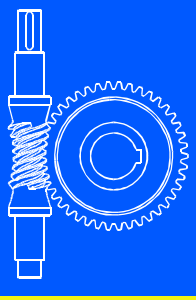
C系列平面二次包络蜗轮蜗杆副



SHANGHAI SGR HEAVY INDUSTR
MACHINERY CO.,LTD.
上海合纵重工机械有限公司
上海长城减速机厂有限公司

C Series

C系列平面二次包络蜗轮蜗杆副

PLANAR DOUBLE-ENVELOPING WORM GEAR PAIR

SGR®

www.sgr.com.cn

C系列平面二次包络蜗轮蜗杆副

产品简介 Products Introduce

目录 Contents

中心距在500内的非标准中心距以及速比可以按客户要求定做.

Special centre distances or intermediate transmission ratios as well as large worm and wheel sets up to centre distance 500 mm on request.

加工设备 Produce Facilities

传动特点
齿轮啮合特点

平面二次包络环面蜗轮蜗杆副是一种不同于普通蜗轮蜗杆副的新型转角传动形式。

平面二次包络环面蜗杆是由平面包络一次线两次接触蜗轮展成。

平面二次包络环面蜗轮蜗杆副与普通蜗轮蜗杆副接触线不同，接触线更多，见FIG1。

平面二次包络环面蜗轮蜗杆副比普通蜗轮蜗杆副更易形成油涵，润滑更充分，有更高的效率，见FIG2。

平面二次包络环面蜗轮蜗杆副比普通蜗轮蜗杆副有更多的接触齿数，承载能力更强，见FIG3。

Characteristic features
gear teeth system

Planer double enveloping worm wheel is substantially different to conventional designs.

The worm threads generated by planar primary-enveloping line acting twice on the worm.

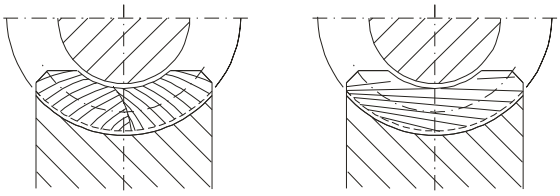
FIG1 shows the worm thread contact pattern is longer than conventional worm threads.

FIG2 shows the worm thread envelops more oil and lubricate the contact profile better than conventional worm threads,it makes the efficiency higher.

FIG3 shows the worm threads have more contact teeth than conventional worm threads, so it is more stronger

FIG1 接触线

C 系列蜗轮　　普通圆柱蜗轮

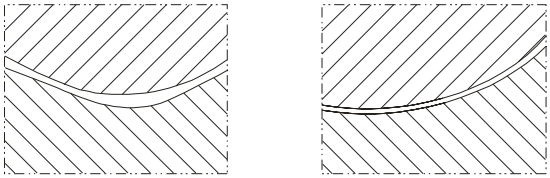


C SERIES WORM　　CONVENTIONAL WORM

FIG1 CONTACT PATTERN

FIG2 封闭油涵

C 系列蜗轮　　普通圆柱蜗轮



C SERIES WORM　　CONVENTIONAL WORM

FIG2 OIL CULVERT

FIG3 接触齿数

C 系列蜗轮　　普通圆柱蜗轮

C SERIES WORM　　CONVENTIONAL WORM

FIG3 CONTACT TEETH

符号意义

E_D	= 每小时负荷率	% (e.g. ED = 80% / h)
$f_1 ... f_6$	= 系数，见第）））页	
i	= 减速比	n_1 / n_2
n_1	= 输入转速	r/min
n_2	= 输出转速	r/min
P_{1N}	= 额定输入功率	kW
P_2	= 输出功率	kW
T_2	= 输出转矩	Nm
T_2	= 9550 x P_2 / n_2	Nm
T_{2A}	= 启动，峰值，制动载荷	Nm

Key to Symbols

E_D	= Operating cycle per hour in % (e.g. ED = 80% / h)	
$f_1 ... f_6$	= For factors, see page 10	
i	= Transmission ratio = n_1 / n_2	
n_1	= Input speed (min-1)	
n_2	= Output speed (min-1)	
P_{1N}	= Nominal input power rating (kW)	
P_2	= Power rating of driven machine (kW)	
T_2	= Output torque (Nm)	
T_2	= 9550 x P_2 / n_2	
T_{2A}	= Peak operating-, starting- or braking torque (Nm)	

选型

首先按公式T_{2N} / $f_1 x f_2 x T_2$初选规格，然后把各种系数带入下面公式校核：

Selection of Size

After a first selection of the worm and wheel set, where T_{2N} should be / $f_1 x f_2 x T_2$, the following conditions should be

I) T_{2N} / $T_2 \times f_1 \times f_2 \times f_3$

II) T_{2N} / $T_2 \times f_3 \times f_4 \times f_5 \times f_6$

III) T_{2max} / $T_{2A} \times f_2 \times f_3$

通过以上校核，通常可以很容易地选出接近的规格，如果不满足以上要求,可以选用更大的规格进行计算。

If the conditions are generously fulfilled one can try to select a smaller worm and wheel set.
If the conditions are not fulfilled a larger worm and wheel set has to be selected.

其它注意事项:

如果输入和输出方向固定并受限制,右旋蜗轮蜗杆副不能满足要求,可以考虑选用左旋蜗轮蜗杆副.
选用规格大小时,热功率已经考虑在内了,不再做热功率校核,公式II已经考虑油温小于100°C.
适用环境温度-10°C~+50°C,超过此温度范围请联系我们.

Additional notes

If the direction of rotation for input and output shaft is fixed, LH gear teeth might possibly become necessary.
When selecting the size, thermal influences are taken into consideration with condition II based on a lubricant temperature of +100°C.
For ambient temperatures below -10° C or above +50° C,

载荷分类

所列载荷是按经验分类的。
不在本列表范围的载荷类型可以联系我们共同探讨。
根据实际应用情况选用载荷分类，并和设计要求相符合。
根据实际的运行工况，载荷类型分类可能和所列分类不同，请酌情修改
符号说明：

U=稳定载荷

M=中等冲击

H=严重冲击

*=仅限于24小时运转

工业应用中的载荷分类

气压机, 压缩机	运输机械
M 旋转活塞式压缩机	M 螺旋输送机
U 轴流式气压机	M 钢带输送机
M 冷却塔	M 链板式输送机
M 风扇人工产气	M 牵引式输送机
U 涡轮压缩机	起重机械
建筑机械	M 吊杆起重机构
M 混凝土搅拌器	H 提升机构*
M 提升机	M 摆动机构*
M 道路施工机械	M 回转机构
化工机械	H 行走机构
U 液体搅拌器	采矿机械
M 半流体搅拌器	H 斗式输送机
M 重载离心分离机	H 铲斗装置
U 轻载离心分离机	H 破碎装置
M 冷却滚筒*	M 绞盘装置
M 干燥滚筒*	M 泵
M 混合器	M 回转机构
空气压缩机	H 掘进机构
H 活塞式空气压缩机	M 轨道运动机构
M 涡轮空气压缩机	食品机械
运输机械	U 灌装机及包装机
M 链斗式输送机	M 甘蔗破碎机*
M 斗式提升机	M 甘蔗切割机*
M 斗轮带式输送机	M 甘蔗压榨机*
M 散装橡胶带式输送机	H 捏合机
H 块装橡胶带式输送机	M 捣碎机
U 桶装粉末输送机	U 打包机
M 链条式输送机	M 甜菜切割机
M 循环轨道输送机	M 甜菜清洗机
M 轻载提升机	变换器及发生器
H 重载提升机*	H 频率变换器
H 倾斜式输送机*	H 发生器
M 链带输送机	H 焊接机
M 乘客运输机	

Load Classification Symbols

The listed load classification symbols are empirical values. Prerequisite for application is that the machinery and equipment mentioned correspond to generally accepted design and load specifications.
In case of deviations from listed conditions, please refer to us. Listed load classification symbols may be modified after giving exact details of operating conditions.

U = Uniform load

M = Medium shock load

H = Heavy shock load

* = Only on the basis of 24 hrs service

Load classification symbols in applications and industries

Blowers, Ventilators	**Conveyors**
M Rotary piston blowers	M Screw conveyors
U Blowers (axial/radial)	M Steel belt conveyors
M Cooling tower fans	M Trough chain conveyors
M Induced draught fans	M Hauling winches
U Turbo blowers	**Cranes**
Building machinery	M Derricking jib gears
M Concrete mixers	H Hoisting gears *
M Hoists	M Luffing gears *
M Road construction machinery	M Slewing gears
Chemical industry	H Travelling gears
U Agitators (liquid material)	**Dredgers**
M Agitators (semi-liquid material)	H Bucket conveyors
M Centrifuges (heavy)	H Bucket wheels
U Centrifuges (light)	H Cutter heads
M Cooling drums *	M Manoeuvring winches
M Drying drums *	M Pumps
M Mixers	M Slewing gears
Compressors	H Travelling gears (caterpillar)
H Piston compressors	M Travelling gears (rails)
M Turbo compressors	Food industry machinery
Conveyors	U Bottling and container filling machines
M Apron conveyors	M Cane crushers *
M Ballast elevators	M Cane knives *
M Band pocket conveyors	M Cane mills *
M Belt conveyors (bulk material)	H Kneading machines
H Belt conveyors (piece goods)	M Mash tubs, crystallizers
U Bucket conveyors for flour	U Packaging machines
M Chain conveyors	M Sugar beet cutters
M Circular conveyors	M Sugar beet washing machines
M Goods lifts	**Generators, transformers**
H Hoists *	H Frequency transformers
H Inclined hoists *	H Generators
M Link conveyors	H Welding generators
M Passenger lifts	

载荷分类

Load Classification Symbols

工业应用中的载荷分类

服装机械
M 滚筒式机械
M 洗衣机
轧钢机械
H 带钢轧机 *
M 链条输送机 *
H 冷轧机 *
H 连铸机*
M 冷床装置 *
H 剪切机*
M 卷取机 *
H 精整机 *
H 中重型电镀机械 *
H 初轧机*
H 钢锭装卸运送机械 *
H 推钢机械 *
H 主传动装置
H 剪板机 *
M 厚板机组*
M 轧辊调整装置
M 辊式矫直机 *
H 重型翻板机 *
M 轻型翻板机 *
H 薄板机组 *
M 修整机组 *
H 焊接钢管机组
M 线带卷取机组
M 拉丝架
金属加工机械
U 弯曲和校直机械
H 锻压机械
H 锻锤 *
U 工作母机中的辅助机械
M 工作母机的主传动
H 平面加工机械
H 矫直板机械
H 压力机
H 冲床
M 剪床
M 薄板卷曲机
石油机械
纸品加工机械
H 光泽缸 *
H 纸浆碾磨机 *
H 纸浆碾磨机 *
H 真空(吸水)筛浆机 *
H 真空(吸水)压榨机 *
H 打浆机 *
H 挤浆机*
塑料机械
M 研光机 *
M 破碎机械 *
M 挤压机 *
M 混合机 *
泵
U 轻质液体离心泵
M 粘性液体离心泵
H 活塞泵
H 柱塞泵 *
H 压力泵 *
橡胶机械
M 研光机 *
H 挤压机 *
M 混合机 *
H 搅拌机 *
H 碾滚成型机械 *
矿石及泥土加工机械
H 球磨机 *
H 搅拌机 *
H 碎石机
H 压砖机
H 锤式粉碎机 *
H 圆盘切割机 *
H 开槽机 *
纺织机械
M 混纺机
M 织布机
M 印染机
M 鞣革机
M 压纹机
水处理机械

Load classification symbols in applications and industries

Laundries
M Tumblers
M Washing machines
Metal rolling mills
H Billet shears *
M Chain transfers *
H Cold rolling mills *
H Continuous casting plants *
M Cooling beds *
H Cropping shears *
M Cross transfers *
H Descaling machines *
H Heavy and medium plate mills *
H Ingot and blooming mills *
H Ingot handling machinery *
H Ingot pushers *
H Manipulators
H Plate shears *
M Plate tilters *
M Roller adjustment drives
M Roller straighteners *
H Roller tables (heavy) *
M Roller tables (light) *
H Sheet mills *
M Trimming shears *
H Tube welding machines
M Winding machines (strip and wire)
M Wire drawing benches
Metal working machines
U Countershafts, line shafts
H Forging presses
H Hammers *
U Machine tools, auxiliary drives
M Machine tools, main drives
H Metal planing machines
H Plate straightening machines
H Presses
H Punch presses

Paper machines
H Glazing cylinders *
H Pulpers *
H Pulp grinders *
H Suction rolls *
H Suction presses *
H Wet presses *
H Willows *
Plastic industry machinery
M Calenders *
M Crushers *
M Extruders *
M Mixers *
Pumps
U Centrifugal pumps (light liquids)
M Centrifugal pumps (viscous liquids)
H Piston pumps
H Plunger pumps *
H Pressure pumps *
Rubber machinery
M Calenders *
H Extruders *
M Mixers *
H Pug mills *
H Rolling mills *
Stone and clay working machines
H Ball mills *
H Beater mills *
H Breakers
H Brick presses
H Hammer mills *
H Rotary kilns *
H Tube mills *
Textile machines
M Batchers
M Looms
M Printing and dyeing machines
M Tanning vats

使用系数 Service Factor

f_1 每天工作时间系数				f_1 For daily operating periods and load classifications
运行周期 hrs Daily operating period (hrs)	/ 0.5	<0.5 ~2	<2~10	<10~24
载荷分类 U Load classification symbol U	0.8	0.9	1	1.2
载荷分类 M Load classification symbol M	0.9	1	1.2	1.4
载荷分类 H Load classification symbol H	1	1.2	1.4	1.6

f_2 启动频率，峰值载荷作用频率及制动频率系数				f_2 For starts, peak torques, braking
每小时作用次数	/ 10	<10~60	<60~240	<240~600
f_2	1	1.1	1.2	1.3

f_3 矿物油润滑系数(合成油润滑系数为1)				f_3 For lubrication with mineral oils (for synthetic oils, f_3 = 1)
蜗轮蜗杆副中心距 Size of worm and wheel set	63~100	120~250	280~450	500~630
F_3	1.2	1.25	1.3	1.3

f_4 每小时负荷率 (ED)				f_4 For operating cycle per hour (ED)	
ED %	100	80	60	40	20
f_4	1	0.94	0.86	0.74	0.56

f_5 环境温度系数				f_5 For ambient temperature	
环境温度 ambient temperature(°C)	0~10	10~20	20~30	30~40	40~50
n_1<300	0.89	1	1.14	1.33	1.6
> 300 - 1500	0.9	1	1.17	1.42	1.75
> 1500	0.9	1	1.2	1.5	1.9

f_6 冷却方式系数				f_6 For cool way	
冷却方式 Cool way	蜗轮蜗杆副规格 Size of worm and wheel set	蜗杆速度 Worm shaft speed			
		1500	1000	750	500
		f_6			
无风扇自然冷却 Nature cool without fan	63~80	1	1	1	1
	100~225	1.37	1.59	1.59	1.33
	250~710	1.51	1.85	1.89	1.78
风扇冷却/Cool with fan	63~710	1	1	1	1

计算示例

要求：

蜗轮蜗杆副，用于带式运输机运送原材料，用矿物油润滑。

电机功率:	P_1 = 3 kW
电机转速:	n_1 = 1000 min-1
传动比:	i ≈ 40
需要转矩：	T_2 = 850 Nm
最大转矩：	T_{2A} = 1750 Nm
每天工作时间:	16 hours
每小时启动次数:	30
负荷率:	ED = 40 %
环境温度:	⩽40 °C

计算过程

在未确定型号之前，可以确定的几个系数：

载荷类型M（大于10小时）： f_1 = 1.4

启动频率30/小时： f_2 = 1.1

首先使用这两个系数计算：

850 x 1.4 x 1.1 = 1309

按结果选125规格，见第10页，其中：

T_{2N}=1627Nm T_{2max}=1627x2.5=4067.5Nm

按此规格其他系数均可查出，见第8页

矿物润滑油系数	f_3 = 1.25
负荷率系数	f_4 = 0.74
环境温度系数	f_5 = 1.42
冷却方式系数	f_6 = 1.59

把以上系数带入公式校核：

I 和 II 条件不成立，改选140规格，按以上方式带入各种系数，此规格满足要求，计算过程省略。

Calculation Example

Required:

worm and wheel set type for a belt conveyor drive for bulk material; the worm and wheel set is to be lubricated with mineral oil.

