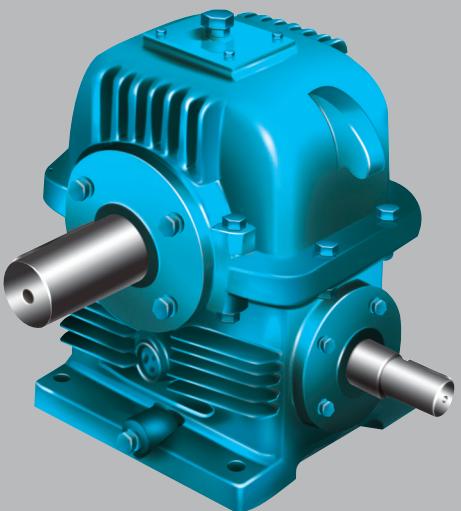


# TAI LONG



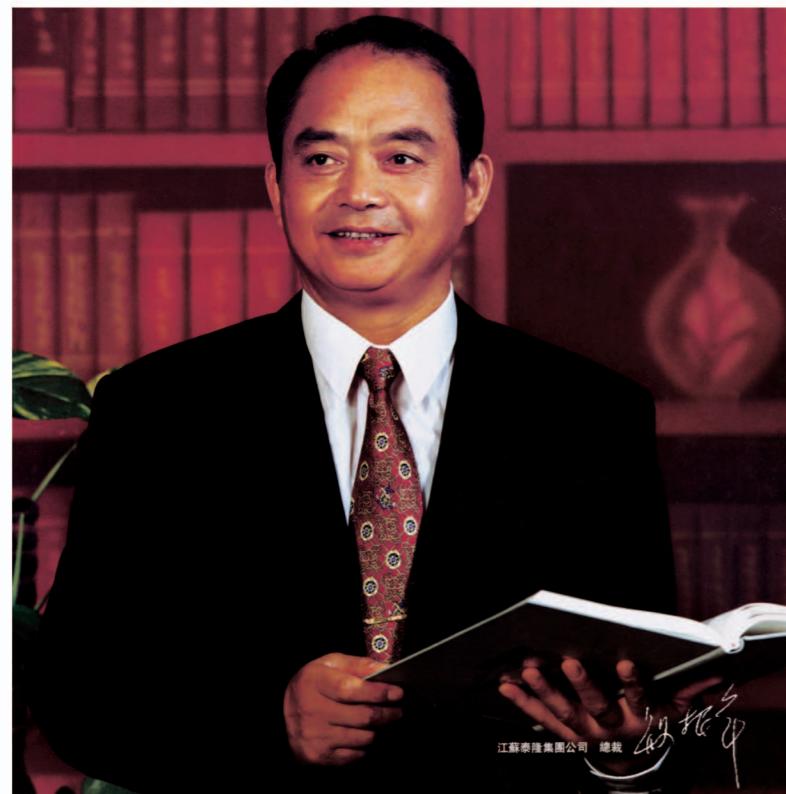
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圆柱蜗杆减速器

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企业。

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 Yangtze River and it is a state-owned large-sized enterprise boasted by Taixing people. Under the leadership of Mr. Yin genzhang, a nationwide 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.

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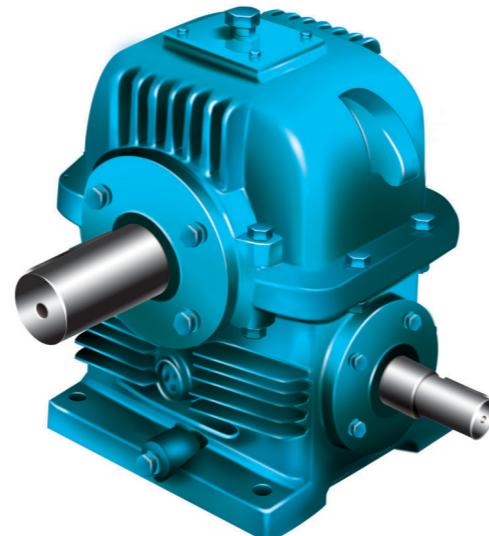
# WH 系列圆弧齿圆柱蜗杆减速器

## WH arc-contract worm reducer

### 一、概述

本减速机主要用于冶金、矿山起重、运输、化工、建筑等各种机械设备的减速传动，工作环境温度为0°C ~ 45°C，高速轴可正反向运转，蜗杆转速≤1500。

The products are mainly applied in metallurgy, mining, craning and transportation, chemical industry and building as decelerating mechanism. the actuating temperature ranges from 0°C~45°C, and right and inverse direction are allowed for high speed axle. The worm wheeling speed is no more than 1500r/min.



### 二、规格及基本参数 Specification and basic parameter

#### 1. 型式 Type

a) WHT型——通用型，见图1、图2。

WHT type —— general type, see graph 1,2;

b) WHX型——蜗杆在蜗轮之下，见图3。

WHX type —— worm below worm gear, see graph 3;

c) WHS型——蜗杆在蜗轮之上，见图4。

WHS type —— worm on worm gear, see graph 4;

d) WHC型——蜗杆在蜗轮之侧，见图5。

WHC type —— worm beside worm gear, see graph 5;

#### 2. 基本参数 Basic datas

##### 2.1 减速器的中心距 a 应符合表1的规定

The center space a of reducer should be in accordance with stipulation in table 1.

表1 Table 1

中 心 距 α																		
第一 系列	80	100	—	125	150	—	200	—	—	250	—	300	—	—	400	—	450	500
第二 系列	—	—	120	—	—	160	—	180	210	—	280	—	320	360	—	420	—	—

注：优先选用第一系列

##### 2.2 减速器的速比应符合表2的规定

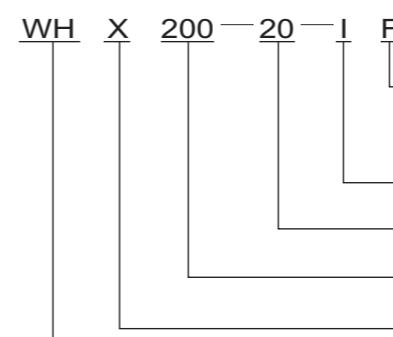
The reducer's nominal transmission ratio i should be in accordance with stipulation in table 2.

表2 Table 2

传动比代号	1	2	3	4	5	6	7	8	9
i	8	10	12.5	16	20	25	31.5	40	50

### 3. 型号与标记示例 Type and symbol example

#### 3.1 型号 Type



冷却方式 (风扇冷却 "F", 自然冷却不标注)

Cooling wise (cooling with fan "F", no means cooling without fan)

装配形式 Installing form

公称传动比 Nominal transmission ratio

中心距, mm Centre distance

蜗杆位置, "X" 为下置, "S" 为上置, "C" 为侧置

Worm position X: worm below worm wheel, S: worm on worm

wheel, C: worm beside worm wheel

圆弧齿圆柱蜗杆减速器 arc-contract worm reducer

#### 3.2 标记示例 Symbol example

中心距125mm, 公称传动比20, 第一种装配, 蜗杆下置的圆弧齿圆柱蜗杆减速器, 自然冷却。

Centre distance of 125mm, nominal transmission ratio of 20, the first installing, wormunder worm wheel, cooling without fan, arc-contract worm gearing reducer.

减速器 Reducer WHX125-20- I

### 4. 减速器的外形与结构尺寸 Shape and structure dimension of reducer

#### 4.1 WHT 通用型系列减速器的外形及安装尺寸见图1、图2, 表3、表4。

Shape and structure dimension of WHT general type reducer see drawing 1, drawing 2, table 3, table 4;

#### 4.2 WHX 系列减速器的外形及安装尺寸见图3, 表5。

Shape and structure dimension of WHX type reducer see drawing 3, table 5;

#### 4.3 WHS 系列减速器的外形及安装尺寸见图4, 表6。

Shape and structure dimension of WHS type reducer see drawing 4, table 6;

#### 4.4 WHC 系列减速器的外形及安装尺寸见图5, 表7。

Shape and structure dimension of WHC type reducer see drawing 5, table 7.

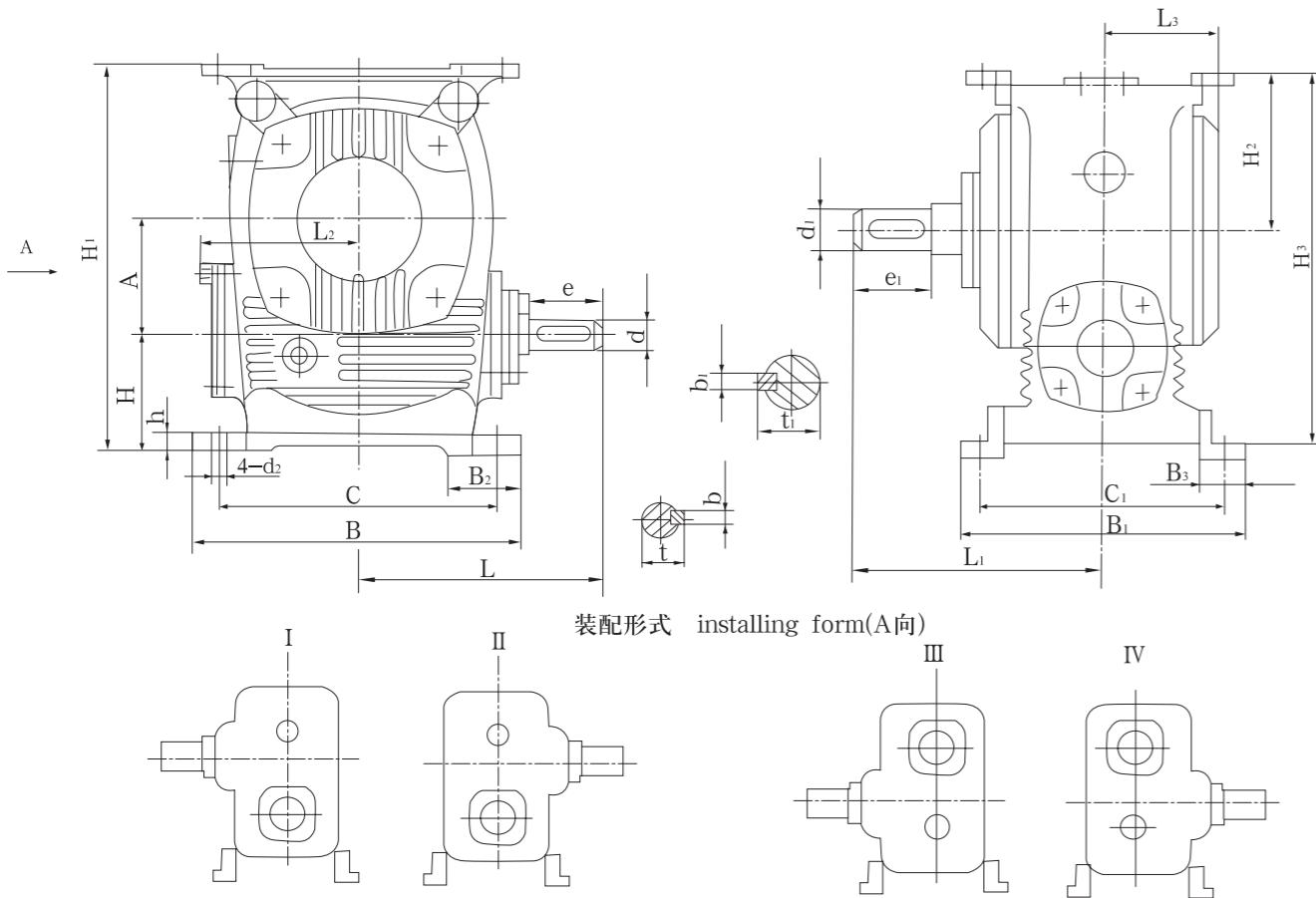


图 1 Drawing 1

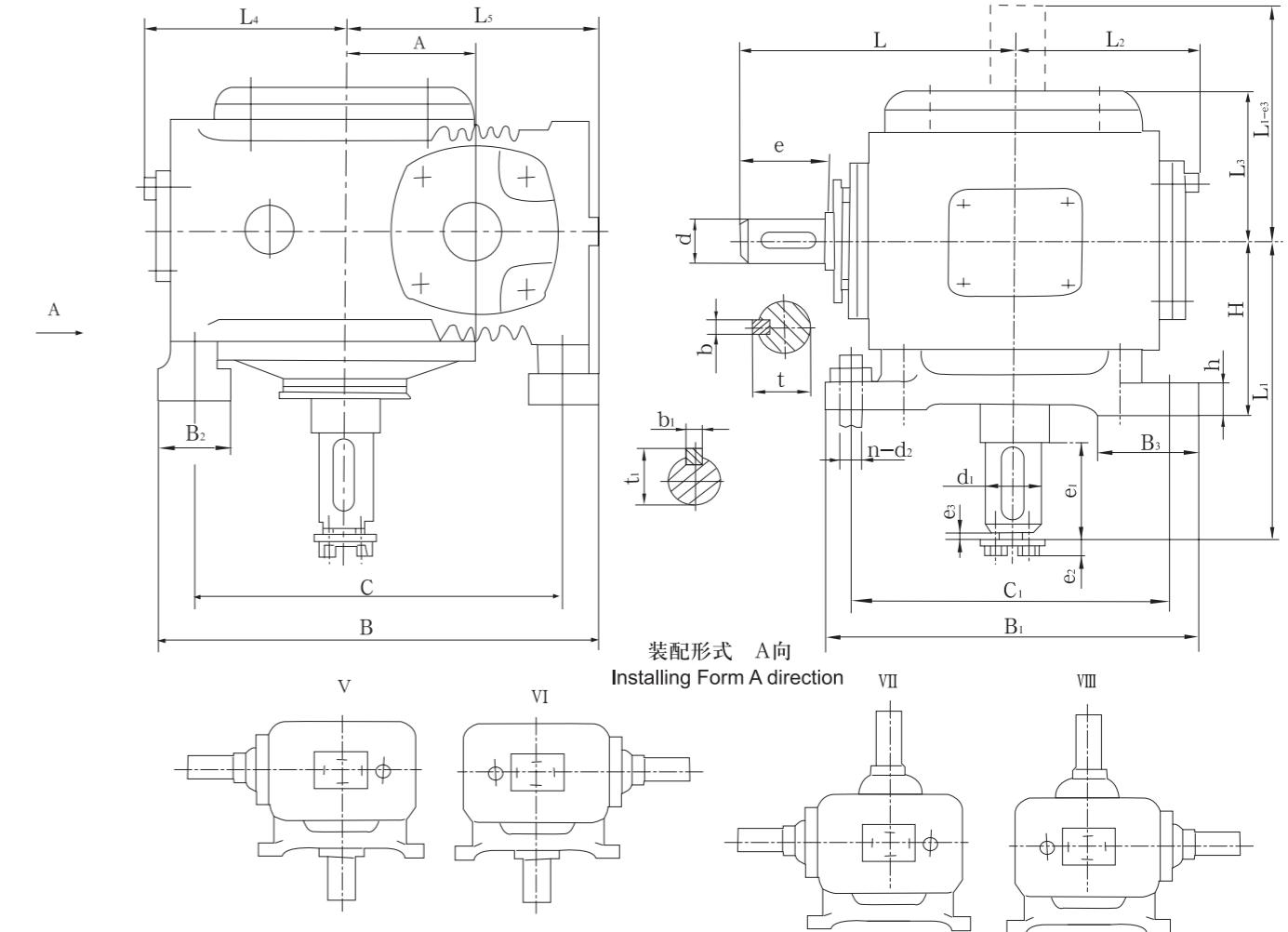


图 2 Drawing 2

## WHT 系列减速器外形及安装尺寸

Outlook and installing size of WHT series of decelerator

表 4 Table 4

表 3 Table 3													
尺寸 Size 型号 Type	A	B	B1	B2	B3	C	C1	H	H1	H2	H3	h	L
WHT08	80	240	206	55	34	205	172	90	278	110	277	20	175
WHT10	100	292	238	68.5	42	250	196	105	336	135	335	25	210

尺寸 Size 型号 Type	L1	L2	L3	e	e1	d (m6)	d1 (m6)	d2	b	b1	t	t1	重量 (kg) weight
WHT08	175	113	82	42	58	25	35	12	8	10	28	38	26.27
WHT10	205	135	93	58	82	30	45	15	8	14	33	48.5	41.45

尺寸 Size 型号 Type	A	B	B1	B2	B3	C	C1	H	h	L	L1	L2	L3	L4
WHT08	80	260	240	40	68	220	208	106	20	175	177	113	~85	106
WHT10	100	313	290	45	80	268	250	118	25	210	207	135	~95	129

尺寸 Size 型号 Type	L5	e	e1	e2	e3	d (m6)	d1 (m6)	n-d2	b	b1	t	t1	重量 (kg) weight
WHT08	157	42	60	10	2	25	35	4-12	8	10	28	38	35
WHT10	190	58	84	10	2	30	45	4-15	8	14	33	48.5	52

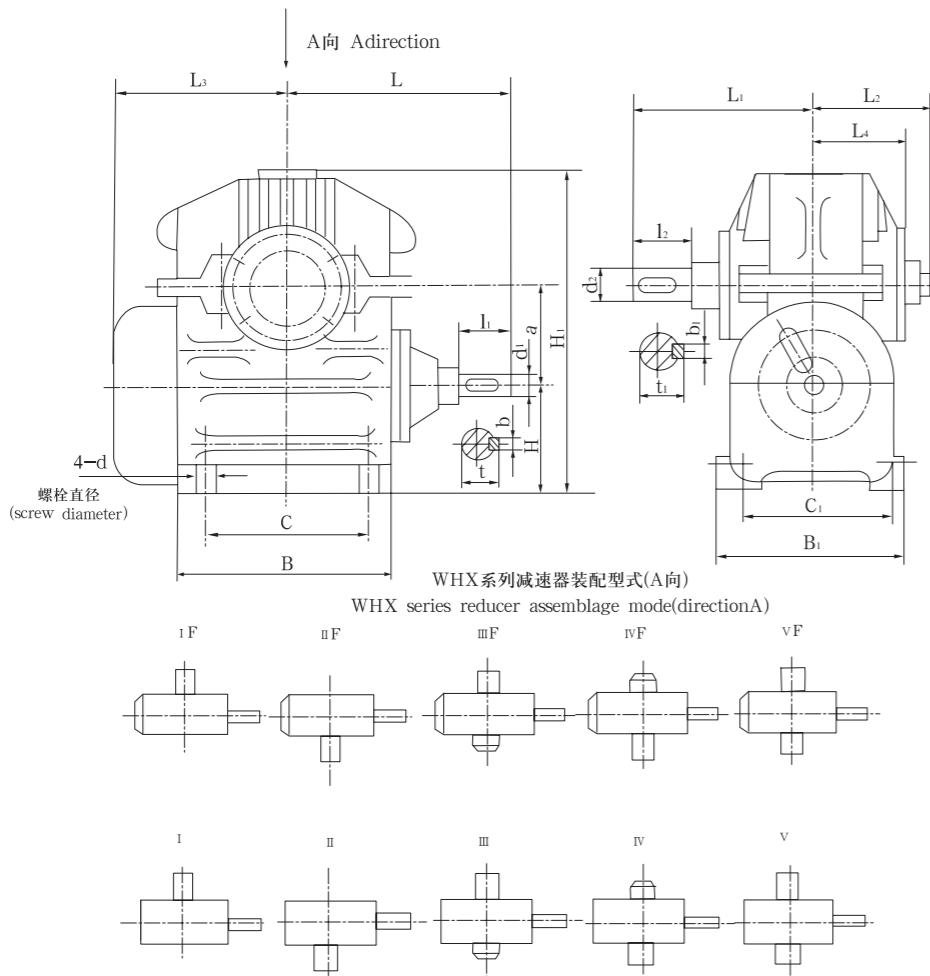


图3 Drawing 3

## WHD 系列减速器外形及安装尺寸

Outlook and installing size of WHX series of decelerator

表5 Table 5

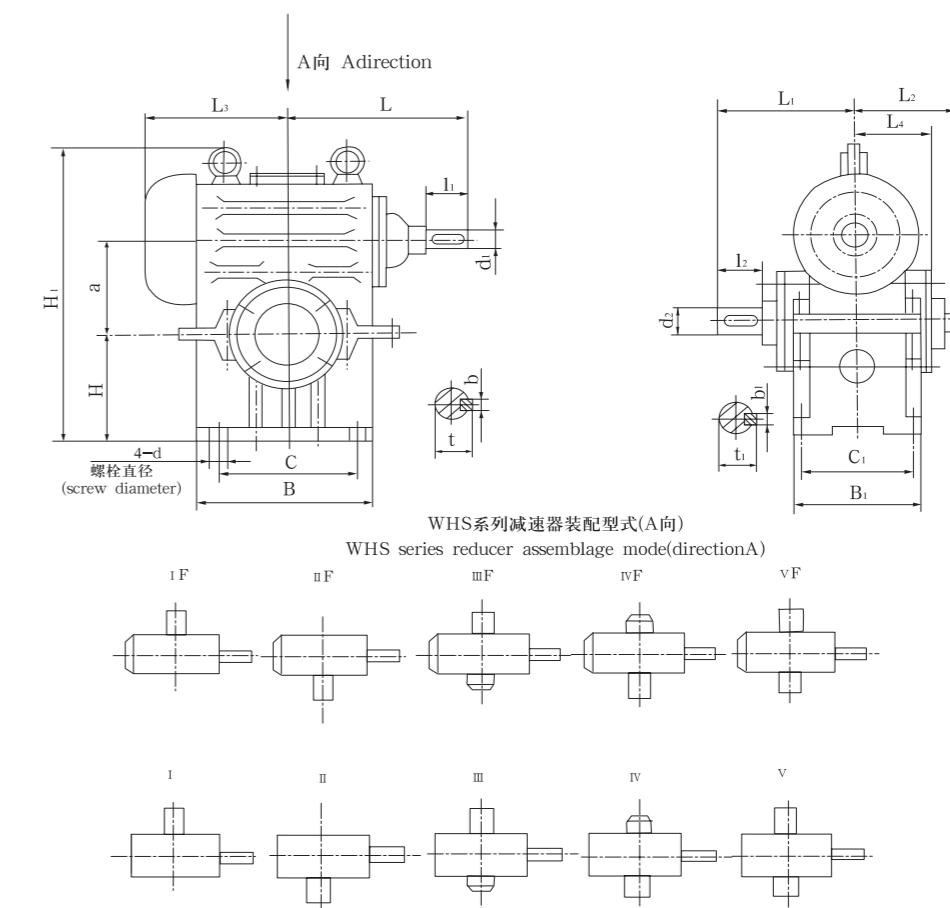
型号 Type	a	L	L1	L2	L3	L4	H	H1	B	B1	C	C1	d	d1	d2	b	b1	t	t1	I1	I2	重量 (kg) Weight
WHD120	120	245	255	145	218	134	120	390	275	260	215	220	M16	35	55	10	16	38	59	70	108	100
WHD125	125	235	235	145	225	134	125	400	270	270	210	230	M16	35	55	10	16	38	59	58	82	103
WHD150	150	294	272	165	260	151.5	150	480	320	300	250	250	M20	40	65	12	18	43	69	90	108	143
WHD160	160	290	290	165	265	154	160	505	330	310	250	260	M20	40	65	12	18	43	69	82	105	157
WHD180	180	375	295	180	314	169	180	574	385	335	305	285	M20	45	70	14	20	48.5	74.5	70	102	230
WHD200	200	360	345	195	365	184	200	628	430	360	330	310	M20	50	80	16	24	54	85	82	130	316
WHD210	210	390	375	200	370	191	200	651.5	440	385	350	325	M24	50	80	16	24	54	85	110	168	326
WHD250	250	430	370	220	430	209	220	748	520	420	410	360	M24	60	90	18	24	64	95	105	130	445
WHD280	280	485	430	245	485	223	250	838	610	470	480	400	M24	60	100	18	28	64	106	105	165	600
WHD300	300	540	465	250	520	236	260	900.5	630	480	510	410	M30	70	100	20	28	74.5	106	140	208	693
WHD320	320	525	455	265	525	256	280	953	680	520	550	440	M30	70	110	20	32	74.5	117	105	165	810
WHD360	360	565	470	280	565	271	300	1055	750	570	600	480	M30	70	120	20	32	74.5	127	105	165	1035
WHD400	400	630	525	300	605	291	320	1155	820	610	660	520	M30	80	130	24	36	85	138	130	200	1470
WHD420	420	685	550	300	665	295	340	1215	850	585	720	515	M30	90	140	24	36	95	148	170	238	1500
WHD450	450	680	560	325	670	319	355	1295	910	670	730	570	M36	80	150	24	40	85	159	130	200	1860
WHD500	500	730	625	325	725	348	400	1435	1000	730	810	620	M36	90	170	24	40	95	179	130	240	2410

d1 d2 ≤ 50mm 配合为 K6

d1 d2 &gt; 50mm 配合为 m6

d1, d2 ≤ 50mm assembles K6

d1 d2 &gt; 50mm assembles m6



WHS 系列减速器外形及安装尺寸

Outlook and installing size of WHS series of decelerator

表6 Table 6

型号 Type	a	L	L1	L2	L3	L4	H	H1	B	B1	C	C1	d	d1	d2	b	b1	t	t1	I1	I2	重量 (kg) Weight
WHS120	120	245	255	145	218	134	160	406	275	230	215	190	M16	35	55	10	16	38	59	70	108	100
WHS125	125	235	235	145	225	134	160	416	270	230	210	190	M16	35	55	10	16	38	59	58	82	104
WHS150	150	294	272	165	260	151.5	200	495.5	320	260	250	210	M20	40	65	12	18	43	69	90	108	155
WHS160	160	290	290	165	265	154	200	510	330	270	250	220	M20	40	65	12	18	43	69	82	105	164
WHS180	180	375	295	180	314	169	230	575	385	290	305	240	M20	45	70	14	20	48.5	74.5	70	102	230
WHS200	200	360	345	195	365	184	250	643	430	320	330	270	M20	50	80	16	24	54	85	82	130	322
WHS210	210	390	375	200	370	191	270	673.5	440	330	350	270	M24	50	80	16	24	54	85	110	168	340
WHS250	250	430	370	220	430	209	310	773	520	370	410	310	M24	60	90	18	24	64	95	105	130	465
WHS280	280	485	430	245	485	223	320	839	610	410	480	340	M24	60	100	18	28	64	106	105	165	725
WHS300	300	540	465	250	520	236	350	906	630	410	510	340	M30	70	100	20	28	74.5	106	140	208	742
WHS320	320	525	455	265	525	256	355	951	680	460	550	380	M30	70	110	20	32	74.5	117	105	165	825
WHS360	360	565	470	280	565	271	400	1046	750	500	600	410	M30	70	120	20	32	74.5	127	105	165	1035
WHS400	400	630	525	300	605	291	450	1173	820	540	660	450	M30	80	130	24	36	85	138	130	200	1425
WHS420	420	685	550	300	665	295	460	12085	850	520	720	440	M30	90	140	24	36	95	148	170	238	1500
WHS450	450	680	560	325	670	319	500	1312	910	590	730	490	M36	80	150	24	40	85	159	130	200	1830
WHS500	500																					

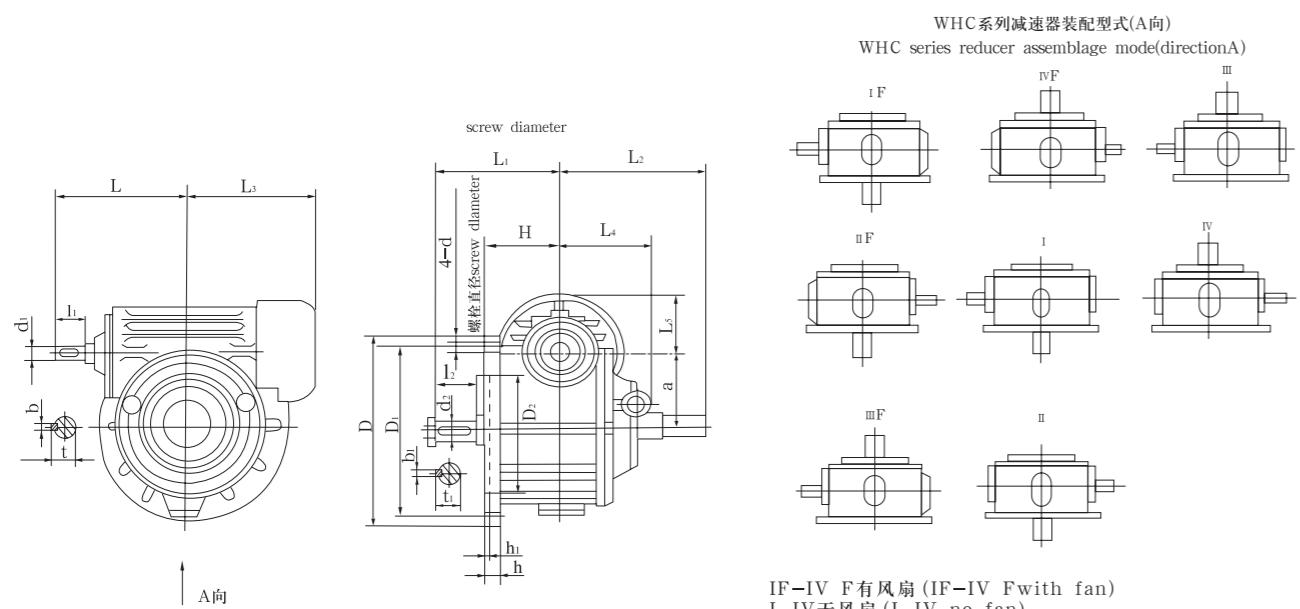


图 5 Drawing 5

**WHC 系列减速器外形及安装尺寸****Outlook and installing size of WHC series of decelerator**

表 7 Table 7

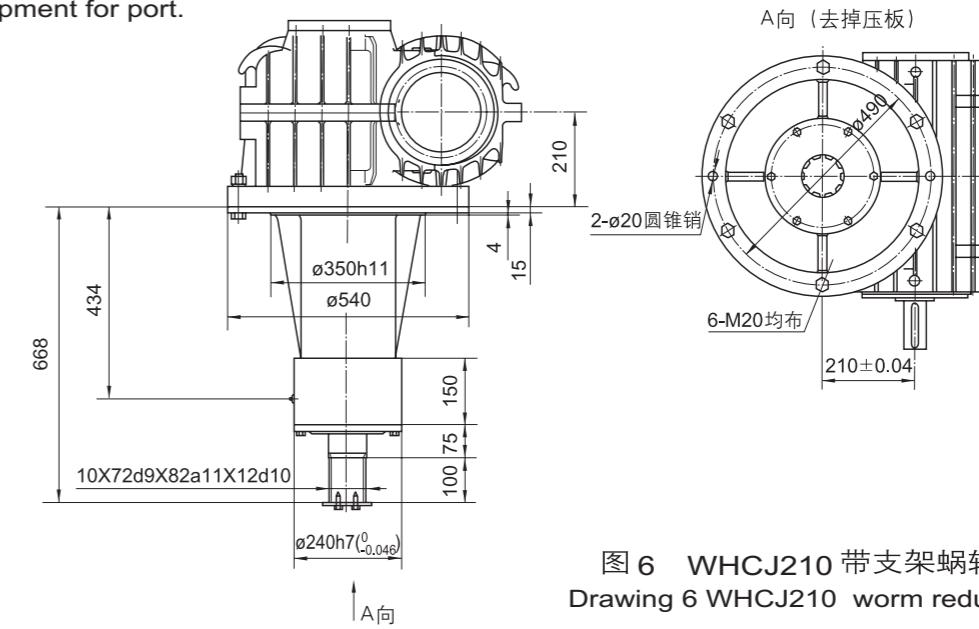
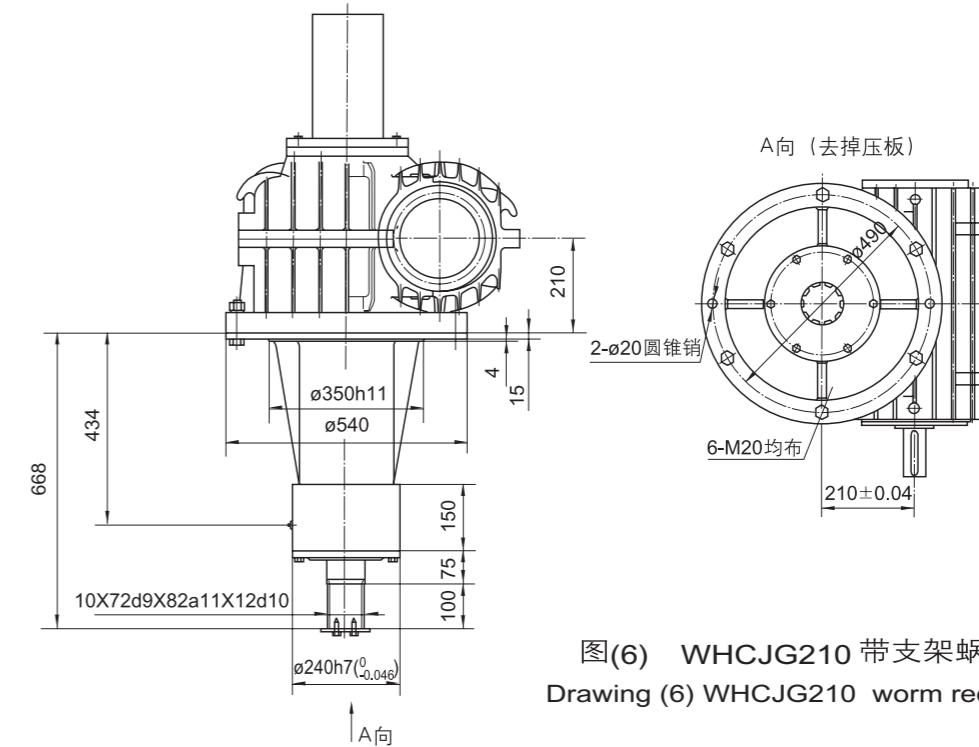
型号 Type	a	L	L1	L2	L3	L4	L5	H	D	D1	D2 (H11)	h	h1	d	d1	d2	b	b1	t	t1	I1	I2	重量 (kg) Weight
WHC120	120	245	257	255	218	140.5	117.5	140	330	290	240	18	8	M12	35	55	10	16	38	59	70	110	95
WHC125	125	235	237	235	225	140	125.5	140	330	290	240	20	8	M12	35	55	10	16	38	59	58	84	100
WHC150	150	294	274	272	255	161	136.5	160	400	360	300	22	8	M16	40	65	12	18	43	69	90	110	155
WHC160	160	290	292	290	265	161	140.5	165	410	370	310	25	8	M16	40	65	12	18	43	69	82	107	163
WHC180	180	375	297	295	309	181.5	148	185	465	425	360	22	8	M16	45	70	14	20	48.5	74.5	70	105	190
WHC200	200	360	347	345	365	207	168	200	490	450	390	30	10	M16	50	80	16	24	54	85	82	132	308
WHC210	210	390	377	375	370	212.5	174	210	540	490	415	30	10	M20	50	80	16	24	54	85	110	170	328
WHC250	250	430	372	370	430	211	193	220	610	560	490	35	10	M20	60	90	18	24	64	95	105	132	480
WHC280	280	485	432	430	485	235	213	240	690	630	545	38	10	M24	60	100	18	28	64	106	105	167	630
WHC300	300	540	467	465	520	238	215	270	750	690	600	40	12	M24	70	100	20	28	74.5	106	140	210	787
WHC320	320	525	457	455	525	258	235	260	770	710	620	40	12	M24	70	110	20	32	74.5	117	105	167	835
WHC360	360	565	472	470	565	273	250	280	890	810	700	45	12	M30	70	120	20	32	74.5	127	105	167	1045
WHC400	400	630	527	525	605	293	270	300	970	890	780	50	12	M30	80	130	24	36	85	138	130	202	1450
WHC420	420	685	552	550	665	301	267.5	325	1000	930	820	50	15	M30	90	140	24	36	95	148	170	240	1500
WHC450	450	680	562	560	670	321	298	340	1090	1000	880	55	15	M36	80	150	24	40	85	159	130	202	1855
WHC500	500	730	627	625	725	350	323	370	1190	1100	980	65	15	M36	90	170	24	40	95	179	130	242	2420

注: WHC500 地脚螺栓孔为 6-d Note:The foundation bolt hole is 6-d of WHC500

**WHCJ、WHCJG 港口专用减速机**  
**Special-purpose reducer WHCJ、WHCJG for port****一、概述 Brief**

WHCJ (带支架型)、WHCJG (带过载保护型)，是在 WHC 产品基础上的改进型港口专用减速机，外型尺寸见图 6 ~ 图 10。除图中所示尺寸外，其余尺寸和速比均借用标准 WHC 系列，此减速机主要用于港口机械设备的减速传动。

WHCJ(with bracket),WHCJG(with over loading egs) is special-purpose reducer for port improved on the basic of WHC. The shape size see drawing6 to drawing10. Except the showing sizes, other sizes and rotate speed is all according to standard WHC series. The reducer is used for drive in machine equipment for port.

