩 Driving torque, N.m;

P—驱动功率 Driving power, kW;

n—转速 Rotate speed, r/min。

油脂润滑时的总效率  $\eta$   
The final efficiency when thick grease lubrication  $\eta$

表(Table) A1

型号 Type	H G											
	025	025M	050	050M	100 150	100M 150M	200	200M	250	250M	350	350M
$\eta$	0.23	0.14	0.21	0.12	0.23	0.15	0.21	0.13	0.19	0.11	0.18	0.11

蜗杆副采用稀油润滑时的总效率  $\eta$  (仅用于 E, F 型)  
The final efficiency when thin grease lubrication on worm (only for model E, F)

表(Table) A2

蜗杆转速 Worm screw r/min	型号 Type H G											
	025	025M	050	050M	100 150	100M 150M	200	200M	250	250M	350	350M
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	0.268	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

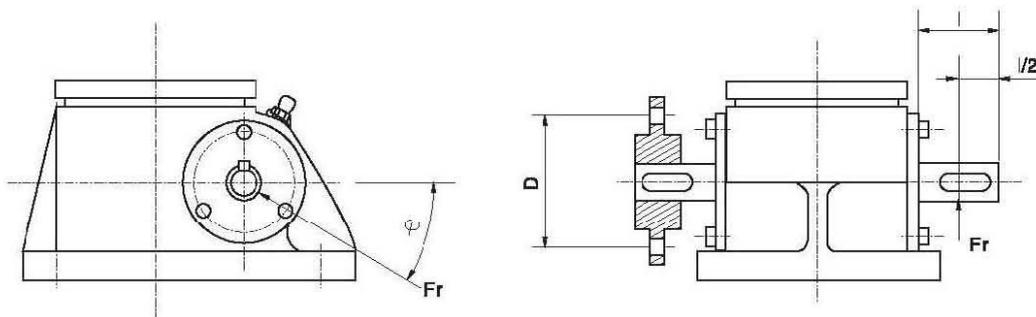
## 附录B Attachment B (提示的附录 Hanging)

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 $F_r$ , 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  $F_r$ . The maximum allowable force is depend on lifting force and model. The maximum allowable radial force and torsion at 1/2 position are shown in Fig B1 and B2.

图B1 Figure B1



表(Table) B1

型号 Type	$F_{max}$ N	$M_{tmax}$ N.m
HG025/025M	350	18
HG050/050M	750	44.2
HG100/100M/150/150M	1000	108
HG200/200M	1300	182
HG250/250M	2000	314
HG350/350M	2300	398

注：表中参数是按 $\varphi \approx 30^\circ$  或 $330^\circ$  计算的。 Note: Parameters listed in the table are calculated according to the temperature of  $30^\circ\text{C}$  or  $330^\circ\text{C}$