Electric motor:	P_1 = 3 kW
Motor speed:	n_1 = 1000 min-1
Transmission ratio:	i ≈40
Required torque:	T_2 = 850 Nm
Max. output torque:	T_{2A} = 1750 Nm
Daily operating period:	16 hours
Starts per hour:	30
Operating cycle per hour:	ED = 40 %
Ambient temperature:	up to 40 °C

Solution:

the worm and wheel set has to be considered for:

Load classification M (above 10 hrs)	f_1 = 1.4
Starting frequency: 30 starts/hour	f_2 = 1.1

First selection with f_1 and f_2

850 x 1.4 x 1.1 = 1309

Select size 125,shown on page 8

T_{2N}=1627Nm T_{2max}=1627x2.5=4067.5Nm

The other factor can by find on page 10

Mineral oil	f_3 = 1.25
Operating cycle per hour:ED = 40 %	f_4 = 0.74
Ambient temperature: up to 40 °C	f_5 = 1.42
Cool way	f_6 = 1.59

Second check with:

I) T_{2N} = 1627 / 850 x 1.4 x 1.1 x 1.25 = 1636

II) T_{2N} = 1627 / 850 x 1.25 x 0.74 x 1.42 x 1.59 = 1775

III) T_{2max} = 4067.5 / 1750 x 1.1 x 1.25 = 2406

Conditions I and II are not fulfilled; therefore,either synthetic oil or size 140 is to be selected.

承载能力 Rated power and torques

蜗轮蜗杆副 worm and wheel sets

规格 100 size 100

i	n_1	n_2	P_{1N}	T_{2N}	η
	rpm	rpm	KW	N.m	%
10.25	1500	146	11.5	683	91.0
	1000	98	10.6	944	91.0
	750	73	8.94	1044	89.5
	500	49	7.2	1233	87.5
13.33	1500	113	9.34	709	89.5
	1000	75	8.4	957	89.5
	750	56	6.85	1023	88.0
	500	38	5.24	1147	86.0
16.5	1500	91	8.54	798	89.0
	1000	61	7.73	1084	89.0
	750	45	6.25	1142	87.0
	500	30	4.84	1289	84.5
20.5	1500	73	7.19	826	88.0
	1000	49	6.18	1065	88.0
	750	37	5.11	1147	86.0
	500	24	3.97	1298	83.5
25.5	1500	59	5.91	810	86.0
	1000	39	5.04	1023	85.0
	750	29	4.30	1143	83.5
	500	20	3.23	1225	79.5
33	1500	45	4.77	792	79.0
	1000	30	4.17	1038	79.0
	750	23	3.09	1006	77.5
	500	15	2.69	1246	73.5
40	1500	38	3.9	760	76.5
	1000	25	3.23	944	76.5
	750	19	2.82	1084	75.5
	500	13	2.08	1136	71.5
50	1500	30	3.16	744	74.0
	1000	20	2.76	975	74.0
	750	15	2.28	1052	72.5
	500	10	1.74	1138	68.5
62	1500	24	2.55	715	71.0
	1000	16	2.28	958	71.0
	750	12	2.08	1141	69.5
	500	8	1.41	1094	65.5

注意事项:

瞬时最大许用转矩T2MAX=2.5XT2N;

瞬时最大许用转矩持续时间小于15秒;

瞬时最大许用转矩启动时间小于3秒.

承载能力 Rated power and torques

蜗轮蜗杆副 worm and wheel sets

规格 125 size 125

i	n_1	n_2	P_{1N}	T_{2N}	η
	rpm	rpm	KW	N.m	%
10.25	1500	146	19.7	1170	91.0
	1000	98	18.2	1621	91.0
	750	73	15.3	1797	90.0
	500	49	12.3	2119	88.0
13.33	1500	113	17.3	1321	90.0
	1000	75	15.4	1764	90.0
	750	56	12.7	1919	89.0
	500	38	9.67	2142	87.0
16.5	1500	91	14.6	1365	89.0
	1000	61	13.2	1851	89.0
	750	45	10.7	1978	88.0
	500	30	8.29	2221	85.0
20	1500	75	12.3	1363	87.0
	1000	50	10.6	1761	87.0
	750	37.5	8.75	1916	86.0
	500	25	6.79	2153	83.0
25.5	1500	59	10.1	1410	86.0
	1000	39	8.64	1809	86.0
	750	29	7.37	2010	84.0
	500	20	5.53	2155	80.0
33	1500	45	8.18	1392	81.0
	1000	30	7.14	1823	81.0
	750	23	5.30	1782	80.0
	500	15	4.61	2208	76.0
40	1500	38	6.68	1310	77.0
	1000	25	5.53	1627	77.0
	750	19	4.84	1874	76.0
	500	13	3.57	1964	72.0
50	1500	30	5.41	1274	74.0
	1000	20	4.72	1668	74.0
	750	15	3.92	1822	73.0
	500	10	2.99	1970	69.0
62	1500	24	4.38	1228	71.0
	1000	16	3.92	1648	71.0
	750	12	3.57	1973	70.0
	500	8	2.42	1891	66.0

ATTENTION:

Briefly permissible maximum torque T2MAX=2.5XT2N ;

Briefly permissible maximum torque constant time less than 15s;

Briefly permissible maximum torque start time less than 3s.

安装尺寸

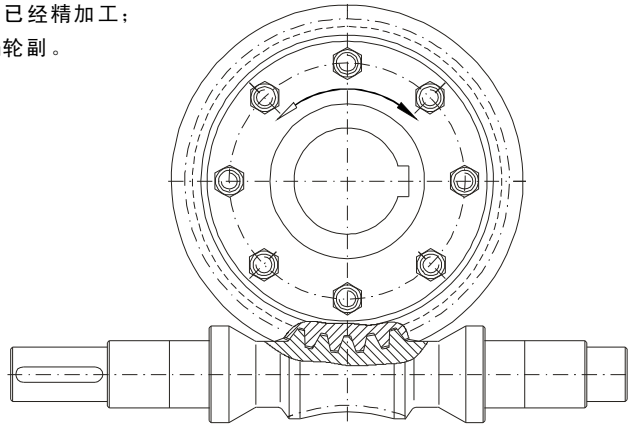
蜗轮蜗杆副
蜗轮及成型蜗杆
规格 **100**

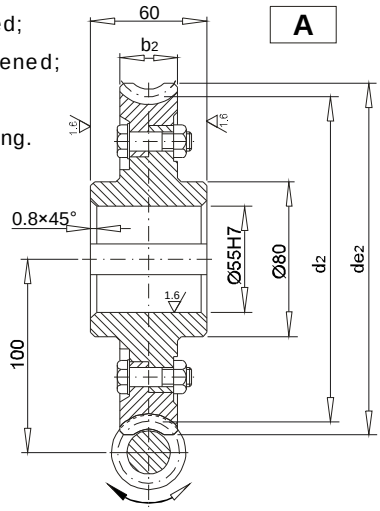
Mounting dimensions

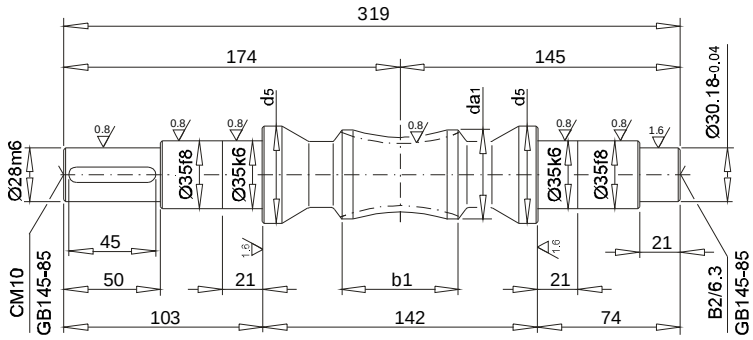
worm and wheel sets
worm with finish-machined shaft
size 100

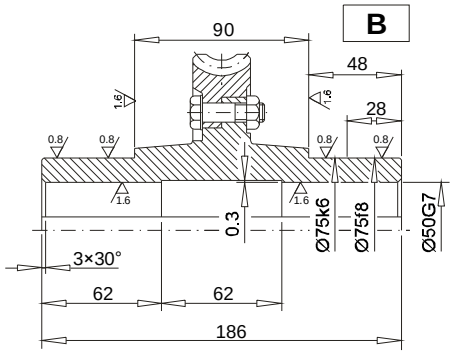
蜗杆齿面经硬化处理；
蜗杆轴经硬化处理；
蜗轮副已经精加工；
右旋蜗轮副。

surface hardened;
worm shaft hardened;
finish machine;
right-hand gearing.









传动比 ratio	蜗杆轴 worm shaft				蜗轮 worm wheel				重量 weight [kg]		
i	Z_1	da_1 mm	d_5 mm	b_1 mm	Z_2	de_2 mm	d_2 mm	b_2 mm	蜗杆轴 worm shaft	蜗轮 A worm wheel A	蜗轮 B worm wheel B
10.25	4	57.93	50	53	41	161	152	37	2.5	4.4	7.4
13.33	3	54.48	50	50	40	165	155	34	2.4	4.4	7.4
16.5	2	55.86	50	53	33	166	155	33	2.5	4.4	7.4
20.5	2	55.37	50	55	41	165	155	34	2.4	4.5	7.5
25.5	2	51.15	50	50	51	166	158	32	2.4	4.3	7.3
33	1	56.06	50	54	33	166	155	32	2.5	4.4	7.4
40	1	55.94	50	57	40	165	155	32	2.5	4.4	7.4
50	1	50.60	50	50	50	166	158	32	2.4	4.3	7.3
62	1	49.85	50	49	62	165	158	33	2.2	4.5	7.5

键联接标准按GB/T1801-1999
轮毂槽公差按GB/T1095-1979 Js9
轴键槽公差按GB/T1095-1979 N9

keyways accord toGB/T1801-1999
tolerance zone for hub keyway widthGB/T1095-1979 Js9
tolerance zone for shaft keyway width:GB/T1095-1979 N9

安装尺寸

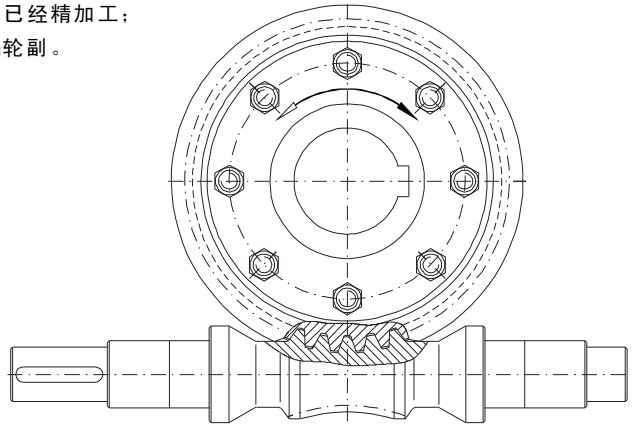
蜗轮蜗杆副
蜗轮及成型蜗杆
规格 **125**

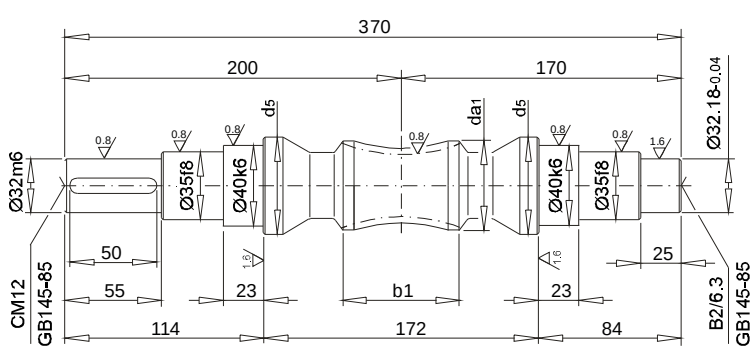
Mounting dimensions

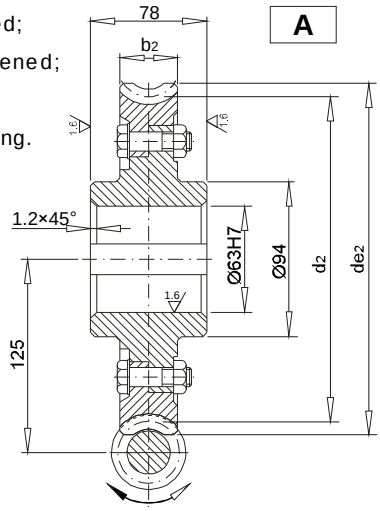
worm and wheel sets
worm with finish-machined shaft
size 125

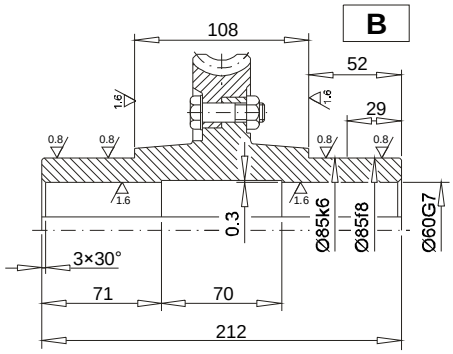
蜗杆齿面经硬化处理；
蜗杆轴经硬化处理；
蜗轮副已经精加工；
右旋蜗轮副。

surface hardened;
worm shaft hardened;
finish machine;
right-hand gearing.









传动比 ratio	蜗杆轴 worm shaft				蜗轮 worm wheel				重量 weight [kg]		
i	Z_1	da_1 mm	d_5 mm	b_1 mm	Z_2	de_2 mm	d_2 mm	b_2 mm	蜗杆轴 worm shaft	蜗轮 A worm wheel A	蜗轮 B worm wheel B
10.25	4	71.51	55	67	41	204	192	44	3.8	7.8	11.1
13.33	3	65.24	55	65	40	210	198	38	3.7	7.8	11.1
16.5	2	66.76	55	68	33	212	198	37	3.8	7.9	11.2
20	2	64.71	55	72	40	212	200	35	3.7	7.9	11.2
25.5	2	56.74	55	64	51	215	205	35	3.7	7.8	11.1
33	1	68.22	55	69	33	212	197	35	3.9	7.9	11.2
40	1	64.71	55	72	40	212	200	35	3.8	7.8	11.1
50	1	61.84	55	64	50	210	200	36	3.7	7.8	11.1
62	1	58.72	55	62	62	210	202	36	3.5	8.0	11.3

键联接标准按GB/T1801-1999
轮毂槽公差按GB/T1095-1979 Js9
轴键槽公差按GB/T1095-1979 N9

keyways accord toGB/T1801-1999
tolerance zone for hub keyway widthGB/T1095-1979 Js9
tolerance zone for shaft keyway width:GB/T1095-1979 N9

承载能力
蜗轮蜗杆副
规格 **140**

Rated power and torques
worm and wheel sets
size 140

i	n_1	n_2	P_{1N}	T_{2N}	η
	rpm	rpm	KW	N.m	%
10.25	1500	146	25.90	1555	92.0
	1000	98	23.90	2152	92.0
	750	73	20.10	2387	91.0
	500	49	16.20	2823	89.0
13.33	1500	113	22.70	1753	91.0
	1000	75	20.30	2352	91.0
	750	56	16.70	2551	90.0
	500	38	12.70	2845	88.0
16.5	1500	91	19.20	1815	90.0
	1000	61	17.40	2468	90.0
	750	45	14.10	2637	89.0
	500	30	10.90	2954	86.0
20.5	1500	73	16.20	1861	88.0
	1000	49	13.90	2395	88.0
	750	37	11.50	2612	87.0
	500	24	8.99	2957	84.0
25.5	1500	59	13.30	1879	87.0
	1000	39	11.40	2415	87.0
	750	29	9.69	2674	85.0
	500	20	7.27	2868	81.0
32	1500	47	10.70	1788	82.0
	1000	31	9.39	2353	82.0
	750	23	6.96	2297	81.0
	500	16	6.06	2833	76.5
40	1500	38	8.78	1744	78.0
	1000	25	7.27	2166	78.0
	750	19	6.36	2494	77.0
	500	13	4.69	2616	73.0
50	1500	30	7.12	1700	75.0
	1000	20	6.21	2224	75.0
	750	15	5.15	2426	74.0
	500	10	3.94	2634	70.0
64	1500	23	6.51	1910	72.0
	1000	16	5.60	2464	72.0
	750	12	5.14	2974	71.0
	500	8	4.24	3473	67.0

注意事项:
瞬时最大许用转矩T2MAX=2.5XT2N;
瞬时最大许用转矩持续时间小于15秒;
瞬时最大许用转矩启动时间小于3秒.