图 6 WHCJ210 带支架蜗轮蜗杆减速机  
Drawing 6 WHCJ210 worm reducer with bracket图(6) WHCJG210 带支架蜗轮蜗杆减速机  
Drawing (6) WHCJG210 worm reducer with bracket

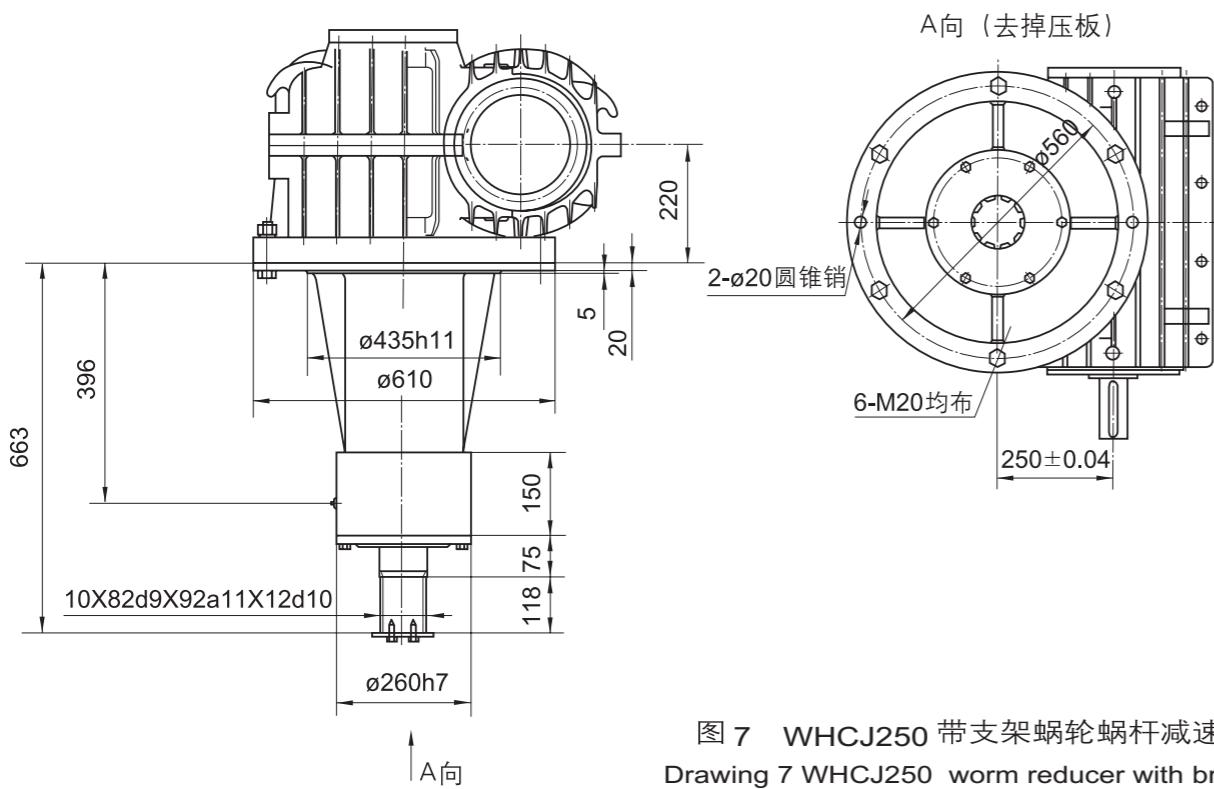


图 7 WHCJ250 带支架蜗轮蜗杆减速机  
Drawing 7 WHCJ250 worm reducer with bracket

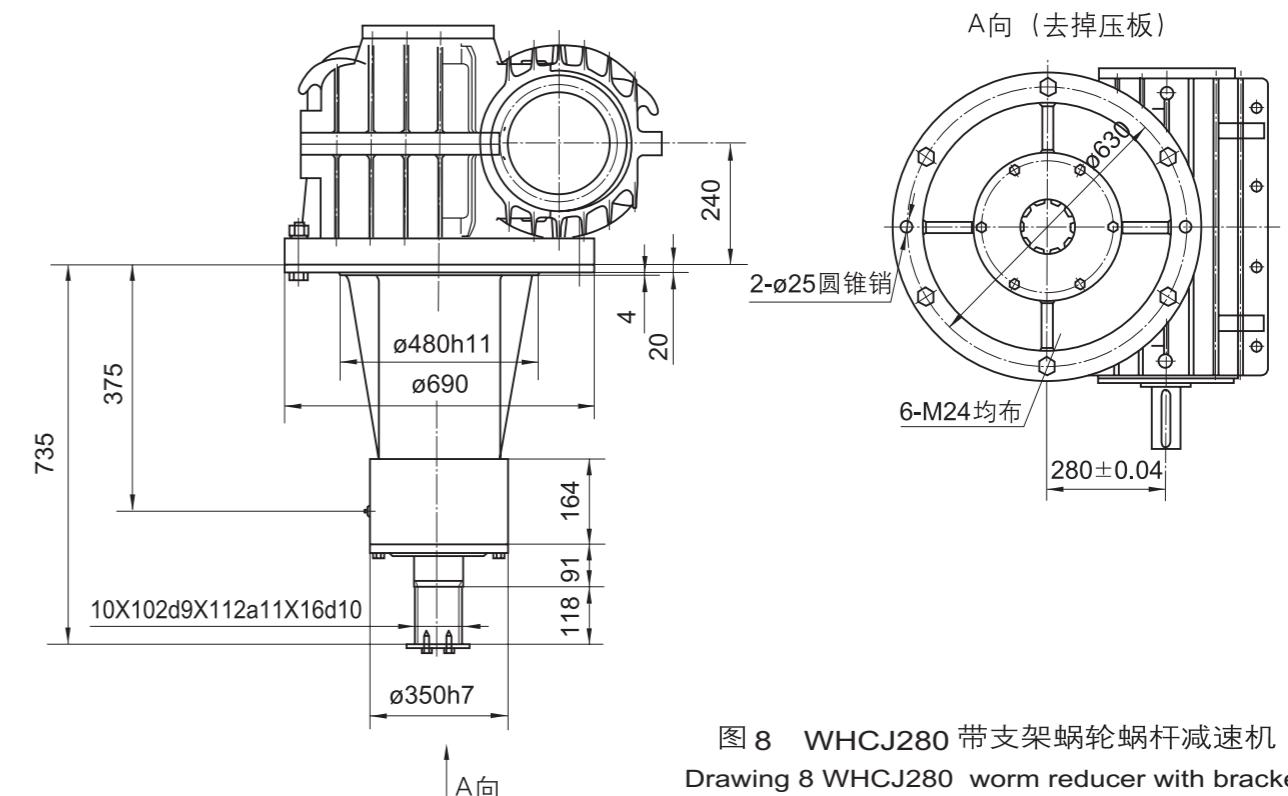
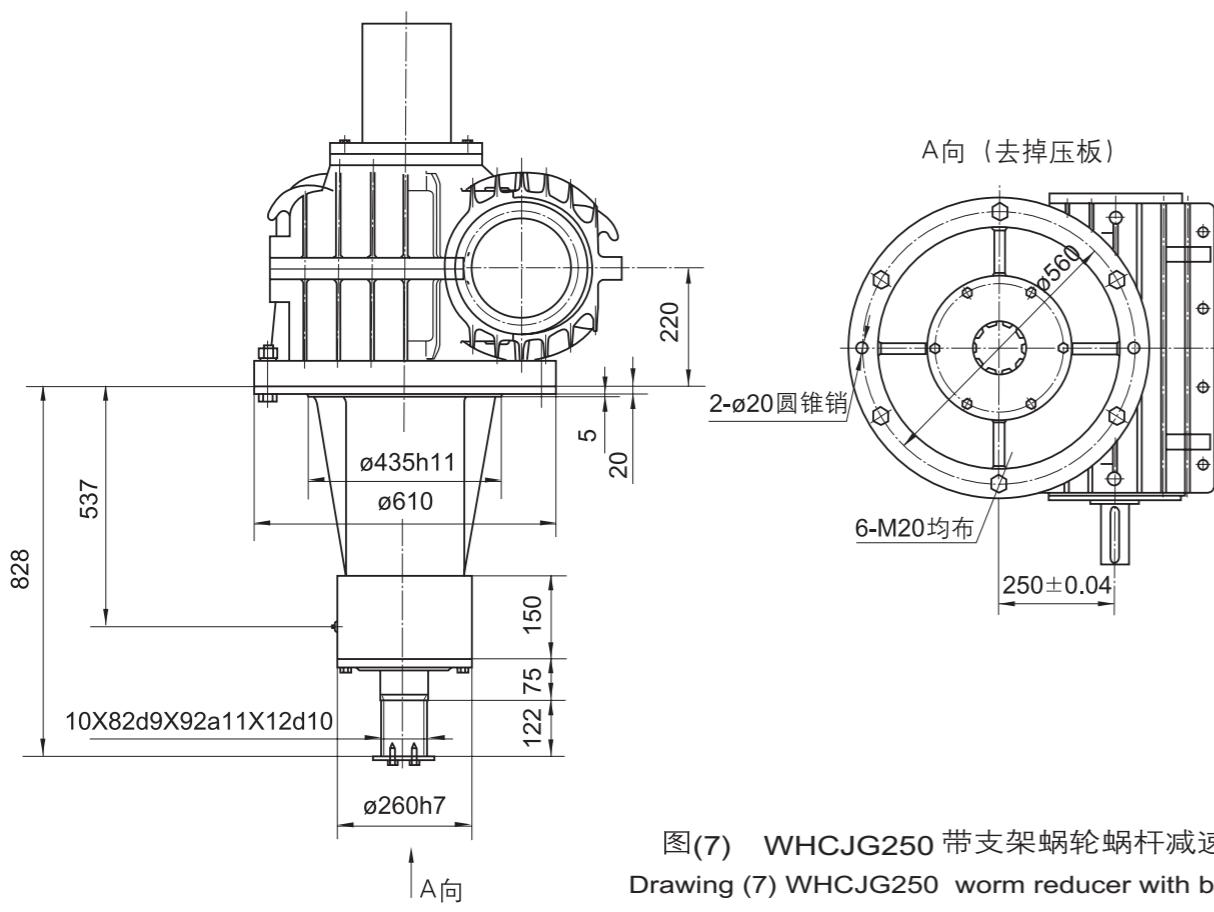
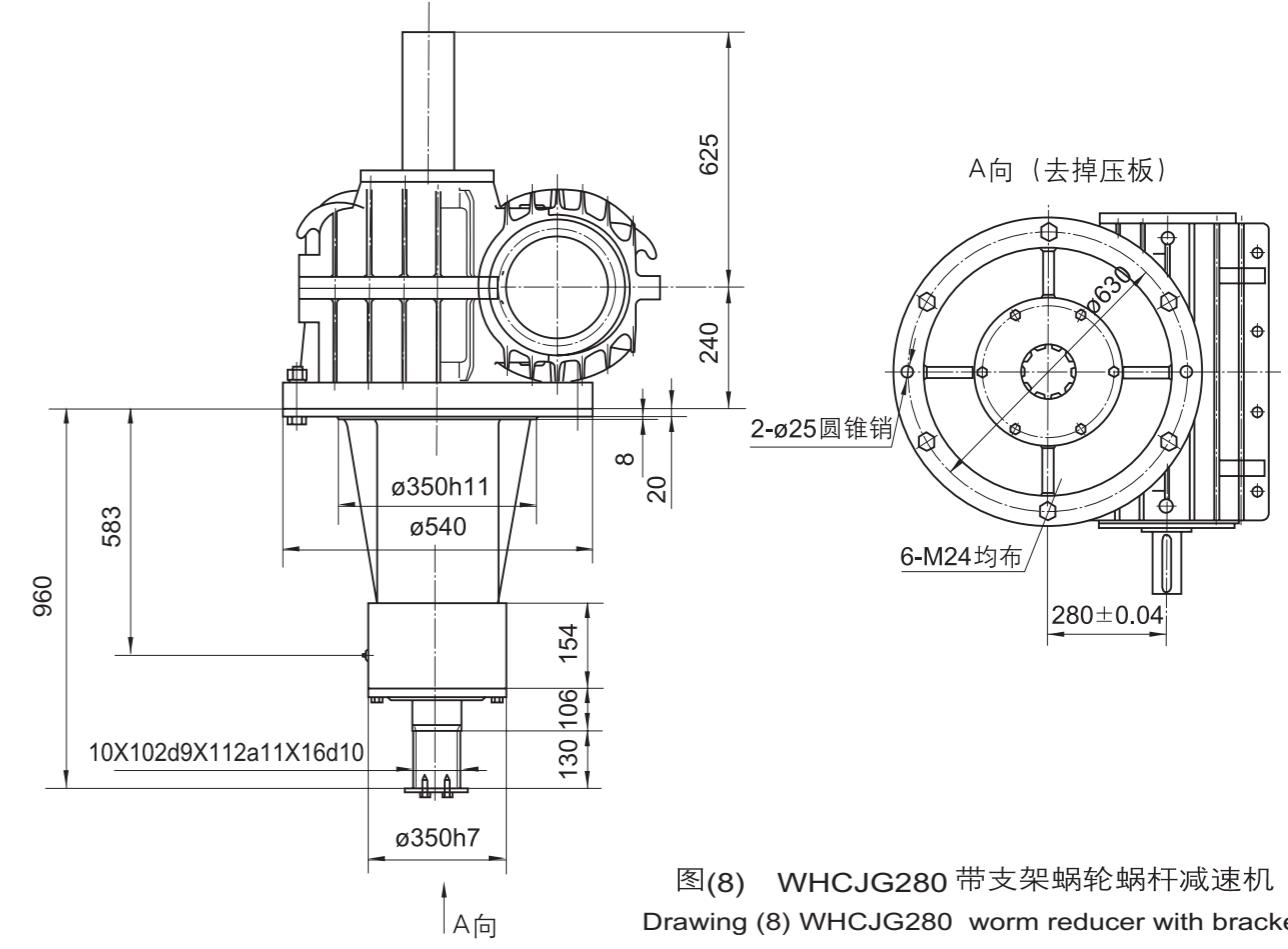


图 8 WHCJ280 带支架蜗轮蜗杆减速机  
Drawing 8 WHCJ280 worm reducer with bracket



图(7) WHCJG250 带支架蜗轮蜗杆减速机  
Drawing (7) WHCJG250 worm reducer with bracket



图(8) WHCJG280 带支架蜗轮蜗杆减速机  
Drawing (8) WHCJG280 worm reducer with bracket

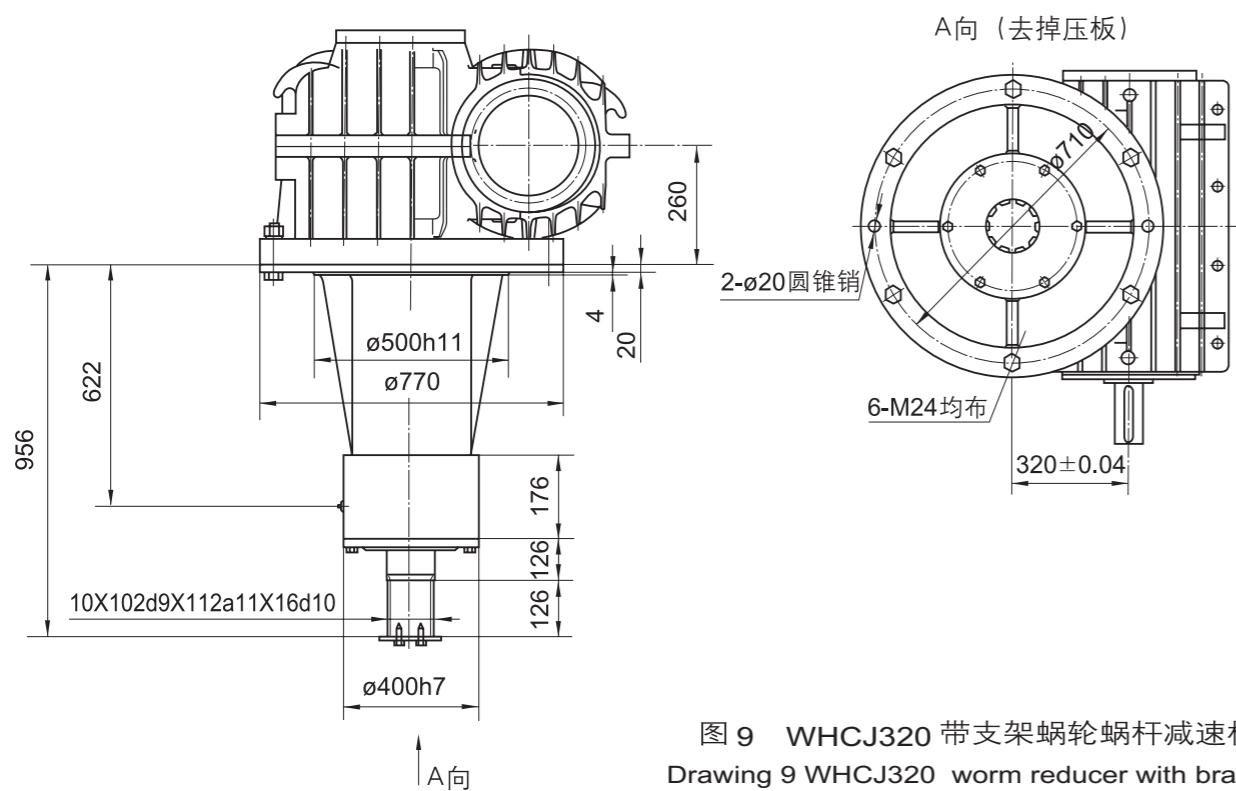


图 9 WHCJ320 带支架蜗轮蜗杆减速机  
Drawing 9 WHCJ320 worm reducer with bracket

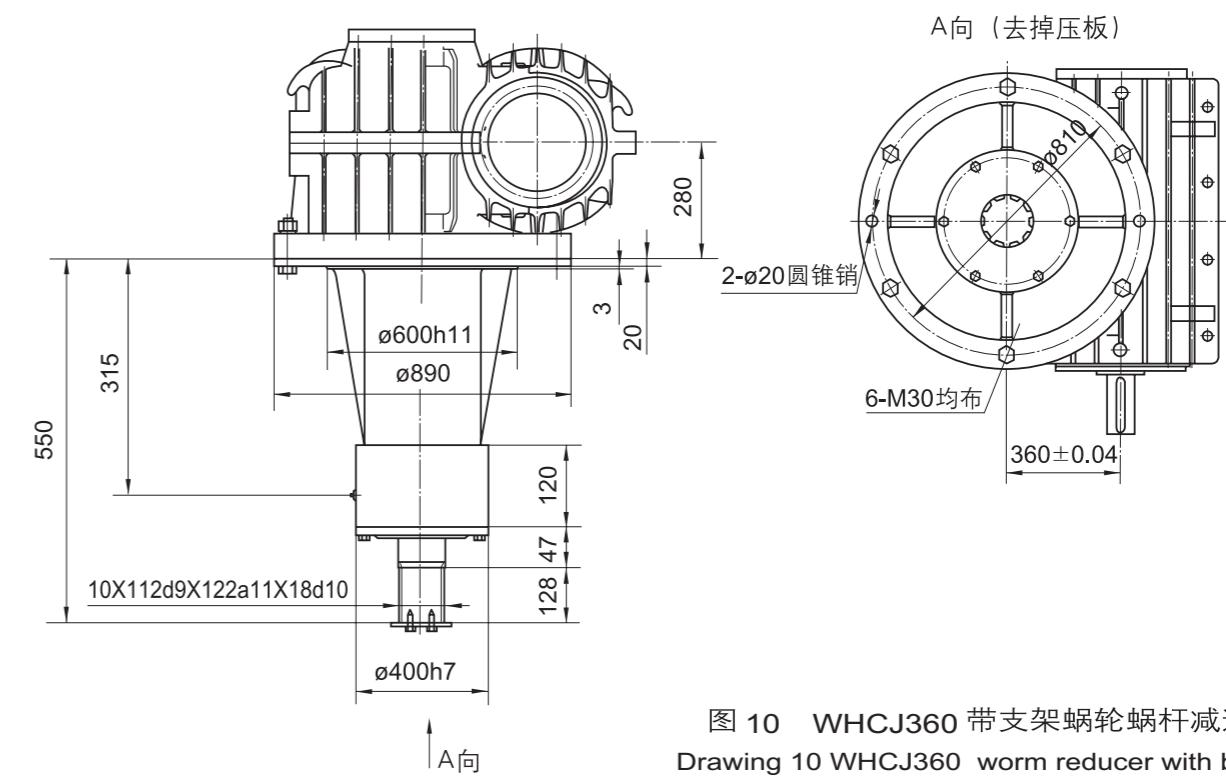
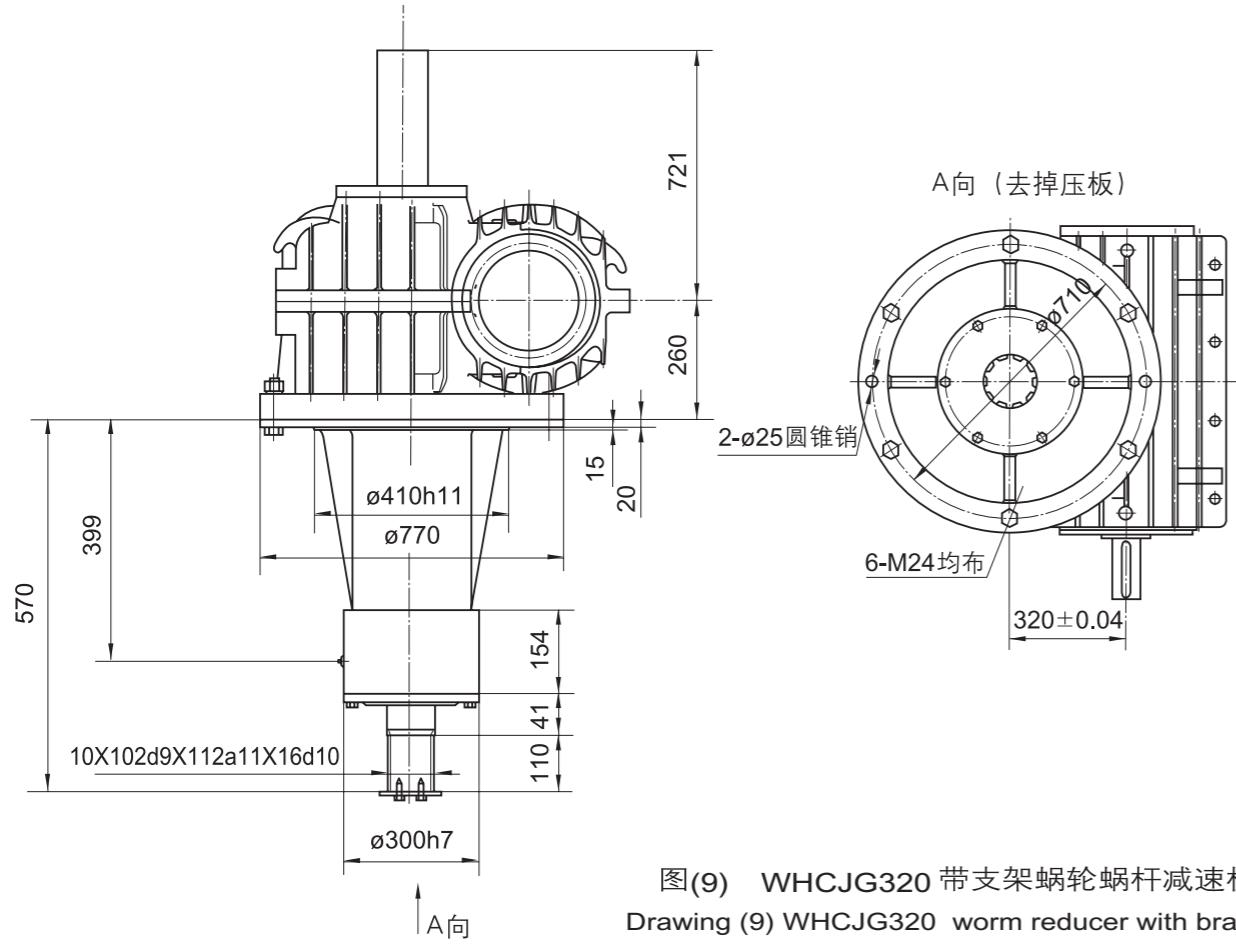
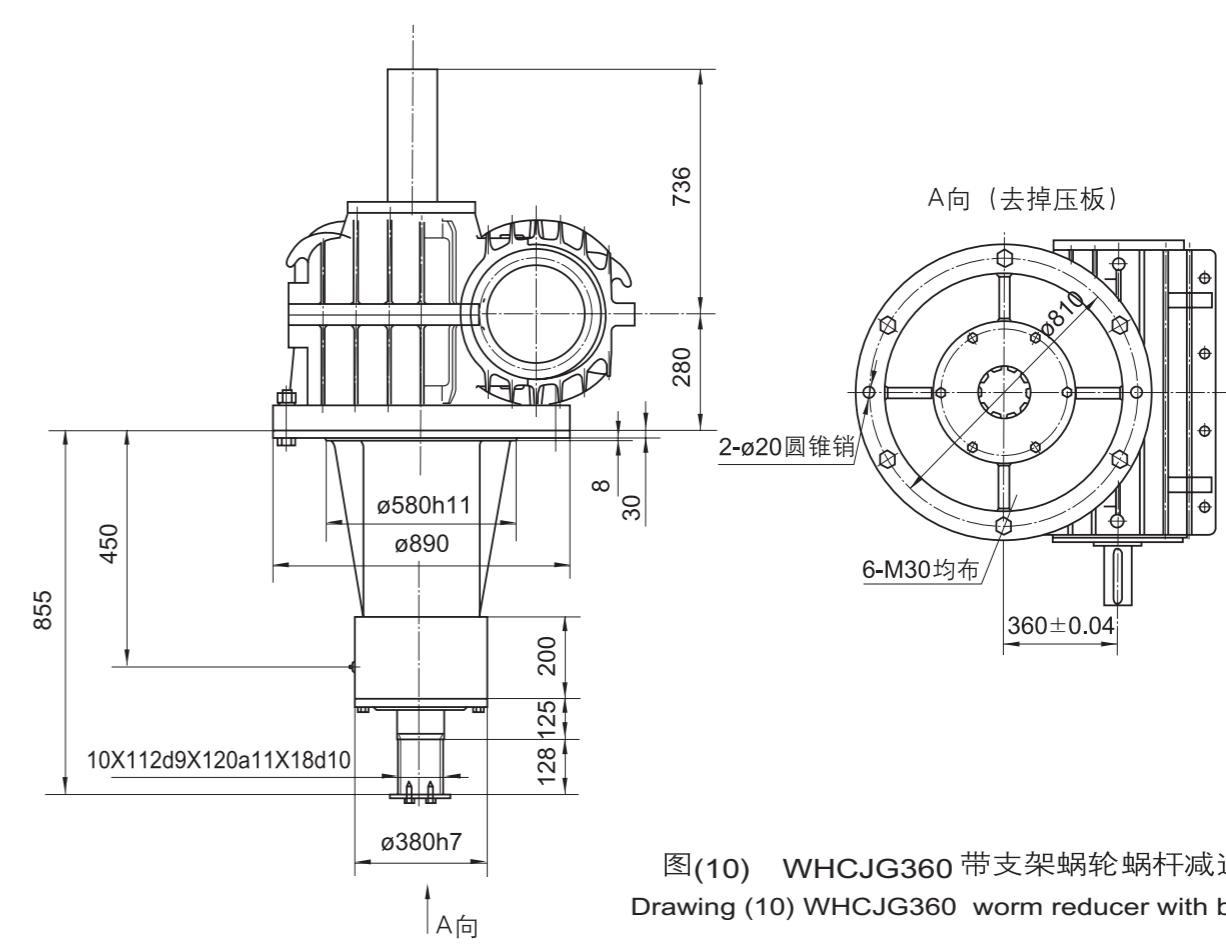


图 10 WHCJ360 带支架蜗轮蜗杆减速机  
Drawing 10 WHCJ360 worm reducer with bracket



图(9) WHCJG320 带支架蜗轮蜗杆减速机  
Drawing (9) WHCJG320 worm reducer with bracket



图(10) WHCJG360 带支架蜗轮蜗杆减速机  
Drawing (10) WHCJG360 worm reducer with bracket

**二、WH 系列减速器的承载能力 WH series speed reducer carrying capacity**

减速器的传动比、输入功率(kw)及输出扭矩(N·m)

