

**DONLY TRANSMISSION**



# 东力齿轮箱

磨机齿轮箱

GEAR UNITS FOR MILL

型号 Type DLJML/DLJG/DLBYX/DLMFY/DLMBYS

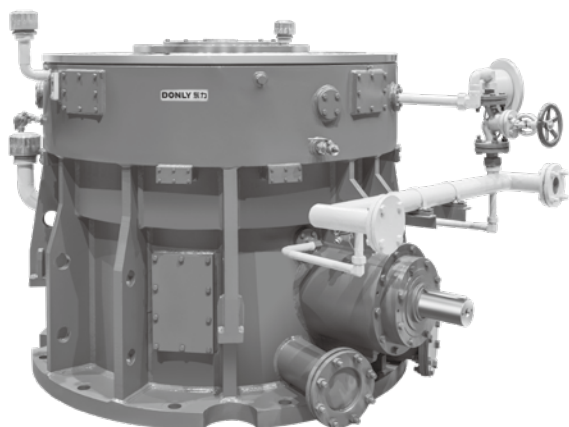
版本 Edition 2021

**DONLY**

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# 磨机专用齿轮箱

## Special Gear Units For Mill



**DONLY**

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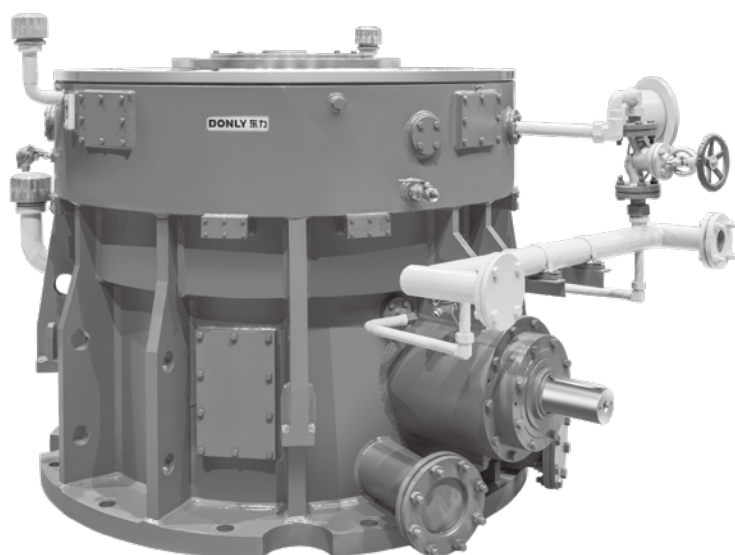
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# DLJML 系列 大功率立磨齿轮箱

DLJML Series Gear Units For Heavy Duty Vertical Mill



### 1.1 性能与特点

广泛应用于建材、电力、冶金等行业。

伞齿轮副采用克林根贝尔齿制，伞齿轮、太阳轮和行星齿轮均采用渗碳淬火磨齿技术，同时太阳轮和行星齿轮采用公司专有齿形修形技术，齿根喷丸强化技术。

内齿圈采用粗加工后磨齿工艺，精度 6 级以上（ISO1328）。

全部齿轮在坯料阶段和最终处理后均进行探伤。对箱体和行星转架的主要焊缝均进行超声波探伤。利用先进的焊接设备和焊接工艺，确保转架的高强度、高刚性。

采用动静压、静压润滑系统，更加安全可靠。

轴瓦采用公司与国家重点实验室联合开发的设计软件进行优化设计。

全部滚动轴承寿命均大于 6 万小时。

润滑油牌号：L-CKD320(GB5903-2011)

本系列齿轮箱具有体积小、重量轻、效率高、噪声低、运行平稳和寿命长等特点。

结构简单，安全可靠，易于安装维护。

本系列齿轮箱主要技术指标均达到当代国内外同类产品的最先进水平。

### 1.1 Performance and characteristics

Widely used in such industries as building materials, electrical power, and Metallurgy.

Bevel gear pair made of Klingelnberg gear, bevel gear, sun gear and planet gear all use carburizing quenching teeth grinding technique; in addition, the sun gear and planet gear use the company's specialized gear-type fitting technique, tooth strengthening shot-blasting technique.