承载能力
蜗轮蜗杆副
规格 **160**

Rated power and torques
worm and wheel sets
size 160

i	n_1	n_2	P_{1N}	T_{2N}	η
	rpm	rpm	KW	N.m	%
10.25	1500	146	35.70	2143	92.0
	1000	98	33.00	2972	92.0
	750	73	27.80	3302	91.0
	500	49	22.40	3903	89.0
14.33	1500	105	29.00	2408	91.0
	1000	70	26.10	3250	91.0
	750	52	21.30	3478	89.5
	500	35	16.30	3904	87.5
17.5	1500	86	24.40	2433	89.5
	1000	57	20.90	3109	89.0
	750	43	17.60	3451	88.0
	500	29	13.40	3807	85.0
21.5	1500	70	22.40	2698	88.0
	1000	47	19.20	3469	88.0
	750	35	15.90	3787	87.0
	500	23	12.30	4243	84.0
26.5	1500	57	20.50	3009	87.0
	1000	38	17.60	3875	87.0
	750	28	14.60	4212	85.5
	500	19	11.30	4690	82.0
33	1500	45	14.80	2550	82.0
	1000	30	13.00	3359	82.0
	750	23	9.61	3271	81.0
	500	15	8.36	4031	76.5
40	1500	38	12.10	2404	78.0
	1000	25	10.00	2980	78.0
	750	19	8.78	3443	77.0
	500	13	6.48	3614	73.0
50	1500	30	9.82	2345	75.0
	1000	20	8.57	3069	75.0
	750	15	7.10	3345	74.0
	500	10	5.43	3630	70.0
65	1500	23	7.94	2366	72.0
	1000	15	7.10	3173	72.0
	750	12	6.48	3808	71.0
	500	8	4.39	3652	67.0

ATTENTION:
Briefly permissible maximum torque T2MAX=2.5XT2N ;
Briefly permissible maximum torque constant time less than 15s;
Briefly permissible maximum torque start time less than 3s.

安装尺寸

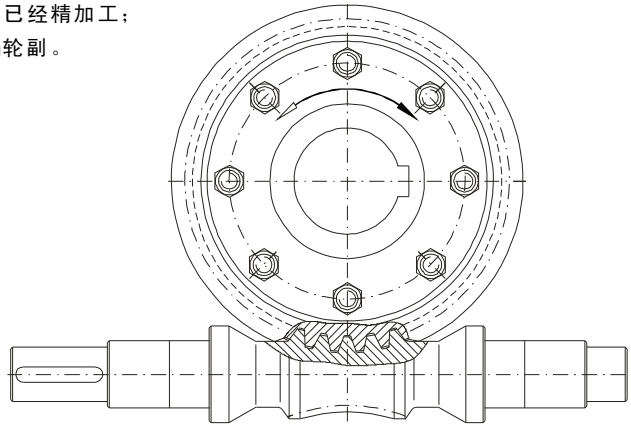
蜗轮蜗杆副
蜗轮及成型蜗杆
规格 **140**

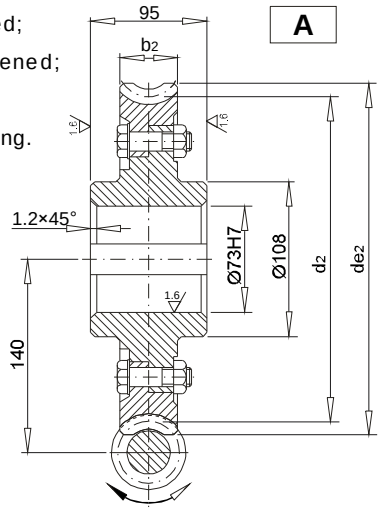
Mounting dimensions

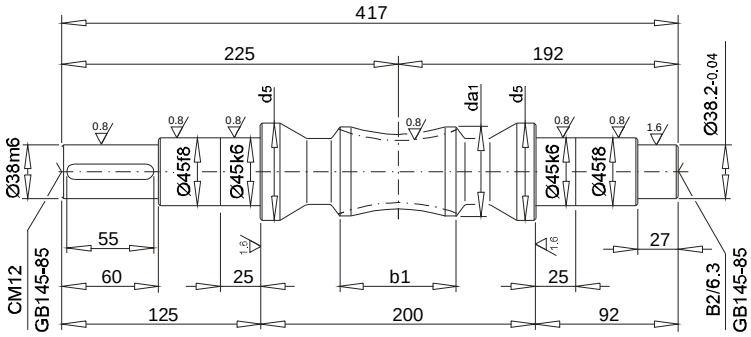
worm and wheel sets
worm with finish-machined shaft
size 140

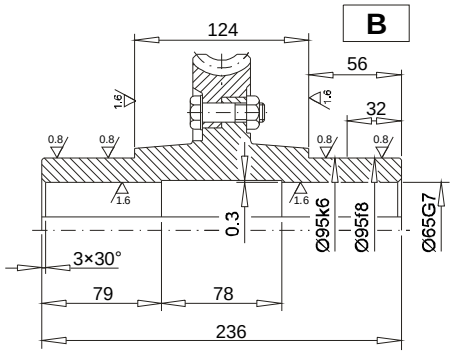
蜗杆齿面经硬化处理；
蜗杆轴经硬化处理；
蜗轮副已经精加工；
右旋蜗轮副。

surface hardened;
worm shaft hardened;
finish machine;
right-hand gearing.









传动比 ratio	蜗杆轴 worm shaft				蜗轮 worm wheel				重量 weight [kg]		
i	Z_1	da_1 mm	d_5 mm	b_1 mm	Z_2	de_2 mm	d_2 mm	b_2 mm	蜗杆轴 worm shaft	蜗轮 A worm wheel A	蜗轮 B worm wheel B
10.25	4	78.70	60	68	41	228	215	45	5.7	12.2	17.4
13.33	3	76.38	60	70	40	232	218	45	5.7	12.0	17.2
16.5	2	76.54	60	75	33	236	220	42	6.0	12.2	17.4
20.5	2	72.22	60	70	41	235	222	42	5.8	12.1	17.3
25.5	2	68.16	60	70	51	236	225	42	5.7	11.9	17.1
32	1	73.00	60	80	32	239	225	38	6.0	12.2	17.4
40	1	71.46	60	73	40	238	224	42	5.8	12.1	17.3
50	1	63.99	60	74	50	242	230	38	5.7	11.9	17.1
64	1	62.79	60	73	64	239	230	38	5.2	12.3	17.5

键联接标准按GB/T1801-1999
轮毂槽公差按GB/T1095-1979 Js9
轴键槽公差按GB/T1095-1979 N9

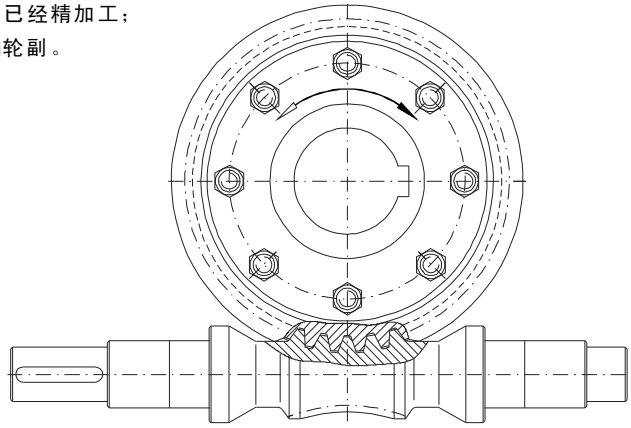
keyways accord toGB/T1801-1999
tolerance zone for hub keyway widthGB/T1095-1979 Js9
tolerance zone for shaft keyway width:GB/T1095-1979 N9

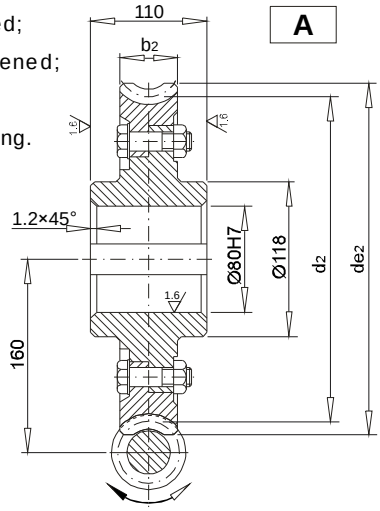
安装尺寸
蜗轮蜗杆副
蜗轮及成型蜗杆
规格 **160**

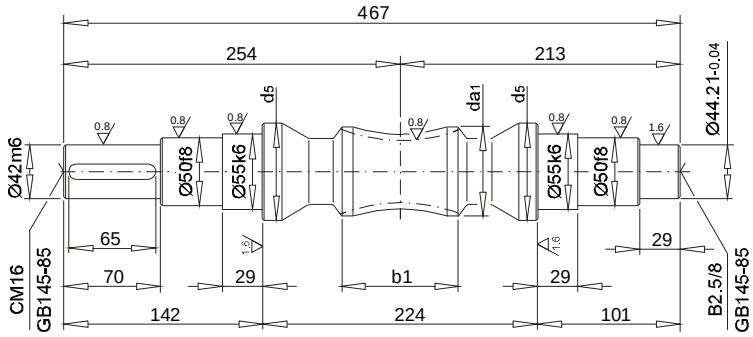
Mounting dimensions
worm and wheel sets
worm with finish-machined shaft
size 160

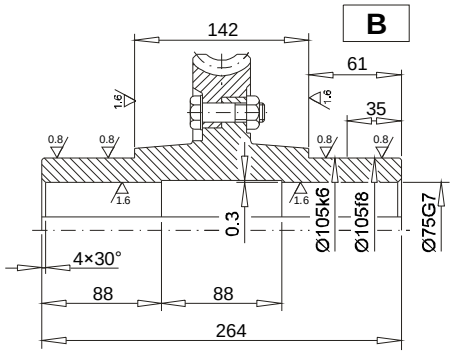
蜗杆齿面经硬化处理；
蜗杆轴经硬化处理；
蜗轮副已经精加工；
右旋蜗轮副。

surface hardened;
worm shaft hardened;
finish machine;
right-hand gearing.









传动比 ratio	蜗杆轴 worm shaft				蜗轮 worm wheel				重量 weight [kg]		
i	Z_1	da_1 mm	d_5 mm	b_1 mm	Z_2	de_2 mm	d_2 mm	b_2 mm	蜗杆轴 worm shaft	蜗轮 A worm wheel A	蜗轮 B worm wheel B
10.25	4	86.31	70	80	41	265	250	52	8.3	16.8	23.3
14.33	3	82.36	70	85	43	270	255	48	8.2	16.5	23.1
17.5	2	83.35	70	84	35	273	255	45	8.5	17.2	23.5
21.5	2	79.37	70	86	43	273	258	45	8.3	16.6	23.1
26.5	2	76.22	70	85	53	272	260	45	8.3	16.5	23.1
33	1	80.03	70	89	33	280	260	40	8.6	17.1	23.1
40	1	76.06	70	85	40	278	262	40	8.3	16.6	23.1
50	1	71.16	70	84	50	278	265	40	8.3	16.4	23.1
65	1	66.87	70	84	65	278	268	40	7.9	16.6	23.1

键联接标准按GB/T1801-1999
轮毂槽公差按GB/T1095-1979 Js9
轴键槽公差按GB/T1095-1979 N9

keyways accord toGB/T1801-1999
tolerance zone for hub keyway widthGB/T1095-1979 Js9
tolerance zone for shaft keyway width:GB/T1095-1979 N9

承载能力
蜗轮蜗杆副
规格 **180**

Rated power and torques
worm and wheel sets
size 180

i	n_1	n_2	P_{1N}	T_{2N}	η
	rpm	rpm	KW	N.m	%
10	1500	150	47.50	2812	93.0
	1000	100	43.90	3899	93.0
	750	75	36.90	4323	92.0
	500	50	29.70	5105	90.0
12.5	1500	120	41.70	3070	92.5
	1000	80	37.20	4108	92.5
	750	60	30.50	4442	91.5
	500	40	23.30	4951	89.0
16	1500	94	35.30	3272	91.0
	1000	63	31.90	4436	91.0
	750	47	25.80	4731	90.0
	500	31	20.00	5317	87.0
20	1500	75	29.70	3385	89.5
	1000	50	25.50	4359	89.5
	750	38	21.10	4782	89.0
	500	25	16.40	5325	85.0
25	1500	60	24.40	3418	88.0
	1000	40	20.80	4370	88.0
	750	30	17.80	4873	86.0
	500	20	13.30	5176	81.5
33	1500	45	19.70	3435	83.0
	1000	30	17.20	4499	83.0
	750	23	12.80	4410	82.0
	500	15	11.10	5387	77.0
40	1500	38	16.10	3239	79.0
	1000	25	13.30	4014	79.0
	750	19	11.70	4648	78.0
	500	13	8.61	4868	74.0
50	1500	30	13.10	3169	76.0
	1000	20	11.40	4137	76.0
	750	15	9.44	4508	75.0
	500	10	7.22	4896	71.0
63	1500	24	10.60	3090	73.0
	1000	16	9.44	4147	73.0
	750	12	8.61	4972	72.0
	500	8	5.83	4771	68.0

注意事项:
瞬时最大许用转矩T2MAX=2.5XT2N;
瞬时最大许用转矩持续时间小于15秒;
瞬时最大许用转矩启动时间小于3秒.