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

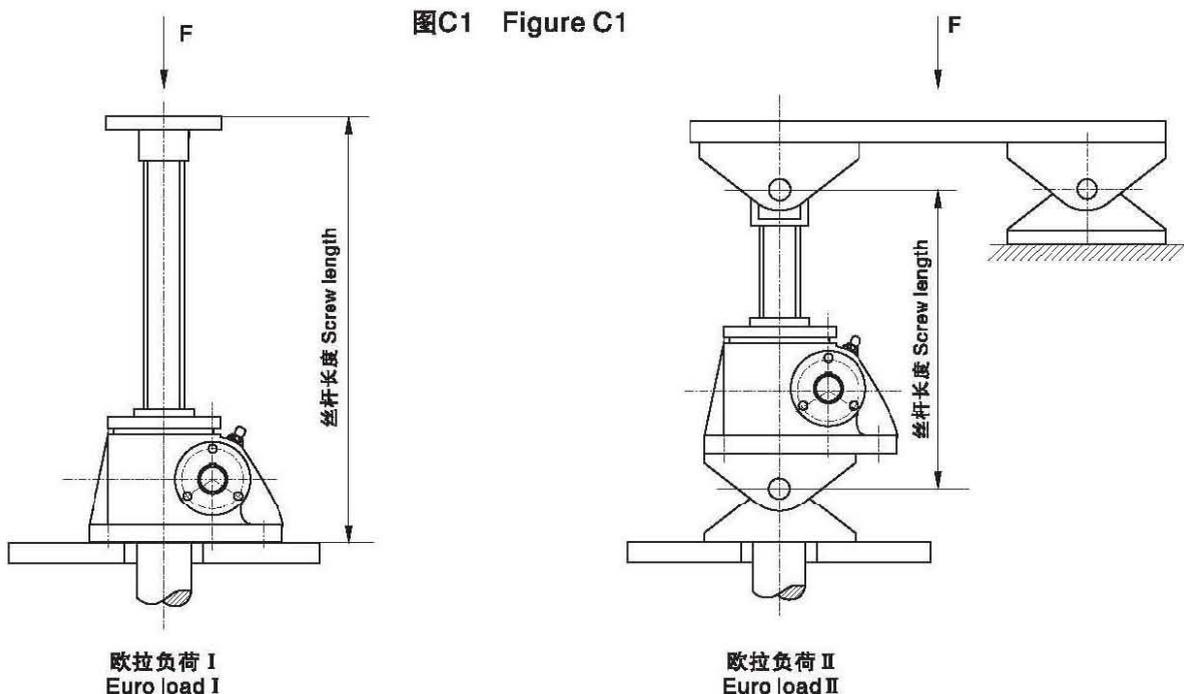
$$D_{min} = 19100 \times \frac{P}{F_{max} n} = \frac{2M_t}{F_{max}}$$

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.

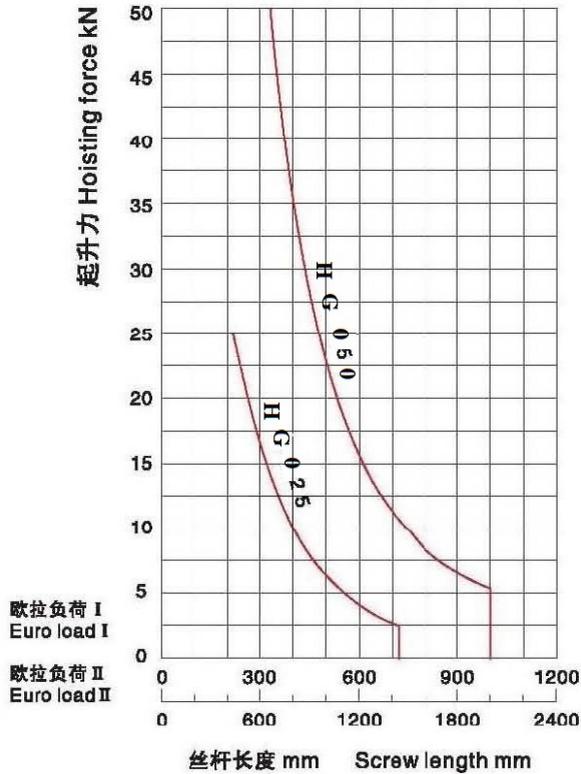
## 附录C Attachment C (提示的附录 Hanging)