表 8

Table 8

The transmission ratio and input power decelerator

传动比 代号 no.of transmis- sion ratio	公称传动 比 nominal transmis- sion ratio	中心距 Center space	输入 转速 (r/min) wheeling speed																	
			80	100	120	125	150	160	180	200	210	250	280	300	320	360	400	420	450	500
1	8	1500	P1 2.5 4.5 7.23 10.1 13.4 19.9 22.7 29.8 31.5 46.1 54.4 68.9 70.4 87.1 110 161 - -	T2 113 206 333 466 621 929 1061 1396 1480 2174 2587 3281 3356 4161 5277 7749 - -																
		1000	P1 2.1 3.9 5.28 8.0 9.77 16.1 17.7 24.7 27.9 41.5 50.5 57.4 64.4 80.5 103 117 128 163	T2 142 268 363 551 679 1125 1241 1736 1969 2945 3607 4104 4610 5781 7428 8438 9231 11793																
		750	P1 1.9 3.5 4.22 6.6 7.76 13.4 14.4 20.8 23 35.6 44.3 46.2 57.9 73.8 94.6 97.7 119 154	T2 171 319 385 604 715 1242 1340 1945 2160 3354 4214 4395 5514 7029 9096 9414 11455 14824																
		500	P1 1.5 2.9 3.06 5.0 5.56 10.3 11.03 16.1 17.1 27.8 35.1 37.5 45.3 59.6 77.7 86.8 101 138	T2 200 393 416 680 765 1419 1526 2241 2390 3912 4982 5328 6444 8514 11160 12467 14506 19610																
		500	P1 2.0 3.8 5.98 9.4 11.5 16.4 20.3 26.7 27.7 39.7 48.2 53.8 59.8 76.2 97.3 138 - -	T2 110 213 335 528 658 942 1169 1541 1601 2300 2823 3154 3514 4487 5754 8162 - -																
2	10	1500	P1 1.7 3.3 4.29 7.4 8.14 13.2 15.4 22.4 23.5 34.1 41.6 43.6 53.8 68.8 88.6 98.2 111 146	T2 140 276 360 628 699 1134 1329 1942 2042 2969 3651 3839 4752 6090 7877 8731 9879 13008																
		1000	P1 1.5 2.9 3.41 6.1 6.47 11.1 12.68 19.1 20.1 29.3 36.3 38.3 47.6 61.2 79.1 80.5 98.5 131	T2 164 321 382 686 733 1266 1453 2196 2318 3391 4243 4486 5600 7216 9367 9543 11676 15579																
		750	P1 1.3 2.4 2.46 4.7 4.97 8.5 9.87 14.7 15.7 23.1 28.8 30.8 37.7 49.2 64.8 65.6 82.5 111	T2 212 394 408 787 835 1441 1677 2518 2698 3979 5011 5370 5688 6654 11448 11602 14607 19738																
		500	P1 1.6 2.8 4.84 8.1 8.81 14.9 16.4 20.0 22 32.9 43.1 47.1 61.6 73.2 89.3 124 - -	T2 109 194 338 168 619 1049 1161 1427 1581 3177 3411 4461 5330 6545 9088 - -																
		500	P1 1.4 2.4 3.57 6.3 6.49 11.9 12.2 16.2 18.2 27.6 37.5 39.5 53.5 65.8 80.5 88.5 105 127	T2 144 249 372 661 680 1248 1301 1734 1955 2978 4073 4295 5824 7187 8860 9740 11569 14023																
3	12.5	1500	P1 1.2 2.1 2.87 5.2 5.36 10.0 11.1 13.5 15.5 23.4 32.7 35.7 46.5 58.8 71.8 75.5 95.3 116	T2 162 289 397 722 745 1392 1554 1918 2220 3352 4715 5153 6720 8544 10513 11067 13895 17060																
		1000	P1 1.0 1.7 2.06 3.9 4.26 7.6 8.6 10.4 11.4 18.2 25.6 28.6 36.1 47.0 57.4 58.4 78.2 96.8	T2 199 347 422 804 878 1567 1806 2194 2422 3875 5500 6152 7774 10155 12525 12743 17083 21239																
		750	P1 1.6 2.8 4.84 8.1 8.81 14.9 16.4 20.0 22 32.9 43.1 47.1 61.6 73.2 89.3 124 - -	T2 134 256 378 558 710 1109 1374 1678 1868 2677 3231 3511 4203 5761 6621 8554 - -																
		500	P1 1.4 2.4 3.57 6.3 6.49 11.9 12.2 16.2 18.2 27.6 37.5 39.5 53.5 65.8 80.5 88.5 105 127	T2 144 249 372 661 680 1248 1301 1734 1955 2978 4073 4295 5824 7187 8860 9740 11569 14023																
		500	P1 1.2 2.1 2.87 5.2 5.36 10.0 11.1 13.5 15.5 23.4 32.7 35.7 46.5 58.8 71.8 75.5 95.3 116	T2 162 289 397 722 745 1392 1554 1918 2220 3352 4715 5153 6720 8544 10513 11067 13895 17060																
4	16	1500	P1 1.6 3.0 4.41 6.5 8.22 12.8 15.8 19.2 21.2 29.9 35.6 38.6 46.0 62.7 71.9 92.9 - -	T2 134 256 378 558 710 1109 1374 1678 1868 2677 3231 3511 4203 5761 6621 8554 - -																
		1000	P1 1.3 2.7 3.27 5.1 6.25 10.3 12.2 15.8 17.8 26.3 32.1 35.1 41.0 52.0 66.5 75.8 83.4 106	T2 161 343 417 653 806 1347 1595 2066 2366 3536 4370 4789 5619 7158 9195 10505 11583 14787																
		750	P1 1.2 2.3 2.63 4.3 5.03 8.6 10.3 13.4 14.4 22.7 27.9 30.9 36.5 47.1 60.8 64.8 76.7 99.6	T2 197 386 443 728 860 1485 1787 2358 2552 4051 5053 5615 6655 8636 11210 11947 14173 18485																
		500	P1 1.9 1.9 1.92 3.3 3.62 6.6 8.25 10.3 11.1 17.7 22.3 25.3 28.7 37.4 49.0 50.1 63.3 84.2	T2 242 470 477 824 911 1684 2117 2678 2893 4630 5990 6819 7762 10206 13461 13779 17429 23287																
		500	P1 1.3 2.2 3.65 6.0 6.52 10.3 11.4 15.5 16.5 25.0 32.1 35.1 41.0 52.0 66.5 75.8 83.4 106	T2 134 233 387 637 697 1116 1236 1689 1800 2731 2927 4638 5551 7935 10268 - -																
5	20	1500	P1 1.1 1.9 2.70 4.8 5.08 8.1 8.53 12.5 13.5 21.3 29.1 32.1 37.2 44.2 61.9 64.4 64.9 81.2	T2 169 299 426 759 805 1308 1384 2053 2225 3533 4880 5395 6273 7505 10569 11021 11143 14299																
		1000	P1 1.0 1.6 2.14 3.9 4.24 6.7 7.06 10.5 11.5 18.1 25.3 28.3 31.3 38.6 55.5 57.5 58.0 73.2	T2 202 332 445 813 890 1431 1519 2283 2501 3936 5618 6298 6998 8699 12593 13076 13249 16796																
		750	P1 0.8 1.3 1.59 3.0 3.5 5.2 5.79 8.1 9.1 14.1 19.9 22.9 24.9 30.4 44.2 46.2 47.5 59.7	T2 237 398 488 922 1089 1628 1829 2583 2930 4578 6491 7470 8237 10184 14892 15707 16076 20410																
		500	P1 1.0 1.9 3.16 4.6 5.56 8.4 12.2 14.3 15.3 20.8 27.7 34.8 43.4 50.9 80.1 - -	T2 126 244 408 604 734 1115 1619 1898 2057 2830 3400 3826 4818 6051 7153 11270 - -																
		500	P1 0.8 1.7 2.37 3.6 4.11 6.5 9.5 11.5 12.5 16.8 20.4 23.4 29.5 38.3 45.6 55.9 63.1 71.4	T2 150 324 458 703 807 1288 1882 2477 3429 4208 4860 6127 8028 9634 11824 13377 15154																
6	25	1500	P1 0.7 1.4 1.88 2.9 3.26 5.5 9.6 10.6 14.1 17.2 19.2 25.1 32.8 39.9 43.4 56.1 63.3	T2 170 343 467 735 835 1419 1530 2490 3680 4571 5176 6791 8927 10974 12074 15608 17691 17671																
		1000	P1 0.6 1.2 1.37 2.7 3.4 4.2 4.9 7.4 8.4 10.9 13.5 16.5 19.5 25.8 31.4 33.4 44.7 50.5	T2 218 441 510 837 899 1626 1897 2865 3289 4345 5459 6969 7961 10644 12954 13811 18526 21147																
		750	P1 1.2 2.1 2.54 4.4 4.86 8.6 10.16 12.8 13.8 19.8 23.2 26.2 30.2 37.1 46.9 64.1 - -	T2 126 244 408 604 734 1115 1619 1898 2057 2830 3400 3826 4818 6051 7153 11270 - -																
		500	P1 0.8 1.7 2.37 3.6 4.11 6.5 9.5 11.5 12.5 16.8 20.4 23.4 29.5 38.3 45.6 55.9 63.1 71.4	T2 150 324 458 703 807 1288 1882 2477 3429 4208 4860 6127 8028 9634 11824 13377 15154																
		500	P1 0.7 1.4 1.88 2.9 3.26 5.5 9.6 10.6 14.1 17.2 19.2 25.1 32.8 39.9 43.4 56.1 63.3	T2 170 343 467 735 835 1419 1530 2490 3680 4571 5176 6791 8927 10974 12074 15608 17691 17671																
7	31.5	1500	P1 1.0 1.8 1.91 3.5 3.91 6.9 8.3 10.5 11.5 17.4 21.6 26.6 33.9 43.3 45.5 54.5 68.5	T2 210 392 419 770 870 1571 1910 2444 2698 4161 5289 6068 6601 8494 10915 114																

## 2.2 减速器的速比应符合表 2 的规定

The reducer's nominal transmission ratio  $i$  should be in accordance with stipulation in table 2.

表 2 Table 2

传动比代号	1	2	3	4	5	6	7	8	9	10	11	12
i	5	6.3	8	10	12.5	16	20	25	31.5	40	50	63

## 3. 型号与标记示例 Type and symbol example

### 3.1 型号 Type

CW U 200—20—I F Q/321283JBJ 04-2002

- 标准号 Standard number
- 冷却方式 (风扇冷却 “F”，自然冷却不标注)  
Cooling wise (cooling with fan “F”, no means cooling without fan)
- 装配形式 Installing form
- 公称传动比 Nominal transmission ratio
- 中心距, mm Centre distance
- 蜗杆位置, “U” 为下置, “O” 为上置, “S” 为侧置  
Worm position U: worm below worm wheel, O: worm on worm wheel, S: worm beside worm wheel
- 圆弧齿圆柱蜗杆减速器 arc-contract worm reducer

### 3.2 标记示例 Symbol example

中心距 125mm, 公称传动比 20, 第一种装配, 蜗杆下置的圆弧齿圆柱蜗杆减速器, 自然冷却。

Centre distance of 125mm, nominal transmission ratio of 20, the first installing, wormunder worm wheel, cooling without fan, arc-contract worm gearing reducer.

减速器 Reducer CWU125-20- I

## 4、减速器的外形与结构尺寸 Shape and structure dimension of reducer

### 4.1 CWU 型系列减速器的外形及安装尺寸见图 1、图 2, 表 3、表 4:

Shape and structure dimension of CWU type reducer see drawing 1, drawing 2, table 3, table 4;

### 4.2 CWO 型系列减速器的外形及安装尺寸见图 3、图 4, 表 5、表 6:

Shape and structure dimension of CWO type reducer see drawing 3, drawing 4, table 5, table 6;

### 4.3 CWS 型系列减速器的外形及安装尺寸见图 5、图 6, 表 7、表 8。

Shape and structure dimension of CWS type reducer see drawing 5, drawing 6, table 7, table 8.

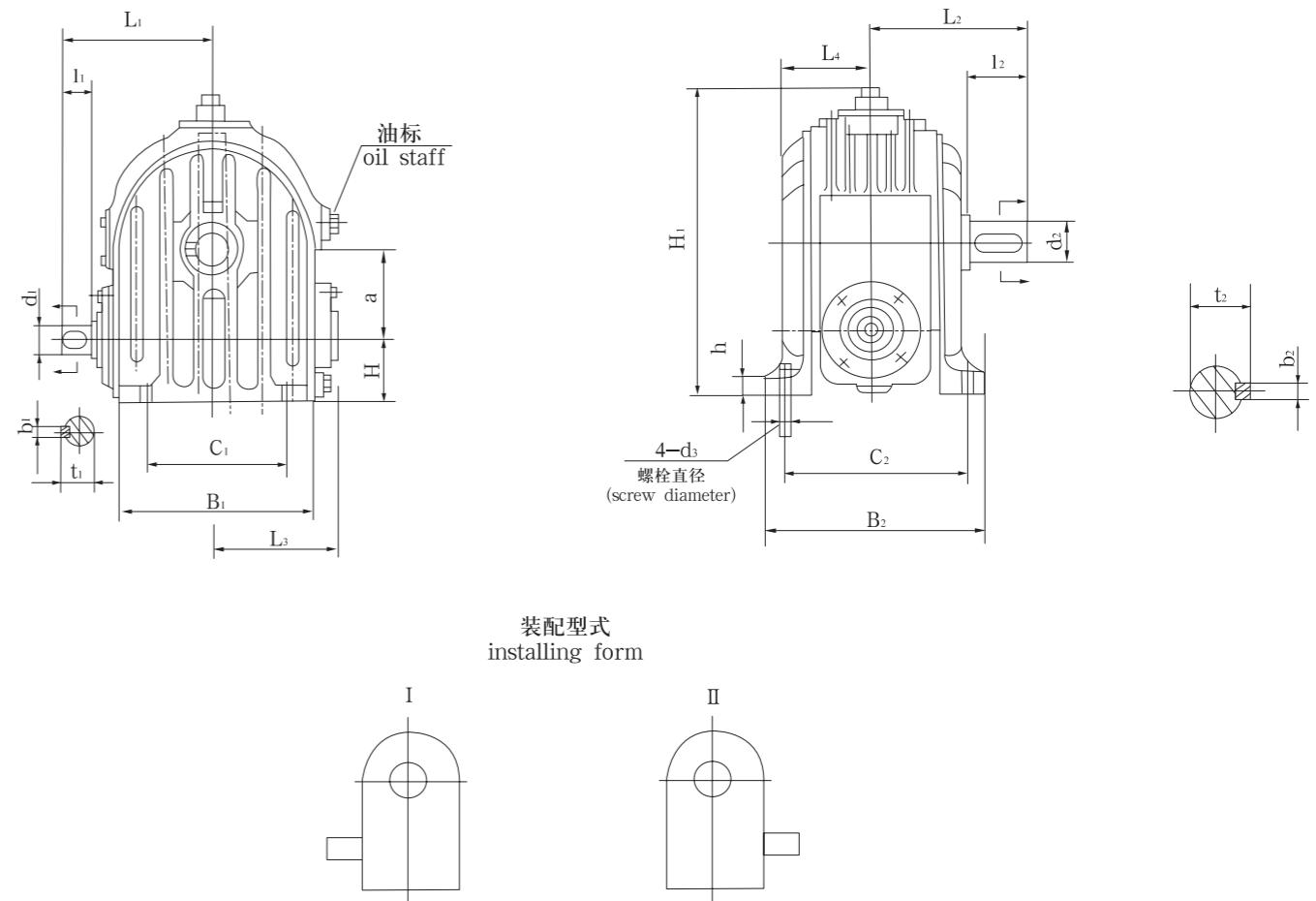


图 1 Drawing 1

CWU63 ~ CWU100 型减速器外形及安装尺寸

表 3

Outlook and assembling size of CWU63-CWU100 decelerator

型号 Type	尺寸 Size	a	B1	B2	C1	C2	h	H	H1	d3	i≤12.5				
											d1	I1	b1	t1	L1
63	63	148	180	115	150	12	54	220	M12	19js6	28	6	21.5	128	
80	80	175	200	140	170	15	65	267	M12	24js6	36	8	27	151	
100	100	218	230	175	190	15	80	322	M12	28js6	42	8	31	182	

型号 Type	尺寸 Size	i≥16					d2	I2	b2	t2	L2	L3	L4	重量(不包括油重) Weight(exclude the oil weight)
		d1	I1	b1	t1	L1								
63	19JS6	28	6	21.5	128	32K6	58	10	35	135	97	70	19.5	
80	24JS6	36	8	27	151	38K6	58	10	41	143	110	81	28.5	
100	24JS6	36	8	27	176	42K6	82	12	45	182	130	95	43	

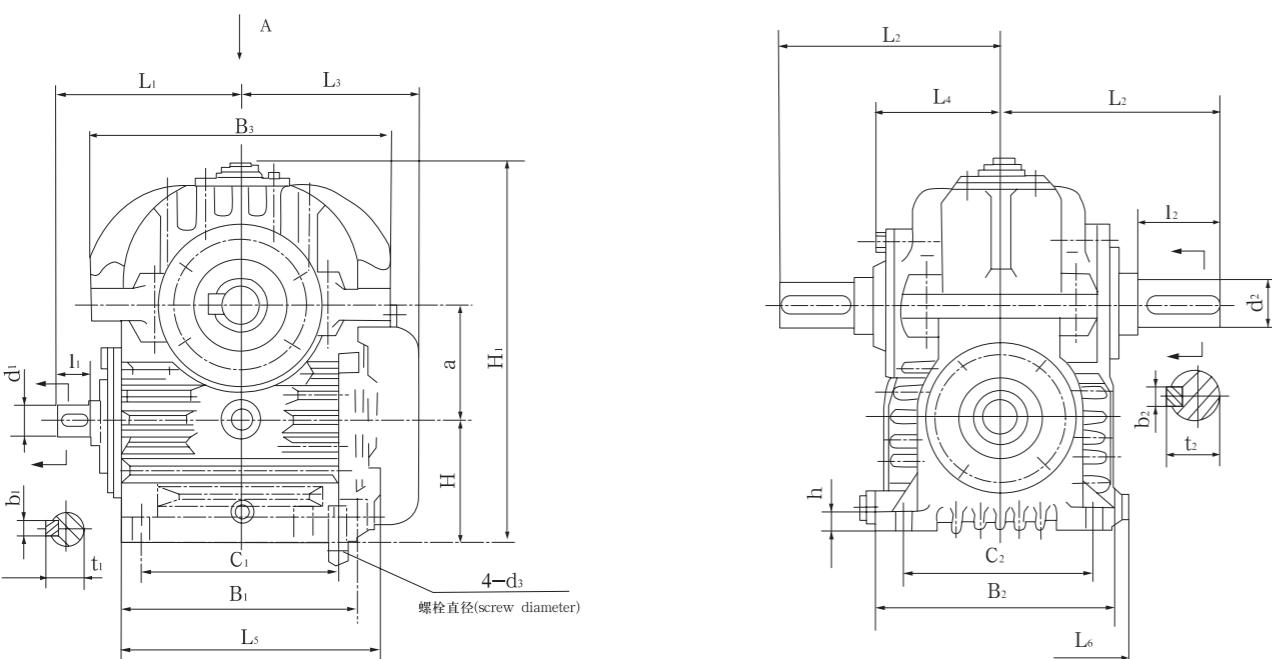


图 2

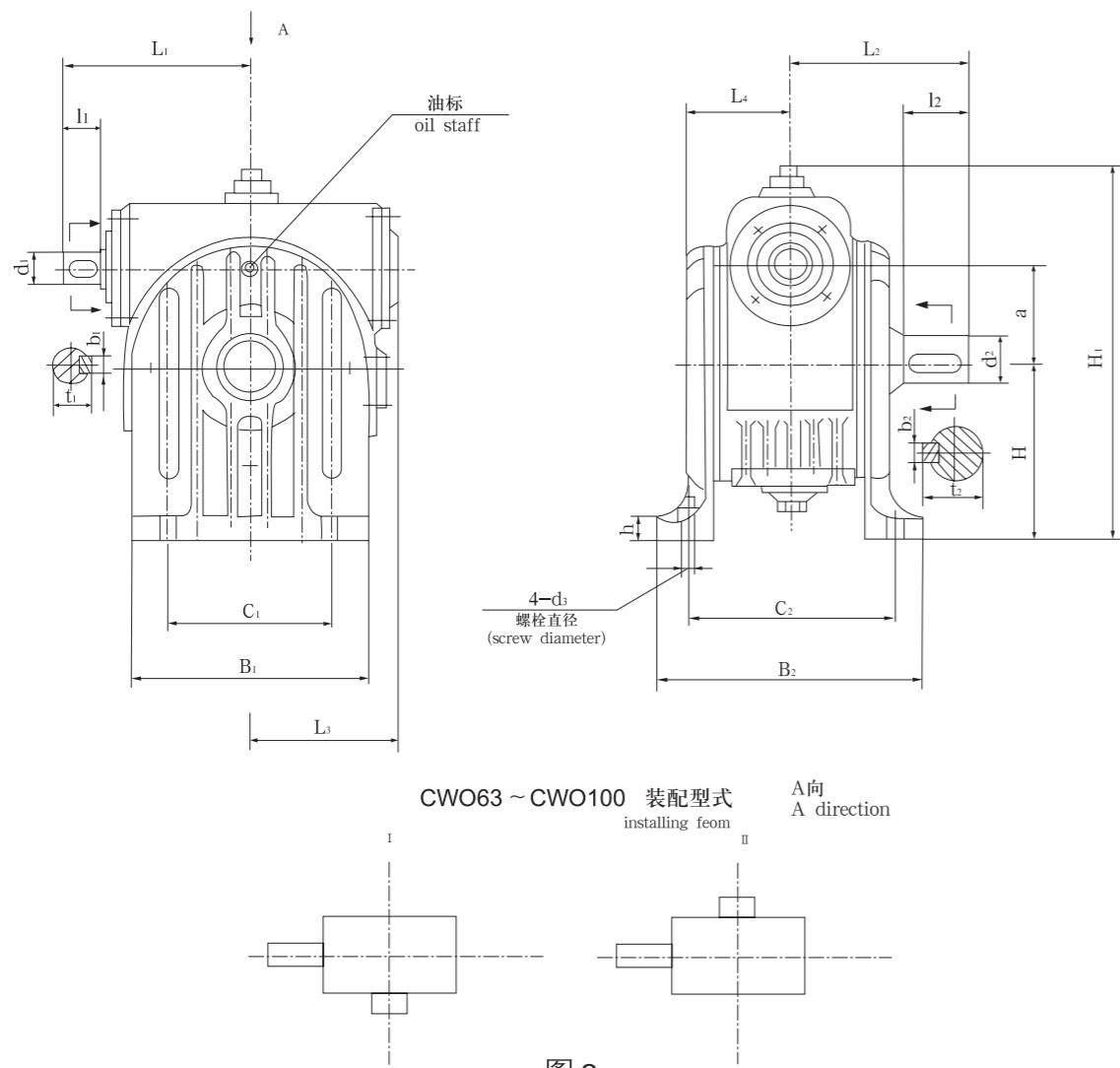
CWU125 ~ CWU500 型减速器外形及安装尺寸

表 4

Outlook and assembling size of CWU125-CWU500 decelerator

型号 Type	尺寸 Size	a	B1	B2	B3	C1	C2	i≤12.5					i≥16				
								d1	I1	b1	t1	L1	d1	I1	b1	t1	L1
125	125	260	250	310	220	205	32k6	58	10	35	218	28js6	42	8	31	202	
140	140	285	275	345	230	225	38k6	58	10	41	228	28js6	42	8	31	212	
160	160	325	300	385	230	250	42k6	82	12	45	277	32k6	58	10	35	253	
180	180	350	320	420	260	270	42k6	82	12	45	292	32k6	58	10	35	268	
200	200	400	350	465	280	300	48k6	82	14	51.5	324	38k6	58	10	41	300	
225	225	440	380	505	325	325	48k6	82	14	51.5	342	38k6	58	10	41	318	
250	250	510	410	575	370	350	55k6	82	16	59	380	42k6	82	12	45	380	
280	280	570	460	645	420	400	60m6	105	18	64	430	48k6	82	14	51.5	407	
315	315	640	530	715	470	445	65m6	105	18	69	470	48k6	82	14	51.5	447	
355	355	730	580	805	540	490	70m6	105	20	74.5	515	55k6	82	16	59	492	
400	400	790	620	880	620	530	75m6	105	20	79.5	545	60m6	105	18	64	545	
450	450	885	680	985	700	580	80m6	130	22	85	625	65m6	105	18	69	600	
500	500	1015	750	1110	760	640	90m6	130	25	95	680	70m6	105	20	74.5	655	

型号 Type	尺寸 Size	d2	I2	b2	t2	L2	L3	L4	L5	L6	h	H	H1	d3	重量 (不包括油量) kg weight (excluded the oil weight)	
125	55k6	82	16	59	222	202	133	153	147	30	125	408	M16		92	
140	60m6	105	18	64	260	220	144	166	160	30	140	445	M16		120	
160	65m6	105	18	69	270	245	156	186	172	35	160	510	M16		145	
180	75m6	105	20	79.5	290	260	173	200	182	35	180	560	M20		200	
200	80m6	130	22	85	325	295	180	235	197	40	200	650	M20		260	
225	90m6	130	25	95	340	320	193	247	212	40	225	730	M20		320	
250	100m6	165	28	106	385	360	208	285	228	45	225	785	M24		395	
280	110m6	165	28	116	405	390	225	312	235	50	250	885	M24		530	
315	120m6	165	32	127	420	430	242	352	289	50	280	980	M30		700	
355	130m6	200	32	137	470	480	255	397	315	55	300	1085	M30		910	
400	150m6	200	36	158	490	515	277	429	335	60	3					



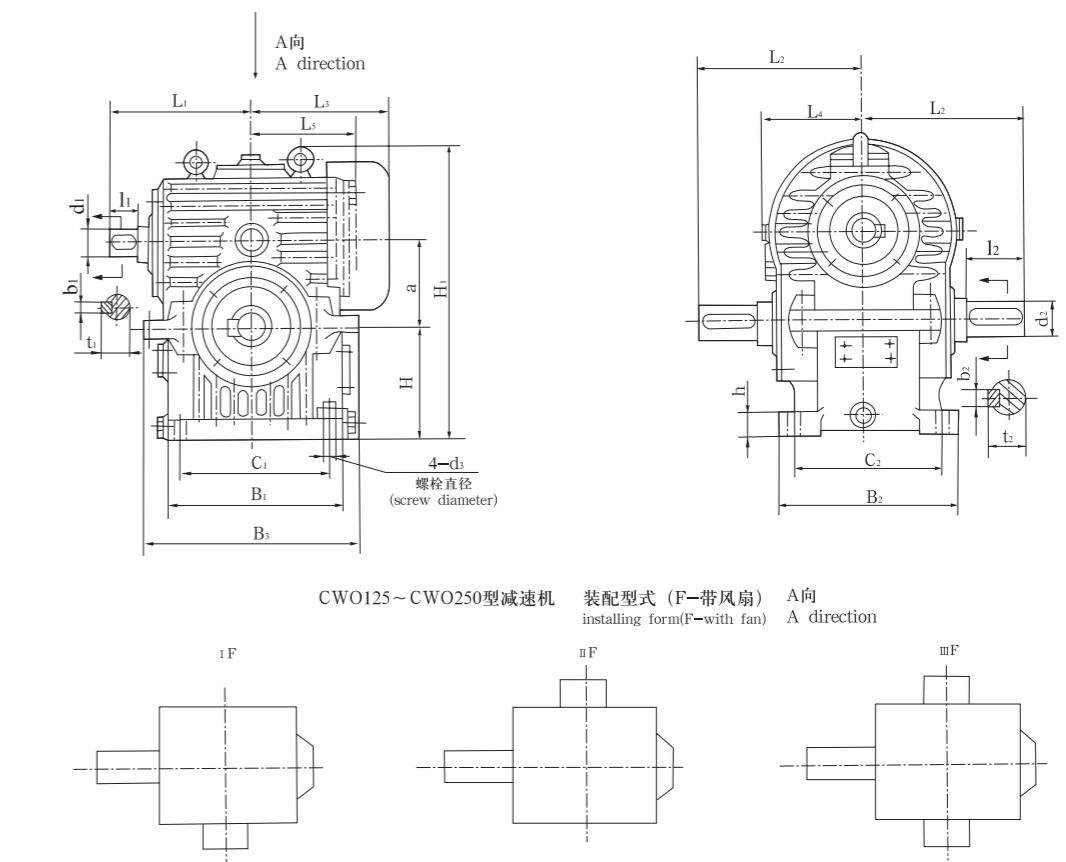
CWO63 ~ CWO100 型减速器外形及安装尺寸

表5

Outlook and assembiing size of CWO63-CWO100 decelerator

型号 Type	尺寸 Size	a	B1	B2	C1	C2	h	H	H1	d3	i≤12.5				
											d1	I1	b1	t1	L1
63	63	63	148	180	115	150	12	117	245	M12	19js6	28	6	21.5	128
80	80	80	175	200	140	170	15	145	296	M12	24js6	36	8	27	151
100	100	100	218	230	175	190	15	180	365	M12	28js6	42	8	31	182

型号 Type	i≥16					d2	I2	b2	t2	L2	L3	L4	重量(不包括油重) Weight(exclude the oil weight)			
	d1	I1	b1	t1	L1								d1	I	b1	
63	19JS6	28	6	21.5	128	32K6	58	10	35	135	97	70	19.5			
80	24JS6	36	8	27	151	38K6	58	10	41	143	110	81	28.5			
100	24JS6	36	8	27	176	42K6	82	12	45	182	130	95	43			



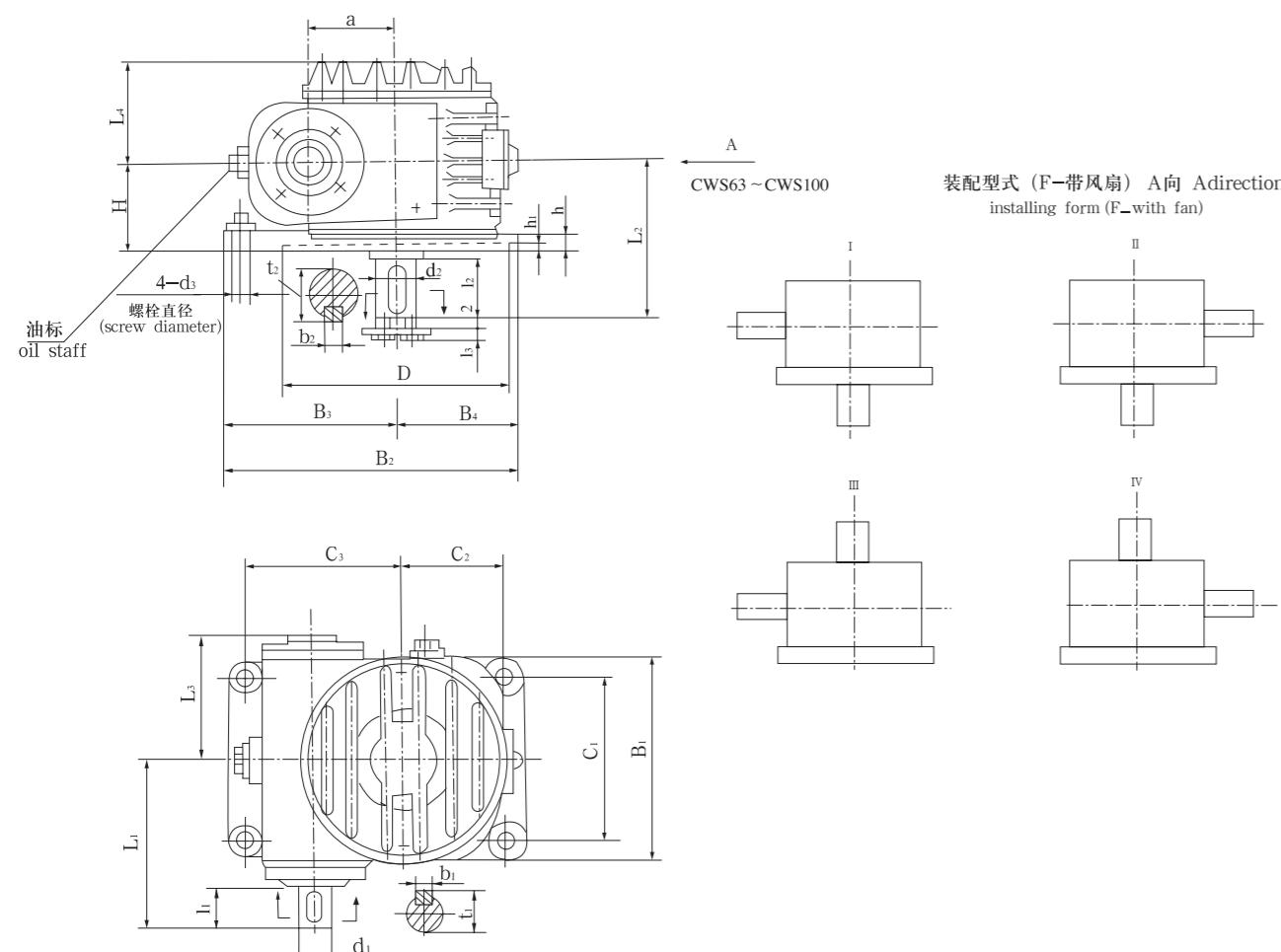
CWO125 ~ CWO250 型减速器外形及安装尺寸

Outlook and assembiing size of CWO125-CWO250 decelerator

型号 Type	尺寸 Size	i≤12.5										i>12.5				
		a	B	B2	B3	C1	C2	h	H	H1	d3	d1	I1	b1	t1	L1
125	125	125	260	250	310	220	205	30	155	410	M16	32k6	58	10	35	218
140	140	140	285	275	345	230	225	30	195	485	M16	38k6	58	10	41	218
160	160	160	325	300	385	230	250	35	195	505	M16	42k6	82	12	45	277
180	180	180	350	320	420	260	270	35	220	600	M20	42k6	82	12	45	292
200	200	200	400	350	465	280	300	40	250	655	M20	48k6	82	14	51.5	324
225	225	225	440	380	505	325	325	40	275	700	M20	48k6	82	14	51.5	342
250	250	250	510	410	575	370	350	45	310	820	M24	55k6	82	16	59	380

型号 Type	尺寸 Size	i≥16					d2					重量(不包括油重) Weight(exclude the oil weight)				
		d1	I	b1	t1	L1	d2	I2	b2	t2	L2	L3	L4	L5	重量(不包括油重) Weight(exclude the oil weight)	
125	28js6	42	8	31	202	55k6	82	16	59	222	202	133	158	98		
140	28js6	42	8	31	212	60m6	105	18	64	260	220	144	166	110		
160	32k6	58	10	35	253	65m6	105	18	69	270	245	156	186	150		
180	32k6	58	10	35	268	75m6	105	20	79.5	290	260	173	200	210		
200	38k6	58	10	41	300	80m6	130	22	85	325	295	182	235	270		
225	38k6	58	10	41	318	90m6	130	25	95	340	320	193	247	335		
250	42k6	82	12	45	380	100m6	165	28	106	385	360	210	285	410		

注：蜗杆双出 CWU200、225、250、450、500 杆总长须加长 20mm，即两端各加长 10mm。  
Note:when worm decelerators of CWU200、225、250、450、500 type have two outputshaft, the pole should be lengthened of 20mm,that is to lengthen 10mm on each end.