承载能力
蜗轮蜗杆副
规格 **200**

Rated power and torques
worm and wheel sets
size 200

i	n_1	n_2	P_{1N}	T_{2N}	η
	rpm	rpm	KW	N.m	%
10	1500	150	61.20	3624	93.0
	1000	100	56.60	5027	93.0
	750	75	47.60	5576	92.0
	500	50	38.30	6584	90.0
12.5	1500	120	53.70	3953	92.5
	1000	80	48.00	5300	92.5
	750	60	39.40	5738	91.5
	500	40	30.10	6396	89.0
16	1500	94	45.50	4218	91.0
	1000	63	41.20	5729	91.0
	750	47	33.30	6106	90.0
	500	31	25.80	6859	87.0
20	1500	75	38.30	4365	89.5
	1000	50	32.90	5624	89.5
	750	38	27.20	6165	89.0
	500	25	21.10	6851	85.0
25	1500	60	31.50	4412	88.0
	1000	40	26.90	5652	88.0
	750	30	22.90	6269	86.0
	500	20	17.20	6694	81.5
31.5	1500	48	25.40	4429	83.0
	1000	32	22.20	5807	83.0
	750	24	16.50	5685	82.0
	500	16	14.30	6940	77.0
40	1500	38	20.80	4185	79.0
	1000	25	17.20	5191	79.0
	750	19	15.00	5959	78.0
	500	13	11.10	6275	74.0
50	1500	30	16.80	4064	76.0
	1000	20	14.70	5335	76.0
	750	15	12.20	5826	75.0
	500	10	9.31	6313	71.0
63	1500	24	13.60	3982	73.0
	1000	16	12.20	5358	73.0
	750	12	11.10	6411	72.0
	500	8	7.52	6153	68.0

ATTENTION:
Briefly permissible maximum torque T2MAX=2.5XT2N ;
Briefly permissible maximum torque constant time less than 15s;
Briefly permissible maximum torque start time less than 3s.

安装尺寸

蜗轮蜗杆副

蜗轮及成型蜗杆

规格 **180**

Mounting dimensions

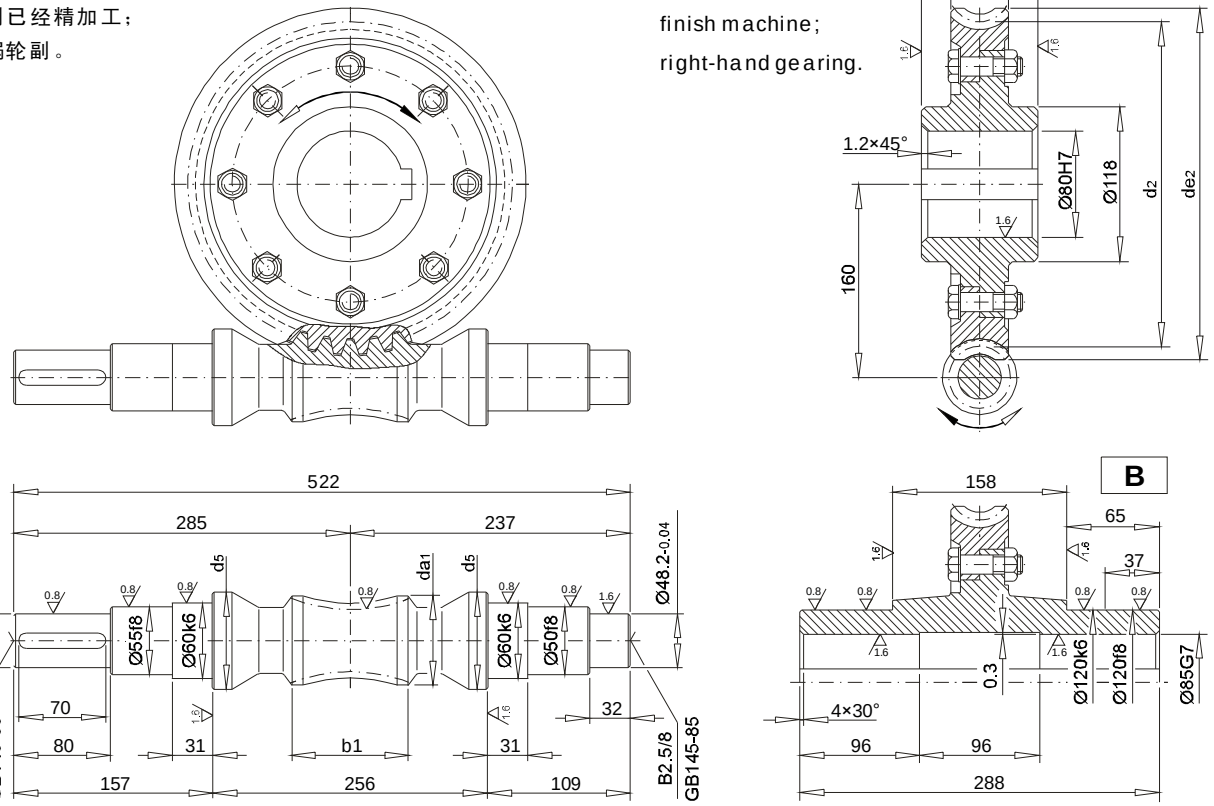
worm and wheel sets

worm with finish-machined shaft

size 180

蜗杆齿面经硬化处理；
蜗杆轴经硬化处理；
蜗轮副已经精加工；
右旋蜗轮副。

surface hardened;
worm shaft hardened;
finish machine;
right-hand gearing.



传动比 ratio	蜗杆轴 worm shaft				蜗轮 worm wheel				重量 weight [kg]		
i	Z_1	da_1 mm	d_5 mm	b_1 mm	Z_2	de_2 mm	d_2 mm	b_2 mm	蜗杆轴 worm shaft	蜗轮 A worm wheel A	蜗轮 B worm wheel B
10	4	106.60	75	89	40	289	272	65	11.7	25.4	34.7
12.5	4	97.13	75	89	50	294	280	62	11.3	25.2	34.5
16	3	92.96	75	91	48	300	285	58	11.7	25.8	35.1
20	2	94.19	75	92	40	302	285	55	11.4	25.2	34.5
25	2	87.61	75	91	50	304	290	52	11.5	24.9	34.2
33	1	92.91	75	101	33	312	290	48	11.9	25.4	34.7
40	1	82.25	75	97	40	316	298	44	11.6	25.2	34.5
50	1	78.58	75	96	50	315	300	44	11.5	24.9	34.2
63	1	76.31	75	91	63	312	300	45	11.0	25.6	34.7

键联接标准按GB/T1801-1999

轮毂槽公差按GB/T1095-1979 Js9

轴键槽公差按GB/T1095-1979 N9

keyways accord toGB/T1801-1999

tolerance zone for hub keyway widthGB/T1095-1979 Js9

tolerance zone for shaft keyway width:GB/T1095-1979 N9

安装尺寸

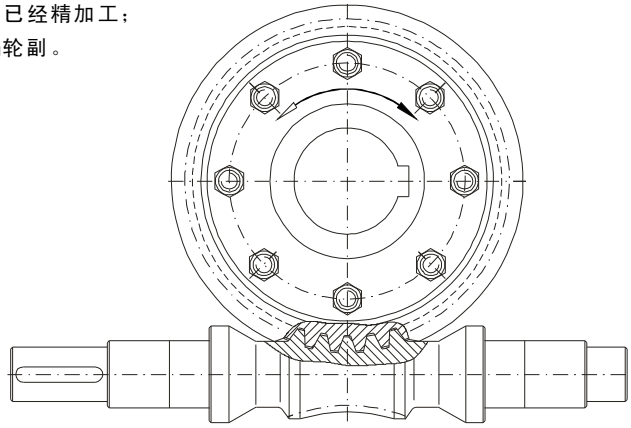
蜗轮蜗杆副
蜗轮及成型蜗杆
规格 **200**

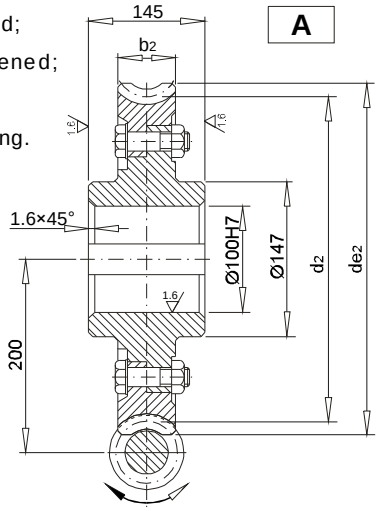
Mounting dimensions

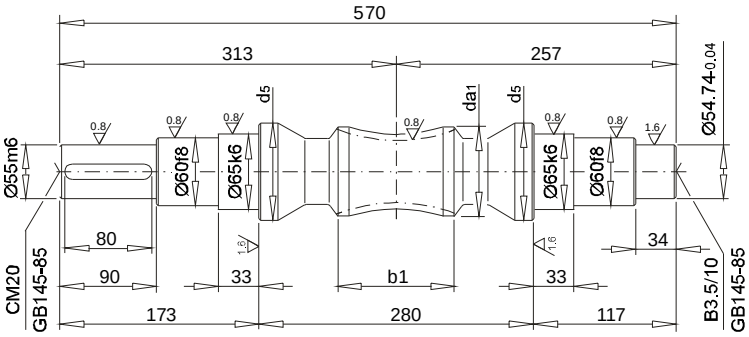
worm and wheel sets
worm with finish-machined shaft
size 200

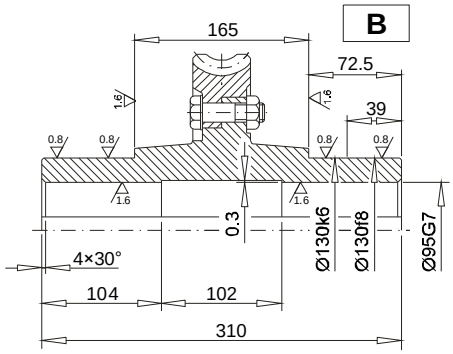
蜗杆齿面经硬化处理；
蜗杆轴经硬化处理；
蜗轮副已经精加工；
右旋蜗轮副。

surface hardened;
worm shaft hardened;
finish machine;
right-hand gearing.









传动比 ratio	蜗杆轴 worm shaft				蜗轮 worm wheel				重量 weight [kg]		
i	z_1	da_1 mm	d_5 mm	b_1 mm	z_2	de_2 mm	d_2 mm	b_2 mm	蜗杆轴 worm shaft	蜗轮 A worm wheel A	蜗轮 B worm wheel B
10	4	106.33	80	101	40	334	314	60	15.8	33.0	41.8
12.5	4	104.55	80	100	50	330	315	65	15.0	32.7	41.5
16	3	96.44	80	107	48	342	325	55	15.3	33.4	42.2
20	2	97.38	80	106	40	345	325	52	15.2	33.0	41.8
25	2	95.53	80	105	50	341	325	55	15.0	32.5	41.3
31.5	2	93.10	80	100	63	338	325	58	15.7	33.2	42.0
40	1	92.42	80	106	40	350	330	55	15.3	32.8	41.6
50	1	90.52	80	105	50	346	330	50	15.1	32.6	41.4
63	1	83.52	80	102	63	348	335	48	14.6	33.4	41.2

键联接标准按GB/T1801-1999
轮毂槽公差按GB/T1095-1979 Js9
轴键槽公差按GB/T1095-1979 N9

keyways accord toGB/T1801-1999
tolerance zone for hub keyway widthGB/T1095-1979 Js9
tolerance zone for shaft keyway width:GB/T1095-1979 N9

承载能力
蜗轮蜗杆副
规格 225

Rated power and torques
worm and wheel sets
size 225

i	n_1	n_2	P_{1N}	T_{2N}	η
	rpm	rpm	KW	N.m	%
10	1500	150	81.40	4872	94.0
	1000	100	75.20	6751	94.0
	750	75	63.30	7496	93.0
	500	50	50.90	8847	91.0
12.5	1500	120	71.40	5313	93.5
	1000	80	63.80	7121	93.5
	750	60	52.30	7658	92.0
	500	40	40.00	8595	90.0
16	1500	94	60.40	5661	92.0
	1000	63	54.70	7690	92.0
	750	47	44.30	8213	91.0
	500	31	34.30	9224	88.0
20	1500	75	50.90	5833	90.0
	1000	50	43.80	7529	90.0
	750	38	36.20	8251	89.5
	500	25	28.10	9231	86.0
25	1500	60	41.90	5902	88.5
	1000	40	35.70	7543	88.5
	750	30	30.50	8447	87.0
	500	20	22.80	9036	83.0
31.5	1500	48	33.80	5694	84.0
	1000	32	29.50	7454	84.0
	750	24	21.90	7291	83.0
	500	16	19.00	8916	78.0
40	1500	38	27.60	5623	80.0
	1000	25	22.80	6968	80.0
	750	19	20.00	8047	79.0
	500	13	14.80	8480	75.0
50	1500	30	22.40	5491	77.0
	1000	20	19.50	7170	77.0
	750	15	16.20	7839	76.0
	500	10	12.40	8526	72.0
63	1500	24	18.10	5372	74.0
	1000	16	16.20	7213	74.0
	750	12	14.80	8667	73.0
	500	8	9.99	8294	69.0

注意事项:
瞬时最大许用转矩T2MAX=2.5XT2N;
瞬时最大许用转矩持续时间小于15秒;
瞬时最大许用转矩启动时间小于3秒.

承载能力
蜗轮蜗杆副
规格 250

Rated power and torques
worm and wheel sets
size 250

i	n_1	n_2	P_{1N}	T_{2N}	η
	rpm	rpm	KW	N.m	%
10	1500	150	105	6284	94.0
	1000	100	97.0	8708	94.0
	750	75	81.6	9663	93.0
	500	50	65.7	11419	91.0
12.5	1500	120	92.0	6846	93.5
	1000	80	82.2	9175	93.5
	750	60	67.5	9884	92.0
	500	40	51.5	11066	90.0
16	1500	94	77.9	7301	92.0
	1000	63	70.6	9925	92.0
	750	47	57.1	10586	91.0
	500	31	44.2	11887	88.0
20	1500	75	65.7	7529	90.0
	1000	50	56.5	9712	90.0
	750	38	46.6	10621	89.5
	500	25	36.2	11892	86.0
25	1500	60	54.0	7607	88.5
	1000	40	46.0	9720	88.5
	750	30	39.3	10884	87.0
	500	20	29.5	11832	84.0
31.5	1500	48	43.6	7345	84.0
	1000	32	38.0	9602	84.0
	750	24	28.2	9388	83.0
	500	16	24.5	11498	78.0
40	1500	38	35.6	7253	80.0
	1000	25	29.5	9015	80.0
	750	19	25.8	10381	79.0
	500	13	19.0	10887	75.0
50	1500	30	28.8	7059	77.0
	1000	20	25.2	9265	77.0
	750	15	20.9	10113	76.0
	500	10	16.0	11002	72.0
63	1500	24	23.3	6916	74.0
	1000	16	20.9	9305	74.0
	750	12	19.0	11127	73.0
	500	8	12.9	10711	69.0

ATTENTION:
Briefly permissible maximum torque T2MAX=2.5XT2N ;
Briefly permissible maximum torque constant time less than 15s;
Briefly permissible maximum torque start time less than 3s.