丝杆长度与极限负荷的关系  
The relation of worm length and loading limit

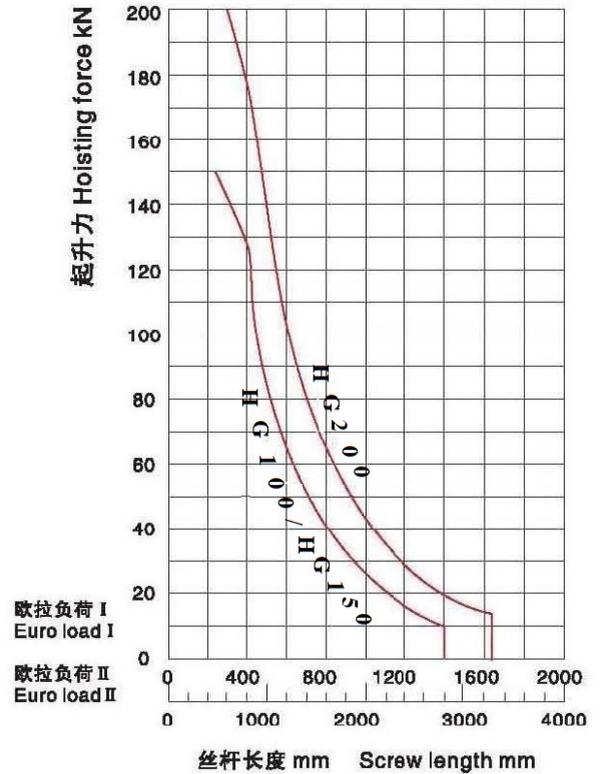
在欧拉负荷I和II情况下，丝杆长度与极限负荷的关系见图C1~图C4。  
Under condition of load I and II, the relation of worm length and load limit is shown in Chart C1 to chart C4.