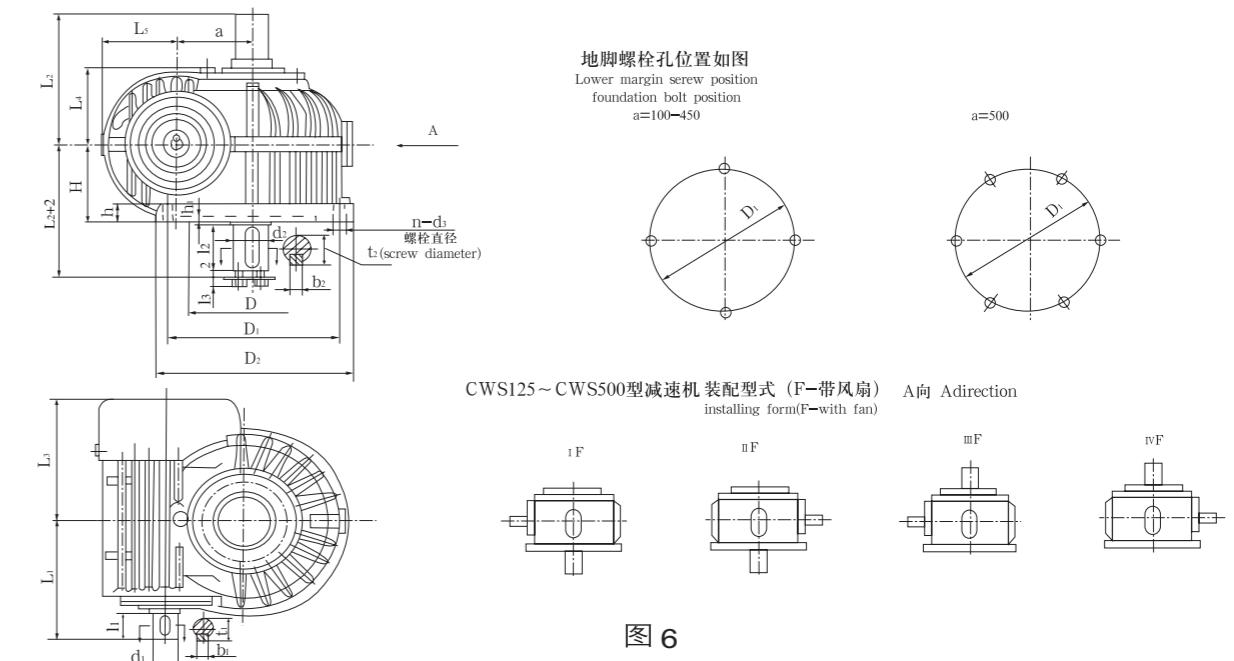


CWS63 ~ CWS100 型减速器外形及安装尺寸

表 7

Outlook and assembiing size of CWU63-CWU100 decelerator

型号 Type	尺寸 Size	a	B1	B2	B3	B4	C1	C2	C3	D	h	h1	i≤12.5				
													d1	I1	b1	t1	L1
63	63	155	245	140	105	125	90	125	190	23	5	19js6	28	6	21.5	128	
80	80	180	270	160	110	150	95	145	210	23	5	24js6	36	8	27	151	
100	100	220	325	200	125	190	110	185	240	23	5	28js6	42	8	31	182	
型号 Type	尺寸 Size	i≥ 16					d2	I2	b2	t2	L2	L3	L4	H	d3	重量(不包括油重) Weight(exclude the oil weight)	
		d1	I1	b1	t1	L1										d3	n
63	19JS6	28	6	21.5	128	32K6	58	10	35	135	97	70	75	M12		19	
80	24JS6	36	8	27	151	38K6	58	10	41	143	110	81	80	M12		28	
100	24JS6	36	8	27	176	42K6	82	12	45	182	130	95	95	M12		42.5	



CWS125 ~ CWS500 型减速器外形及安装尺寸

表 8

Outlook and assembiing size of CWS125-CWS500 decelerator

型号 Type	尺寸 Size	a	D (H11)	D1	D2	L3	L4	L5	h	h1	H	i≤12.5				
												d1	I1	b1	t1	L1
125	125	125	230	280	320	202	134	125	32	8	132	32k6	58	10	35	218
160	160	160	300	360	400	245	156	142	32	8	160	42k6	82	12	45	277
200	200	200	370	435	480	295	182	180	38	8	190	48k6	82	14	51.5	324
250	250	250	470	540	600	360	208	210	40	8	212	55k6	82	16	59	380
280	280	280	550	640	700	390	225	215	45	8	225	60m6	105	18	64	430
315	315	315	605	700	760	430	242	235	50	10	250	65m6	105	18	69	470
355	355	355	700	805	880	480	270	235	55	10	265	70m6	105	20	74.5	515
400	400	400	765	875	950	515	277	247	60	10	265	75m6	105	20	79.5	545
450	450	450	875	990	1070	565	320	275	65	10	315	80m6	130	22	85	625
500	500	500	1000	1100	1180	655	346	275	75	10	375	90m6	130	25	95	680

型号 Type	尺寸 Size	i≥ 16					d2	I2	b2	t2	L2	I3	地脚螺栓 foundation bolt		重量(不包括油重) Weight(exclude the oil weight)
		d1	I1	b1	t1	L1							d3	n	
125	28js6	42	8	31	202	55k6	82	16	59	222	14	M12	4	95	
160	32k6	58	10	35	253	65m6	105	18	69	270	15	M16	4	160	
200	38k6	58	10	41	300	80m6	130	22	85	325	17	M16	4	270	
250	42k6	82	12	45	380	100m6	165	28	106	385	17	M20	4	410	
280	48k6	82	14	51.5	407	110m6	165	28	116	405	17	M24	4	550	
315	48k6	82	14	51.5	447	120m6	165	32	127	420	17	M24	4	750	
355	55k6	82	16	59	492	130m6	200	32	137	470	17	M30	4	930	
400	60m6	105	18	64	545	150m6	200	36	158	490	24	M30	4	1200	
450	65m6	105	18	69	600	170m6	240	40	179	560	24	M36	4	1650	
500	70m6	105	20	74.5	655	190m6	280	45	200	640	24	M36	6	2190	

注：蜗杆双出 CWU200、225、250、450、500 杆总长须加长 20mm，即两端各加长 10mm。  
Note:when worm decelerators of CWU200、225、250、450、500 type have two outputshaft, the pole should be lengthened of 20mm,that is to lengthen 10mm on each end.

### 三、减速机承载能力与选用方法

#### Speed reducer carrying capacity and selection method

1、减速机的额定输入功率和额定输出扭矩见表9

The rated input power and rated output torque T<sub>2</sub> of the reducers please consult table 9.

表 9 Table 9

传动比代号 no.of transmission ratio	公称传动比 nominal transmission ratio	输入转速 n/r/min input whelling speed	中心距代号 Center symbol 中心距 Center space	CWU、CWS、CWO																			
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
				63	80	100	125	140	160	180	200	225	250	280	315	355	400	450	500				
额定输入功率P1kw (rated input power)、额定输出扭矩T2N.m(rated output torque)																							
1	5	1500	P <sub>1</sub> T <sub>2</sub>	3,500 107	6,388 180	10,39 295	25,22 730	-	44.58 1300	-	64.90 1900	-	98.44 2900	-	141.9 4200	-	202.4 6000	-	-				
		1000	P <sub>1</sub> T <sub>2</sub>	2,978 123	4,871 205	8,092 345	21,28 920	-	35.59 150	-	53.68 2350	-	91.75 4050	-	135.7 6000	-	193.6 8600	-	-				
		750	P <sub>1</sub> T <sub>2</sub>	2,577 141	4,211 235	7,010 395	15,40 940	-	27.73 1600	-	43.06 2500	-	78.56 4600	-	126.4 7400	-	185.9 11000	-	-				
		500	P <sub>1</sub> T <sub>2</sub>	2,120 173	3,367 280	5,436 455	11,60 990	-	19.81 1700	-	31.23 2700	-	561.14 4900	-	104.2 9150	-	169.4 15000	-	-				
2	6.3	1500	P <sub>1</sub> T <sub>2</sub>	3,198 114	5,505 200	9,258 340	21,37 800	27.51 980	38.40 1450	48.46 1700	55.38 2100	69.18 2450	83.77 3200	102.5 3650	121.7 4670	150.5 5370	137.8 7500	-	-				
		1000	P <sub>1</sub> T <sub>2</sub>	2,422 127	4,331 235	7,141 390	17.96 1000	24.97 1300	31.03 1750	43.85 2300	49.95 2750	64.08 3400	78.53 4500	95.58 5100	114.4 6580	145.3 7770	172.5 10500	-	189.9 12000				
		750	P <sub>1</sub> T <sub>2</sub>	2,090 146	3,594 260	6,138 445	14.22 1050	19.57 1350	24.73 1850	34.50 2400	27.27 2800	56.00 5300	60.81 6300	88.76 10200	107.2 7590	134.8 13500	-	183.9 15500	-	-			
		500	P <sub>1</sub> T <sub>2</sub>	1,706 176	2,955 315	4,829 520	10.47 1150	13.65 1400	17.08 1900	24.52 2550	26.64 3000	41.03 4300	50.37 5700	67.32 7100	83.58 9540	112.5 11990	143.1 18000	-	162.7 20500	-	-		
3	8	1500	P <sub>1</sub> T <sub>2</sub>	2,932 127	4,866 230	7,628 365	17.01 830	24.25 1050	28.44 1450	43.51 1900	48.25 2400	61.38 2700	73.84 3700	91.68 4050	113.6 5720	136.0 5040	166.1 8400	-	-	-	-		
		1000	P <sub>1</sub> T <sub>2</sub>	2,255 146	3,908 275	6,144 440	13.55 990	21.70 1400	24.95 1990	39.10 2550	43.65 3250	56.13 3700	67.78 5100	84.52 5600	104.8 7910	126.7 8440	158.2 12000	174.1 12500	-	-	-	-	
		750	P <sub>1</sub> T <sub>2</sub>	1,962 168	3,334 310	5,298 500	12.93 1250	16.96 1450	21.73 2150	30.61 2650	35.01 3450	50.44 4400	62.32 6200	77.46 6800	95.18 9540	114.0 10070	148.9 15000	162.4 15500	-	-	-	-	
		500	P <sub>1</sub> T <sub>2</sub>	1,647 209	2,714 375	4,83 590	9,322 1350	12.25 1550	15.42 2300	21.93 2800	25.38 3700	35.91 4650	44.70 6600	61.33 8000	79.99 11920	101.7 13420	129.6 19500	147.3 2100	-	-	-	-	
4	10	1500	P <sub>1</sub> T <sub>2</sub>	2,340 132	4,056 235	6,626 390	14.16 1050	17.30 1500	24.50 2450	32.10 1850	42.10 2600	50.79 3250	59.13 3800	73.68 4750	94.55 5910	140.2 7480	146.2 9200	-	-	-	-		
		1000	P <sub>1</sub> T <sub>2</sub>	1,800 150	3,025 275	5,132 450	12.78 1150	16.05 1450	21.96 2000	28.62 2450	37.06 3400	43.94 4200	51.10 4900	64.89 6200	87.71 8200	112.4 10550	138.1 13000	162.2 14500	176.0 16500	-	-	-	-
		750	P <sub>1</sub> T <sub>2</sub>	1,594 170	2,729 310	4,401 510	10.54 1250	12.95 1750	17.41 2100	23.73 2700	28.83 3500	35.14 4450	46.40 5900	57.94 7400	80.74 10010	100.2 12470	132.0 16500	156.0 18500	164.1 20500	-	-	-	-
		500	P <sub>1</sub> T <sub>2</sub>	1,272 209	2,203 370	3,542 610	7,714 1350	9,355 1650	12.88 2300	21.93 2850	20.87 3750	26.401 4960	35.62 6700	45.57 8600	64.70 11920	82.81 15340	118.1 22000	137.8 24500	147.4 27500	-	-	-	-
5	12.5	1500	P <sub>1</sub> T <sub>2</sub>	2,036 137	3,534 240	5,579 385	11.27 800	14.74 1000	19.32 1400	25.32 1800	32.62 2450	42.61 3050	52.23 3850	71.95 5200	79.71 6100	105.1 8050	130.4 10000	-	-	-	-		
		1000	P <sub>1</sub> T <sub>2</sub>	1,594 159	2,840 285	4,465 460	9,919 1050	13.37 1350	17.63 1700	23.21 2450	29.04 3250	38.43 4100	47.23 5200	66.84 7200	73.88 8300	96.65 11030	127.1 14500	152.5 17000	183.3 20500	-	-	-	-
		750	P <sub>1</sub> T <sub>2</sub>	1,370 182	2,482 325	3,977 540	8,946 1250	11.91 1600	15.38 2200	21.05 2950	24.93 3700	35.26 5000	44.42 6500	62.16 8900	69.26 10500	91.39 13900	118.3 18000	141.2 21000	174.3 26000	-	-	-	-
		500	P <sub>1</sub> T <sub>2</sub>	1,126 223	1,967 390	3,121 630	6,791 1400	9,104 1800	11.16 2350	16.00 3300	17.60 3850	27.75 5800	23.91 7100	45.05 9500	55.40 12400	76.37 17200	101.3 23000	102.2 28000	157.3 35000	-	-	-	-
6	16	1500	P <sub>1</sub> T <sub>2</sub>	1,728 137	3,019 250	4,930 415	11.06 960	13.63 1200	19.62 1750	23.11 2200	33.22 3000	39.52 3700											

2、表7额定输入功率 $P_1$ 及额定输出扭矩 $T_2$ 适用于CWU、CWS型减速器，工作载荷平稳无冲击，每日工作8h，每小时启动10次，启动扭矩为输出扭矩的2.5倍，小时负荷率 $J_c=100\%$ ，环境温度为20℃。

Table 7 shows decelerators with rated input power  $P_1$  and rated output torque  $T_2$  in the applicable for CWU, CWS type reducer, with stable and impact-free service load, 8hours running per day, startup for 10 times per hour, startup torque 2.5 times of output torque, load rate per hour  $J_c=100\%$ , and ambient temperature 20℃.

3、CWO型及其它状态的减速器可按表9的额定输入功率 $P_1$ 及额定输出扭矩 $T_2$ 选用，但需用工作状况系数（见表10~表15）进行修正。

Speed reducer for CWO, TPA type and other service status may be selected according to rated input power  $P_1$  and rated output torque  $T_2$  in table 9 and modified with working condition factor (see table 10-table 15).

3.1 工作类型和每日运转时间系数 $f_1$ 值见表10

Working type and daily running time factor  $f_1$  is shown in table 10.

表 10 Table10

原动机 Prime motor	日运转时间 Dily running time	载荷性质 Nature of load		
		均匀载荷U Uniform load U	中等冲击载荷M Middle impact load M	强冲击载荷H Heavy impact load H
电动机 Electromotor	偶然性的1/2h* Occasional 1/2h	0.8	0.9	1
	间断性的2h* Intermittent 2h	0.9	1	1.25
	2~10h	1	1.25	1.5
	10~24h	1.25	1.50	1.75
汽轮机 Steam turbine	偶然性的1/2h* Occasional 1/2h	0.9	1.0	1.25
	间断性的2h* Intermittent 2h	1	1.25	1.5
	2~10h	1.25	1.50	1.75
	10~24h	1.5	1.75	2
水力机 Water turbine	偶然性的1/2h* Occasional 1/2h	0.9	1.0	1.25
	间断性的2h* Intermittent 2h	1	1.25	1.5
	2~10h	1.25	1.50	1.75
	10~24h	1.5	1.75	2
活塞发动机 (4~6个油缸) Piston engine (with 4~6 cylinder)	偶然性的1/2h* Occasional 1/2h	0.9	1.0	1.25
	间断性的2h* Intermittent 2h	1	1.25	1.5
	2~10h	1.25	1.50	1.75
	10~24h	1.5	1.75	2
活塞发动机 (1~3个油缸) Piston 1~3 cylinder	偶然性的1/2h* Occasional 1/2h	1	1.25	1.5
	间断性的2h* Intermittent 2h	1.25	1.50	1.75
	2~10h	1.5	1.75	2
	10~24h	1.75	2.0	2.25

注：\*指在每日偶然和间歇运转时间的总和。3.2启动频率系数 $f_2$ 值见表11.3.3。小时负荷率系数 $f_3$ 值见表12.3.4环境温度系数 $f_4$ 值见表13.3.5减速器型式系数 $f_5$ 值见表14.3.6有风扇和无风扇的热损耗系数 $f_6$ 值见表15。

Note: Sign\* indicates the total hours of occasional and intermittent running time. 3.2 Startup frequency factor  $f_2$  value is shown in table 11.3.3. Hour load rate factor  $f_3$  value is shown in table 12.3.4. Ambient temperature factor  $f_4$  value is in table 13.3.5 Reducer type factor  $f_5$  value is shown in table 14.3.6 Heat loss (with and without fan) factor  $f_6$  value is shown in table 15.

4.减速器输出轴轴端许用负荷取决于蜗轮轴的转速及额定扭矩。按下式计算： $F_R=f_L \cdot R$ ;  
 $F_A=f_L \cdot A$ ;

Allowed load for shaft end of reducer output shaft is determined by rotation speed and rated torque of worm wheel shaft and calculated as below:  $F_R=f_L \cdot R$ ;  
 $F_A=f_L \cdot A$ ;

式中： $F_R$ ——输出轴轴端径向许用负荷,见图7中的a;

In which,  $F_R$ ——allowed radial load for shaft end of output shaft, refer to 'a' in figure 7.

$F_A$ ——输出轴轴端轴向许用负荷,见图7中的b;  
allowed load for shaft end of output shaft,refer to 'b' in figure 7;  
 $F_L$ ——速度系数,其值应符合表16的规定;  
speed factor value should conform to the requirement in table 16;  
 $R$ ——径向载荷系数,其值见表17;  
radial load factor conforms to the requirement in table17;  
 $A$ ——轴向载荷系数,其值见表17;  
axial load factor is shown in table 17.

表 11 Table11

每小时启动次数 Number of startup per hour		系 数 f2 Factor f2
0~10	>10~16	>60~400
1	1.1	1.2

表 12 Table12

小时负荷率 Jc% Hour load rate Jc%		系 数 f3 Factor f3		
100	80	60	40	20
1	0.95	0.88	0.77	0.6

注：(1) $J_c = \frac{1 \text{ 小时内负荷作用时间(分钟)}}{60} \times 100\%$

(2) $J_c < 20\%$  时按 $J_c=20\%$ 计

Note: (1) $J_c = \frac{\text{Time of load in 1hour (min)}}{60} \times 100\%$

(2) If  $J_c < 20\%$ , make  $J_c=20\%$

表 13 Table13

环境温度°C Ambient temperature				
系 数 f4 Factor f4		>20~30	>30~40	>40~50
0~10	>10~20			
0.89	1	1.14	1.33	1.6

表 14 Table14

减速器规格 Reducer specifications	减速器型式 Reducer type		
	CWU CWS		CWO
	系数 f5	Factor f5	
63~100	1	1	
125~225	1	1.2	
315~500	1	—	

表 15 Table15

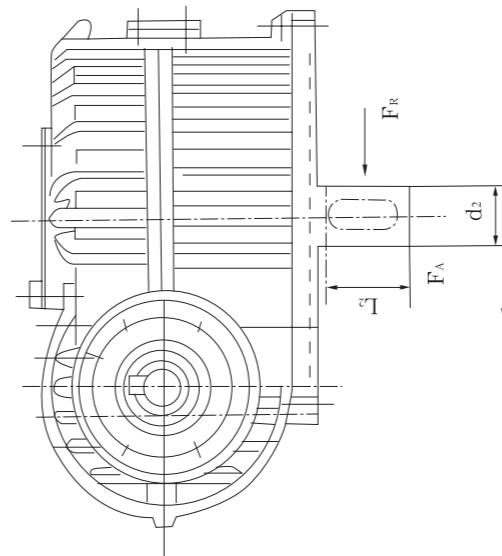
无风扇冷却 Cooling without fan	蜗杆转速 n1 Worm speed			
	1500	1000	750	500
系数 f6 Factor				
63~100	1	1	1	1
125~225	1.37	1.59	1.59	1.33
250~500	1.51	1.85	1.89	1.78
有风扇冷却 Cooling with fan	f6=1			

表 16 Table16

n <sub>2</sub> rpm	f <sub>L</sub>	n <sub>2</sub> rpm	f <sub>L</sub>	n <sub>2</sub> rpm	f <sub>L</sub>
6.3	1.00	25	0.70	100	0.47
8	0.95	31.5	0.66	125	0.44
10	0.90	40	0.62	160	0.41
12.5	0.85	50	0.58	200	0.38
16	0.80	63	0.54	250	0.35
20	0.75	80	0.50	315	0.32

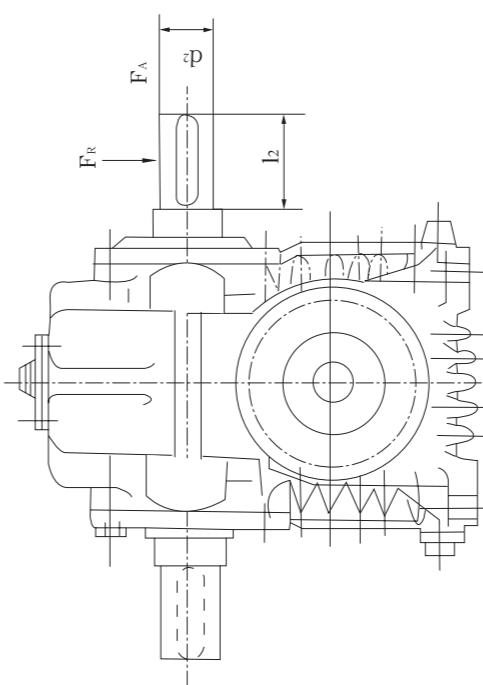
注: 当蜗轮轴转速  $n_2$  为其中两个数值中间值时, 应用插值法计算。

Note: If worm wheel shaft rotation speed  $n_2$  is the middle value between two values in the table, the interpolation calculating method is applied.



b

Figure 7



a

表 17 Table17

中心距 $\alpha$ Center space	T2 (N · M)						T2 (N · M)						T2 (N · M)						T2 (N · M)					
	63	80	100	125	140	160	180	200	63	80	100	125	140	160	180	200	63	80	100	125	140	160	180	200
63	5300	280	7800	800	10600	10600	10600	10600	5300	280	7800	800	10600	10600	10600	10600	5300	280	7800	800	10600	10600	10600	10600
80	5300	315	7800	900	1000	10500	10500	10500	5200	355	7700	900	1000	10500	10500	10500	5200	355	7700	900	1000	10500	10500	10500
100	5300	5200	7800	1120	11900	1400	1400	1400	5100	400	7500	1120	11900	1400	1400	1400	5100	400	7500	1120	11900	1400	1400	1400
125	5300	5200	7800	1250	1250	1250	1250	5100	400	7300	1250	1250	1250	1250	1250	1250	5100	400	7300	1250	1250	1250	1250	1250
140	5300	5200	7800	1400	1400	1400	1400	5000	450	7100	1400	1400	1400	1400	1400	1400	5000	450	7100	1400	1400	1400	1400	1400
160	5300	5200	7800	1600	1600	1600	1600	4900	500	6900	1600	1600	1600	1600	1600	1600	4900	500	6900	1600	1600	1600	1600	1600
180	5300	5200	7800	1800	1800	1800	1800	4800	500	6700	1800	1800	1800	1800	1800	1800	4800	500	6700	1800	1800	1800	1800	1800
200	5300	5200	7800	2240	2240	2240	2240	4700	500	6500	2240	2240	2240	2240	2240	2240	4700	500	6500	2240	2240	2240	2240	2240

续表 17 Table continued 17

		中 心 距 Center		$\alpha$											
225		250		280		315		355		400		450*		500*	
T2 (N · m)	FA或FR (N)														
3150	20800	4500	24000	5600	25600	8000	29500	10000	33000	12500	38000	14000	43400	20000	48000
3550	20300	5000	24000	6300	26500	9000	29500	11200	33000	14000	38000	16000	43200	22400	47500
4000	20600	5600	23800	7100	26300	10000	29200	12500	32800	16000	37700	18000	42300	25000	46300
4500	20300	6300	23500	8000	26000	11200	28800	14000	32400	18000	37300	20000	42000	28000	45400
5000	20000	7100	23000	9000	25700	12500	28300	16000	32000	20000	36300	22400	41400	31500	45000
5600	19500	8000	22500	10000	25400	14000	27800	18000	31500	22400	36200	25000	41000	35500	44000
6300	19000	9000	22000	11200	25000	16000	27200	20000	30800	25000	35600	28000	39700	40000	43200
7100	18500	10000	21300	12500	24600	18000	26500	22400	29300	28000	34500	31500	38500	45000	42750
-	-	-	-	-	-	-	-	25000	28300	31500	34000	35500	37000	50000	41000
-	-	-	-	-	-	-	-	-	-	-	40000	36000	56000	39200	

注: ①当扭矩  $T_2$  在表中两个数之间时, 用插值法计算  $F_A$ 、 $F_R$  值。

Note: If the value of torque  $T_2$  is between two values in the table, the values of  $A$  and  $R$  is calculated with method of interpolation.

If the value of torque moment  $T_2$  is less than minimum value in the table, the calculation is made with method of interpolation.  
 ②当扭矩值小于表中最小值时，按最小值计算。  
 ③减速器应尽量不附加轴端角系数，必须承受轴端负载的加强型轴颈对打有“\*”号的中小齿轮 450~500 减速器当有轴

③减速器应尽量不将轴端见端负荷时，必须采用加强型轴承。

Speed reducer should not be applied with additional shaft end load. If it needs to carry shaft load, the reinforced bearing with same specification should be selected. For center distance 450,500 reducer marked with “\*”, reinforced bearing should be selected if it is applied

## 5、减速器的选用 Reducer selection

## 5.1 选用须知条件 Conditions of selection

- a. 原动机类型 Type of prime mover
  - b. 额定输入功率 Rated input power  $P_1$ (kW)
  - c. 输入转速 Input rotation speed  $n_1$ (rpm)
  - d. 工作机类型 Type of working machine
  - e. 额定输出扭矩 Rated output torque  $T_2$ (N · m)
  - f. 最大输出扭矩 Maximum output torque  $T_{2\max}$ (N · m)
  - g. 传动比 i Drive ratio
  - h. 输入、输出轴相对位置 Relative position of input and output shaft
  - i. 输入、输出轴转向、装配型式 Turning of input and output shaft and installation from
  - j. 载荷性质 Nature of load
  - k. 每日运转时间 h Running time per hour
  - l. 每小时启动次数 Number of startup per hour
  - m. 小时负荷率 Hour load rate  $J_c$ %
  - n. 环境温度 Ambient temperature
  - o. 输出轴轴端附加载荷 Additional load on shaft end of output shaft

## 5.2 减速器的选用方法: Method to select reducer

5.2.1 已知条件符合表 9 的工作情况，可以在表 9 中选所需减速器的规格

If known conditions is compliant with the service status in table 9, the specification for desirable reducer may be selected from table 9.

5.2.2 已知条件与表9的工作状况不符，应按下列公式计算所需的计算输入功率  $P_{ij}$  或计算输出扭矩  $T_{2i}$ 。

$$P_{ij} = P_1 \cdot f_1 \cdot f_2 \quad (1) \quad \text{或} \quad T_{2j} = T_2 \cdot f_1 \cdot f_2 \quad (3)$$

$$P_{IJ} = P_1 \cdot f_1 \cdot f_2 \quad (1) \quad \text{or} \quad T_{2J} = T_2 \cdot f_1 \cdot f_2 \quad (3)$$

在公式(1)、(2)或公式(3)、(4)计算结果中选择较大值,再按表 9 中选取承载能力相符或偏大的减速器.  
Select the maximum value from the results of formula (1) and (2), or in formual (3) and (4), and then select from table 9 for corresponding carry capacity or bigger reducer.

5.2.3 公式(1)、或公式(3)属于机械强度计算。公式(2)或公式(4)属于热极限强度计算，油温为100°C。如果采用专门的冷却措施(循环油冷却、水冷却等)，温度会限制在允许的范围内，不需用公式(2)或(4)进行计算。

Formula (1) or formula (3) belongs to mechanical strength calculation. Formula (2) and (4) belongs to heat limiting strength and oil temperature is 100°C. If special cooling method is used (circular oil cooling, water cooling), the temperature will be limited to be within allowable range needless to make calculation with formula (2) or (4).

5.2.4 减速器的最大允许用尖峰负荷为额定承载能力的2.5倍。

Maximum allowed peak load is 2.5 times of rated carrying capacity.

5.2.5 当输入转速低于500rpm时，请与江苏泰隆减速机股份有限公司联系

If input rotation speed < 500rpm, please contact Jiang-Su Tai-rong Decelerator Machinery Co.Ltd.

5.2.6 当 $J_c$ 很小，按 $P_{1J}$ 或 $T_{2J}$ 选取减速器时，还必须核算实际功率和扭矩不应超过表9所列额定承载能力的2.5倍。

If  $J_c$  is very low and reducer is selected with  $P_{1J}$  and  $T_{2J}$ , the actual power and torque should be verified not to exceed 2.5 times of rated carrying capacity listed in table 9.

### 5.3 选用举例 Example of selection

已知：需要一台CWU蜗杆减速器，驱动一台建筑用卷扬机，减速器为标准型式，风扇冷却。

Given that a CWU worm screw reducer is needed to drive a building winch, and the reducer is standard type with fan cooling.

原动机 Prime mover 电动机 motor

输入转速:  $n_1=725\text{rpm}$  Input rotation speed:  $n_1=725\text{rpm}$

公称传动比:  $i=20$  Nominal drive ratio:  $i=20$

输出扭矩:  $T_2=2555\text{N.m}$  Output torque:  $T_2=2555\text{N.m}$

启动力矩:  $T_{2\max}=5100\text{N.m}$  Startup moment:  $T_{2\max}=5100\text{N.m}$

输出轴轴端轴向负荷:  $F_R=11000\text{N}$  Output shaft end axial load:  $F_R=11000\text{N}$

每天工作: 8h Daily service time: 8h

每小时启动次数: 15次，载荷始终作用着 Number of startup per hour: 15 times, with load all alone

每次运转: 3min Time period of running: 3min

环境温度: 30°C Ambient temperature: 30°C

### 选择减速器 Selection reducer

由于已知条件与表9的工作状况不符需按工作状况系数算出负荷，再由表9选择所需减速器规格。

原动机为电动机，每日工作8h，由表10查得 $f_1=1.25$ ；

每小时启动次数15次：由表11查得 $f_2=1.1$ ；

Known condition is not compliant with the working status in table 9, the load should be calculated with service status factor, and then the specification of the desirable reducer is selected from table 9.

Prime mover is motor with service time 8h per day; from table 10,  $f_1=1.25$ ;

Number of startup per hour is 15 times; from table 11,  $f_2=1.1$ ;

小时负荷率  $J_c=3X15/60X100\%=75\%$  由表12查得 $f_3=0.93$ ；

Hour load rate  $J_c=3X15/60X100\%=75\%$  from table 12,  $f_3=0.93$ ;

工作环境温度30°C：由表13查 $f_4=1.4$ ；

减速器型号CWU由表14查得 $f_5=1$ ；风扇冷却由表15查得 $f_6=1$ ；

按机械强度和热极限强度公式算出计算输出扭矩值：

Ambient temperature for service is 30°C; from table 13,  $f_4=1.4$ ;

For reducer type CWU,  $f_5=1$  from table 14, and for fan cooling,  $f_6=1$  from table 15;

Calculating output torque value is calculated with formula of mechanical strength and heat limiting strength:

$$T_{2J}=T_2 \cdot f_1 \cdot f_2 = 2555 \times 1.25 \times 1.1 \approx 3513\text{N.m}$$

$$T_{2J}=T_2 \cdot f_3 \cdot f_4 \cdot f_5 \cdot f_6 = 2555 \times 0.93 \times 1.14 \times 1 \times 1 \approx 2709\text{N.m}$$

计算结果，机械强度大于热极限强度，故应按 $T_{2J}=3513\text{N.m}$ 进行选择：

$$T_{2J}=T_2 \cdot f_1 \cdot f_2 = 2555 \times 1.25 \times 1.1 \approx 3513\text{N.m}$$

$$T_{2J}=T_2 \cdot f_3 \cdot f_4 \cdot f_5 \cdot f_6 = 2555 \times 0.93 \times 1.14 \times 1 \times 1 \approx 2709\text{N.m}$$

As shown in calculation, mechanical strength is higher than heat limiting strength, therefore, selection is made with  $T_{2J}=3513\text{N.m}$

输出轴转速:  $n_2=725/20=36.25\text{ rpm}$

由表9查得最接近的减速器为:  $a=200, T_2=4200\text{N.m}$ ; 略大于要求值。符合要求：

Output shaft rotation speed:  $n_2=725/20=36.25\text{ rpm}$

From table 9, the closest reducer is:  $a=200, T_2=4200\text{N.m}$ ; which is slightly higher than required value, so it is up to the requirement.

校核输出轴轴端轴向许用负荷

Verify output shaft end axial allowable load:

由表 16 查得  $f_2=0.64$  From table 16,  $f_2=0.64$

由表 17 查得  $A=17240$  From table 17  $A=17240$

$F_A=0.64 \times 17240 N=11328N$ .

计算所得  $F_A$  值，大于要求值，满足要求。

$F_A=0.64 \times 17240 N=11328N$

The calculated value of  $F_A$  is higher than required, so it is up to the requirement

校核许用尖峰负荷  $T_{2max}$

Verify allowable peak load  $T_{2max}$

$T_{2max}=4200 \times 2.5=10500Nm$

计算所得  $T_{2max}$  值大于 5100Nm，满足要求。

$T_{2max}=4200 \times 2.5=10500Nm$

The calculated value of  $T_{2max}$  is higher than 5100Nm, so it is up to the requirement.

选择结果 selection results

减速器: CWU200-20-IF

Reducer: CWU200-20-IF

#### 四、减速器的润滑 Reducer lubrication

1、蜗杆蜗轮啮合一般采用浸油润滑。当啮合滑动速度  $VS > 10m/s$  时，采用喷油润滑。

Submerged lubrication is normally used for worm wheel and worm screw gearing. If gearing slip speed  $VS > 10m/s$ , oil spray lubrication is used.