安装尺寸

蜗轮蜗杆副

蜗轮及成型蜗杆

规格 **225**

Mounting dimensions

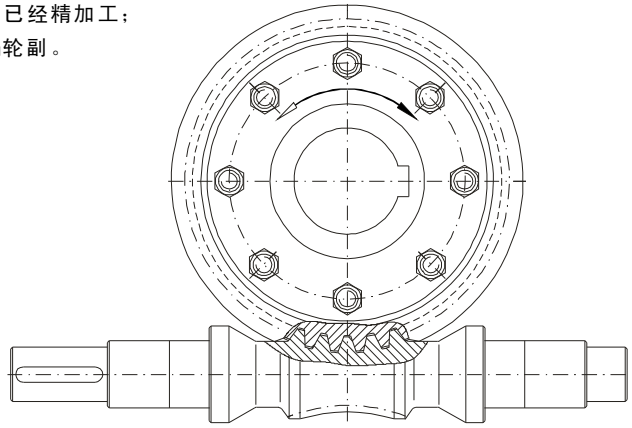
worm and wheel sets

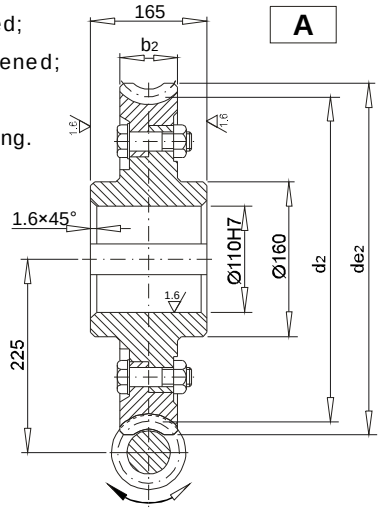
worm with finish-machined shaft

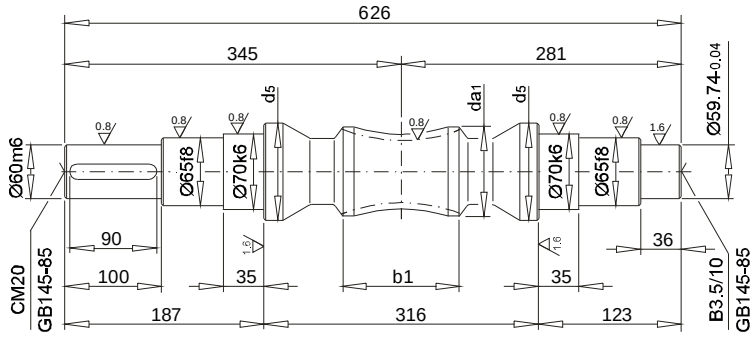
size 225

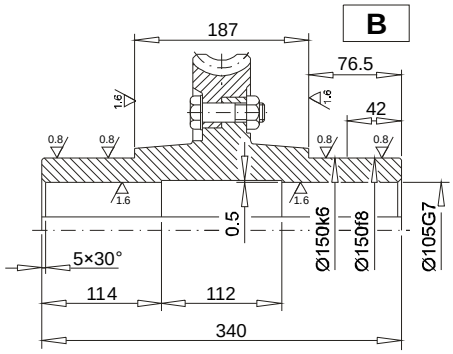
蜗杆齿面经硬化处理；
蜗杆轴经硬化处理；
蜗轮副已经精加工；
右旋蜗轮副。

surface hardened;
worm shaft hardened;
finish machine;
right-hand gearing.









传动比 ratio	蜗杆轴 worm shaft				蜗轮 worm wheel				重量 weight [kg]		
i	z_1	da_1 mm	d_5 mm	b_1 mm	z_2	de_2 mm	d_2 mm	b_2 mm	蜗杆轴 worm shaft	蜗轮 A worm wheel A	蜗轮 B worm wheel B
10	4	124.00	85	113	40	371	350	73	20.3	47.5	63.5
12.5	4	117.48	85	114	50	372	355	72	19.6	47.3	63.3
16	3	117.91	85	114	48	373	355	70	20.2	48.3	64.3
20	2	114.56	85	116	40	382	360	64	19.5	47.7	63.7
25	2	107.96	85	116	50	383	365	62	19.5	47.1	63.1
31.5	2	100.74	85	113	63	384	370	60	20.6	47.5	63.5
40	1	101.14	85	122	40	398	375	52	20.0	47.3	63.3
50	1	98.44	85	119	50	393	375	54	19.7	47.0	63.0
63	1	91.16	85	116	63	395	380	52	19.2	48.2	64.2

键联接标准按GB/T1801-1999

轮毂槽公差按GB/T1095-1979 Js9

轴键槽公差按GB/T1095-1979 N9

keyways accord toGB/T1801-1999

tolerance zone for hub keyway width:GB/T1095-1979 Js9

tolerance zone for shaft keyway width:GB/T1095-1979 N9

安装尺寸

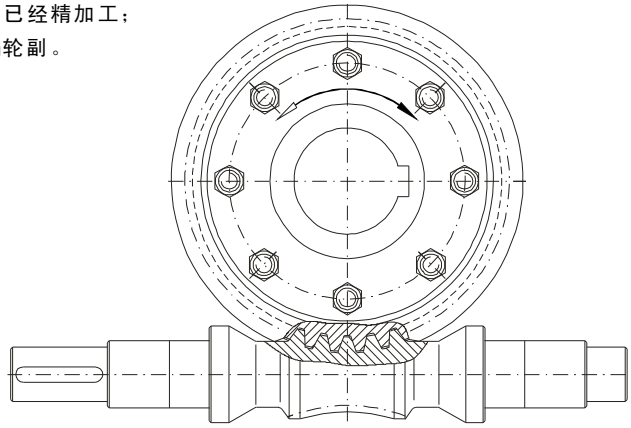
蜗轮蜗杆副
蜗轮及成型蜗杆
规格 **250**

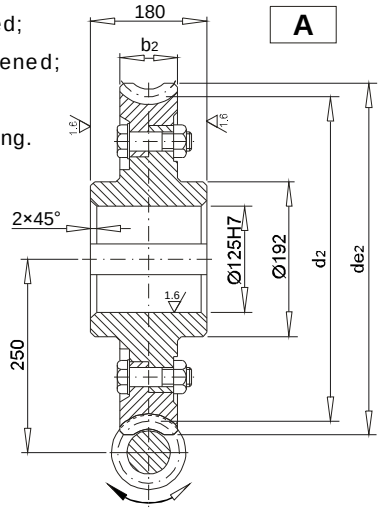
Mounting dimensions

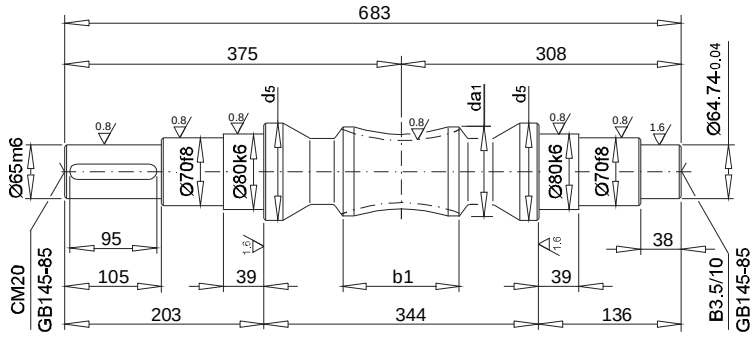
worm and wheel sets
worm with finish-machined shaft
size 250

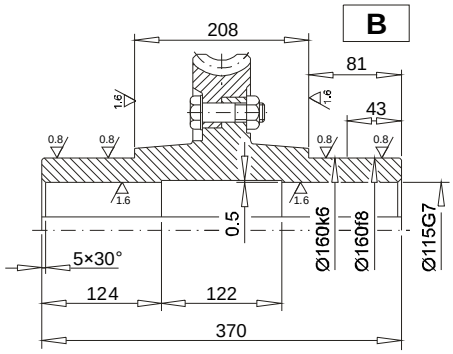
蜗杆齿面经硬化处理；
蜗杆轴经硬化处理；
蜗轮副已经精加工；
右旋蜗轮副。

surface hardened;
worm shaft hardened;
finish machine;
right-hand gearing.









传动比 ratio	蜗杆轴 worm shaft				蜗轮 worm wheel				重量 weight [kg]		
i	Z_1	da_1 mm	d_5 mm	b_1 mm	Z_2	de_2 mm	d_2 mm	b_2 mm	蜗杆轴 worm shaft	蜗轮 A worm wheel A	蜗轮 B worm wheel B
10	4	131.94	95	100	40	420	395	75	26.8	66.4	79.4
12.5	4	125.08	95	100	50	420	400	75	25.7	66.1	79.1
16	3	122.10	95	100	48	426	405	70	26.6	67.7	80.7
20	2	118.53	95	100	40	435	410	62	26.0	66.5	79.5
25	2	115.56	95	100	50	430	410	65	25.6	65.7	78.7
31.5	2	108.08	95	90	63	431	415	65	26.9	67.1	80.1
40	1	113.54	95	100	40	437	415	58	26.1	66.5	79.5
50	1	106.55	95	90	50	442	420	58	25.8	65.7	78.7
63	1	103.05	95	90	63	436	420	60	25.3	67.4	80.4

键联接标准按GB/T1801-1999
轮毂槽公差按GB/T1095-1979 Js9
轴键槽公差按GB/T1095-1979 N9

keyways accord toGB/T1801-1999
tolerance zone for hub keyway widthGB/T1095-1979 Js9
tolerance zone for shaft keyway width:GB/T1095-1979 N9

承载能力
蜗轮蜗杆副
规格 **280**

Rated power and torques
worm and wheel sets
size 280

i	n_1	n_2	P_{1N}	T_{2N}	η
	rpm	rpm	KW	N.m	%
10	1500	150	138.00	8347	95.0
	1000	100	127.00	11522	95.0
	750	75	107.00	12807	94.0
	500	50	86.30	15165	92.0
12.5	1500	120	121.00	9100	94.5
	1000	80	108.00	12183	94.5
	750	60	88.70	13130	93.0
	500	40	67.80	14730	91.0
16	1500	94	102.00	9663	93.0
	1000	63	92.80	13187	93.0
	750	47	75.00	14058	92.0
	500	31	58.10	15802	89.0
20	1500	75	86.30	10000	91.0
	1000	50	74.20	12897	91.0
	750	38	61.30	14050	90.0
	500	25	47.60	15819	87.0
25	1500	60	71.00	10058	89.0
	1000	40	60.50	12855	89.0
	750	30	51.60	14455	88.0
	500	20	38.70	15707	85.0
31.5	1500	48	57.30	9768	85.0
	1000	32	50.00	12785	85.0
	750	24	37.10	12500	84.0
	500	16	32.30	15352	79.0
40	1500	38	46.80	9654	81.0
	1000	25	38.70	11975	81.0
	750	19	33.90	13813	80.0
	500	13	25.00	14516	76.0
50	1500	30	37.90	9411	78.0
	1000	20	33.10	12328	78.0
	750	15	27.40	13432	77.0
	500	10	21.00	14640	73.0
63	1500	24	30.70	9235	75.0
	1000	16	27.40	12364	75.0
	750	12	25.00	14841	74.0
	500	8	16.90	14235	70.0

注意事项:
瞬时最大许用转矩T2MAX=2.5XT2N;
瞬时最大许用转矩持续时间小于15秒;
瞬时最大许用转矩启动时间小于3秒.

承载能力
蜗轮蜗杆副
规格 **315**

Rated power and torques
worm and wheel sets
size 315

i	n_1	n_2	P_{1N}	T_{2N}	η
	rpm	rpm	KW	N.m	%
10	1500	150	183.0	11068	95.0
	1000	100	169.0	15333	95.0
	750	75	143.0	17116	94.0
	500	50	115.0	20208	92.0
12.5	1500	120	161.0	12108	94.5
	1000	80	144.0	16245	94.5
	750	60	118.0	17467	93.0
	500	40	90.00	19554	91.0
16	1500	94	136.0	12884	93.0
	1000	63	123.0	17479	93.0
	750	47	99.70	18687	92.0
	500	31	77.20	20997	89.0
20	1500	75	115.0	13325	91.0
	1000	50	98.60	17138	91.0
	750	38	81.50	18680	90.0
	500	25	63.20	21004	87.0
25	1500	60	94.30	13358	89.0
	1000	40	80.40	17084	89.0
	750	30	68.60	19217	88.0
	500	20	51.50	20903	85.0
31.5	1500	48	66.50	11336	85.0
	1000	32	60.00	15342	85.0
	750	24	51.50	17352	84.0
	500	16	40.70	19345	79.0
40	1500	38	62.20	12831	81.0
	1000	25	51.50	15935	81.0
	750	19	45.00	18336	80.0
	500	13	33.20	19277	76.0
50	1500	30	50.40	12514	78.0
	1000	20	43.90	16351	78.0
	750	15	36.40	17844	77.0
	500	10	27.90	19450	73.0
63	1500	24	40.70	12244	75.0
	1000	16	36.40	16425	75.0
	750	12	33.20	19708	74.0
	500	8	22.50	18952	70.0

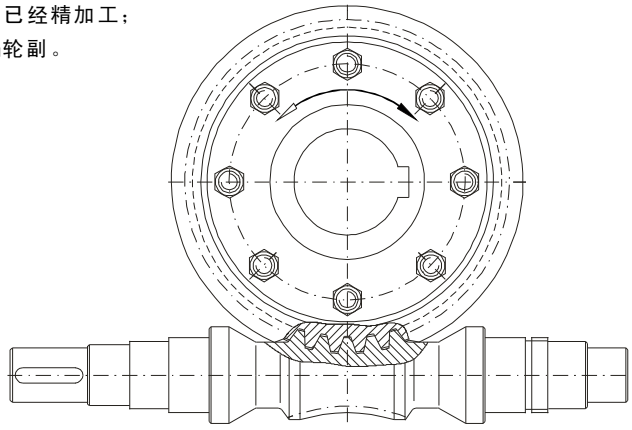
ATTENTION:
Briefly permissible maximum torque T2MAX=2.5XT2N ;
Briefly permissible maximum torque constant time less than 15s;
Briefly permissible maximum torque start time less than 3s.

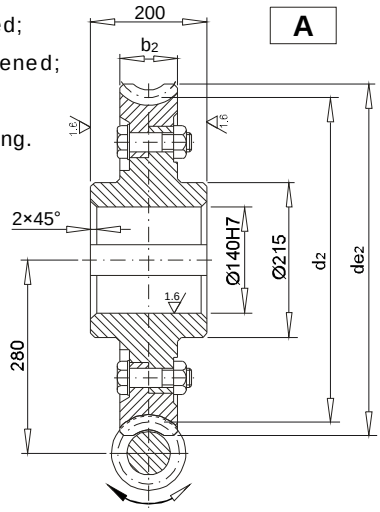
安装尺寸
蜗轮蜗杆副
蜗轮及成型蜗杆
规格 **280**

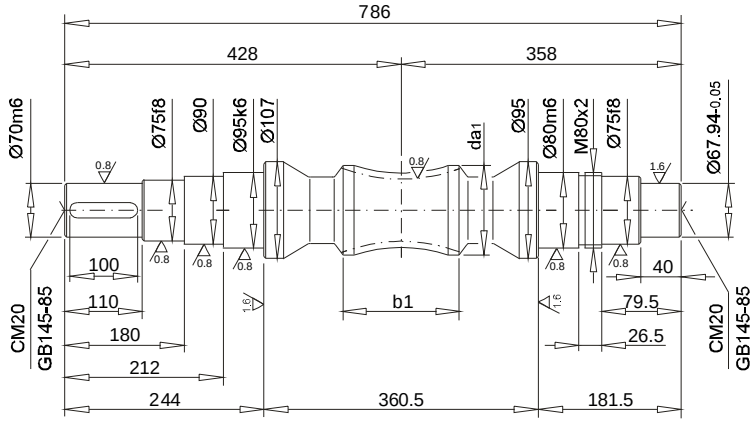
Mounting dimensions
worm and wheel sets
worm with finish-machined shaft
size 280

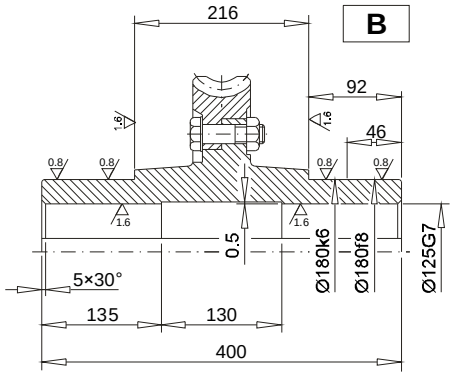
蜗杆齿面经硬化处理；
蜗杆轴经硬化处理；
蜗轮副已经精加工；
右旋蜗轮副。

surface hardened;
worm shaft hardened;
finish machine;
right-hand gearing.