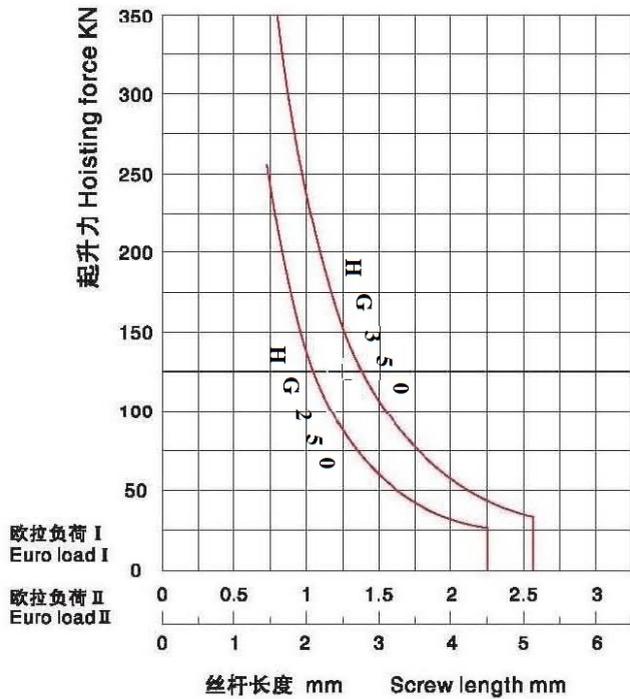
图C2 Figure C2



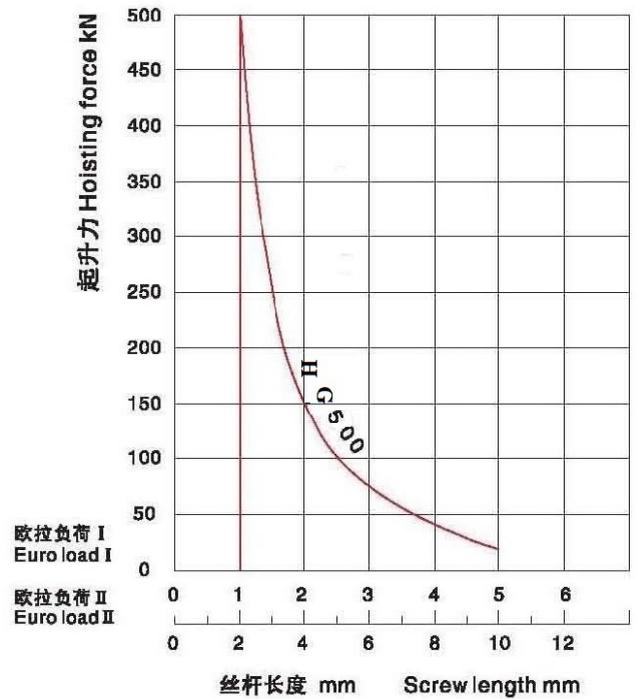
图C3 Figure C3



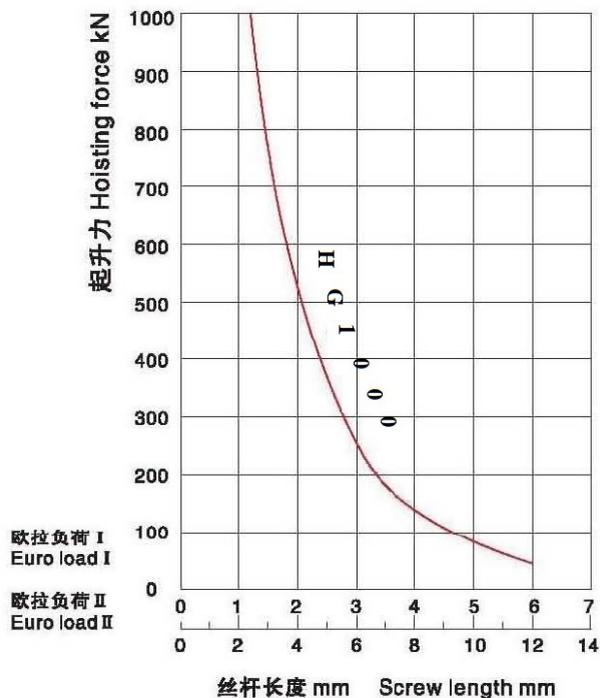
图C4 Figure C4



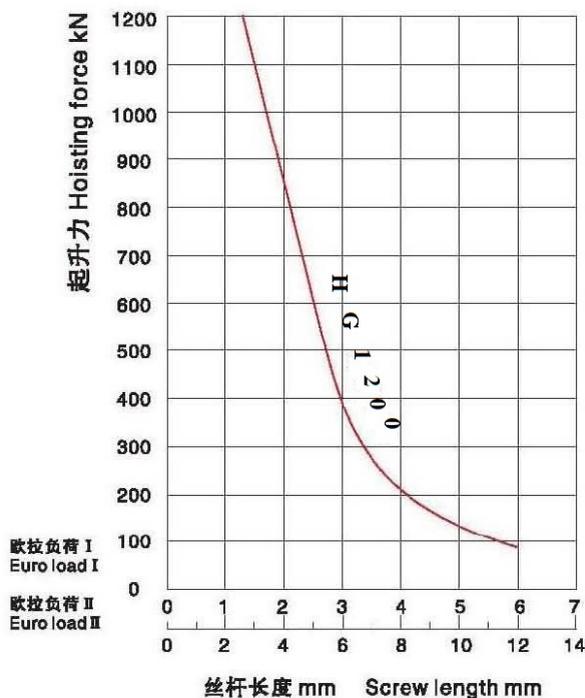
图C5 Figure C5



图C6 Figure C6



图C7 Figure C7

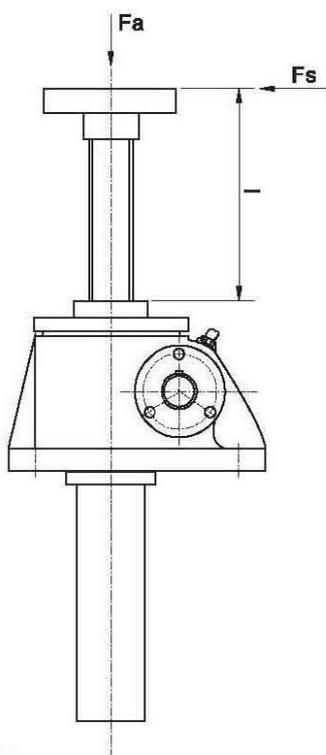


附录D Attachment D (提示的附录 Hanging)