2、一般应根据滑动速度大小按表 18 选择适当的润滑油。

Correct lubricant is usually selected with slip speed according to table 18.

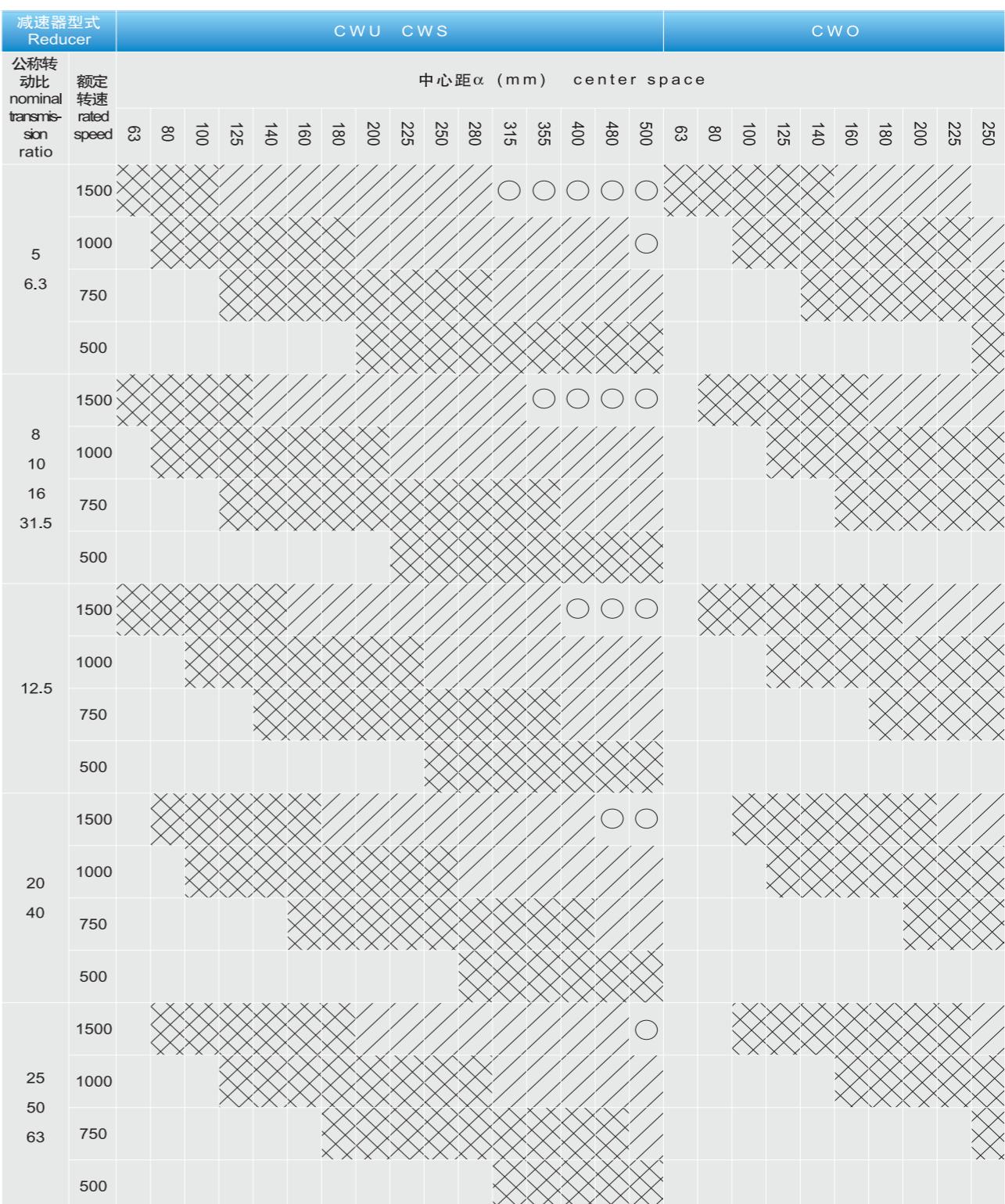
3、当环境温度在 0-40°C 时，不同中心距、不同传动比和转速条件下润滑油粘度的选择应按表 19 的规定。

If ambient temperature is 0-40°C, the selection of lubricant viscosity under different center distance, different drive ratio, and different rotating speed is made according to table 19.

表 18 Table18

滑动速度Vs Slip speed	<2.2	>2.2~5	>5~12	>12
润滑油粘度 Lubricant viscosity	cst/50°C	324	225	169
	E/50°C	43	30	22

表 19 Table19



4、表 19 中符号的意义及推荐润滑油牌号可见表 20，本标准减速器润滑只允许选用蜗轮蜗杆油。

The meaning of symbols in table 19 and recommended lubricant type is shown in table 20, and only worm wheel and worm screw oil is selected for this standard reducer lubricant.

表 20 Table20

符号 Symbol	粘度 Viscosity		润滑油 Lubricant		
	cst/50°C	cst/40°C	蜗轮蜗杆油牌号 Worm wheel and worm screw oil brand	适用滑动速度Applicable slip speed Vs(m/s)	
□	324	612~748	N680	≤2.2	
☒	225	414~506	N460	>2.2~5	
▨	169	288~352	N320	>5~12	
▣	114	198~242	N220	>12	

5、对喷油润滑,润滑油粘度为 114cst/50°C(相当于 15E/50°C),注油压力为 0.15-0.25MPa,每分钟注油量应符合表 21 的规定。

For oil spray lubrication,lubricant viscosity is 114cst 50°C(equivalent to 15E/50°C),oil injection pressureis 0.15-0.25MPa.amount of injected oil per minute up to the requirement in table 21.

表 21 Table21

中心距 $\alpha$ center distance mm	100	125	140	160	180	200	225	250	280	315	355	400	450	500
注油量 amount of injected oil 1/mm	2	3	3	4	4	6	6	10	10	15	15	20	20	20

6、轴承一般采用飞溅润滑,对于低速运转的轴承应采用锂基润滑脂。

Splash lubricating, and lithium grease is used for bearing running at low speed.

## 立式圆弧圆柱蜗杆减速器

### Vertical round cylinder worm decelerator

#### 一、概述 Brief

LCW 立式圆弧圆柱蜗杆减速器符合国家标准 JB/T7848-1995。

本减速器主要适用于化工、制药、建筑、食品、轻工等行业。减速器输入转速不超过 1500r/min。

减速器工作环境温度为 -15°C ~ +40°C , 海拔高度不超过 1000m。当工作环境温度低于 0°C 时, 起动前润滑油必须加热到 0°C 以上, 或采用低凝固点的润滑油。

减速器可正、反向运转。

LCW vertical cylinder worm decelerator conforms to standard JB/T7848-1995.

The decelerator is applied in chemical industry, medicine, building, food and light industry. The input rotating speed is no more than 1500r/min.

The ambient temperature is -15 ~ +40°C with an elevation of ≤ 1000m. The lubricating oil must be heated up to 0°C or low-freezing point oil is applied if temperature is lower than 0°C. Direct and retrorse operation is permitted.

#### 二、型号、标记、尺寸 Type symbol and dimension

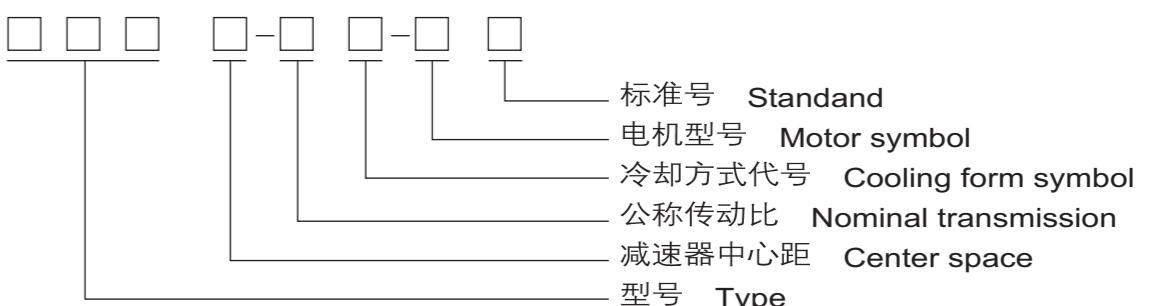
##### 1、型号 Type

本减速器型号用字母 LCW 表示, 其中 L 表示减速器的结构型式为立式, C 表示蜗杆齿廓为 C1 形, W 表示蜗杆减速器。

This series decelerator is shown in LCW, where L means vertical C means C1 type of worm tooth and W means worm decelerator.

##### 2、标记 Symbol

###### 2.1 标记方法 Symbol method



## 2.2 标记示例 Symbol example

LCW 125 - 10 F - Y132M- 4 JB/T 7848-1955

标准号 Standard  
 电机型号 Motor symbol  
 风扇冷却 Fan cooling  
 公称传动比  $i=10$   
 Nominal transmission ratio  
 减速器中心距  $a=125\text{mm}$   
 Center space  
 立式圆弧圆柱蜗杆减速器  
 Vertical round cylinder worm decelerator

## 3. 型式与尺寸 Type and dimension

减速器的型式与尺寸应符合图 1、表 1 的规定。

Type and dimension conform to stipulation in drawing 1 and table 1.

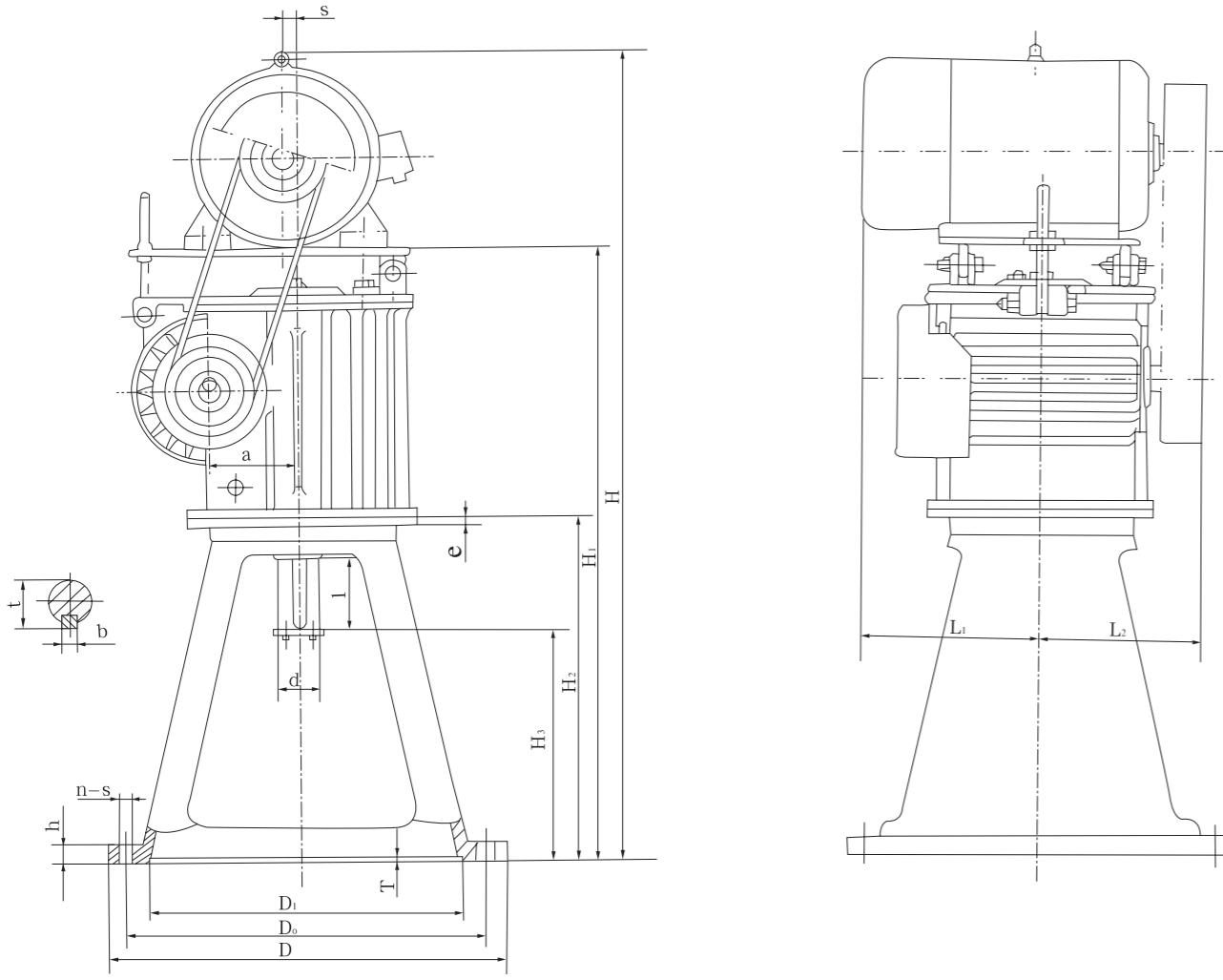


表 1 Table 1 (mm)

型号-Type	尺寸-Size	a	D	D0	D1	T	h	d	l	b	t	e	H	H1	H2	H3	L1	L2	n-s	电机功率 Power kW	重量 Weight kg			
LCW100	100	350 300 250	6	26	45k6	82	14	48.5	10	975~1100	785	450	345	145~255	186	8 - Ø14.5	1.5~2.2	145~185						
		395 360 315	495 455 400																					
LCW125	125	495 455 400	6	26	60m6	105	18	64	15	1140~1280	895	505	370	200~330	225	8 - Ø18.5	4~5.5	215~298						
		560 510 450																						
LCW160	160	600 560 490	6	30	70m6	105	20	74.5	20	1350~1465	1035	535	390	242~405	285	8 - Ø24	11~15	345~485						
		650 600 550																						
LCW180	180	600 560 490	6	30	85m6	130	22	90	20	1459~1619	1144	585	415	257~455	310	12 - Ø24	18.5	385~575						
		650 600 550																						

表 1 (壳) Table 1

尺寸 型号 Size Type	a	D	D0	D1	T	h	d	I	b	t	e	H	H1	H2	H3	L1	L2	n-s	电机功率 Power kw	重量 Weight kg
LCW200	560	510	450	6	30	90m6	130	25	95	20	1535~1750	1200	605	435	292~463	330	12 - ø24	7.5~15	480~685	
	650	600	550	6	30	100m6	165	28	106	25	1726~1871	1341	665	455	317~445	355	12 - ø24	22~37		
LCW225	600	560	490	6	30	100m6	165	28	116	25	1785~1975	1390	680	470	357~492	390	12 - ø24	11~15	620~815	
	650	600	550	6	30	110m6	165	28	116	25								22~45		
LCW250	600	560	490	6	30	110m6	165	28	116	25	1785~1975	1390	680	470	357~492	390	12 - ø24	22~45	730~1040	
	700	650	600															55		

注：  
1. 减速器支架的型式与尺寸亦可根据客户的要求另行确定。  
2. 表中与电机相关的尺寸是按Y系列电机确定的，亦可根据用户要求配用其它类型的电机。

Note: 1. The type and size of bracket can be determined on client's demand.  
2. The size related to motor above is determined on Y series motor. Also other are applyde on client's demand.

### 附录 Appendix A 减速器的承载能力 Loading capacity (标准的附录) (Appendix to standard)

A1 减速器所使用的电机型号、功率 P1、V 带型号及输出转距 T2 应符合表 A1 的规定。  
The motor type A1, power P1, belt type V and output torque T2 all conform to stipulation in table A1.

表 A1 Table A1

规格型号 Type	公称传动比 i Nominal transmission ratio	电机功率 Power P1 kw	电机型号 Motor type	带轮直径 belt wheel diameter mm	V 带 V belt		输出转速 Output rotating speed n2 r/min	输出转距 Output torque T2 N.m
					型号 Type	根数 Number		
LCW80	8	4.0	Y112M-4	80			182	180
	10	3.0	Y100L2-4				145	160
	12.5						122	190
	16	2.2	Y100L1-4				97	165
	20			100			73	220
	25	1.5	Y90L-4				59	175
	31.5						48	200
	40	1.1	Y90S-4				37	190
	50						29	225
	63	0.75	Y802-4	112			25	175
LCW100	8	5.5	Y132S-4	132			182	240
	10	4.0	Y112M-4	112			145	305
	12.5						122	255
	16						97	320
	20						73	215
	25	2.2	Y100L1-4	118			61	265
	31.5						48	315
	40						37	270
	50	1.5	Y90L-4	125			30	315
	63						25	360

表 A1 (续) Table A1 (continued)

规格型号 Type	公称传动比 i Nominal transmission ratio	电机功率 Power P1 kw	电机型号 Motor type	带轮直径 belt wheel diameter mm	V 带 V belt		输出转速 Output rotating speed n2 r/min	输出转距 Output torque T2 N.m
					型号 Type	根数 Number		
LCW125	8	11	Y160M-4	160	SPA 3		182	495
	10						145	625
	12.5						122	520
	16						97	605
	20						73	810
	25						59	705
	31.5						50	790
	40						37	760
	50						30	670
	63						25	765
LCW160	8	22	Y180L-4	224	SPB 3		176	1060
	10						145	1285
	12.5						122	1380
	16						97	1270
	20						73	1200
	25						61	1530
	31.5						48	1735
	40						37	1500
	50						30	1290
	63						25	1540
LCW180	8	30	Y200L-4	250	SPB 3		207	1200
	10						155	1650
	12.5						125	1585
	16						91	2000
	20						77	1960
	25						58	1470
	31.5						45	1840
	40						38	2195
	50						29	1990
	63						25	2095

表 A1 (完) Table A1

规格型号 Type	公称传动比 i Nominal transmission ratio	电机功率 Power P1 kw	电机型号 Motor type	带轮直径 belt wheel diameter mm	V 带 V belt		输出转速 Output rotating speed n2 r/min	输出转距 Output torque T2 N.m
					型号 Type	根数 Number		
LCW200	8	45	Y225M-4	280	SPC 3		182	2140
	10						145	2180
	12.5						118	2150
	16						97	2600
	20						73	2490
	25						59	2070
	31.5						48	2390
	40						37	3110
	50						30	2705
	60						25	2150
LCW225	8	45	Y225M-4	250	SPC 3		207	1830
	10						141	2740
	12.5						125	2520
	16						94	2610
	20						77	3240
	25						58	3100
	31.5						47	2470
	40						38	3060
	50						29	2840
	63						26	3115
LCW250	8	55	Y250M-4	300	SPC 3		182	2510
	10						145	3250
	12.5						122	3150
	16						97	4140
	20						73	4210
	25						59	4200
	31.5						48	3595
	40						37	4635
	50						30	4525
	63						25	3170

注: 表中 V 带传动比为 1.0, 亦可根据需要另行设计。

Note: The V belt transmission ratio is 1.0, if needed it can be redesigned.

# 轴装式圆弧圆柱蜗杆减速器

## Shaft round cylinder worm decelerator

### 一、概述 Brief

轴装式圆弧圆柱蜗杆减速器，采用圆环面蜗轮包络成形（ZC1型）圆柱蜗杆，蜗轮齿形与蜗杆共轭，它适用于冶金、起重、运输、建筑、化工、矿山、轻纺等传动机械的减速机构，可以在国民经济各部门广泛使用。本系列减速器功率范围在0.59~75.84kW之间，输出扭矩在180~7077N.m之间，输入轴转数一般不大于1500转/分，高速轴可正反两向运转，工作环境温度为-40℃~+40℃之间，当工作环境温度低于0℃时，启动前润滑油必须加温到0℃以上。

The round grinding wheel enveloping (ZC1) cylinder worm is applied in this shaft round cylinder worm decelerator. The tooth of worm gear and worm is conjugated. It is wide applied in metallurgy, lifting, transportation, building, chemical, mining and light industry. The power ranges from 0.59-75.84KW, the output torque locates between 180-7077N.m. The input rotating speed is no more than 1500r/min. The ambient temperature is -40℃~+40℃ the lubricating oil must be heated up to 0℃ if the temperature is below 0℃.

### 二、种类和代号 Type and symbol

1、本机结构为单级，包括以下四种型号：

The structure is single stage and the four types below are included

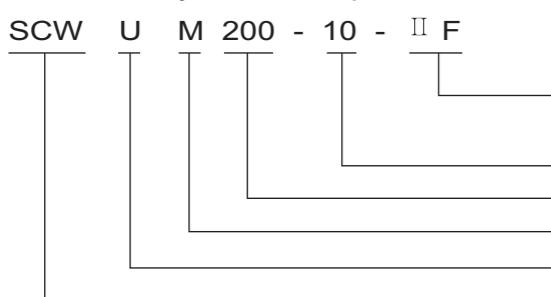
SCWU型——蜗杆在蜗轮之下型， SCWU type —— worm under the worm gear

SCWS型——蜗杆在蜗轮之侧型， SCWS type —— worm beside the worm gear

SCWO型——蜗杆在蜗轮之上型， SCWO type —— worm on the worm gear

SCWV1型——蜗杆轴线在垂直方向型 SCWV1 type —— worm centerline locates vertical

标记示例 Symbol example



第二种装配型式。(F代表带风扇)

The II installing form (F means fan cooling)

公称传动比*i*=10 nominal transmission ratio

中心距 *a*=200mm Center space

带电机 with motor

蜗杆在蜗轮之下型 worm under the worm gear

轴装式圆柱蜗杆减速器

shaft cylinder worm decelerator

2、中心距 *a*: Center space *a*

表 1 Table 1

中心距 <i>a</i> Center space <i>a</i>	中心距代号 Symbol												
		1	2	3	4	5	6	7	8	9	10	11	12
SCWU	第一系列 No.1 series	63	80	100	125	-	160	-	200	-	250	-	315
SCWS		-	-	-	-	140	-	180	-	225	-	280	-
SCWO													
SCWV1	第二系列 No.2 series												

3、传动比 *i*: Transmission ratio

表 2 Table 2

<i>i</i> 代号	1	2	3	4	5	6	7	8	9	10	11	12
<i>i</i> 公称	5	6.3	8	10	12.5	16	20	25	31.5	40	50	63

注：传动比 *i*=5、6.3等小速比的需提前联系。

Note: Contact us if transmission ratio is lower than 5, 6.3 etc.

### 4、型式与尺寸 Type and dimension

(1) SCWU型减速器的装配型式与外形尺寸应符合图1、表1、图2、表2的规定。

SCWU型减速器（带法兰盘）与IEC标准电机的连接尺寸应符合图3、表3、图4、表4的规定。

(2) SCWS型减速器的装配型式与外形尺寸应符合图5、表5、图6、表6的规定。

SCWS型减速器（带法兰盘）与IEC标准电机的连接尺寸应符合图7、表7、图8、表8的规定。

(3) SCWO型减速器的装配型式与外形尺寸应符合图9、表9、图10、表10的规定。

SCWO型减速器（带法兰盘）与IEC标准电机的连接尺寸应符合图11、表11、图12、表12的规定。

(1) The installing form and dimension of SCWU decelerator conform to stipulation of drawing 1, table 1, drawing 2 and table 2.

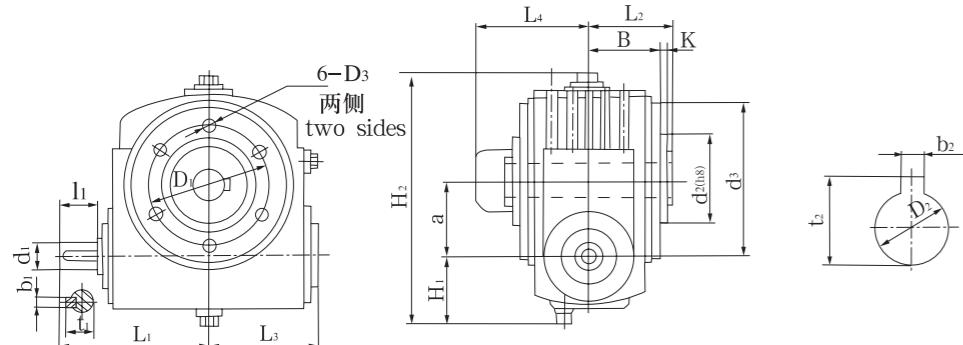
The installing between SCWU decelerator (with flange) and IEC motor conform to stipulation of drawing 3, table 3, drawing 4 and table 4.

(2) The installing form and dimension of SCWS decelerator conform to stipulation of drawing 5, table 5, drawing 6 and table 6.

The installing size between SCWS decelerator (with flange) and IEC motor conform to stipulation of drawing 7, table 7, drawing 8 and table 8.

(3) The installing form and dimension of SCWO decelerator conform to stipulation of drawing 9, table 9, drawing 10 and table 10.

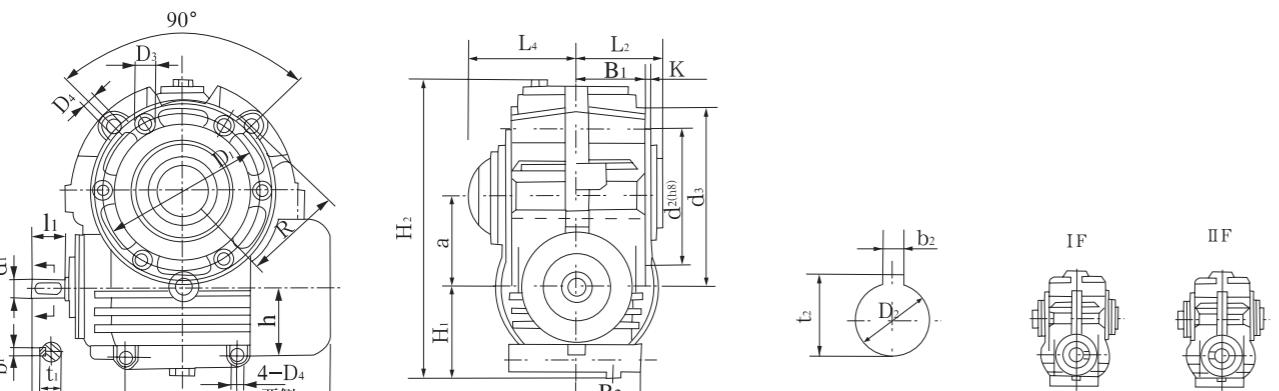
The installing size between SCWO decelerator (with flange) and IEC motor conform to drawing 11, table 11, drawing 12 and table 12.



SCWU型(63~100)  
图1 Drawing 1

表1 Table 1

尺寸 型号 Type	a	d3	i<16					i≥16					D2	b2	t2	L2	L3	L4	H1	H2	D1	D3	B	d2	k	重量 kg weight 不包括油量 (oil excluded)
			d1	I1	b1	t1	L1	d1	I1	b1	t1	L1														
63	63	150	19J6	28	6	21.5	128	19J6	28	6	21.5	128	30H7	8	33.3	70	100	95	60	220	102	M8X16	63	80	3	17
80	80	175	24J6	36	8	27	151	24J6	36	8	27	151	40H7	12	43.3	75	112	106	66	267	125	M8X16	69	100	3	24
100	100	218	28J6	42	8	31	182	24J6	36	8	27	178	50H7	14	53.8	95	140	140	85	325	150	M10X20	89	120	3	41



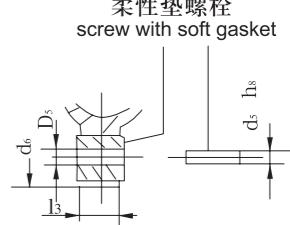
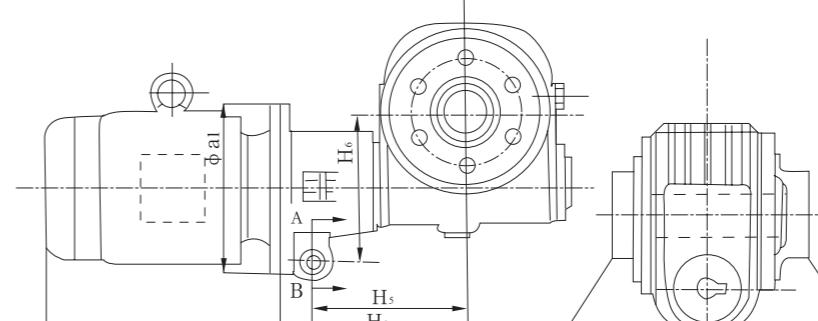
SCWU型(125~315)  
图2 Drawing 2

表2 Table 2

尺寸 型号 Type	a	d3	i<16					i≥16					D2	b2	t2	L2	L3	L4	H1	H2	D1	D3	D4	B1	B2	m	R	h	d2	k	重量 kg weight 不包括油量 (oil excluded)
			d1	I1	b1	t1	L1	d1	I1	b1	t1	L1																			
125	125	235	32k6	58	10	35	218	28J6	42	8	31	202	60H7	18	64.4	107	202	143	105	380	210	M12X24	13X35	84	84	145	135	80	180	10	80
140	140	265	38k6	58	10	41	228	28J6	42	8	31	212	65H7	18	69.4	120	220	152	125	433	235	M12X24	13X35	95	95	160	150	105	200	10	108
160	160	300	42k6	82	12	45	277	32k6	58	10	35	253	70H7	20	74.9	125	245	158	125	470	270	M12X24	13X35	95	95	170	170	95	220	10	138
180	180	330	42k6	82	12	45	292	32k6	58	10	35	268	80H7	22	85.4	137.5	260	175	150	530	290	M16X30	17X45	110	110	200	190	125	245	12	183
200	200	365	48k6	82	14	51.5	324	38k6	58	10	41	300	85H7	22	90.4	143	295	185	148	580	320	M16X30	17X45	115	115	250	213	110	245	12	243
225	225	420	48k6	82	14	51.5	342	38k6	58	10	41	318	95H7	25	100.4	160	320	198	170	640	360	M16X30	17X45	130	130	280	235	145	265	12	286
250	250	475	55k6	82	16	59	380	42k6	82	12	45	380	105H7	28	111.4	168	360	203	150	682	420	M16X30	17X45	135	135	320	265	125	280	12	350
280	280	540	60m6	105	18	64	430	48k6	82	14	51.5	407	115H7	32	122.4	180	390	227	165	755	450	M20X38	21X55	150	150	380	295	130	350	14	483
315	315	600	65m6	105	18	69	470	48k6	82	14	51.5	447	125H7	32	132.4	200	420	252	195	850	520	M20X38	21X55	170	170	410	310	150	380	15	655

带电机和法兰盘的视图  
Drawing with motor and flange

截面A-B  
Map A-B



SCWUM型 SCWUM type (a=63~100)  
图3 Drawing 3

表3 Table 3 mm

型号 规格 Type	IEC标准电机机座型号B5 IEC motor stand No. B5					反力矩支架 reversed torque bracket					弹性联轴器孔径mm hole diameter of stretch connector				
	机座规格 spec	a1 mm	H3 mm	H4 ≈ mm	H5 mm	H6 mm	d5 D5 mm	d6 mm	I3 mm	规格 spec	电机端 motor edge	减速器端 decelerator edge	i<16	i≥16	
63	80	200	188	433	150	145	12	50	34	ML1	19	24	19	19	
	90	200	198	471	150	145	12	50	34	ML1	24				
	100/112	250	215	545	170	170	16	60	42	ML2	28				
80	80	200	211	456	170	170	16	60	42	ML1	19	24	24	24	
	90	200	221	494	170	170	16	60	42	ML1					

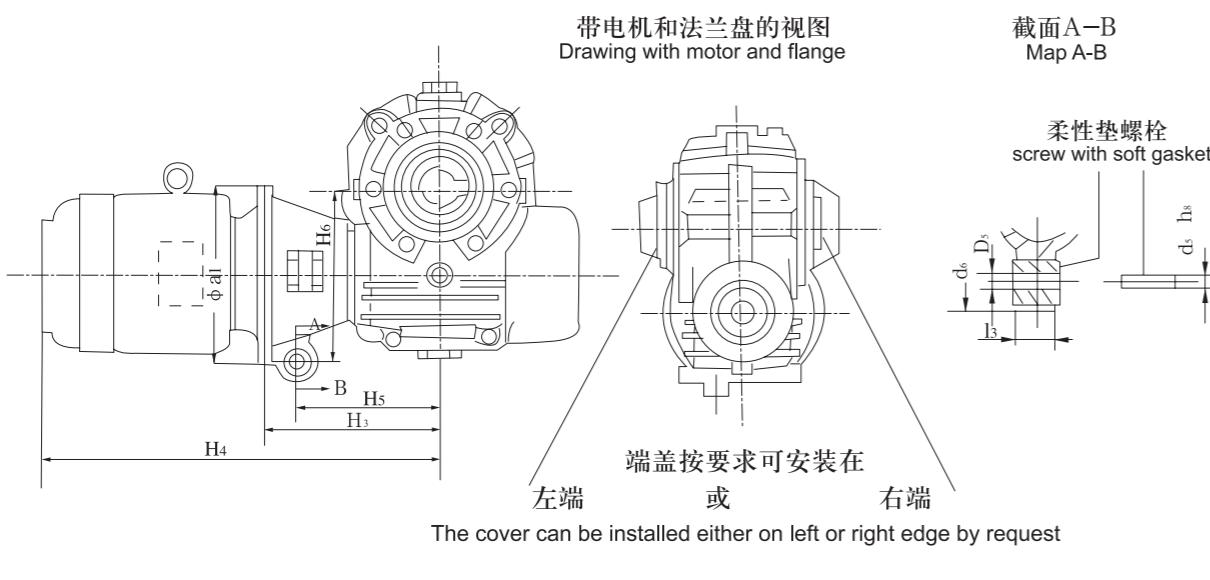
SCWUM型 SCWUM type ( $a=125 \sim 315$ )