传动比 ratio	蜗杆轴 worm shaft			蜗轮 worm wheel				重量 weight [kg]		
i	Z_1	da_1 mm	b_1 mm	Z_2	de_2 mm	d_2 mm	b_2 mm	蜗杆轴 worm shaft	蜗轮 A worm wheel A	蜗轮 B worm wheel B
10	4	155.15	141	40	461	435	90	37	88	112
12.5	4	148.02	141	50	461	440	90	36	89	113
16	3	144.57	146	48	468	445	85	37	89	113
20	2	141.24	146	40	477	450	80	36	89	113
25	2	133.48	144	50	477	455	78	35	88	112
31.5	2	125.72	140	63	478	460	75	37	89	113
40	1	127.32	151	40	493	465	65	36	89	113
50	1	119.45	148	50	493	470	65	35	88	112
63	1	111.61	145	63	494	475	65	35	90	114

键联接标准按GB/T1801-1999
轮毂槽公差按GB/T1095-1979 Js9
轴键槽公差按GB/T1095-1979 N9

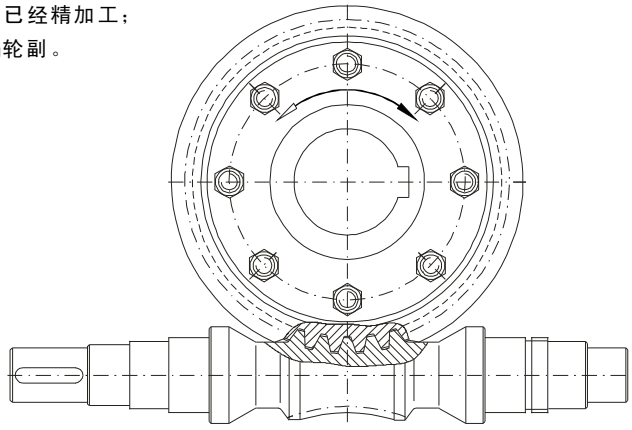
keyways accord toGB/T1801-1999
tolerance zone for hub keyway widthGB/T1095-1979 Js9
tolerance zone for shaft keyway width:GB/T1095-1979 N9

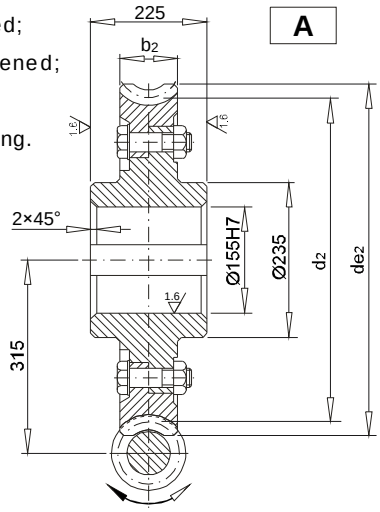
安装尺寸
蜗轮蜗杆副
蜗轮及成型蜗杆
规格 **315**

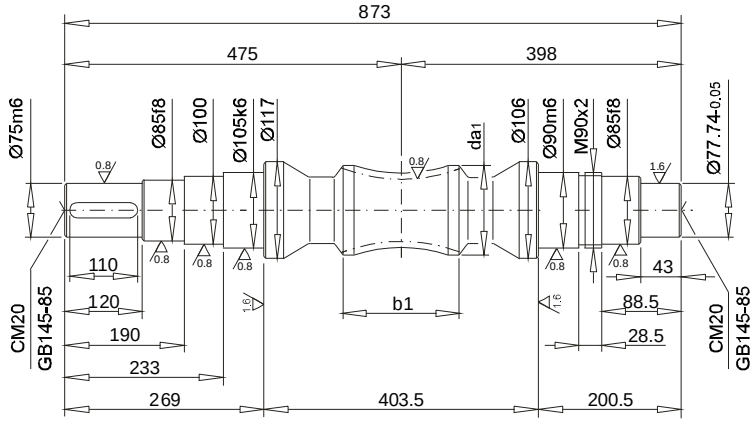
Mounting dimensions
worm and wheel sets
worm with finish-machined shaft
size 315

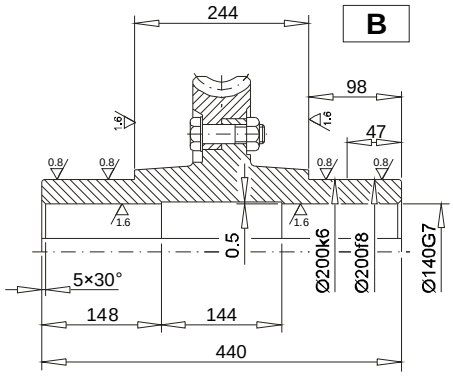
蜗杆齿面经硬化处理；
蜗杆轴经硬化处理；
蜗轮副已经精加工；
右旋蜗轮副。

surface hardened;
worm shaft hardened;
finish machine;
right-hand gearing.









传动比 ratio	蜗杆轴 worm shaft			蜗轮 worm wheel				重量 weight [kg]		
i	Z_1	da_1 mm	b_1 mm	Z_2	de_2 mm	b_2 mm	d_2 mm	蜗杆轴 worm shaft	蜗轮 A worm wheel A	蜗轮 B worm wheel B
10	4	165.01	163	40	530	95	500	50	126	152
12.5	4	161.91	160	50	524	98	500	50	126	152
16	3	154.60	169	48	536	88	510	48	126	152
20	2	155.70	165	40	541	85	510	51	126	152
25	2	143.39	166	50	546	80	520	48	127	153
31.5	2	129.68	160	63	550	75	530	48	124	150
40	1	139.17	172	40	560	70	528	51	125	151
50	1	134.39	171	50	556	70	530	48	127	153
63	1	125.13	162	63	556	70	535	48	124	150

键联接标准按GB/T1801-1999
轮毂槽公差按GB/T1095-1979 Js9
轴键槽公差按GB/T1095-1979 N9

keyways accord toGB/T1801-1999
tolerance zone for hub keyway widthGB/T1095-1979 Js9
tolerance zone for shaft keyway width:GB/T1095-1979 N9

承载能力 Rated power and torques

蜗轮蜗杆副 worm and wheel sets

规格 355 size 355

i	n_1	n_2	P_{1N}	T_{2N}	η
	rpm	rpm	KW	N.m	%
10	1500	150	245.0	14818	95.0
	1000	100	226.0	20504	95.0
	750	75	190.0	22742	94.0
	500	50	153.0	26885	92.0
12.5	1500	120	215.0	16169	94.5
	1000	80	192.0	21659	94.5
	750	60	157.0	23240	93.0
	500	40	120.0	26072	91.0
16	1500	94	182.0	17242	93.0
	1000	63	165.0	23447	93.0
	750	47	133.0	24929	92.0
	500	31	103.0	28014	89.0
20	1500	75	153.0	17729	91.0
	1000	50	132.0	22943	91.0
	750	38	109.0	24983	90.0
	500	25	84.40	28049	87.0
25	1500	60	126.0	17849	89.0
	1000	40	107.0	22736	89.0
	750	30	91.60	25660	88.0
	500	20	68.70	27884	85.0
31.5	1500	48	102.0	17388	85.0
	1000	32	88.70	22681	85.0
	750	24	65.80	22170	84.0
	500	16	57.20	27187	79.0
40	1500	38	83.00	17121	81.0
	1000	25	68.70	21257	81.0
	750	19	60.10	24489	80.0
	500	13	44.30	25722	76.0
50	1500	30	87.20	21652	78.0
	1000	20	58.60	21826	78.0
	750	15	48.60	23825	77.0
	500	10	37.20	25934	73.0
63	1500	24	54.40	16365	75.0
	1000	16	48.60	21930	75.0
	750	12	44.30	26298	74.0
	500	8	30.00	25269	70.0

注意事项:

瞬时最大许用转矩T2MAX=2.5XT2N;

瞬时最大许用转矩持续时间小于15秒;

瞬时最大许用转矩启动时间小于3秒.

承载能力 Rated power and torques

蜗轮蜗杆副 worm and wheel sets

规格 400 size 400

i	n_1	n_2	P_{1N}	T_{2N}	η
	rpm	rpm	KW	N.m	%
10	1500	150	261.0	15786	95.0
	1000	100	241.0	21865	95.0
	750	75	203.0	24298	94.0
	500	50	163.0	28642	92.0
12.5	1500	120	229.0	17222	94.5
	1000	80	205.0	23126	94.5
	750	60	168.0	24868	93.0
	500	40	128.0	27810	91.0
16	1500	94	194.0	18379	93.0
	1000	63	176.0	25010	93.0
	750	47	142.0	26616	92.0
	500	31	110.0	29918	89.0
20	1500	75	163.0	18887	91.0
	1000	50	140.0	24333	91.0
	750	38	116.0	26587	90.0
	500	25	90.10	29944	87.0
25	1500	60	134.0	18982	89.0
	1000	40	114.0	24224	89.0
	750	30	97.70	27369	88.0
	500	20	73.30	29751	85.0
31.5	1500	48	108.0	18410	85.0
	1000	32	94.60	24189	85.0
	750	24	70.20	23652	84.0
	500	16	61.10	29041	79.0
40	1500	38	88.50	18256	81.0
	1000	25	73.30	22680	81.0
	750	19	64.10	26119	80.0
	500	13	47.30	27464	76.0
50	1500	30	71.70	17803	78.0
	1000	20	62.60	23315	78.0
	750	15	51.90	25443	77.0
	500	10	39.70	27677	73.0
63	1500	24	58.00	17448	75.0
	1000	16	51.90	23419	75.0
	750	12	47.30	28079	74.0
	500	8	32.10	27038	70.0

ATTENTION:

Briefly permissible maximum torque T2MAX=2.5XT2N ;

Briefly permissible maximum torque constant time less than 15s;

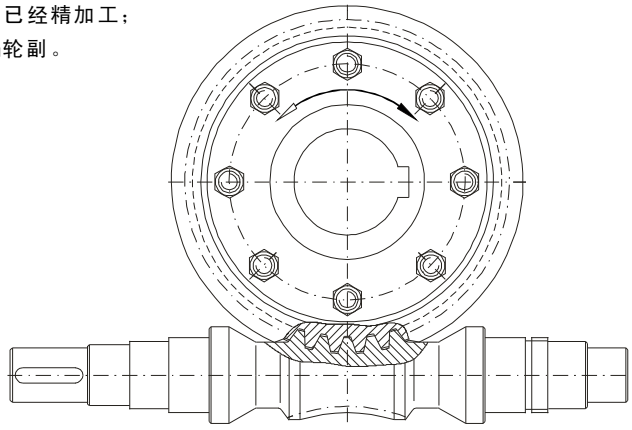
Briefly permissible maximum torque start time less than 3s.

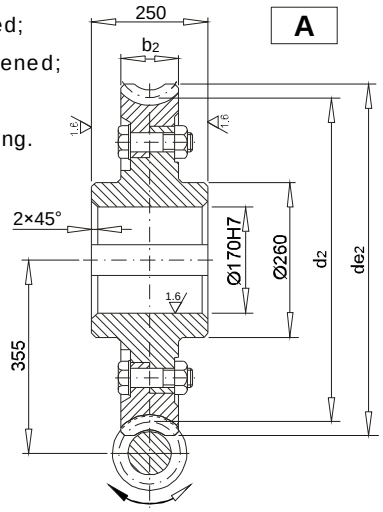
安装尺寸
蜗轮蜗杆副
蜗轮及成型蜗杆
规格 **355**

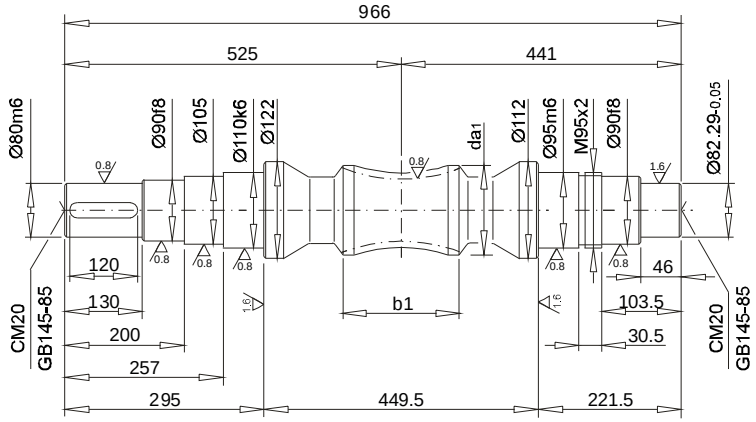
Mounting dimensions
worm and wheel sets
worm with finish-machined shaft
size 355

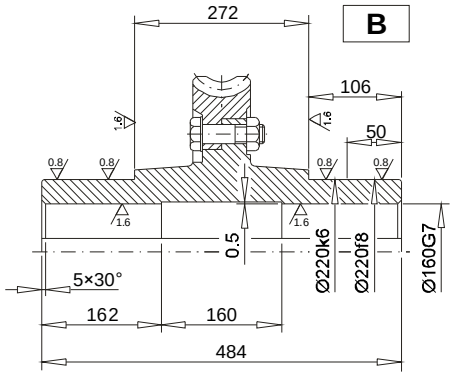
蜗杆齿面经硬化处理；
蜗杆轴经硬化处理；
蜗轮副已经精加工；
右旋蜗轮副。

surface hardened;
worm shaft hardened;
finish machine;
right-hand gearing.









传动比 ratio	蜗杆轴 worm shaft			蜗轮 worm wheel				重量 weight [kg]		
i	Z_1	da_1 mm	b_1 mm	Z_2	de_2 mm	b_2 mm	d_2 mm	蜗杆轴 worm shaft	蜗轮 A worm wheel A	蜗轮 B worm wheel B
10	4	198.48	179	40	583	115	550	66	180	207
12.5	4	180.98	180	50	593	110	565	67	179	206
16	3	177.16	183	48	600	105	570	66	179	206
20	2	179.07	182	40	605	100	570	67	183	206
25	2	166.96	185	50	608	95	580	63	180	203
31.5	2	157.94	178	63	608	95	585	65	179	202
40	1	161.19	191	40	626	82	590	63	180	203
50	1	152.93	189	50	624	82	595	61	180	203
63	1	143.83	183	63	624	82	600	32	178	201

键联接标准按GB/T1801-1999
轮毂槽公差按GB/T1095-1979 Js9
轴键槽公差按GB/T1095-1979 N9

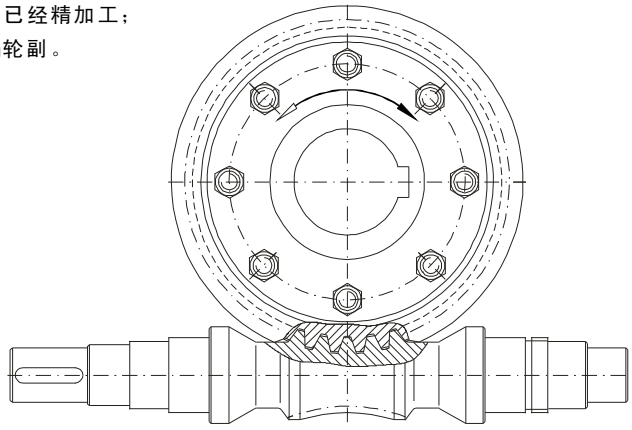
keyways accord toGB/T1801-1999
tolerance zone for hub keyway widthGB/T1095-1979 Js9
tolerance zone for shaft keyway width:GB/T1095-1979 N9

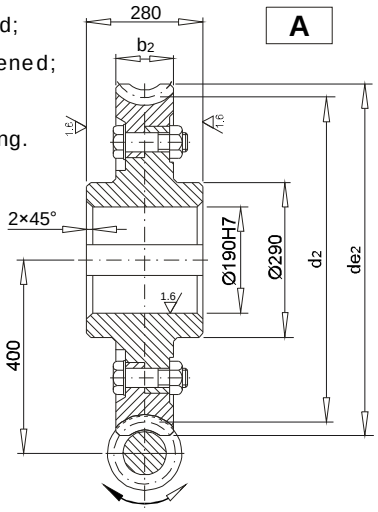
安装尺寸
蜗轮蜗杆副
蜗轮及成型蜗杆
规格 **400**

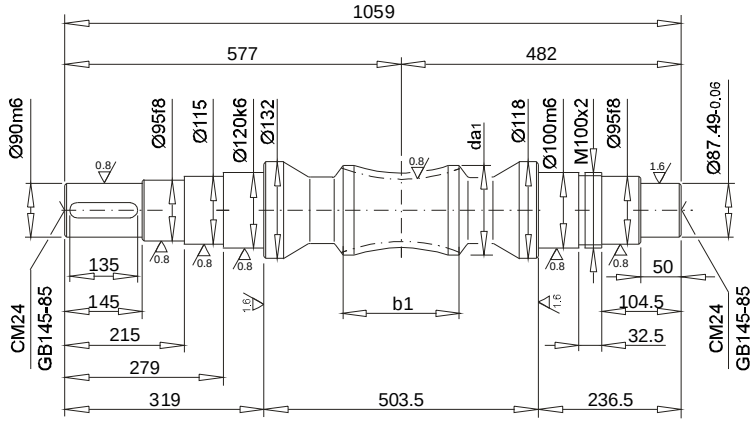
Mounting dimensions
worm and wheel sets
worm with finish-machined shaft
size 400

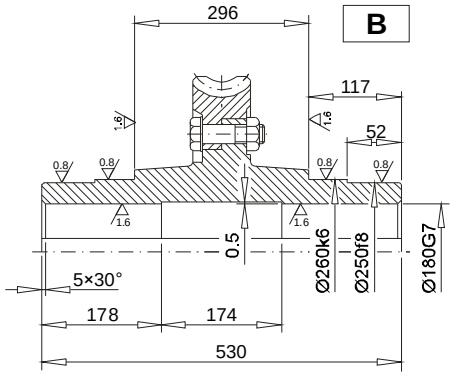
蜗杆齿面经硬化处理；
蜗杆轴经硬化处理；
蜗轮副已经精加工；
右旋蜗轮副。

surface hardened;
worm shaft hardened;
finish machine;
right-hand gearing.