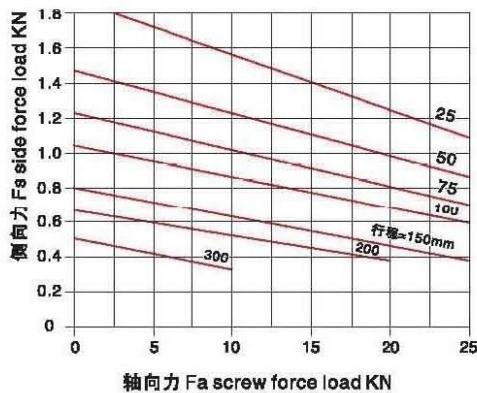
丝杆许用侧向力  $F_s$ ，和轴向力  $F_a$  与行程的关系

The relation of worm allowable side force  $F_s$  axial force  $F_a$  and moving distance

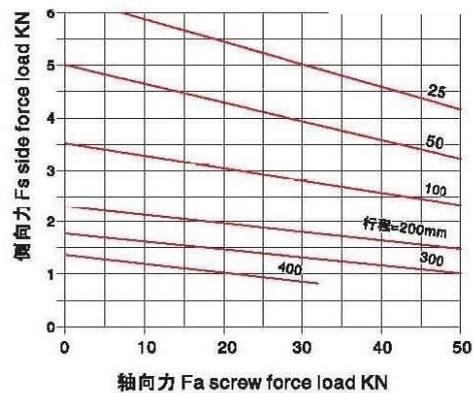
图D1 Figure D1



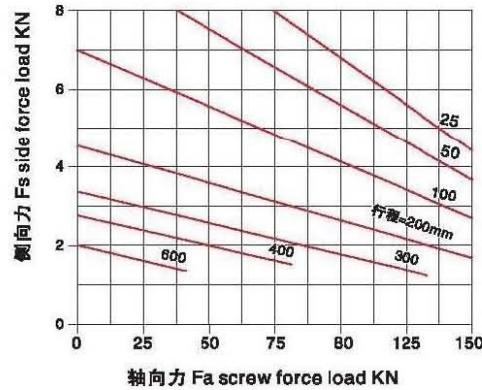
图D2 Figure D2 HG025



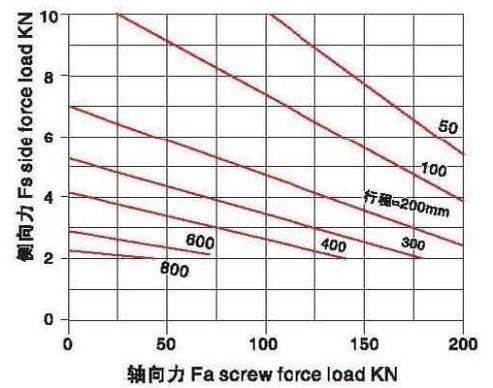
图D3 Figure D3 HG050



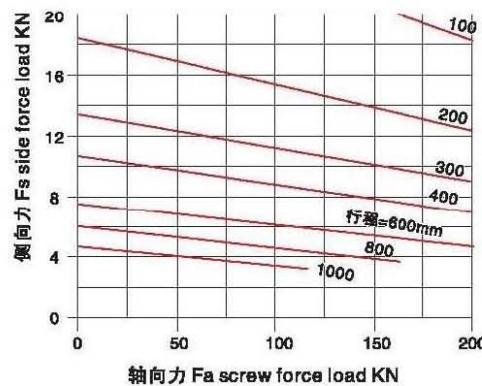
图D4 Figure D4 HG100/150



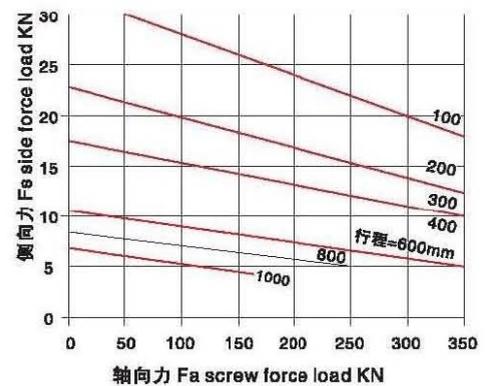
图D5 Figure D5 HG200



图D6 Figure D6 HG250



图D7 Figure D7 HG350



## 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 should be reduced.

表(Table) E1

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

# HZGEAR SINOD

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