图4 Drawing 4

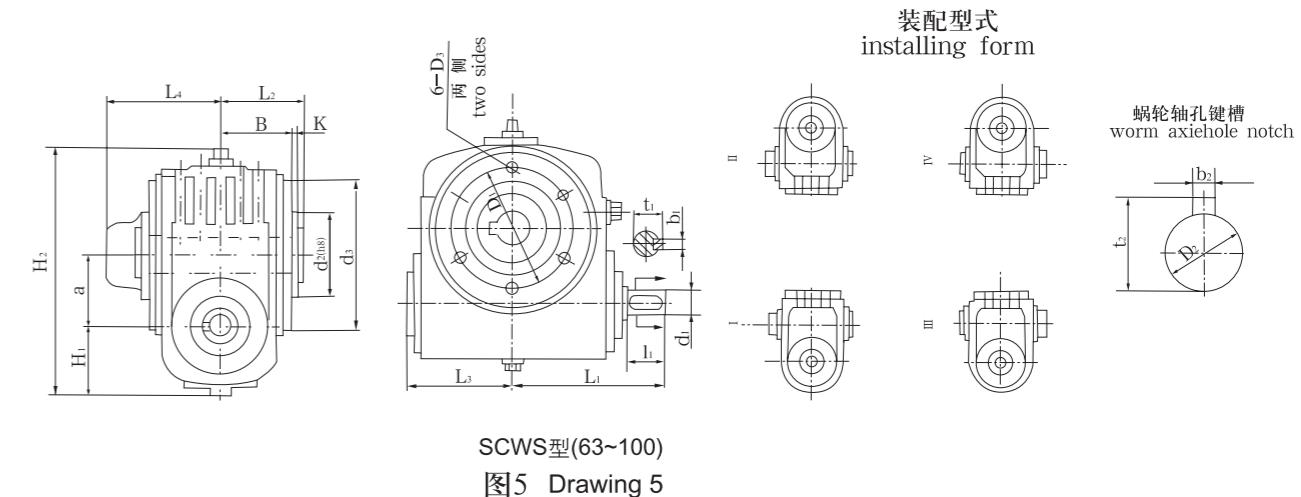


表 5 Table 5

尺寸 size 型号 Type	a	d3	i<16					i≥16					D2	b2	t2	L2	L3	L4	H1	H2	D1	D3	B	d2	k	重量 kg 不包括 油量
			d1	I1	b1	t1	L1	d1	I1	b1	t1	L1														
63	63	150	19j6	28	6	21.5	128	19j6	28	6	21.5	128	30H7	8	33.3	70	100	95	60	220	102	M8X16	63	80	3	17
80	80	175	24j6	36	8	27	151	24j6	36	8	27	151	40H7	12	43.3	75	112	106	66	267	125	M8X16	69	100	3	24
100	100	218	28j6	42	8	31	182	24j6	36	8	27	178	50H7	14	53.8	95	140	140	85	325	150	M10X20	89	120	3	41

表 4 Table 4 mm

型号 Type	IEC标准电机 机座型号B5 IEC motor stand No. B5				反力矩支架 reversed torque bracket				弹性联轴器 孔径mm stretch connector				型号 Type	IEC标准电机 机座型号B5 IEC motor stand No. B5				反力矩支架 reversed torque bracket				弹性联轴器 孔径mm stretch connector										
	机座 规格 spec	a1	H3	H4	≈	H5	H6	d5 D5 mm	d6	I3	规格 spec	电机 端 edge	减速器端 decelerator edge				机座 规格 spec	a1	H3	H4	≈	H5	H6	d5 D5 mm	d6	I3	规格 spec	电机 端 edge	减速器端 decelerator edge			
													电机 端 edge	1/2	1/2	9/16																
125	100/112	250	289	619	235	250	20	70	52	ML2	28	28	200	132	300	408	823	350	350	25	70	56	ML3	38	38	38	38	38	38	38		
	132	300	310	725	255	265	25	70	56	ML3	38			160	350	441	954	385	360	25	70	56	ML4	42								
	160	350	343	833	290	265	25	70	56	ML4	42			180	350	447	1027	390	360	25	70	56	ML5	48								
	160	350	359	894	305	265	25	70	56	ML4	42			200	400	453	1118	400	380	25	70	56	ML6	55								
	180	350	365	945	310	265	25	70	56	ML5	48	32		225	450	509	1202	425	440	25	70	56	ML7	60	48							
140	100/112	250	299	629	245	270	25	70	56	ML2	28	28	225	180	350	465	1045	410	385	25	70	56	ML5	48	38	38	38	38	38	38	38	
	132	300	320	735	265	285	25	70	56	ML3	38			200	400	471	1136	410	405	25	70	56	ML6	55								
	160	350	353	866	300	285	25	70	56	ML4	42			225	450	503	1196	420	415	25	70	56	ML7	60								
160	100/112	250	340	670	285	295	25	70	56	ML2	28	28	250	180	350	527	1107	465	415	25	70	56	ML5	48	42	42	42	42	42	42	42	
	132	300	361	776	305	305	25	70	56	ML3	38			200	400	533	1198	460	440	32	85	72	ML6	55								
	160	350	394	907	340	305	25	70	56	ML4	42			225	450	565	1258	465	440	32	85	72	ML7	60	55							
	180	350	400	960	345	305	25	70	56	ML5	48			250	550	565	1355	455	490	32	85	72	ML7	65	55							
	200	400	430	1024	370	305	25	70	56	ML5	48	42		200	400	560	1225	490	470	32	85	72	ML6	55	48	48	48	48	48	48	48	
180	160	350	409	922	355	340	25	70	56	ML4	42	32	315	200	400	600	1265	530	510	32	85	72	ML6	55	48	48	48	48	48	48	48	
	180	350	415	995	360	340	25	70	56	ML5	48			225	450	632	1325	540	510	32	85											

带电机和法兰盘的视图  
drawing with motor and flange

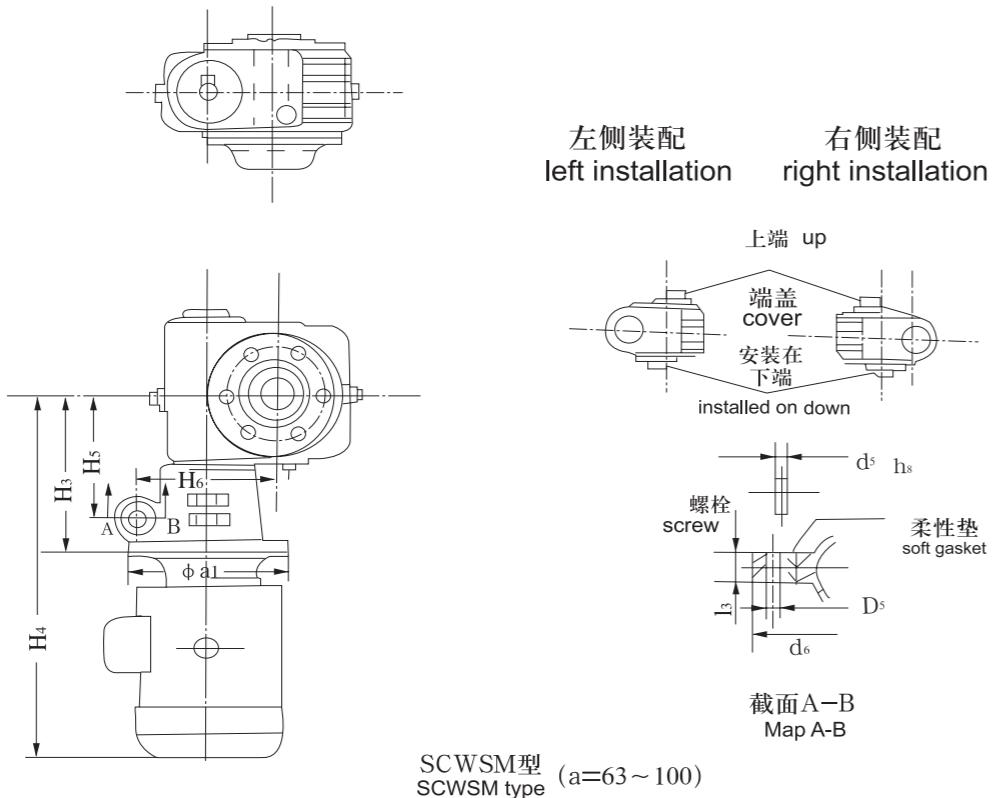


图7 Drawing 7

表7 Table 7

带电机和法兰盘的视图 drawing with motor and flange

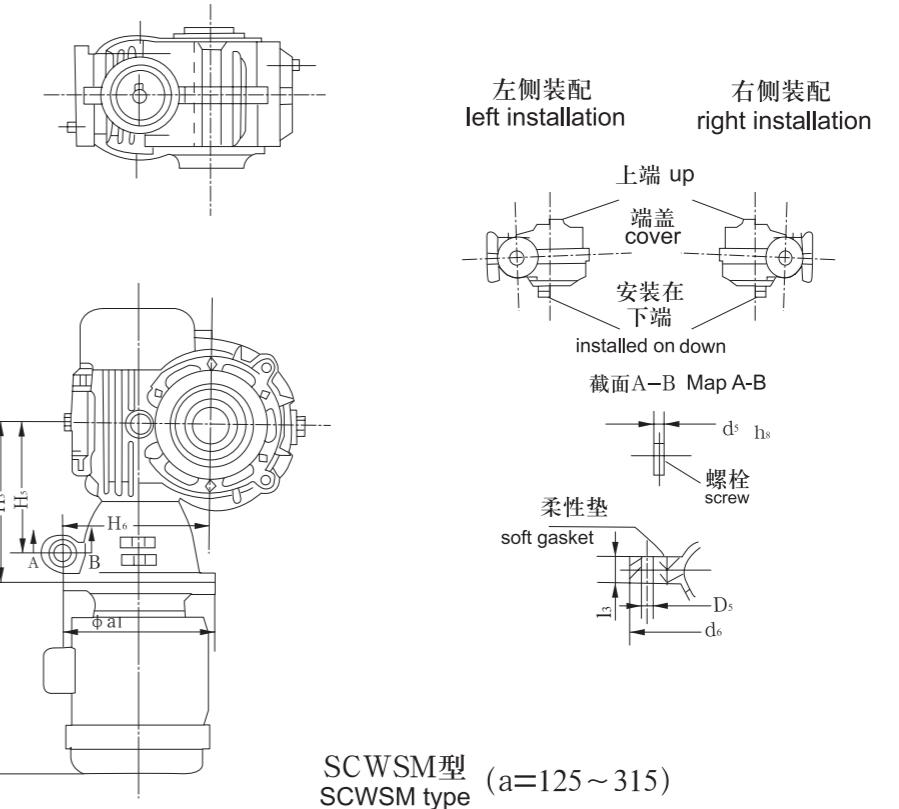
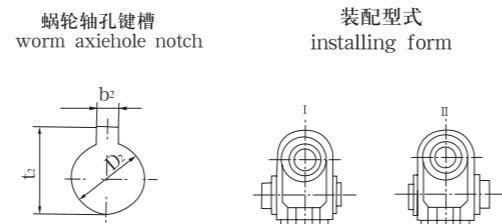
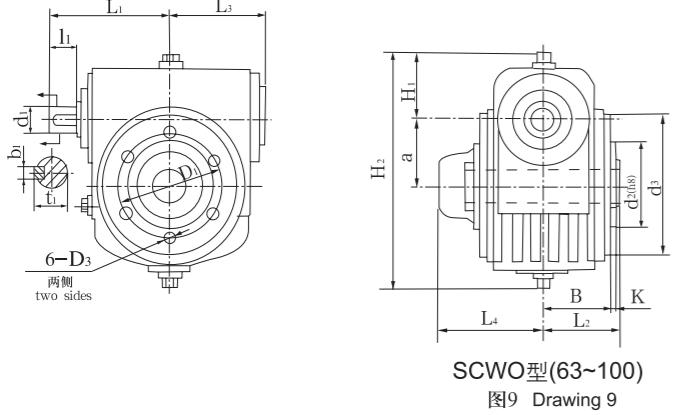


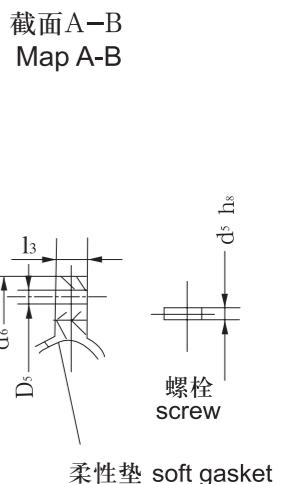
图8 Drawing 8

表8 Table 8

安装尺寸, 反力矩支架, GB5272-85弹性联轴器 Installing size, reversed torque bracket, GB5272-85 stretch connector																																										
型号 规格 Type	IEC标准电机机座型号B5 IEC motor stand No. B5				反力矩支架 reversed torque bracket					弹性联轴器孔径mm hole diameter of stretch connector					型号 规格 Type	IEC标准电机机座型号B5 IEC motor stand No. B5				反力矩支架 reversed torque bracket					弹性联轴器孔径mm hole diameter of stretch connector																	
	机座规格 spec	a1 mm	H3 mm	H4 ≈ mm	H5 mm	H6 mm	d5 D5 mm	d6 mm	I3 mm	规格 spec	电机端 motor edge	减速器端 decelerator edge	i<16	i≥16		机座 规格 spec	a1 mm	H3 mm	H4 ≈ mm	H5 mm	H6 mm	d5 D5 mm	d6 mm	I3 mm	规格 spec	电机端 motor edge	减速器端 decelerator edge															
63	80	200	188	433	150	145	12	50	34	ML1	19				125	100/112	250	289	619	235	250	20	70	52	ML2	28		28	200	132	300	408	823	350	350	25	70	56	ML3	38		38
	90	200	198	471	150	145	12	50	34	ML1	24		19	19		132	300	310	725	255	265	25	70	56	ML3	38				160	350	441	954	385	360	25	70	56	ML4	42		
	100/112	250	215	545	170	170	16	60	42	ML2	28					160	350	343	833	290	265	25	70	56	ML4	42				180	350	447	1027	390	360	25	70	56	ML5	48		
80	80	200	211	456	170	170	16	60	42	ML1	19				140	100/112	250	299	629	245	270	25	70	56	ML2	28		28	225	132	300	408	823	350	350	25	70	56	ML3	38		38
	90	200	221	494	170	170	16	60	42	ML1	24					132	300	320	735	265	285	25	70	56	ML3	38				160	350	453	1118	400	380	25	70	56	ML6	55		
	100/112	250	238	568	190	190	16	60	42	ML2	28					180	350	353	866	300	285	25	70	56	ML4	42				200	400	471	1136	410	405	25	70	56	ML7	60		
100	90	200	246	519	200	205	16	60	42	ML1	24				160	100/112	250	340	670	285	295	25	70	56	ML2	28		28	250	180	350	527	1107	465	415	25	70	56	ML5	48		42
	100/112	250	263	593	210	220	20	70	52	ML2	28					132	300	361	776	305	305	25	70	56	ML3	38				225	400	533	1198	460	440	32	85	72	ML6	55		
	132	300	284	679	230	235	20	70	52	ML3	38					160	350	394	907	340	305	25	70	56	ML4	42				250	450	565	1258	465	440	32	85	72	ML7	60		
	132	300	290	725	235	235	20	70	52	ML3	38			28		180	350	424	1024	370	305	25	70	56	ML5	48				280	400	560	1225	490	470	32	85	72	ML7	65		48



带电机和法兰盘的视图  
drawing with motor and flange



尺寸 size	a	d3	i<16				i≥16				D2	b2	t2	L2	L3	L4	H1	H2	D1	D3	B	d2	k	重量 kg weight (不包括油量 (oil excluded)		
			d1	I1	b1	t1	L1	d1	I1	b1																
63	63	150	19j6	28	6	21.5	128	19j6	28	6	21.5	128	30H7	8	33.3	70	100	95	60	220	102	M8X16	63	80	3	17
80	80	175	24j6	36	8	27	151	24j6	36	8	27	151	40H7	12	43.3	75	112	106	66	267	125	M8X16	69	100	3	24
100	100	218	28j6	42	8	31	182	24j6	36	8	27	178	50H7	14	53.8	95	140	140	85	325	150	M10X20	89	120	3	41

表9 Table 9

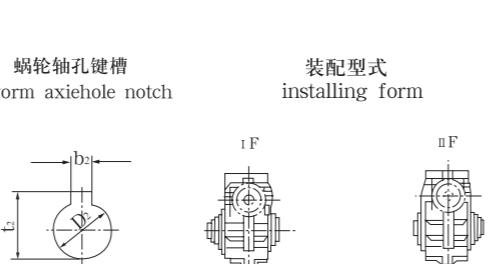
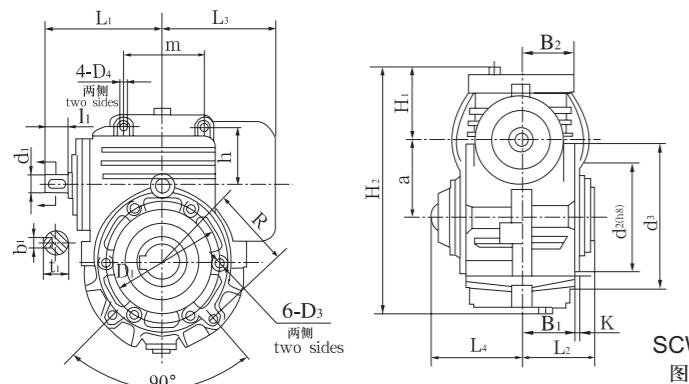
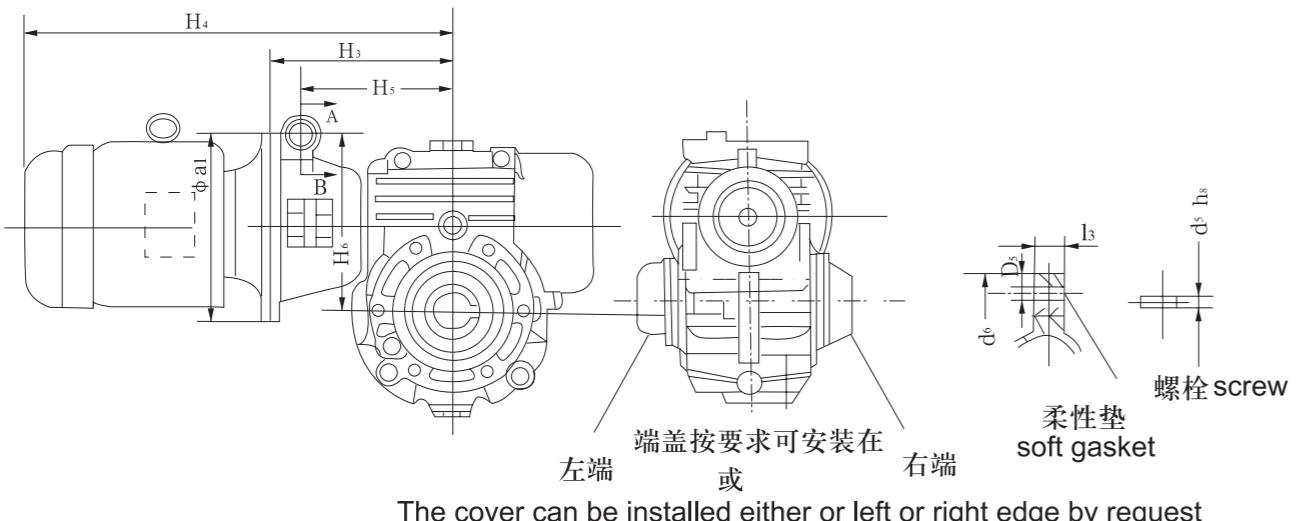


表10 Table 10

尺寸 size	a	d3	i<16				i≥16				D2	b2	t2	L2	L3	L4	H1	H2	D1	D3	B1	B2	m	R	h	d2	k	重量 kg weight (不包括油量 (oil excluded)			
			d1	I1	b1	t1	L1	d1	I1	b1																					
125	125	235	32k6	58	10	35	218	28j6	42	8	31	202	60H7	18	64.4	107	202	143	105	380	210	M12X24	13X35	84	84	145	135	80	180	10	80
140	140	265	38k6	58	10	41	228	28j6	42	8	31	212	65H7	18	69.4	120	220	152	125	433	235	M12X24	13X35	95	95	160	150	105	200	10	108
160	160	300	42k6	82	12	45	277	32k6	58	10	35	253	70H7	20	74.9	125	245	158	125	470	270	M12X24	13X35	95	95	170	170	95	220	10	138
180	180	330	42k6	82	12	45	292	32k6	58	10	35	268	80H7	22	85.4	137.5	260	175	150	530	290	M16X30	17X45	110	110	200	190	125	245	12	183
200	200	365	48k6	82	14	51.5	324	38k6	58	10	41	300	85H7	22	90.4	143	295	185	148	580	320	M16X30	17X45	115	115	250	213	110	245	12	243
225	225	420	48k6	82	14	51.5	342	38k6	58	10	41	318	95H7	25	100.4	160	320	198	170	640	360	M16X30	17X45	130	130	280	235	145	265	12	286
250	250	475	55k6	82	16	59	380	42k6	82	12	45	380	105H7	28	111.4	168	360	203	150	682	420	M16X30	17X45	135	135	320	265	125	280	12	350
280	280	540	60m6	105	18	64	430	48k6	82	14	51.5	407	115H7	32	122.4	180	390	227	165	755	450	M20X38	21X55	150	150	380	295	130	350	14	483
315	315	600	65m6	105	18	69	470	48k6	82	14	51.5	447	125H7	32	132.4	200	430	252	195	850	520	M20X38	21X55	170	170	410	340	150	380	15	655

型号 规格 Type	IEC标准电机机座型号B5 IEC motor stand No. B5				反力矩支架 reversed torque bracket				弹性联轴器孔径mm hole diameter of stretch connector			
	机座规格 spec	a1 mm	H3 mm	H4 ≈ mm	H5 mm	H6 mm	d5 D5 mm	d6 mm	I3 mm	规格 spec	电机端 motor edge	减速器端 decelerator edge
i<16	i≥16											
63	80	200	188	433	150	145	12	50	34	ML1	19	
	90	200	198	471	150	145	12	50	34	ML1	24	19
	100/112	250	215	545	170	170	16	60	42	ML2	28	
80	80	200	211	456	170	170	16	60	42	ML1	19	
	90	200	221	494	170	170	16	60	42	ML1	24	24
	100/112	250	238	568	190	190	16	60	42	ML2	28	
100												



The cover can be installed either on the left or right end by request

SCWOM型 (a=125~315)  
SCWOM type

图12 Drawing 12

表 12 Table 12

安装尺寸, 反力矩支架, GB5272-85弹性联轴器 Installing size, reversed torque bracket, GB5272-85 stretch connector																									
型号 规格 Type	IEC标准电机 机座型号B5 IEC motor stand No. B5				反力矩支架 reversed torque bracket				弹性联轴器 孔径mm hole diameter of stretch connector				型号 规格 Type	IEC标准电机 机座型号B5 IEC motor stand No. B5				反力矩支架 reversed torque bracket				弹性联轴器 孔径mm hole diameter of stretch connector			
	机座 规格 spec	a1 mm	H3 mm	H4 ≈ mm	H5 mm	H6 mm	d5 mm	D5 mm	d6 mm	I3 mm	减速器端 电机端 decelerator motor edge	规格 spec	电机 边缘 edge	1/8 1/4 1/2 9/16	1/8 1/4 1/2 9/16	1/8 1/4 1/2 9/16	1/8 1/4 1/2 9/16	1/8 1/4 1/2 9/16	1/8 1/4 1/2 9/16	1/8 1/4 1/2 9/16	1/8 1/4 1/2 9/16				
125	100/112	250	289	619	235	250	20	70	52	ML2	28	28	132	300	408	823	350	350	25	70	56	ML3	38	38	
	132	300	310	725	255	265	25	70	56	ML3	38		160	350	441	954	385	360	25	70	56	ML4	42		
	160	350	343	833	290	265	25	70	56	ML4	42		180	350	447	1027	390	360	25	70	56	ML5	48		
	160	350	359	894	305	265	25	70	56	ML4	42		200	400	453	1118	400	380	25	70	56	ML6	55		
	180	350	365	945	310	265	25	70	56	ML5	48		225	450	509	1202	425	440	25	70	56	ML7	60		
140	100/112	250	299	629	245	270	25	70	56	ML2	28	28	180	350	465	1045	410	385	25	70	56	ML5	48	38	
	132	300	320	735	265	285	25	70	56	ML3	38		200	400	471	1136	410	405	25	70	56	ML6	55		
	160	350	353	866	300	285	25	70	56	ML4	42		225	450	503	1196	420	415	25	70	56	ML7	60		
160	100/112	250	340	670	285	295	25	70	56	ML2	28	32	180	350	527	1107	465	415	25	70	56	ML5	48	42	
	132	300	361	776	305	305	25	70	56	ML3	38		200	400	533	1198	460	440	32	85	72	ML6	55		
	160	350	394	907	340	305	25	70	56	ML4	42		225	450	565	1258	465	440	32	85	72	ML7	60		
	180	350	400	960	345	305	25	70	56	ML5	48		250	550	565	1355	455	490	32	85	72	ML7	65		
	180	350	424	1024	370	305	25	70	56	ML5	48		200	400	560	1225	490	470	32	85	72	ML6	55		
180	200	400	430	1095	375	340	25	70	56	ML6	55	42	225	450	592	1285	500	470	32	85	72	ML7	60	48	
	160	350	409	922	355	340	25	70	56	ML4	42		250	550	632	1422	520	560	32	85	72	ML7	65		
	180	350	415	995	360	340	25	70	56	ML5	48		280	550	662	1547	550	560	32	85	72	ML8	75		
	200	400	445	1110	390	360	25	70	56	ML6	55		315	200	400	600	1265	530	510	32	85	72	ML6	55	
	160	350	445	1110	390	360	25	70	56	ML5	48		225	450	632	1325	540	510	32	85	72	ML7	60		

注：本系列减速器的公称传动比及额定输入功率与额定输出扭矩选择方法等同于 CW 系列。

Note: The nominal transmission ratio rated input power and ratio output moment of this series are equal to series CW.

## WD(S)圆柱蜗杆减速器

## Cylindrical Worm Screw Reducer

## 一、概述 Survey

WD 系列及 WS 系列蜗杆减速器是按照中华人民共和国专业标准 (Q/ZB125-73) 生产的一级传动的阿基米德圆柱蜗杆减速器，广泛运用于冶金、矿山及起重机械等部门，其使用范围如下：

蜗杆啮合处滑动速度不大于 7.5 米 / 秒。

蜗杆转数不超过 1500 转 / 分。

工作的周围环境温度为 -40°C ~ +40°C

可用于正反两向运转。

WD and WS series worm wheel and worm screw reducer are Archimedean worm screw with Class I drive manufactured according to PRC professional standard (Q/ZB125-73).It is widely used in metallurgy, mine and hoisting machinery, with application range listed as follows:

Slip speed at worm screw gearing ≤ 7.5m/sec  
Worm rotation speed ≤ 1500rpm  
Service ambient temperature: -40°C ~ +40°C  
Operable both forward and backward



## 二、规格及基本参数 Specifications and basic parameters

## 1、WD80-WD120 系列减速器的外形尺寸

Shape and installation of WD80-WD120 series reducer

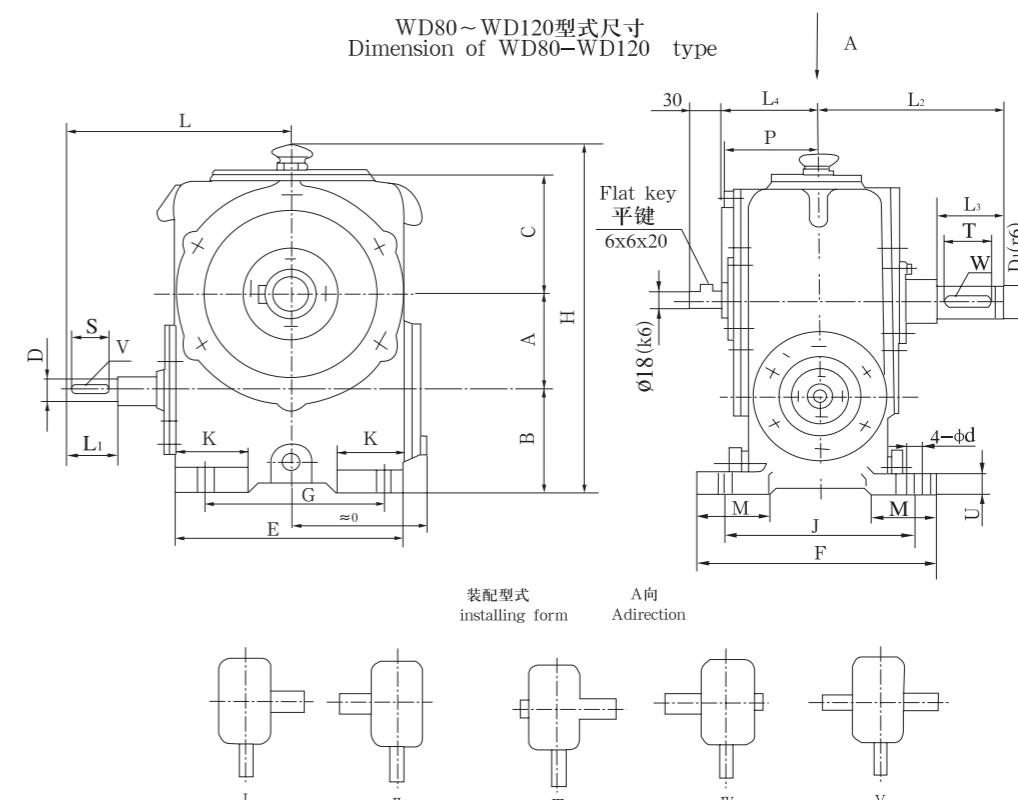


图1 Figure1

型号 TYPE	A	B	C	D	D1	E	F	G	H	J	K	L	L1	L2	L3	L4
WD80	80	90	105	20	35	190	200	150	305	160	60	190	50	160	60	90
WD100	100	110	135	25	40	240	210	180	375	170	70	220	55	170	70	100
WD120	120	120	150	30	45	270	220	200	420	180	80	255	60	185	70	110

型号 TYPE	M	O	P	S	T	U	V	W	d	GD <sup>2</sup> (KG.m <sup>2</sup> )	重量 Weight kg
WD80	60	120	83.5	10	50	20	6x6	10x8	18	1.06x10 <sup>-3</sup>	36.5~38.5
WD100	70	145	90	40	60	20	8x7	12x8	18	3.36x10 <sup>-3</sup>	63~65
WD120	80	165	102	50	60	20	8x7	14x9	18	7.16x10 <sup>-3</sup>	75.1~81.7

2、WD150~WD360 系列减速器的外形及安装尺寸  
Shape and installation dimension of WD150~WD360 series reducer

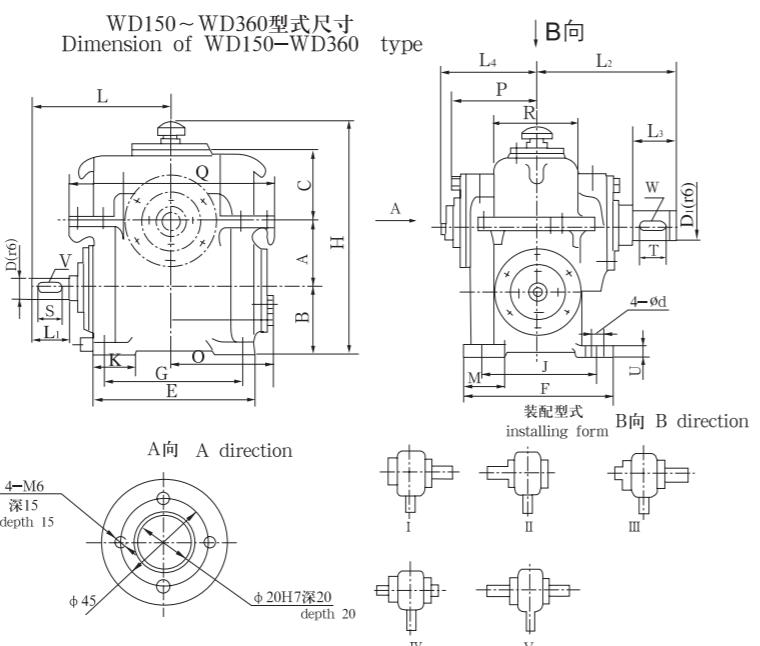


图2 Figure2

型号 TYPE	A	B	C	D	D1	E	F	G	H	J	K	L	L1	L2	L3	L4
WD150	150	150	165	35	65	370	345	310	513	280	100	305	60	320	110	190
WD180	180	180	190	40	70	430	360	360	593	300	120	350	70	350	110	215
WD210	210	210	215	45	80	490	400	400	683	320	140	400	70	380	125	225
WD250	250	250	265	50	90	570	430	440	813	360	160	450	90	405	140	240
WD300	300	300	320	70	120	670	500	520	968	420	200	540	110	460	160	270
WD360	360	360	370	80	150	840	610	650	1138	440	240	635	125	575	200	340

型号 TYPE	M	O	P	Q	R	S	T	U	V	W	d	GD <sup>2</sup> (KG.m <sup>2</sup> )	重量 Weight kg
WD150	90	230	180	455	200	50	100	30	10x8	18x11	22	12.4x10 <sup>-3</sup>	146~163
WD180	90	270	205	515	230	63	100	30	12x8	20x12	22	30.5x10 <sup>-3</sup>	295~327.5
WD210	100	300	215	585	250	63	110	35	14x9	22x14	22	94x10 <sup>-3</sup>	298~344
WD250	120	340	225	665	270	80	125	40	16x10	25x14	26	316x10 <sup>-3</sup>	480~543
WD300	150	405	255	765	310	90	140	50	20X12	32X18	32	527X10 <sup>-3</sup>	771~904
WD360	180	490	325	965	360	110	180	50	22X14	36X20	39	892.5X10 <sup>-3</sup>	1195~1395