传动比 ratio	蜗杆轴 worm shaft			蜗轮 worm wheel				重量 weight [kg]		
i	Z_1	da_1 mm	b_1 mm	Z_2	de_2 mm	b_2 mm	d_2 mm	蜗杆轴 worm shaft	蜗轮 A worm wheel A	蜗轮 B worm wheel B
10	4	217.49	205	40	668	125	630	87	278	328
12.5	4	204.53	205	50	671	120	640	88	276	326
16	3	199.06	202	48	678	115	645	83	278	328
20	2	203.58	210	40	685	110	645	86	278	330
25	2	194.98	208	50	681	110	650	74	279	328
31.5	2	179.12	196	63	686	105	660	79	278	329
40	1	185.89	217	40	705	92	665	86	278	328
50	1	176.49	214	50	703	92	670	83	278	328
63	1	166.17	205	63	701	92	675	80	278	328

键联接标准按GB/T1801-1999
轮毂槽公差按GB/T1095-1979 Js9
轴键槽公差按GB/T1095-1979 N9

keyways accord toGB/T1801-1999
tolerance zone for hub keyway widthGB/T1095-1979 Js9
tolerance zone for shaft keyway width:GB/T1095-1979 N9

承载能力 Rated power and torques

蜗轮蜗杆副 worm and wheel sets

规格 450 size 450

i	n_1	n_2	P_{1N}	T_{2N}	η
	rpm	rpm	KW	N.m	%
10	1500	150	347.0	20988	95.0
	1000	100	320.0	29032	95.0
	750	75	270.0	32317	94.0
	500	50	217.0	38131	92.0
12.5	1500	120	304.0	22863	94.5
	1000	80	272.0	30684	94.5
	750	60	223.0	33010	93.0
	500	40	170.0	36935	91.0
16	1500	94	258.0	24442	93.0
	1000	63	233.0	33110	93.0
	750	47	189.0	35425	92.0
	500	31	146.0	39710	89.0
20	1500	75	217.0	25145	91.0
	1000	50	187.0	32502	91.0
	750	38	154.0	35297	90.0
	500	25	120.0	39881	87.0
25	1500	60	178.0	25215	89.0
	1000	40	152.0	32298	89.0
	750	30	130.0	36417	88.0
	500	20	97.40	39532	85.0
31.5	1500	48	144.0	24547	85.0
	1000	32	126.0	32218	85.0
	750	24	93.30	31435	84.0
	500	16	81.10	38547	79.0
40	1500	38	118.0	24341	81.0
	1000	25	97.40	30138	81.0
	750	19	85.20	34716	80.0
	500	13	62.90	36522	76.0
50	1500	30	95.30	23663	78.0
	1000	20	83.20	30988	78.0
	750	15	69.00	33826	77.0
	500	10	52.70	36740	73.0
63	1500	24	77.10	23194	75.0
	1000	16	69.00	31135	75.0
	750	12	62.90	37339	74.0
	500	8	42.60	35882	70.0

注意事项:

瞬时最大许用转矩T2MAX=2.5XT2N;

瞬时最大许用转矩持续时间小于15秒;

瞬时最大许用转矩启动时间小于3秒.

承载能力 Rated power and torques

蜗轮蜗杆副 worm and wheel sets

规格 500 size 500

i	n_1	n_2	P_{1N}	T_{2N}	η
	rpm	rpm	KW	N.m	%
10	1500	150	448.0	27097	95.0
	1000	100	413.0	37469	95.0
	750	75	348.0	41653	94.0
	500	50	280.0	49202	92.0
12.5	1500	120	392.0	29481	94.5
	1000	80	351.0	39596	94.5
	750	60	288.0	42631	93.0
	500	40	220.0	47798	91.0
16	1500	94	332.0	31452	93.0
	1000	63	301.0	42773	93.0
	750	47	243.0	45547	92.0
	500	31	188.0	51133	89.0
20	1500	75	280.0	32445	91.0
	1000	50	241.0	41888	91.0
	750	38	199.0	45611	90.0
	500	25	154.0	51180	87.0
25	1500	60	230.0	32581	89.0
	1000	40	196.0	41648	89.0
	750	30	167.0	46782	88.0
	500	20	126.0	51140	85.0
31.5	1500	48	186.0	31707	85.0
	1000	32	162.0	41424	85.0
	750	24	120.0	40431	84.0
	500	16	105.0	49907	79.0
40	1500	38	152.0	31355	81.0
	1000	25	126.0	38987	81.0
	750	19	110.0	44821	80.0
	500	13	81.10	47090	76.0
50	1500	30	123.0	30541	78.0
	1000	20	107.0	39852	78.0
	750	15	88.90	43582	77.0
	500	10	68.00	47406	73.0
63	1500	24	99.40	29902	75.0
	1000	16	88.90	40115	75.0
	750	12	81.10	48143	74.0
	500	8	54.90	46243	70.0

ATTENTION:

Briefly permissible maximum torque T2MAX=2.5XT2N ;

Briefly permissible maximum torque constant time less than 15s;

Briefly permissible maximum torque start time less than 3s.

安装尺寸

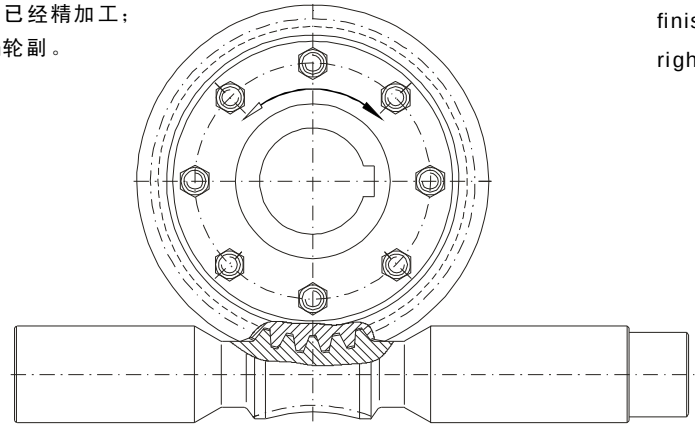
蜗轮蜗杆副
蜗轮及成型蜗杆
规格 **450**

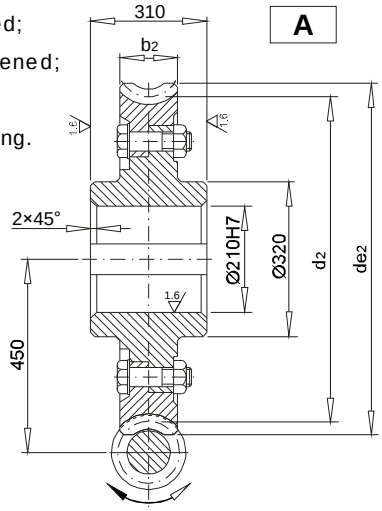
Mounting dimensions

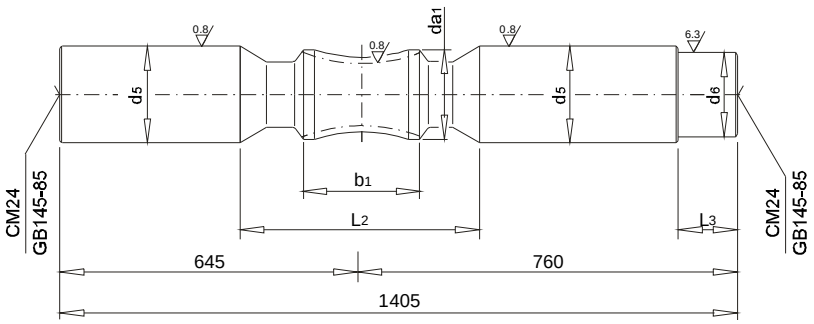
worm and wheel sets
worm with finish-machined shaft
size 450

蜗杆齿面经硬化处理；
蜗杆轴经硬化处理；
蜗轮副已经精加工；
右旋蜗轮副。

surface hardened;
worm shaft hardened;
finish machine;
right-hand gearing.







传动比 ratio	蜗杆轴 worm shaft							蜗轮 worm wheel				重量 weight [kg]	
i	Z_1	da_1 mm	b_1 mm	L_2 mm	L_3 mm	d_5 mm	d_6 mm	Z_2	de_2 mm	b_2 mm	d_2 mm	蜗杆轴 worm shaft	蜗轮 A worm wheel A
10	4	252.88	227	380	210	165	155	40	742	145	700	226	399
12.5	4	234.43	228	380	250	165	155	50	750	140	715	228	398
16	3	229.04	226	380	280	160	150	48	756	135	720	210	386
20	2	218.06	232	380	300	165	155	40	760	130	730	225	400
25	2	215.92	235	380	310	160	150	50	771	120	735	209	388
31.5	2	199.55	223	380	330	155	145	63	775	118	745	194	377
40	2	188.57	228	380	330	165	155	80	778	112	755	226	400
50	1	192.96	244	380	350	160	150	50	797	100	760	209	387
63	1	179.79	226	380	360	155	145	63	795	100	765	194	378

键联接标准按GB/T1801-1999
轮毂槽公差按GB/T1095-1979 Js9
轴键槽公差按GB/T1095-1979 N9

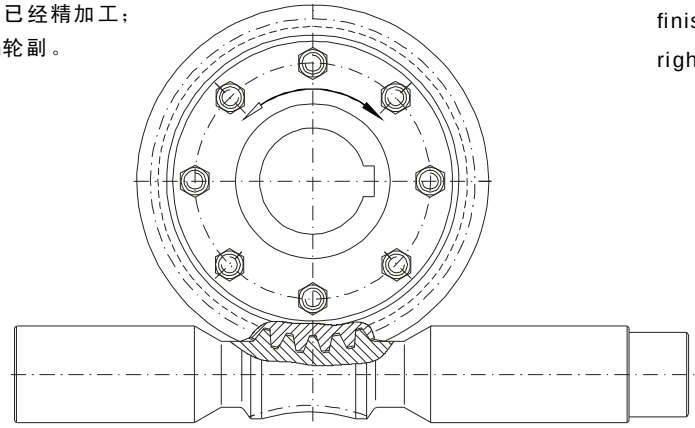
keyways accord toGB/T1801-1999
tolerance zone for hub keyway widthGB/T1095-1979 Js9
tolerance zone for shaft keyway width:GB/T1095-1979 N9

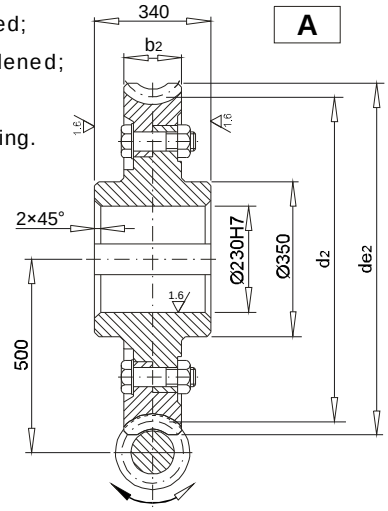
安装尺寸
蜗轮蜗杆副
蜗轮及成型蜗杆
规格 **500**

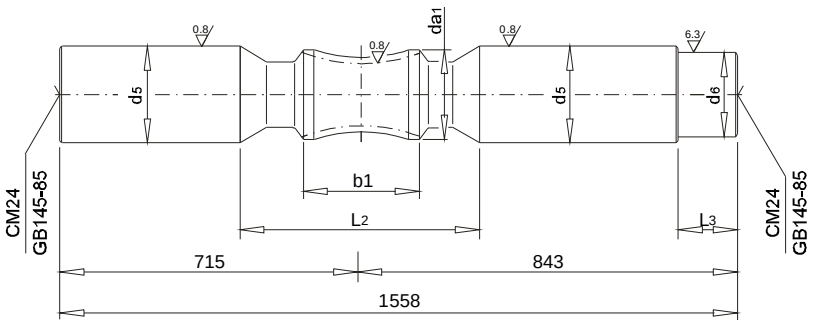
Mounting dimensions
worm and wheel sets
worm with finish-machined shaft
size 500

蜗杆齿面经硬化处理；
蜗杆轴经硬化处理；
蜗轮副已经精加工；
右旋蜗轮副。

surface hardened;
worm shaft hardened;
finish machine;
right-hand gearing.







传动比 ratio	蜗杆轴 worm shaft							蜗轮 worm wheel				重量 weight [kg]	
i	Z_1	da_1 mm	b_1 mm	L_2 mm	L_3 mm	d_5 mm	d_6 mm	Z_2	de_2 mm	b_2 mm	d_2 mm	蜗杆轴 worm shaft	蜗轮 A worm wheel A
10	4	278.36	253	410	300	175	159	40	827	160	780	281	558
12.5	4	258.65	249	410	320	175	159	50	834	155	795	284	558
16	3	258.18	263	410	350	170	159	48	840	150	800	265	549
20	2	237.97	257	410	360	175	159	40	848	140	815	283	558
25	2	236.87	263	410	390	170	159	50	860	130	820	264	548
31.5	2	218.83	246	410	400	165	155	63	862	128	830	246	537
40	2	199.24	235	410	400	175	159	80	866	120	840	281	559
50	1	213.90	271	410	420	170	159	50	886	110	845	264	550
63	1	198.53	246	410	440	165	155	63	883	110	850	247	538

键联接标准按GB/T1801-1999
轮毂槽公差按GB/T1095-1979 Js9
轴键槽公差按GB/T1095-1979 N9

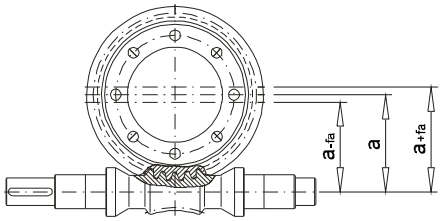
keyways accord toGB/T1801-1999
tolerance zone for hub keyway widthGB/T1095-1979 Js9
tolerance zone for shaft keyway width:GB/T1095-1979 N9

安装要求

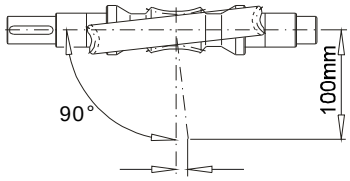
制造箱体时,请参照下表所列偏差控制制造精度.