### 3、WS80~WS120 系列减速器的外形及安装尺寸

Shape and installation dimension of WS80~WS120 series reducer

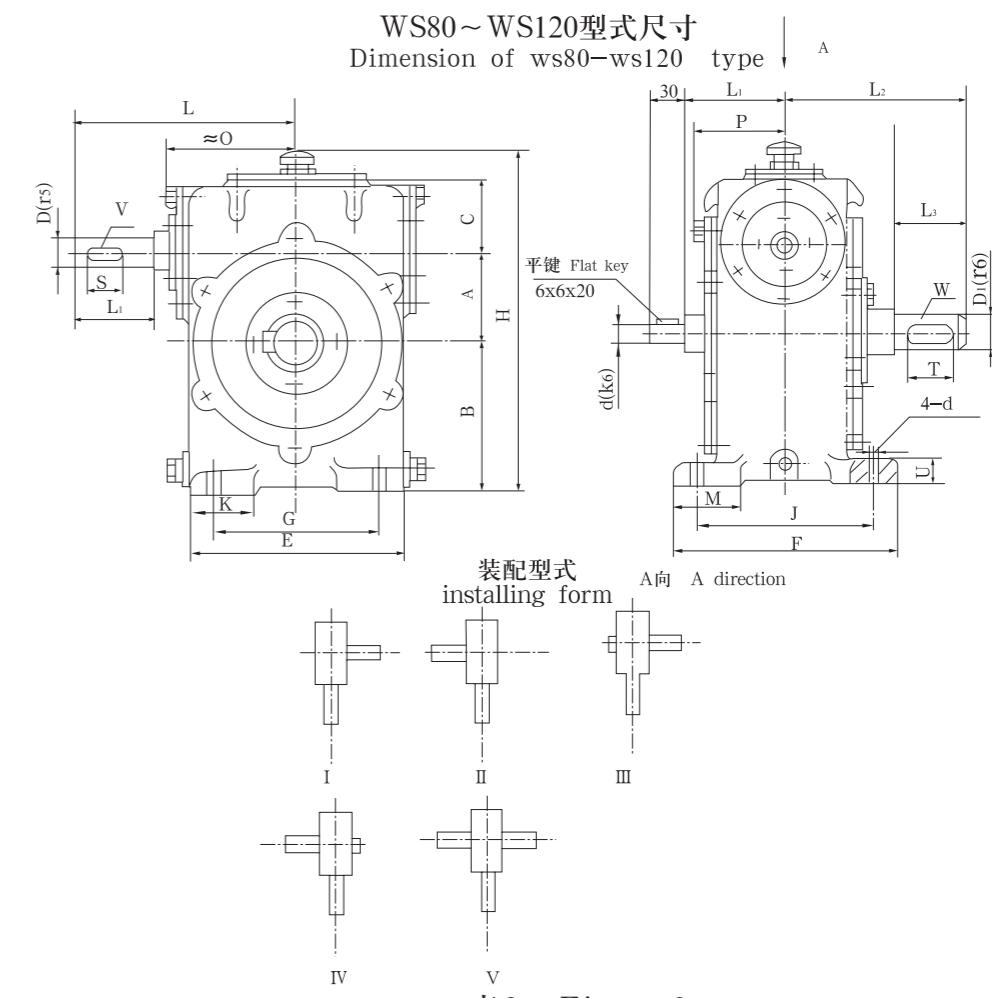


表3 Figure3

型号 Type	A	B	C	D	D	E	F	G	H	J	K	L	L1	L2	L3	L4
WS80	80	120	65	20	35	190	200	150	295	160	60	190	50	160	60	90
WS100	100	140	70	25	40	240	210	180	340	170	70	220	55	170	70	100
WS120	120	160	75	30	45	270	220	200	385	180	80	255	60	185	70	110

型号 Type	M	O	P	S	T	U	V	W	d	GD <sup>2</sup> (KG.m <sup>2</sup> )	重量 Weight kg
WS80	60	120	83.5	40	50	20	6X6	10X8	18	1.06X10 <sup>-3</sup>	36.7~39
WS100	70	145	90	40	60	20	8X7	12X8	18	3.36X10 <sup>-3</sup>	53~65
WS120	80	165	102	50	60	20	8X7	14X9	18	7.16X10 <sup>-3</sup>	73.4~79.7

## 4. WS150~WS360 系列减速器的外形及安装尺寸

Shape and installation dimension of WS150~WS360 series reducer

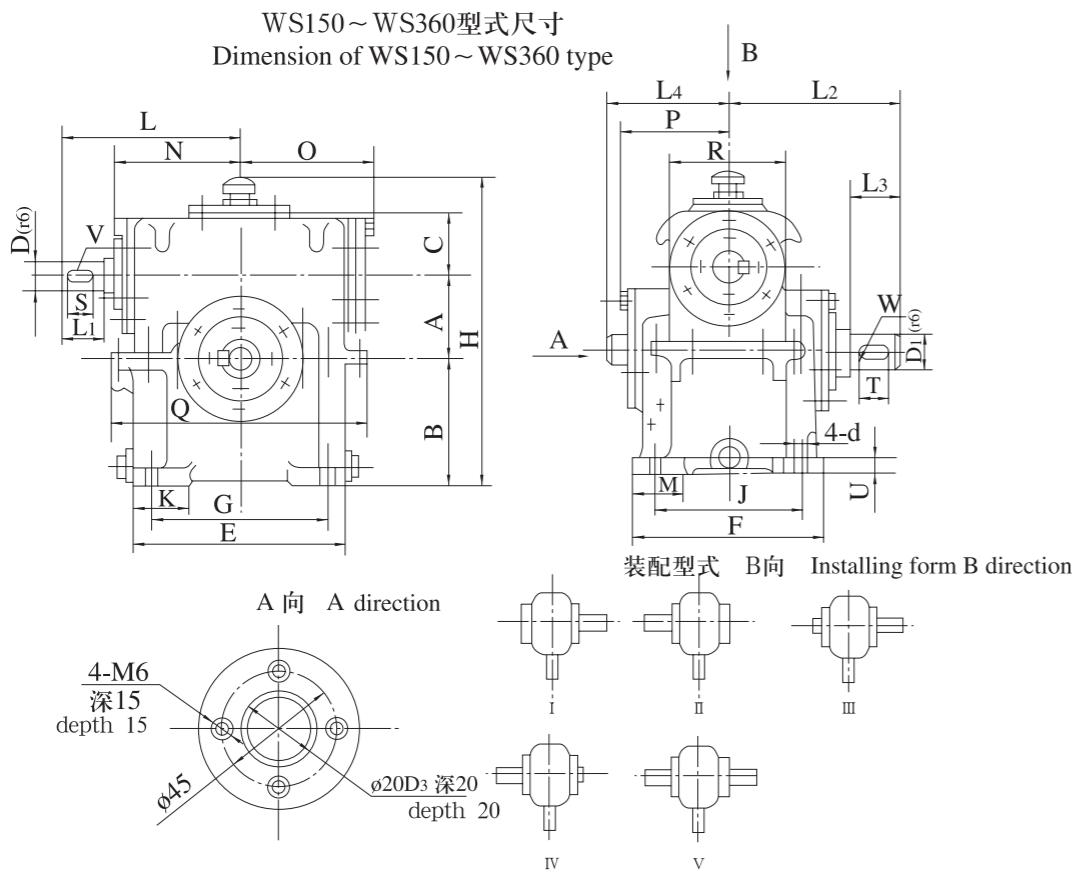


图4 Figure 4

型号 Type	A	B	C	D	D1	E	F	G	H	J	K	L	L1	L2	L3	L4
WS150	150	210	105	35	65	370	340	310	513	280	100	305	60	320	110	190
WS180	180	250	125	40	70	430	360	360	603	300	120	350	70	350	110	215
WS210	210	280	135	45	80	490	400	400	673	320	140	400	70	380	125	244
WS250	250	330	145	50	90	570	430	440	773	360	160	450	90	405	140	240
WS300	300	390	165	70	120	670	500	520	903	420	200	540	110	460	160	270
WS360	360	460	200	80	150	810	610	650	1068	440	240	635	125	575	200	340

型号 Type	M	N	O	P	Q	R	S	T	U	V	W	d	GD <sup>2</sup> (kg.m <sup>2</sup> )	重量 Weight kg
WS150	90	215	230	180	455	200	50	100	30	10X8	18X11	22	12.43X10 <sup>-3</sup>	146~163
WS180	90	250	270	205	515	230	60	100	30	12X8	20X12	22	30.5X10 <sup>-3</sup>	263~295.5
WS210	100	282	300	215	585	250	70	110	30	14X9	22X14	22	94X10 <sup>-3</sup>	318~361
WS250	120	325	340	225	665	270	80	125	40	16X10	25X14	26	319X10 <sup>-3</sup>	484~547
WS300	150	358	403	255	765	310	90	140	50	20X12	32X18	32	572X10 <sup>-3</sup>	761~894
WS360	180	470	490	325	965	360	110	180	50	24X14	40X22	39	892.5X10 <sup>-3</sup>	1290~1450

## 三、型号及标记 Type and earmark

圆柱蜗杆减速器型号用汉语拼音字母组成:

## (1) WD型

W: 表示圆柱“蜗杆”

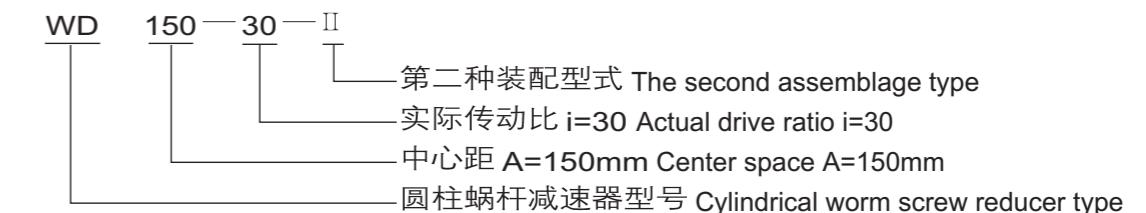
D: 表示蜗杆在“底”下

## (2) WS型

W: 表示圆柱“蜗杆”

S: 表示蜗杆在“上”

例如: For example



Cylindrical worm screw reducer type is composed by Chinese phonetic alphabet:

## (1) WD type

W: indicates cylindrical “worm screw”

D: indicated worm wheel is at the bottom

## (2) WS type

W: indicates cylindrical “worm screw”

S: indicated worm screw is on the top

## 四、减速器的传动比及额定输出扭矩表

The transmission ratio and output torque of decelerator

传动比 i	中 心 距 A(mm)								
	80	100	120	150	180	210	250	300	360
9.67	57	113	192	347	602	1030	1764	2890	4800
11.67	56	107	190	339	624	882	1735	2710	4700
13.67	54	108	176	342	592	939	1380	2740	4370
15.67	42	100	167	335	566	895	1280	2620	4520
17.67	49	95	142	277	480	760	1355	2060	3570
19.5	56	103	173	348	528	837	1610	2790	4820
21.5	53	91	172	307	532	918	1340	2320	4270
23.5	42	100	168	335	566	896	1280	2620	4520
25.5	50	79	161	293	542	858	1500	2510	4340
27.5	46	93	161	302	-	895	1160	2420	-
30	57	109	192	343	646	1027	1760	2840	4700
33	57	109	169	367	572	905	1610	2780	4670
37	50	105	187	354	544	970	1730	2830	4550
41	54	101	176	342	594	940	1380	2750	4370
47	42	100	168	335	565	895	1280	2620	4520
53	49	95	142	276	480	760	1360	2060	3560
60	-	71	133	239	516	795	1455	1920	4000

# WD(S)<sub>2</sub> 圆柱蜗杆减速器

## Cylindrical Worm Decelerators

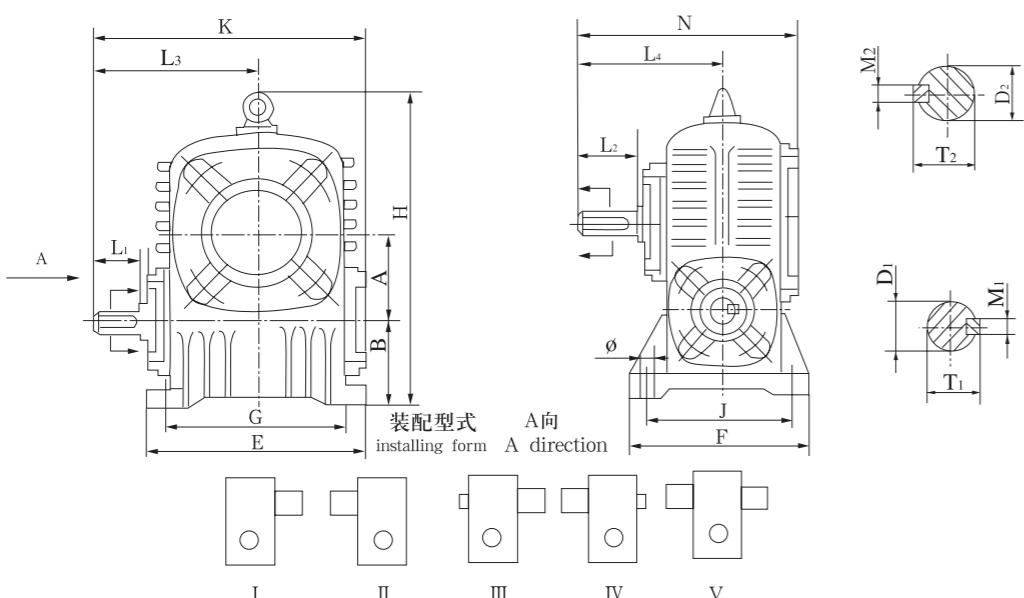
### 一、概述 Survey

WD2 系列及 WS2 系列蜗轮蜗杆减速器是 Q/ZB125-73WD 系列及 WS 系列减速器改进、与原系列减速器相比，结构紧凑、体积小、重量轻、传动效率高、散热性能好、工作环境温度为 0°C-45°C，高速轴正反向运转，蜗杆转速 <1500r/min，可广泛运用于矿山、冶金及起重机械部门。

The WD2 and WS2 worm decelerator are the improved products of Q/ZB125-73WD and WS decelerators. The products are well-knitted structure with small volume, light weight, high efficiency and fine radiating parameter. The actuating temperature is 0°C-45°C and the right, inverse direction are allowed for high speed axle. The worm wheeling speed is no more than 1500r/min. They are widely used in mining, metallurgy and craning department.

### 二、规格及基本参数 Specification and basic parameter

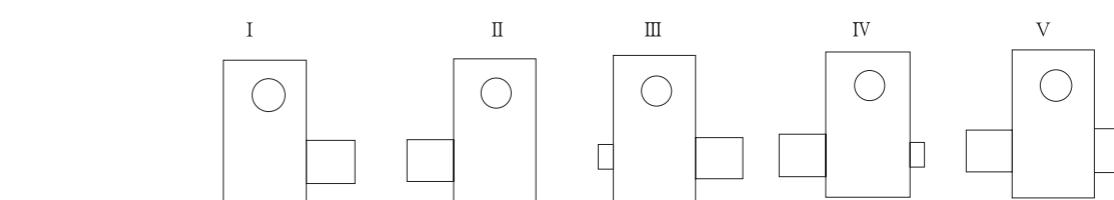
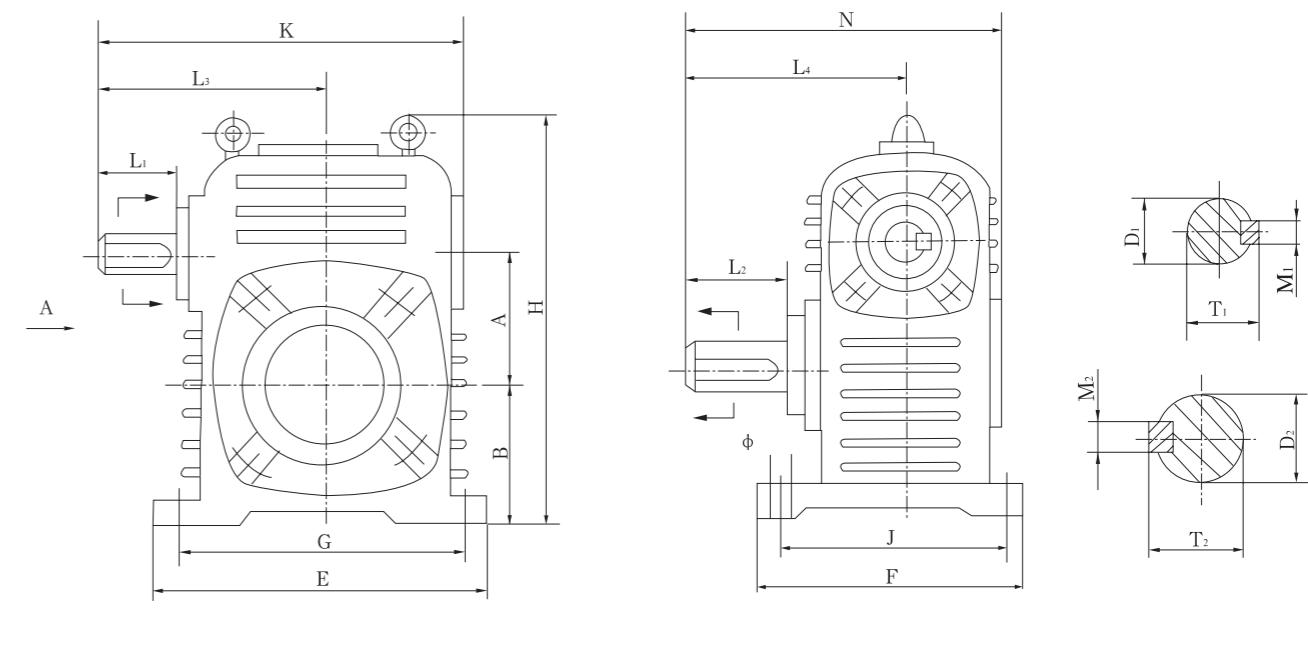
#### 1. WD2 减速器的外形及安装尺寸 Outlook and assembling size of WD2 decelerator



型号 Type	代号 Symbol	A	B	D1	D2	E	F	G	H	J	K	L1	L2	L3	L4	M1	M2	N	T1	T2	Ø	重量 (kg) weight
WD <sub>2</sub> -63		63	67	18	22	180	130	160	244	105	250	42	42	150	128	6	6	208	20.5	24.5	11	36
WD <sub>2</sub> -80		80	80	22	32	220	175	180	290	135	275	50	63	174.5	152.5	6	10	237	24.5	35	13	38
WD <sub>2</sub> -100		100	80	26	36	245	200	210	350	160	288	55	75	185	175	8	10	277	29	39	13	50
WD <sub>2</sub> -120		120	100	30	42	300	230	260	400	180	370	65	80	221.5	199	8	12	298	33	45	18	75
WD <sub>2</sub> -150		150	120	35	46	370	245	320	515	200	440.5	65	90	257.5	218	10	14	310	38	49.5	18	150
WD <sub>2</sub> -180		180	130	36	50	405	270	350	560	210	506	75	100	293	228	10	14	337	39	54	22	280
WD <sub>2</sub> -210		210	210	45	80	490	400	400	683	320	660	70	125	351.5	380	14	22	556	47.5	85	22	300

#### 1. WS2 减速器的外形及安装尺寸

Outlook and assembling size of WS2 decelerator



型号 Type	代号 Symbol	A	B	D1	D2	E	F	G	H	J	K	L1	L2	L3	L4	M1	M2	N	T1	T2	Ø	重量 (kg) weight
WS <sub>2</sub> -80		80	113	22	32	220	175	180	290	135	275	50	63	174.5	152.5	6	10	237	24.5	35	13	38
WS <sub>2</sub> -100		100	125	26	36	245	200	210	295	160	288	55	75	185	175	8	10	277	29	39	13	38
WS <sub>2</sub> -120		120	160	30	42	300	230	260	375	180	370	65	80	221.5	199	8	12	298	33	45	18	75
WS <sub>2</sub> -150		150	205	35	46	370	245	320	515	200	440.5	65	90	257.5	218	10	14	310	38	49.5	18	150
WS <sub>2</sub> -180		180	250	36	50	405	270	350	550	210	506	75	100	293	228	10	16	337	39	54	22	280
WS <sub>2</sub> -210		210	280	45	80	490	400	400	673	320	592.5	70	125	351.5	380	14	22	556	47.5	85	22	300

# A型阿基米德齿形圆柱蜗杆减速器

A Type Archimedes Teeth Shaped Cylindrical Worm Decelerators

## 一、概述 Summary

本减速器主要适用于化工、制药、建筑、食品、轻工等行业。

The decelerator is applied in chemical industry, medicine, building, food and light industry.

## 二、规格及基本参数 Specification and basic parameters

### 1. 型式 Type

A——蜗杆在蜗轮之侧 A——worm beside worm gear

### 2. 基本参数 Basic data

2.1 减速器的中心距  $a$  应符合表 1 的规定

The center space  $a$  of reducer should be in accordance with stipulation in table 1.

表 1 Table 1

中心距 $a$						
088	100	120	150	180	215	270

2.2 减速器的输出转速及蜗轮副速比  $i$  应符合表 2 的规定

The reducer's nominal transmission ratio  $i$  should be in accordance with stipulation in table 2.

表 2 Table 2

中心距 速比	088	100	120	150	180	215	270
20	—	—	31/1	29/1	30/1	35/1	35/1
30	—	—	—	29/1	30/1	35/1	35/1
40	33/1	30/1	31/1	29/1	—	35/2	—
50	33/2	30/2	—	—	—	—	35/2
60	33/2	—	31/2	29/2	—	35/2	—

### 3. 型号与标记示例 Type and symbol example

#### 3.1 型号 Type

A 270 - 30

出轴转速 Output shaft rotate speed

中心距 Center space

A型阿基米德齿形圆柱蜗杆减速器（蜗杆在蜗轮之侧）

A Type Archimedes Teeth Shaped Cylindrical Worm Decelerators  
(worm beside worm gear)

#### 3.2 标记示例 Symbol example

中心距 215mm, 出转速 30r/min, 蜗杆在蜗轮之侧的阿基米德齿形圆柱蜗杆减速器。

Centre distance of 215mm, output shaft rotating speed 30 r/min, worm beside worm gear, A Type Archimedes Teeth Shaped Cylindrical Worm Decelerators.

减速器 Reducer A215-30

### 三、减速机的传动比及额定输出扭矩表

Table of decelerator drive ratio and rated output torque

输出转距 N.m output turning moment	传动比 Transmission ratio	中心距 Center space							
		10	15	20	25	30	40	50	60
63	-	32	40	36	42	40	34	38	
80	55	42	51	49	56	53	45	50	
100	108	100	90	78	107	99	93	100	
120	186	168	162	160	188	170	140	130	
150	-	330	300	295	340	330	270	235	

输出转距 N.m output turning moment	传动比 Transmission ratio	中心距 Center space																
		9.67	11.67	13.67	15.67	17.67	19.5	21.5	23.5	25.5	27.5	30	33	37	41	47	53	60
180	-	-	-	-	-	-	560	-	-	640	565	535	585	555	471	506		
210	-	-	-	-	-	-	818	881	881	837	875	996	885	950	921	872	742	774

用户需要打“-”的速比或别的速比，请与厂方联系。

If user needs the speed ratio or other non-standard speed ratio marked with “-”, Please contact with manufacturer.

## 4. 减速器的外形与结构尺寸 Shape and structure dimension of reducer

4.1 减速机外形及安装尺寸见图 1, 表 3;

Shape and structure dimension of reducer see drawing 1, table 3;

4.2 减速机主要选用参数见表 4。

The main parameters of the reducers please consult table 4.

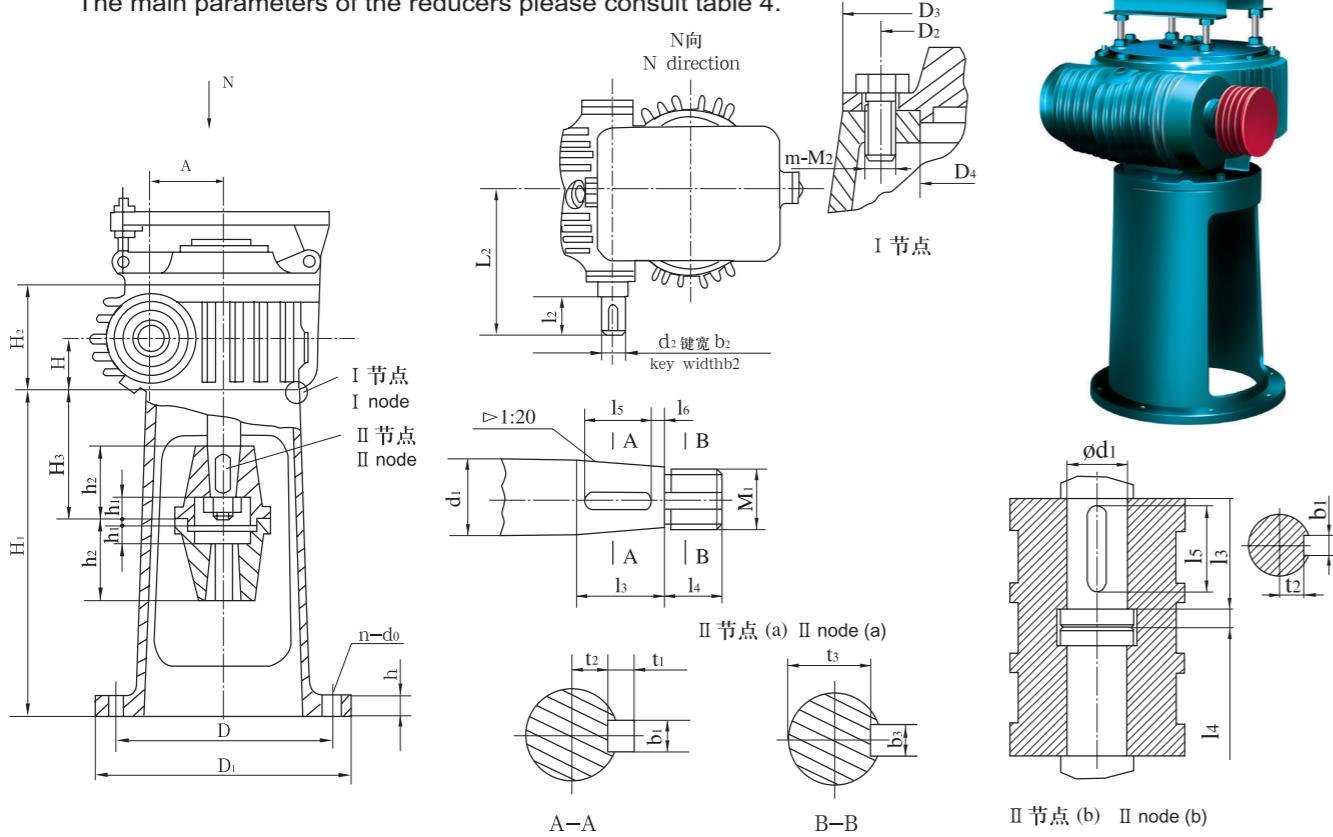


图 1 Drawing 1

外形及安装尺寸 Outlook and assembling size

表 3 Table 3

型号 Type	A	D	D1	H	d2	b2	I2	H1	H2	H3	L2	n-d0	h
A088	88	260	290	105	24	8	28	300	165	90	171	8-12	15
A100	100-01	250	295	95.5	28	8	40	380	160	106.5	213.5	4-22	25
	100-02	300	350	95.5	28	8	40	443	160	106.5	213.5	4-22	25
A120	120-01	350	400	84.5	30	8	55	590	174	286	260	4-26	27
	120-02	350	400	84.5	30	8	55	390	174	286	260	4-26	30
A150	150	400	460	95	35	10	80	630	215	222	285	4-26	25
A180	180	560	620	250	50	14	100	590	360	197	385	4-24	25
A210	210	-	-	230	45	14	110	-	340	-	391	-	-
A215	215	560	620	200	38	10	80	600	300	220	339	4-24	25
A270	270	525	570	230	50	16	100	645	340	230.5	392	8-23	32

注: A210 不配马达底板和支架 Note: A210 is without motor mother board and bracket.

## 基本参数和型号系列 Basic parameters and type series

机型号 Type	机座输入端(I 节点) Input edge (I node)					输出轴联接尺寸 Connecting size of output shaft										h1	h2	
	D2	D3	D4	m-M2		I3	I4	I5	I6	t1	t2	t3	b1	b3	d1	M1		
AO88	145	170	125	6-M10	凸缘 联轴器 (a)	48	25	40	4	8	13	25	10	5	35	M27X1.5	25	75
A215	350	400	310	4-M16	Phototype connector	115	30	90	17	11	28	44	18	6	70	M48X2	30	140
A270	360	420	320	6-M16		106	35	98	4	12	29.5	56	20	8	75	M60X2	40	150
A100	215	245	165	4-M20		50	10	44	3	7	21	-	8	-	25	-	-	-
	215	245	165	4-M20		50	10	44	3	7	21	-	8	-	25	-	-	-
A120	205	255	175	8-M12	夹壳式 联轴器 (b)	79	15		5	9	17	-	14	-	45	-	-	-
	205	255	175	8-M12	Form-fit connector	79	15		5	9	17	-	14	-	45	-	-	-
A150	260	320	220	8-M12		79	15		5	10	20	-	16	-	50	-	-	-
A180	215	245	165	4-M20		79	15		5	12	27.5	-	20	-	70	-	-	-
A210	215	245	165	4-M20		95	18		8	11	23	48	18	8	65	-	-	-

表 4 Table 4

型号 Type	出轴转速 Output shaft rotate speed (r/min)	输出功率 Output power (KW)	效率 Efficiency	出轴输出扭矩 Output shaft output torque (Nm)	Y系列电机 Series Y motor		中心距 Center space	模数 Modulus	蜗杆头数 Number of worm end (Z1)	皮带轮直径 Diameter of belt pulley wheel		皮带型号及根数 Belt type and quantity		
					转速 Rotate speed (r/min)	功率 Power (KW)				蜗杆轮齿数 Number of worm wheel (Z2)	电机轮 Motor wheel (mm)	蜗杆轮 Worm wheel (mm)		
AO88	40	0.37	0.68	88.3	1390	0.55			1				140	
	50	0.6	0.8	114.6	1390	0.75	88	4	2		125	200	B-2	
	60	0.88	0.8	140	1400	1.1			2				185	
A100	40	0.55	0.72	131	1390	0.75			1				145	B-2
	50	0.79	0.72	150	1400	1.1	100	5	2		125	235		
A120	20	0.79	0.72	377	1400	1.1			1				315	
	40	1.08	0.72	257	1400	1.5	120	6	1		140	155	B-2	
A150	60	1.82	0.83	289	1420	2.2			2				215	
	20	1.17	0.78	558	1400	1.5			1				340	
A180	30	1.71	0.78	544	1420	2.2			1				230	B-3
	40	2.34	0.78	558	1420	3	150	8	1		140	170		
A215	60	3.36	0.84	534	1440	4			2				230	
	20	2.25	0.75	1034	1420	3			1				285	
A270	30	3	0.75	955	1440	4			1				190	B-4
	40	4.4	0.82	1050	1440	5.5	215	10	2		140	285		
	60	6.15	0.82	978	1440	7.5			2				190	
	20	4.29	0.78	2048	1440	5.5			1				285	
	30	5.85	0.78	1862	1440	7.5	270	12	1		140	190	B-5	
	50	9.02	0.82	1722	1460	11			2				235	

表中所注的效率, 已包括三角皮带的传动效率。

Efficiency listed in the table includes triangle belts transmission efficiency.

# 圆柱蜗杆减速机

## Cylindrical Worm Decelerator

### 一、M型立式圆柱蜗杆减速机

#### M vertical cylindrical worm decelerator

##### 1. 概述 Brief

1.1 本系列减速机为二级减速传动机构，第一级为带传动，第二级为阿基米德圆柱蜗杆蜗轮传动。其特点有：结构紧凑传动比大、工作平稳可靠、无噪音、在蜗杆螺线导程角小的情况下减速机还具有自锁性。

This series reducers include two grade reducing transmission, the first belt driving and the second archimedes cylindrical worm screw and wheel driving. The structure guarantees property as larger transmission ratio, stable operation and no noise. Also the interlock system is equipped if the angle of worm screw is too low.

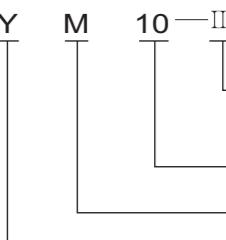
1.2 该机适用于室内无大震动情况的化工设备（搅拌器）的立式减速装置，并广泛用于搪玻璃反应罐，以顺时针方向旋转为宜。若配上防爆电机和静电三角带还可以用在有防爆要求的场合。

This series reducers are applied as vertical reducing equipment in chemical industry (mixer without strong shaking indoor), and enamel reaction vessels. The direct operation is preferable.

##### 1.3 选择减速机型号时，要根据输出轴转速与最大输出功率这两个参数在表3-1中选择型号。

The rotating speed of output shaft and max output power in talbe 3-1 daetermine the selection of reducer type.

##### 2. 型号标定意义及示例 Type, symbol and example



输出轴转速代号（见表 1-1）

Output shaft rotating speed symbol (see table 1-1)

模数（见表 1-1） Mode number (see table 1-1)

立式蜗杆减速机的一种代号

A symbol of vertical worm decelerator

电机类型代号（Y 系列注 Y；YA、YB 系列 分别注 A、B 若选用其它系列电机请参照 LC 型电机标记方法，不带电机可不注）

Motor type (Y for Y series, A, B for YA and YB series. For other series motor, see symbol of LC motor)

3. 基本参数和型号系列 Basic parameters and type series

表 1-1 Table 1-1

型号 Type	转速 代号 Rotating speed symbol	出轴 转速 Output shaft rotating speed (r/min)	输出 功率 Power (kw)	效率 Efficiency h	出轴许 用扭矩 Allowed torque of output shaft (Nm)	Y 系列电机 Y series motor		中心距 Center space	模 数 Mode number	蜗杆 头数 Number of worm end (Z1)	蜗轮 齿数 Number of worm wheel (Z2)	皮带轮直径 Diameter of belt pulley wheel		皮带 型号 及根数 Belt type and quantity	重量 Weight (kg)
						转速 Rotating speed (r/min)	功率 Power (kw)					转速 Rotating speed (r/min)	功率 Power (kw)		
M4	I	40	0.37	0.68	88.3	1390	0.55	86	4	1	125	140	A-2	100	
	II	50	0.6	0.80	114.6		0.75			2					
	III	60	0.88	0.80	140		1.1			2					
	IV	80	0.94	0.85	112.2		1.1			3					
	V	100	1.28	0.85	122		1.5			3					
	VI	120	1.87	0.85	149		2.2			3					
M6	I	20	0.79	0.72	377	1400	1.1	126	6	1	140	305	B-2	200	
	II	30	0.79	0.72	251		1.1			2					
	III	40	1.08	0.72	258		1.5			2					
	IV	50	1.83	0.83	350		2.2			2					
	V	60	1.83	0.83	291		2.2			2					
	VI	80	2.49	0.83	297		3			2					
M8	I	20	1.17	0.78	559	1400	1.5	164	8	1	140	305	B-2	300	
	II	30	1.72	0.78	541		2.2			1					
	III	40	2.34	0.78	559		3			1					
	IV	50	3.36	0.84	642		4			2					
	V	60	3.36	0.84	535		4			2					
	VI	80	4.62	0.84	552		5.5			2					
M10	I	20	2.34	0.78	1117	1420	3.0	205	10	1	140	305	B-3	500	
	II	30	3.12	0.78	993		4.0			1					
	III	40	4.29	0.78	1024		5.5			1					
	IV	50	6.3	0.84	1203		7.5			2					
	V	60	6.3	0.84	1002		7.5			2					
	VI	80	9.24	0.84	1103		11			2					
M12	I	20	4.29	0.78	2048	1440	5.5	240	12	1	140	320	B-5	780	
	II	30	5.85	0.78	1862		7.5			1					
	III	40	9.35	0.85	2232		11			2					
	IV	50	12.75	0.85	2435		15			2					
	V	60	16.84	0.91	2680		18.5			3					
	VI	80	20.02	0.91	2389		22			3					
M14	I	40	12.90	0.86	3080	1460	15	301	14	2	250	570	C-4	990	
	II	50	15.9	0.86	3036		18.5			2					
	III	60	18.9	0.86	3008		22			2					
	IV	80	27.9	0.93	3330		30			3					
	V	100	34.4	0.93	3285		37			3					
	VI	120	41.9	0.93	3335		45			3					

注：1、表中所标注的效率，已包括三角皮带传动效率在内。

2、出轴转速选用时不得超过表中所规定的最高转速。

3、若系列表中输出转速满足不了工况要求，在不超过表中本型号转速范围可以任意选用某种转速，经我们调查后可满足要求，但定货时在型号表定中不能标输出轴转速代号，而应直接标出所需要的某种转速值。

Note: 1. Efficiency listed in the table includes triangle belts transmission efficiency.

2. The above max rotating speed should not be exceeded when select the output rotating speed.

3. Any rotating speed included in the table is preferable if value in series table can't meet demand. Please

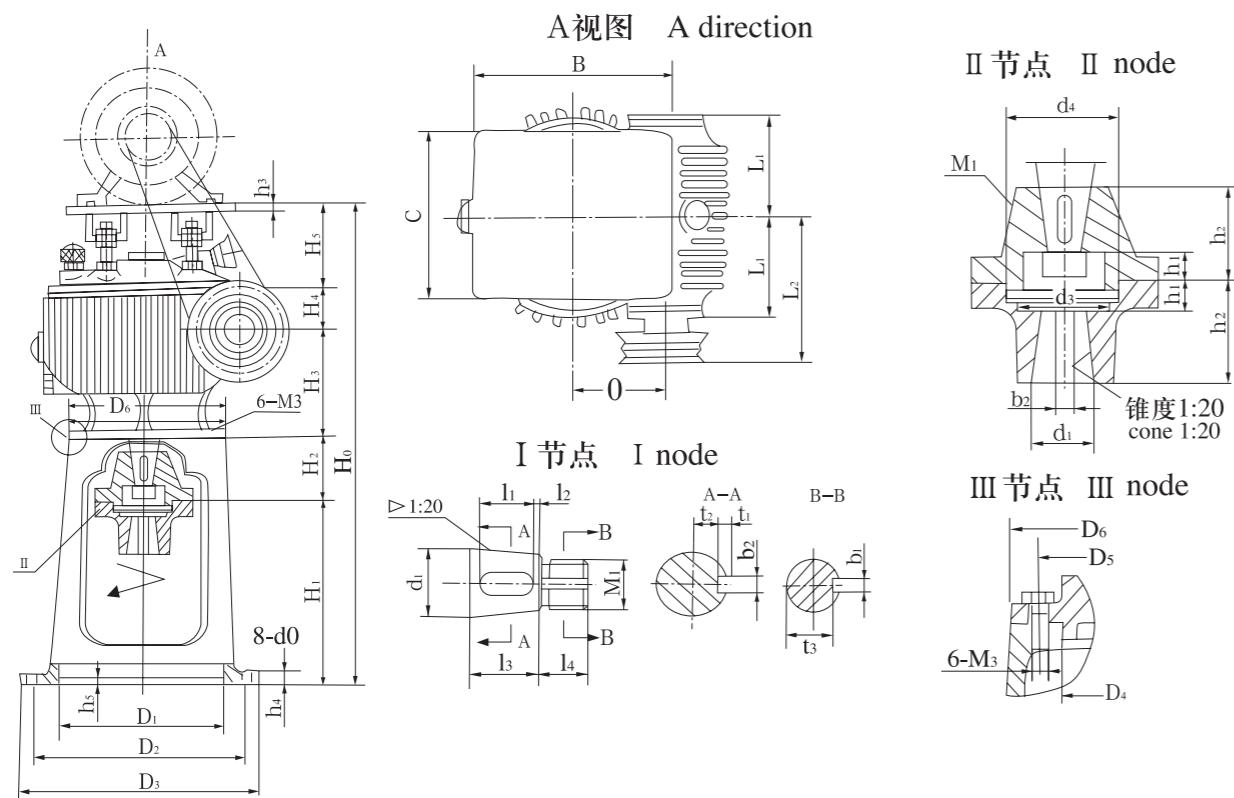


图3-1 M型立式圆柱蜗杆减速器外形图  
Figure 3-1 M vertical cylindrical worm decelerator

#### 4. 主要参数及尺寸 Main parameters and dimensions

表 1-2 Table 1-2

机型号 Type	输出轴联接尺寸 (I 节点) Output shaft connection size (I node)										
	M1	I1	I2	I3	I4	d1	b1	b2	t1	t2	t3
M4	M27X1.5	40	4	48	25	35	5	10	8	11.9	23
M6	M39X1.5	50	4	58	30	50	6	16	10	18.3	35
M8	M42X1.5	70	4	78	30	55	6	16	10	21.5	38
M10	M52X1.5	80	4	88	40	70	8	20	12	26.4	48
M12	M60X2	80	4	88	40	80	8	22	14	29.9	56
M14	M80X2	110	5	123	45	100	10	28	16	38.4	74

机型号 Type	外形尺寸 Dimension										联轴器(II节点) Connector (II node)				
	机座输出端 Output stand edge			机座输入端(III节点) Input stand edge (III node)				联轴器(II节点) Connector (II node)			联轴器(II节点) Connector (II node)				
D1	D2	D3	h4	h5	d0	h3	D4	D5	D6	M3	h1	h2	d3	d4	
M4	215H8	260	290	15	6	12	8	125	145	170	M10	25	75	58	72
M6	290H8	350	380	20	7	14	10	180	210	240	M10	30	90	70	85
M8	360H8	440	480	24	7	18	12	200	250	300	M12	30	110	80	100
M10	440H8	535	580	25	7	22	14	230	300	400	M16	40	130	95	115
M12	440H8	535	580	28	7	22	14	270	330	390	M16	40	130	105	130
M14	540H8	605	650	30	9	24	16	300	370	425	M24	45	170	130	160

机型号 Type	外形尺寸 Dimension										
	H0	H1	H2	H3	H4	H5	L1	L2	B	C	O
M4	570	200	100	105	60	105	111	175	230	200	86
M6	740	250	130	145	75	140	147	212	300	280	126
M8	890	300	150	180	100	160	184	280	380	350	164
M10	1070	380	170	210	120	190	235	370	415	400	205
M12	1090	380	170	218	110	212	241	417	480	500	240
M14	1218	336	214	278	160	230	310	480	540	700	301

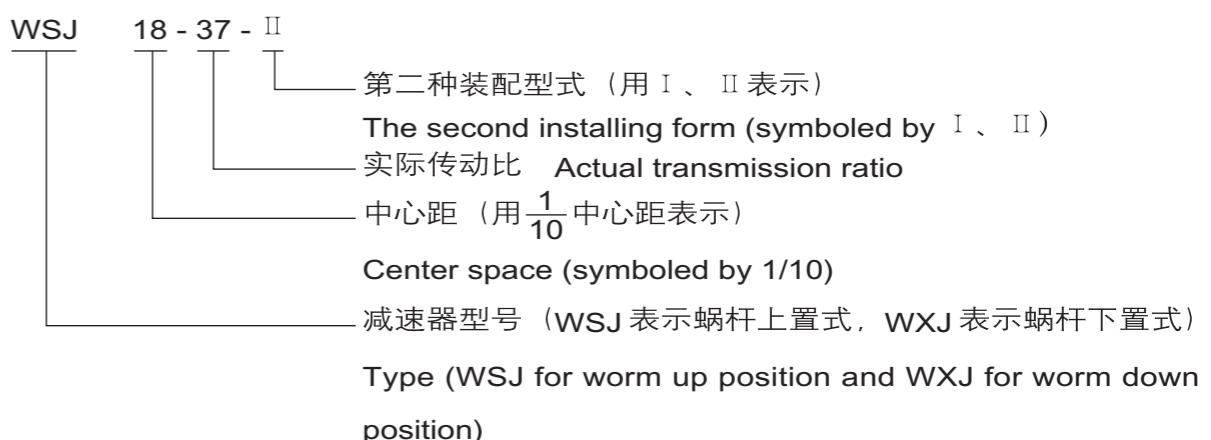
注: 联轴器 d<sub>1</sub> 和 b<sub>2</sub> 同输出轴 Note: The connector d<sub>1</sub> and b<sub>2</sub> share the same output shaft.

## WSJ、WXJ 型蜗杆减速器 WSJ、WXJ worm decelerator

### 一、型式与基本参数

#### 1. 标记示例 Symbol

以 WSJ 型蜗杆减速器为例标记如下 Symbol example for WSJ worm decelerator



#### 2. WSJ、WXJ 减速机速比 i 应符合表中规定

WSJ, WXJ series reducer's speed ratio i should be in accordance with stipulation in table.

中心距α	速比 i						
120	9.67	15	20	30	40	50	
180	12.33	18.5	37	40	51		

## 二、WSJ、WXJ型蜗杆减速器的装配型式和外形尺寸

Installing form and dimension of WSJ、WXJ worm decelerator

### 1、WSJ、WXJ型蜗杆减速器的装配型式和外形尺寸见表1、图1、图2

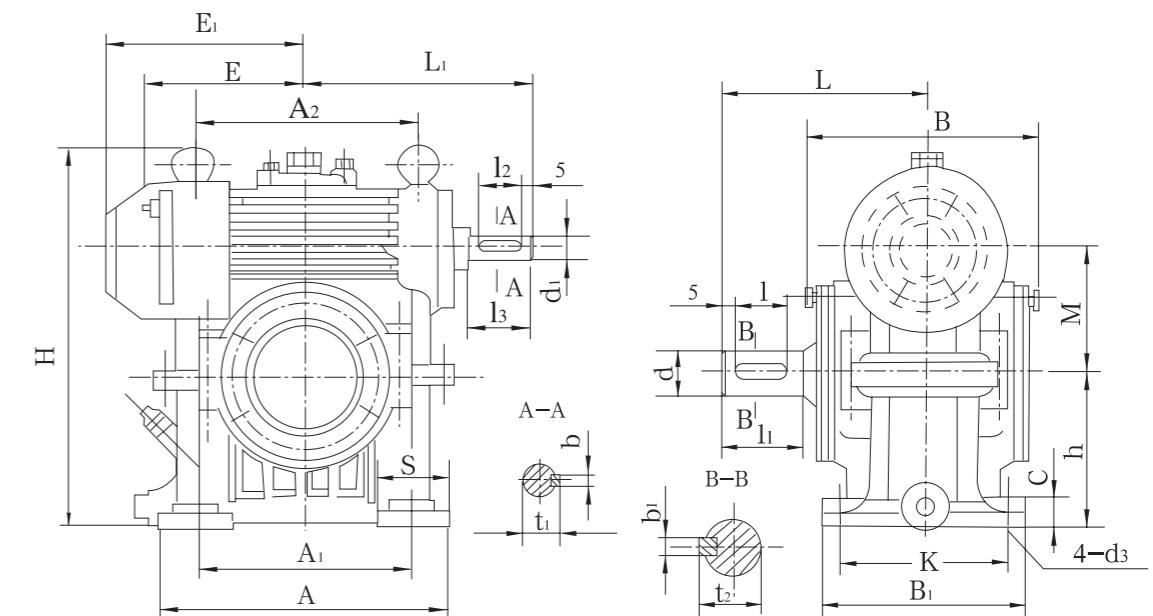
Installing form and dimension talbe of WSJ、WXJ worm decelerator, see table 1, drawing 1, drawing 2.

WSJ、WXJ型蜗杆减速器的装配型式和外形尺寸  
Installing form and dimension of WSJ、WXJ worm decelerator

表1

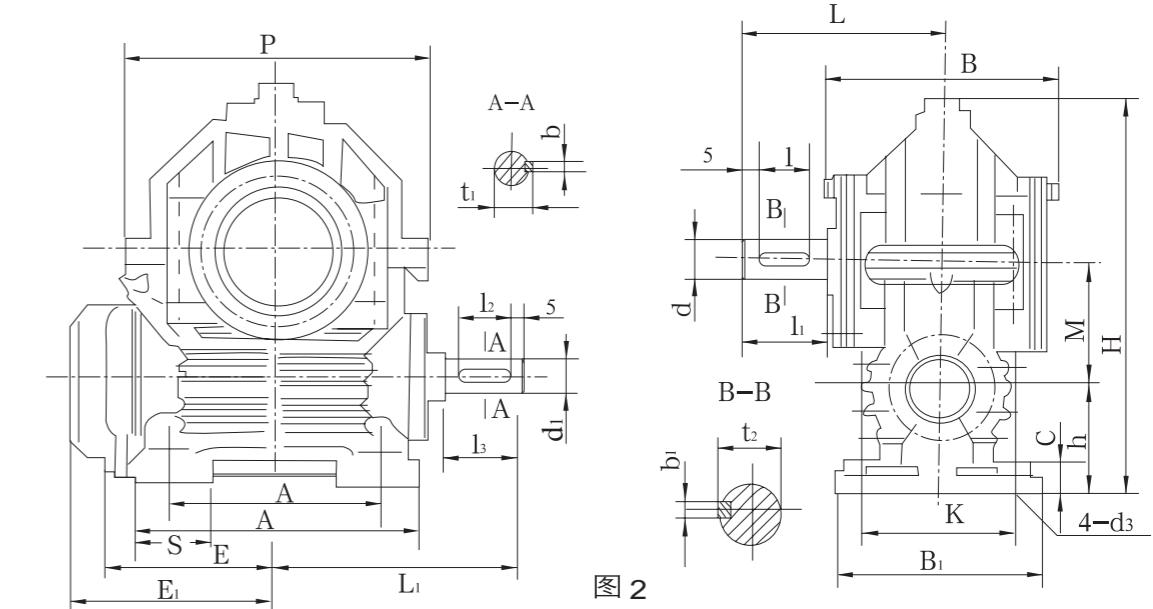
型 号 Type	A	A1	A2	B	B1	h	b	b1	c	d m6	d1 m6	E	E1
WSJ-12	275	200	195	215	200	150	8	14	30	45	30	150	-
WXJ-12	275	200	-	212	200	100	8	14	30	45	30	152	-
WSJ-18	420	300	216	310	310	210	14	18	40	60	45	-	290
WXJ-18	420	300	-	310	310	140	14	18	40	60	45	-	290

型 号 Type	H	K	L	L1	I	I1	I2	L3	M	S	S1	P	t1	t2	d3	重量 (kg)
WSJ-12	390	150	187	218	70	78	50	58	120	75	-	-	33	49	23	57
WXJ-12	379	150	187	218	70	78	50	58	120	75	-	288	33	49	23	60
WSJ-18	543	260	260	300	90	100	70	80	180	120	-	-	49	65.5	23	158
WXJ-18	540	260	260	300	90	100	70	80	180	120	-	440	49	65.5	23	162

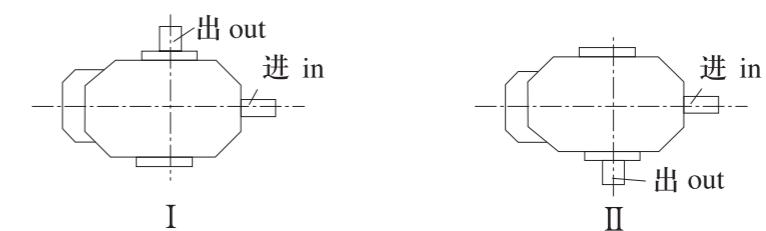


WSJ型 WSJ type

图1



WXJ型 WXJ type  
装配型式 Installing form



## 减速机的选择

## Selecting reducer

1、原始数据:

高速轴转数  $n_1$ ;低速轴最大工作扭矩  $M_{max}$ 传动比  $i$ 

单向或双向工作

工作持续率  $J_c$ 。

Orginal data:

High-speed shaft number of turns  $n_1$ ;Low-speed shaft maximum service torque  $M_{max}$ Drive ratio  $i$ ;

Oneration or twoway operating

Operation continuance rate  $J_c$ .

2、选择程序:

(1) 选取所需传动比。

(2) 按下式计算作用于齿面的允许扭转力矩:

$$M_{2\text{cal}} = M_{max} K_1 K_2 K_3 \quad (1)$$

式中:  $M_{max}$  ——低速轴最大工作扭矩 kG·m $K_1$  ——工作情况系数, 按表三选取。

Selecting procedure

(1)Select drive rate required;

(2)Calculate allowable torque applied on the tooth surface with following formula;

$$M_{2\text{cal}} = M_{max} K_1 K_2 K_3 \quad (1)$$

In which,

 $M_{max}$  ——low-speed shaft maximum sevice torque kG·m $K_1$  ——service status factor selected form table3

表2 Table 2

工 作 情 况 Work conditions	K1
连续载荷 $J_c=100\%$ 或不连续而最大扭矩持续五分钟以上。 Continuous load $J_c=100\%$ or intermittent load maximum torque lasting for ove 5 minutes	1.0
$J_c=40\%$	0.75
$J_c=25\%$	0.65
$J_c=15\%$	0.5

 $K_2$  ——载荷集中系数, 对稳定载荷  $K_2=1$ , 对变载荷:

$$K_2 = 1 + \left( \frac{Z_2}{B} \right) 3 \quad (2)$$

B按表4查出;  $Z_2$ 为蜗轮齿数。 $K_2$  ——load concentration factor, for stable load,  $K_2=1$ , for changeable load:

$$K_2 = 1 + \left( \frac{Z_2}{B} \right) 3 \quad (2)$$

B is found in table 4;  $Z_2$  is number of teethfor worm wheel

表3 Table 3

B Z	8	9	10	11	12	13
1	72	89	108	127	117	168
2	57	71	86	102	117	134
3	51	61	76	89	103	118

 $K_3$  ——动载荷系数, 取  $K_3=1.3$ 。 $K_3$  ——dynamic load factor, make  $K_3=1.3$ (3) 在输出扭矩表中查找等于或稍大于  $M_2$  计的扭矩力矩, 即  $M_{2\text{cal}} \leq M_{b\text{cal}}$  计, 选定减速器的中心距。Find from output torque table equal to or higher than  $M_{2\text{cal}}$ , i.e.,  $M_{2\text{cal}} \leq M_{b\text{cal}}$ , and select reducer center distance.

(4) 减速器低速轴有悬臂负荷时, 必须验算滚动轴承的寿命。

If cantilever load is applied on low-speed shaft of reducer, service life of rolling bearing should be verified.

(5) 当减速器工作持续率  $J_c \geq 10\%$  时, 应进行散热计算。If reducer service continuousness rate  $J_c \geq 10\%$ , heat emission should be performed.

## 3、散热计算

## Calculating heat emission

散热能力往往是圆柱蜗杆减速器的薄弱环节, 对于连续工作 ( $J_c=100\%$ ) 或重大工作制度  $J_c > 40\%$  的速度器, 必须进行散热计算, 由允许油温 ( $80^\circ\text{C}$ ) 所决定的减速器所能传递的功率 (即热功率) 为:

$$N_r = \frac{C \cdot F}{K_n} HP$$

式中: C ——单位散热面积的热功率 HP/m<sup>2</sup>, 由图 5 和图 6 查得, 或按下式计算:

$$C = \frac{K \Delta t}{632(1 - \eta)}$$

Heat emission capacity is usually the bottleneck for cylindrical worm decelerator. For those decelerator under serice ( $J_c=100\%$ ) or under heavy duty service ( $J_c \geq 40\%$ ), heat emission should be calculated. The power decelerator can transmit (i.e.thermal power) is determined by allowable oil temperature ( $80^\circ\text{C}$ ):

$$N_r = \frac{C \cdot F}{K_n} HP$$

In which,

C ——thermal power of unit heat emission area HP/m<sup>2</sup>, listed in Figure 5 and Figure 6, or calculated as follows:

$$C = \frac{K \Delta t}{632(1 - \eta)}$$

其中:  $\Delta t$ —减速器箱体温度与空气温度的平均温度差。对 WD 型取  $\Delta t=40^{\circ}\text{C}$ , 对 WS 型取  $\Delta t=30^{\circ}\text{C}$ ;

$K$ —散热系数。当减速器在不大的关闭厂房中, 没有附加通风装置或热量不能从减速器旁散开时,  $K=7 \sim 9$ ; 在大的厂房中有足够的通风时,  $K=12 \sim 15$ . 其他情况  $K=9 \sim 12$ ;

$\eta$ —减速器的效率;

$F$ —减速器的散热面积  $m_2$ , 由表 10 查得;

$K_n$ —工作制度系数:  $J_c=15\%$  时,  $K_n=0.15$ ;  $J_c=25\%$  时,  $K_n=0.25$ ;  $J_c=40\%$  时,  $K_n=0.4$ ; 长期连续工作时,  $K_n=1.0$ 。

In which:

$\Delta t$ —average temperature difference between decelerator cabinet temperature. For type WD,  $\Delta t=40^{\circ}\text{C}$ , for type WS.  $\Delta t=30^{\circ}\text{C}$ :

$K$ —heat emission factor. If decelerator is mounted in a small and closed plant without additional ventilation or where heat can not be dissipated from the side of decelerator,  $K=7 \sim 9$ ; if decelerator is mounted in a large plant with sufficient ventilation,  $K=12 \sim 15$ . for any other situation,  $K=9 \sim 12$ ;

$\eta$ —efficiency of decelerator:

$F$ —heat emission area of decelerator listed in Table 10;

$K_n$ —duty factor. if  $J_c=15\%$ ,  $K_n=0.15$ ; if  $J_c=25\%$ ,  $K_n=0.25$ ; if  $J_c=40\%$ ,  $K_n=0.4$ ; and if continuous service for a long term.  $K_n=1.0$ .

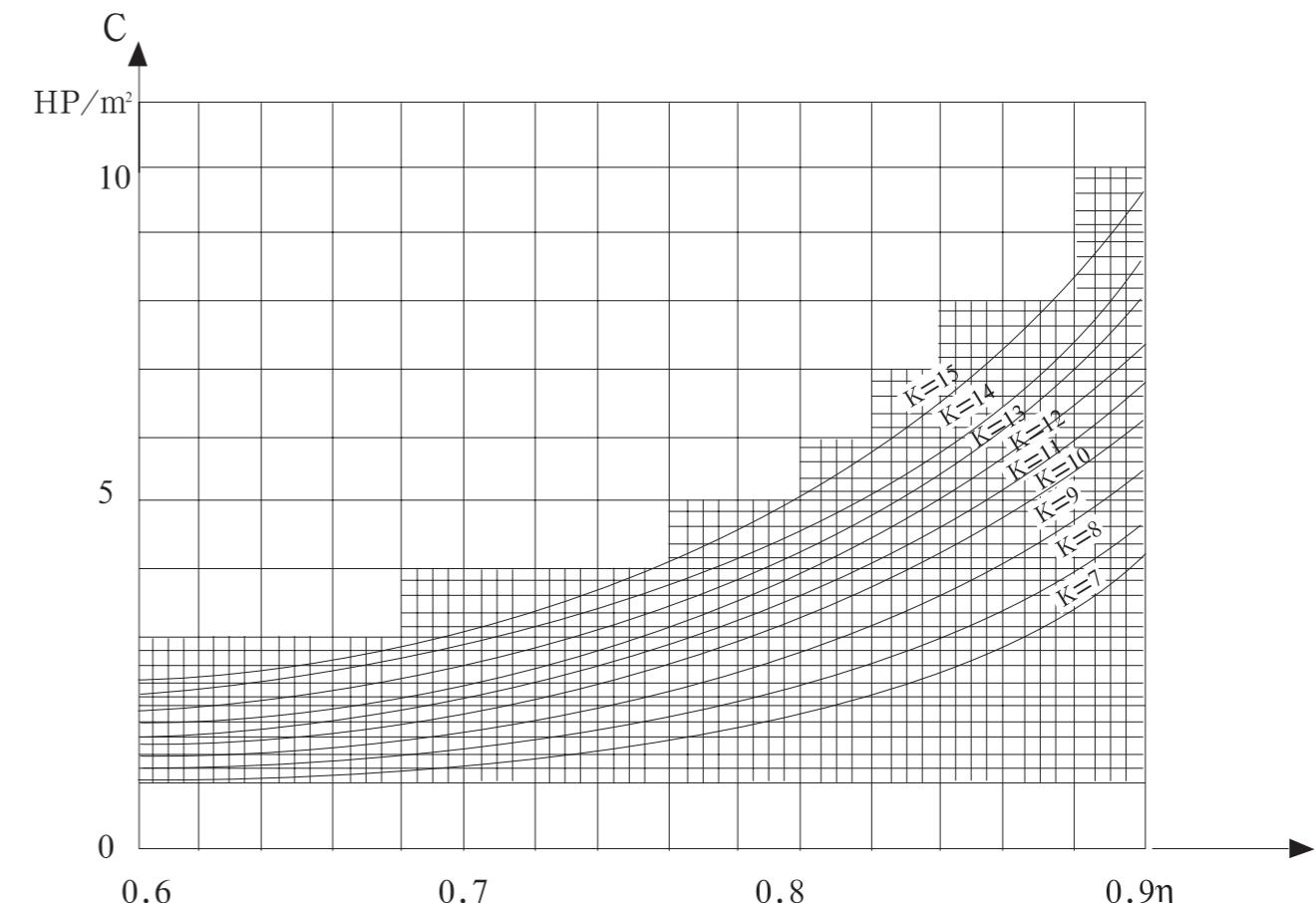
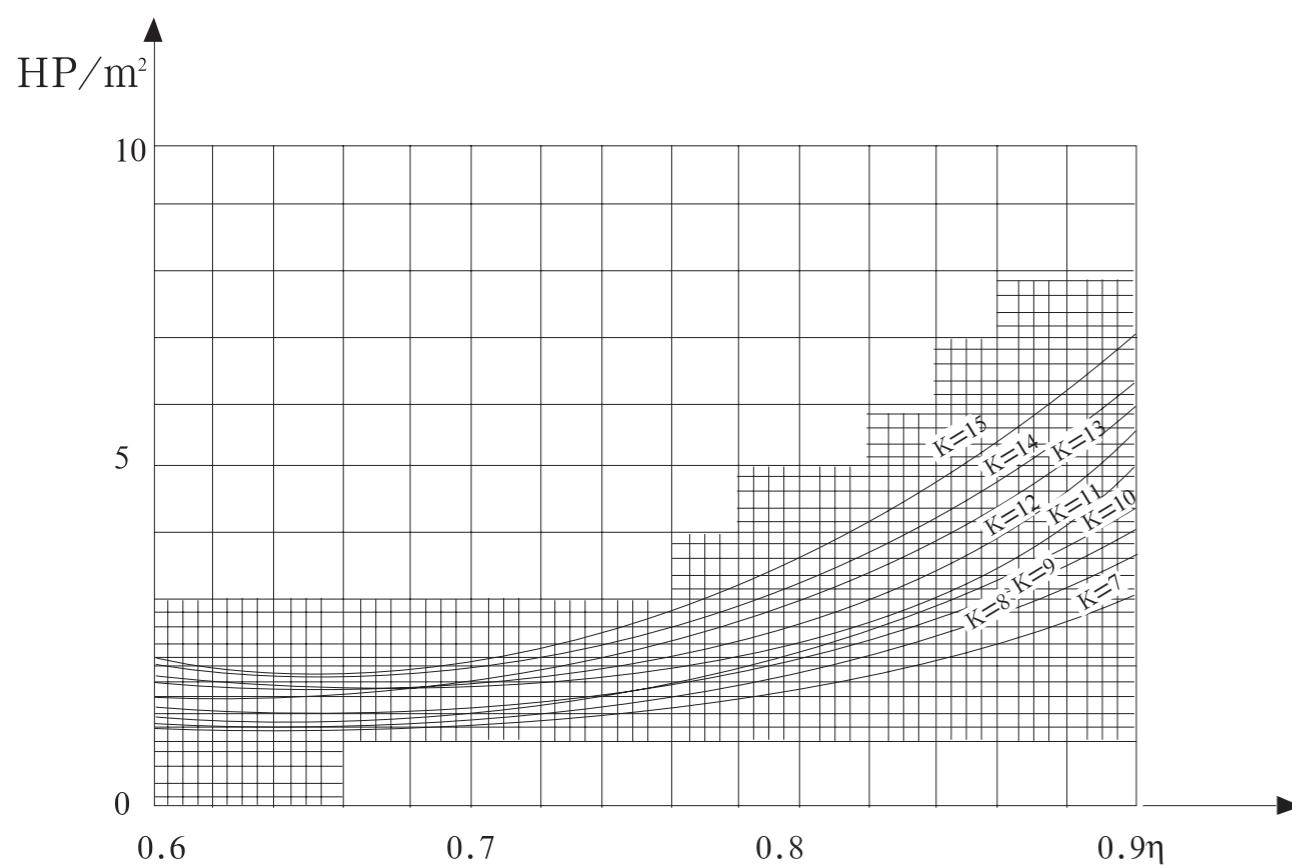


图 3 对于 WD 型减速器的 C 值  
Figure 3 Value of C for Type WD Decelerator

蜗杆减速器的散热面积  
Worm screw decelerator heat emission area  $\text{m}^2$

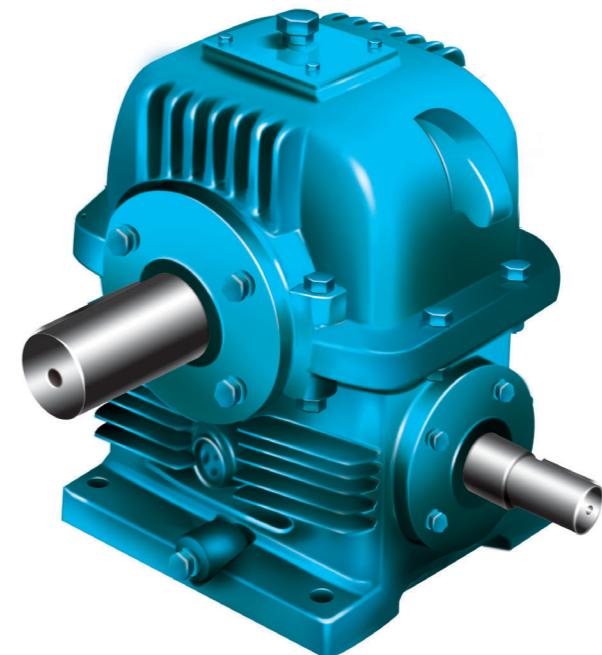
表 4 Table 4

型号 Type	中心距 Center space A (mm)								
	80	100	120	150	180	210	250	300	360
WD型	0.215	0.317	0.391	0.637	0.861	1.110	1.42	2.077	3.179
WS型	0.210	0.230	0.369	0.627	0.857	1.10	1.35	1.917	2.850

蜗杆传动的摩擦系数 f 和摩擦角 p

Worm screw transmission of Friction factor Friction amgle p

滑动速度 Vh (m/sec) Slide speed	摩 擦 系 数 f Friction factor	摩 擦 角 p Friction angel
0.01	0.11~0.12	6°17'~6°51'
0.1	0.08~0.09	4°34'~5°09'
0.25	0.065~0.75	3°43'~4°17'
0.5	0.055~0.065	3°09'~3°43'
1.0	0.045~0.055	2°35'~3°09'
1.5	0.04~0.05	2°17'~2°52'
2.0	0.035~0.045	2°00'~2°35'
2.5	0.03~0.04	1°43'~2°17'
3.0	0.028~0.035	1°36'~2°00'
4.0	0.023~0.03	1°19'~1°43'
7.0	0.018~0.026	1°02'~1°29'
10	0.016~0.021	0°55'~1°22'
15	0.014~0.020	0°48'~1°09'



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The manufacturer has the right to interpret this instruction book, and any questions may refer to our technical department.  
This instruction book is updated every year, so the latest edition should be identified for reference.