Design Requirements for Fitting

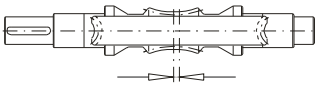
When making the housings it is necessary to observe the deviations according to the following tables



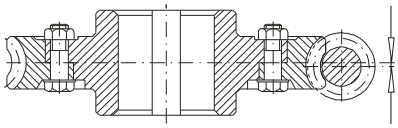
蜗轮蜗杆副中心距	Housing centre distances												
a	100	120	140	160	180	200	225	250	280	315	355	400	450	500
中心距极限偏差	Centre distance deviations													
+fa	+0.025	+0.025	+0.025	+0.025	+0.050	+0.050	+0.050	+0.050	+0.050	+0.050	+0.075	+0.075	+0.075	+0.075
-fa	-0.015	-0.015	-0.015	-0.015	-0.030	-0.030	-0.030	-0.030	-0.030	-0.030	-0.045	-0.045	-0.045	-0.045



蜗轮蜗杆副中心距	Housing centre distances												
a	100	120	140	160	180	200	225	250	280	315	355	400	450	500
轴交线极限偏差	axis alignment angle deviations													
$\pm f_{\Sigma}$	±0.020	±0.020	±0.020	±0.020	±0.030	±0.030	±0.030	±0.030	±0.030	+0.030	+0.045	+0.045	+0.045	+0.045



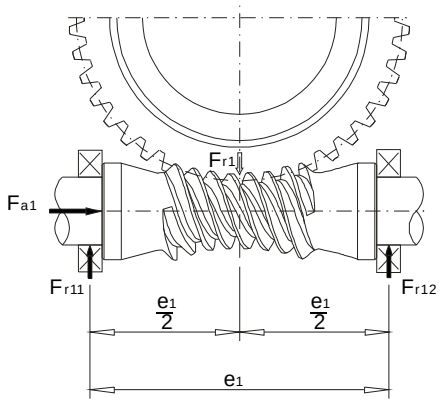
蜗轮蜗杆副中心距	Housing centre distances												
a	100	120	140	160	180	200	225	250	280	315	355	400	450	500
蜗杆喉平面极限偏差	Worm shaft throat-plane deviation													
$\pm f_x$	±0.020	±0.020	±0.020	±0.020	±0.040	±0.040	±0.040	±0.040	±0.040	+0.040	+0.060	+0.060	+0.060	+0.060

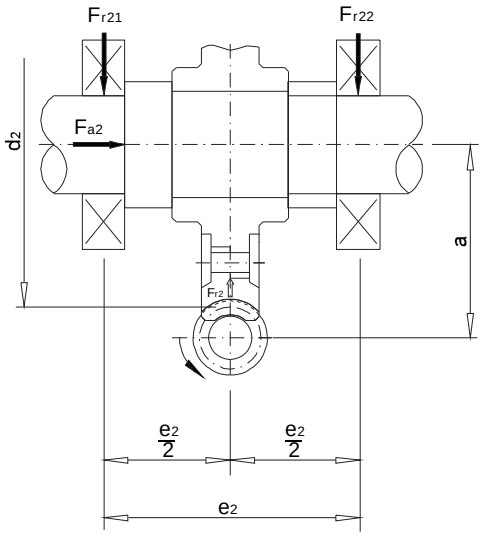


蜗轮蜗杆副中心距	Housing centre distances												
a	100	120	140	160	180	200	225	250	280	315	355	400	450	500
蜗轮喉平面极限偏差	Worm wheel throat-plane deviation													
$\pm f_y$	±0.050	±0.050	±0.050	±0.050	±0.100	±0.100	±0.100	±0.100	±0.100	+0.100	+0.150	+0.150	+0.150	+0.150

轴承受力计算

Calculation of the Bearing Forces





蜗杆轴上轴承受力

Force on bearing of worm shaft

$F_{a1}=2000T_2/d_2$	$F_{r11}=F_{r12}\approx 0.5F_{a1}\tan\alpha_x$ ($i\leqslant 16, \alpha_x\approx 20°, i> 16, \alpha_x\approx 22°$)

蜗轮轴上轴承受力

Force on bearing of worm wheel shaft

$F_{a2}=2000T_2/[(2a-d_2)\cdot i\cdot\eta]$	$F_{r21}=F_{r22}\approx 0.5F_{a1}\tan\alpha_x$ ($i\leqslant 16, \alpha_x\approx 20°, i> 16, \alpha_x\approx 22°$)

符号说明

T_2 ---- 输出转矩
基于实际应用

d_2 ---- 蜗轮分度圆直径
见安装尺寸图

i ---- 减速比
见承载能力

η ---- 效率
见承载能力

尺寸单位: mm

力单位: N

转矩单位: Nm

旋转反向改变后注意事项

旋转反向改变后,轴向力 Fa1 和 Fa2 与现有方向相反.

本受力分析适用于右旋蜗杆.

Symbols used

T_2---- normal output torque
base applications

d_2 ---- worm wheel pitch diameter
see dimensioned drawing

i ---- ratio
see rated power and torques

η ---- efficiency
see rated power and torques

Dimensions in mm

Forces in N

Torques in Nm

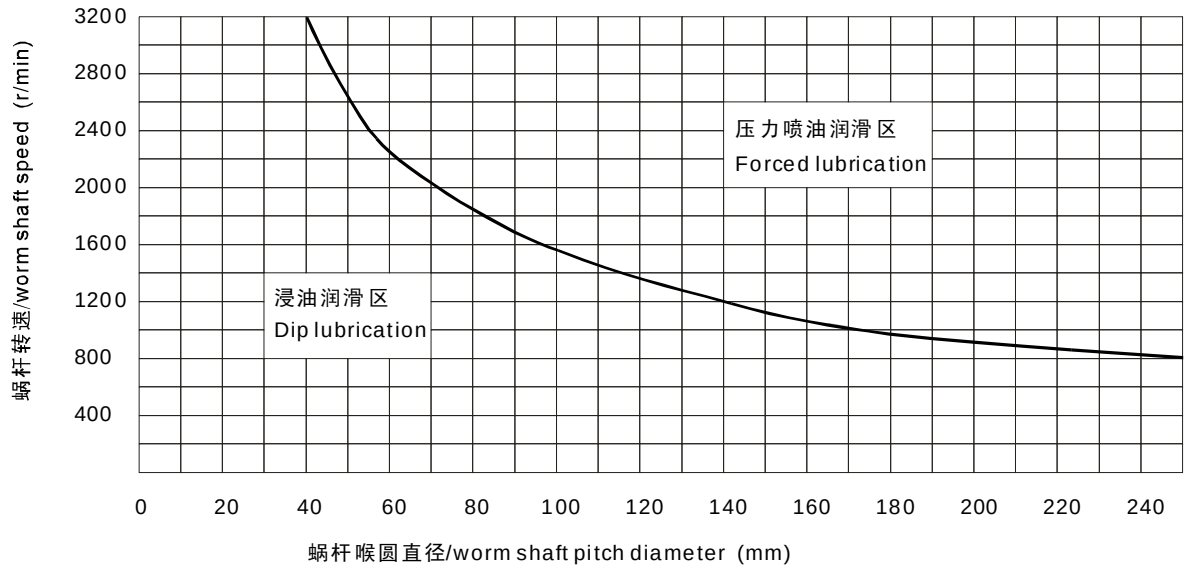
Influence of direction of rotation

Depending on the direction of rotation, the axial forces Fa1 and Fa2 occur in one or the other direction.

Valid for a driving worm with right-hand gearing.

润滑 Lubrication

浸油润滑和强制润滑的选择 Dip and forced lubrication selecion



浸油润滑

可靠的润滑和冷却是使用蜗轮蜗杆副的关键，在使用时务必使蜗轮或蜗杆的2/3部分浸于油池中。大多数情况下，大于2/3的部分浸入油池是对润滑和冷却有益的。

浸油润滑的局限

通过上图可以发现，低于曲线区域适合于浸油润滑，在高于曲线区域只有采用强制润滑（喷油压力润滑）。此区域蜗杆滑动速度超过15m/s。

强制润滑

油从蜗杆两端,在平行于蜗杆轴向直接喷入啮合区进行润滑和冷却.

在强制润滑的情况下,蜗轮或蜗杆完全浸入油中是不可取的,这样会导致强制润滑失效.

强制润滑如下图示意.

Dip lubrication

Reliable lubrication and simultaneous cooling are essential. It is nec-essary that either the worm or the worm wheel immerses in the oil bath by at least 2/3 of their respective diameter. A higher oil level is advantageous in most cases.

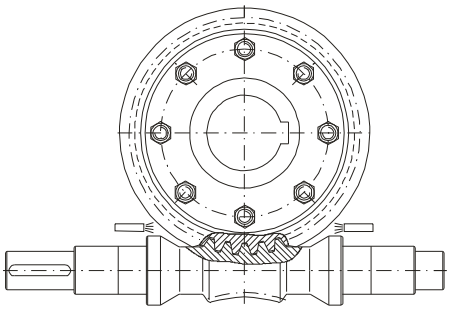
Limits of dip lubrication

According to the above illustration, dip lubrication is sufficient in the zone below the curve while forced lubrication may become necessary for the zone above the curve if the sliding velocity exceeds 15 m/s.

Forced lubrication

Oil is sprayed directly into the meshing from both sides of the worm and parallel to the worm axis.

Additional immersion of the worm or worm wheel in the oil bath is advantageous in case forced lubrication should fail.



润滑

润滑油的选择

Lubrication

Lubrication Selection

根据蜗杆滑动速度进行润滑油粘度的选择,通过计算,下表给出了选择的结果。

The viscosity of the oil to be used depends on the sliding velocity, as a rule, the following should be used:

粘度代号 Viscosities code					
蜗杆滑动速度 Sliding velocity	＜2m/s	＞2~4.5m/s	＞4.5~7m/s	＞7~10m/s	＞10m/s
ISO-VG at 40℃(mm^2 /s)	VG 1000 ○	VG680 □	VG460 ◇	VG320 ●	VG220 ■

粘度选择 Viscosities selection														
n1 r/min	蜗轮蜗杆副中心距 / Worm and wheel size													
	100	120	140	160	180	200	225	250	280	315	355	400	450	500
3000	●	●	●	■	■	■								
2400	◇	◇	●	●	●	■	■	■						
1800	◇	◇	◇	◇	●	●	●	●	■	■	■			
1500	□	□	◇	◇	◇	◇	●	●	●	●	■	■	■	■
1200	□	□	□	□	◇	◇	◇	◇	◇	●	●	●	●	■
1000	□	□	□	□	□	□	◇	◇	◇	◇	◇	●	●	●
750	○	□	□	□	□	□	□	□	□	◇	◇	◇	◇	◇
500	○	○	○	○	□	□	□	□	□	□	□	□	□	◇
300	○	○	○	○	○	○	○	○	○	○	□	□	□	□
150	○	○	○	○	○	○	○	○	○	○	○	○	○	○

浸油润滑油量和强制润滑

对于浸油润滑,下表为本公司建议的最少油量

Oil quantity and rate of oil injection

For dip lubrication, the following approximate oil quantities

蜗轮蜗杆副中心距 Worm and wheel size	100	120	140	160	180	200	225	250	280	315	355	400	450	500
油量 Oil quantity	2	3	4	5.5	7.5	10	13	17	22	30	40	55	75	100

对于强制冷却,每股射流不少于5L/min,油池油量因保证充分,应保证在两分钟内油未充分散热而被循环使用,建议射流压力保证在1.5bar左右.

The oil injection rate for forced lubrication for each thread length should be at least 0.5 L/min, and the oil sump quantity sufficient so that the oil is not used again for a minimum of two minutes, and the

润滑

润滑油的选择

Lubrication

Lubrication Selection

油品 Brand	粘度等级 Viscidity 40℃(mm^2/s)		中国品牌						Overseas Brand				
			沈阳化工厂	兰州炼油厂		茂名石油公司			BP	ESSO	Klüber	Mobil	Shell
	ISO	GB	合成极压蜗轮蜗杆油	普通	重载极压	WA型	WB型	WS型					
				复合蜗杆油		蜗轮蜗杆油							
合成油 Synthetical Oil	VG1000	1000									Syntheso D1000EP		
	VG680	680	680								Syntheso D680EP		
	VG460	460	460						Energol SG-XP460		Syntheso D460EP	Glygoyle 80	Tivela SD
	VG320	320	320								Syntheso D320EP		
	VG220	220	220						Energol SG-XP220	Umlauföl S220	Syntheso D220EP	Glygoyle 30	Tivela WB
矿物油 Mineral Oil	VG1000	1000			HD-1000W						Lamora 1000		
	VG680	680			HD-680W	WA-680	WB-680	WS-680	Energol GR-XP680	Spartan Ep680	Lamora 680	Mobil Gear 636 / Compound GG	Omala 680
	VG460	460		G-460W	HD-460W	WA-460	WB-460	WS-460	Energol GR-XP460	Spartan Ep460	Lamora 460	Mobil Gear 634 / Compound FF	Omala 460
	VG320	320		G-320W	HD-320W	WA-320	WB-320	WS-320	Energol GR-XP320	Spartan Ep320	Lamora 320	Mobil Gear 632 / Compound EE	Omala 320
	VG220	220		G-220W	HD-220W		WB-220		Energol GR-XP220	Spartan Ep220	Lamora 220	Mobil Gear 630	Omala 220

注意:

本表所列不同品牌牌号的油品,其承载特性不尽相同,不能等效看待,用户应结合本身工况,通过试验选取.

Attention:

different brand oil havesame viscidity,but the characteristics is differen't,please select the oil base application situation and through testing to over selection.to check if it suit the worm wheel set.

安装蜗轮蜗杆

Fitting Worm Set

轴向间隙调整

安装蜗轮或蜗杆时，轴上圆锥滚子轴承向应留有足够的轴向间隙，轴向间隙表规定。

axial clearance adjustment

an axial clearance should be provided when fitting the worm shaft and worm wheel on taper roller bearing in the housing,the values listed in following table.

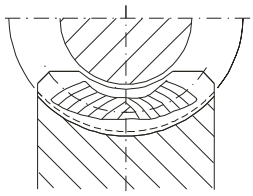
轴承内径 Bearing hole d(mm)	轴向间隙 axial clearance (μm)		轴承内径 Bearing hole d(mm)	轴向间隙 axial clearance (μm)	
	蜗杆轴承 Bearing on worm shaft	蜗轮轴承 Bearing on worm wheel		蜗杆轴承 Bearing on worm shaft	蜗轮轴承 Bearing on worm wheel
>30~50	20~40	30~50	>120~180	450~80	60~100
>50~80	30~50	40~60	>180~260	60~100	80~120
>80~120	40~70	50~80	>260~400	---	100~140

接触斑点

蜗轮安装完毕后,形成的接触斑点如下图示,接触斑点齿长方向不低于80%,齿高方向不低于70%.

contact pattern

The worm wheel must be adjusted according to the contact pattern see following chart. Contact length≥ 80%,contact height ≥70%



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