Internal gear rings are grounded after being roughly processed, with a precision above grade 6(ISO1328).

All the gears are detected at stock stage and after final heat treatment. The main Welding seams on the case and planet gear turner are ultrasonic detected. Advanced welding equipment and welding procedure are employed to guarantee high Strength and high rigid of turner.

Use kinetic and static pressure, static pressure lubrication system, safe and reliable.

Bearing bushes are optimized in design by the design software jointly developed by our Company and the state key laboratory of xian communication University.

Service life of all the rolling bearings are over 60,000h.

Lube oil brand: L-CKD320(GB5903-2011)

This series of gear unit has the characteristics of being compact, light, high efficiency, low noise, stable operation and long service life, etc.

Simple in structure, safe and reliable in operation and convenient for installation and maintenance.

The main technical indexes of this series of gear unit reach the most advanced level for the products of its kind at home and abroad at present.

1.2 型式、标记和技术参数

1.2.1 型式

齿轮箱按结构型式分为:

- a) 圆锥齿轮 - 行星两级传动结构 (用 X 表示, 见图 1);
- b) 圆锥齿轮 - 平行轴齿轮 - 行星三级传动结构 (用 XSD 表示, 见图 2);
- c) 圆锥齿轮 - 行星 - 行星三级传动结构 (用 XSS 表示, 见图 3)。

1.2.2 标记

齿轮箱的标记方式表示如下:

1.2 Type, Mark and Technical Data

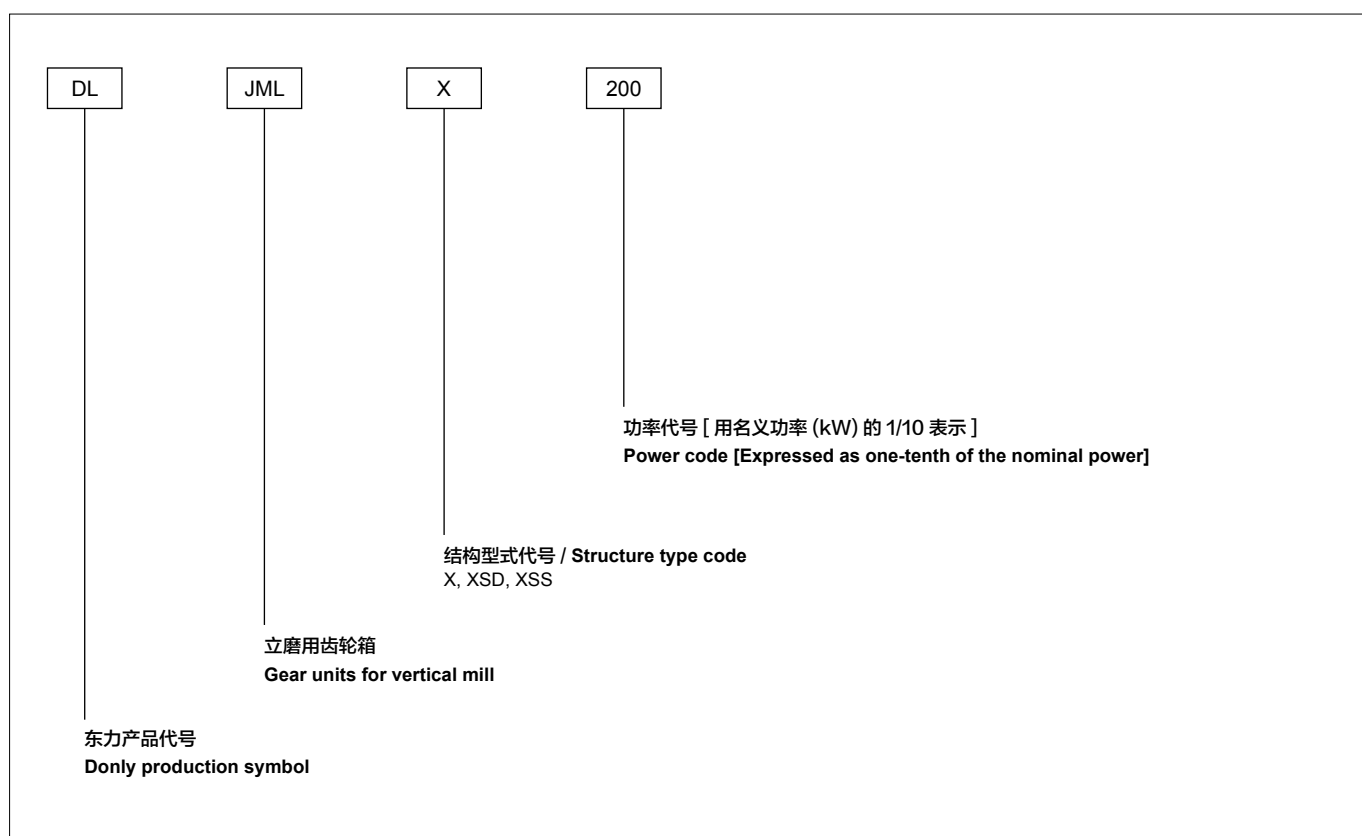
1.2.1 Type

According to the structural type, the gear unit is divided into:

- a) bevel gear-planetary two-stage transmission structure (represented by X, see figure 1)
- b) bevel gear-planetary gear-parallel shaft three-stage transmission structure (represented by XSD, see figure 2);
- c) bevel gear-planetary three-stage transmission structure, (represented by XSS, see figure 3)

1.2.2 Mark

The gear unit is marked as follows:



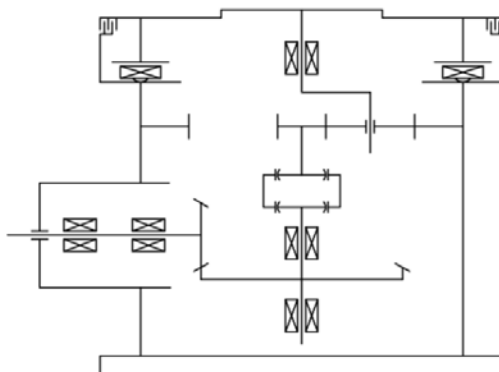


图 1 DLJMLX 型齿轮箱传动示意图

Schematic diagram of DLJMLX series gear unit transmission

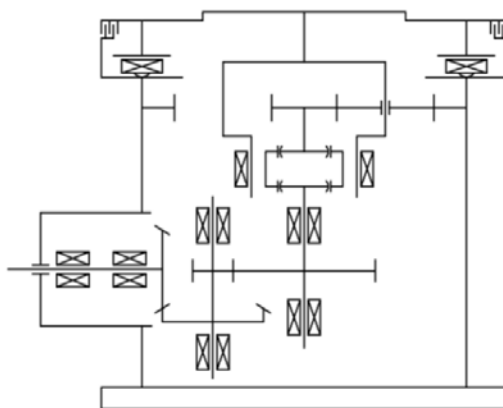


图 2 DLJMLXSD 型齿轮箱传动示意图

Schematic diagram of DLJMLXSD series gear unit transmission

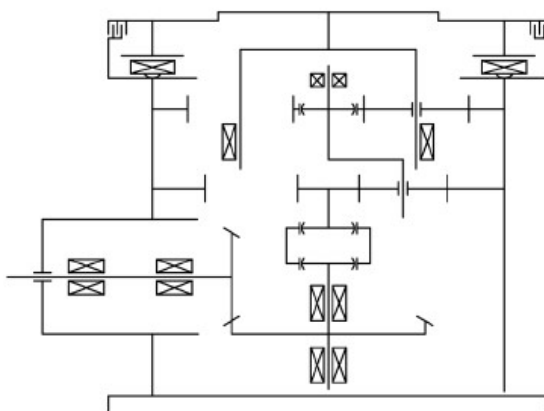


图 3 DLJMLXSS 型齿轮箱传动示意图

Schematic diagram of DLJMLXSS series gear unit transmission

DLJML 系列大功率立磨齿轮箱

DLJML Series Gear Units For Heavy Duty Vertical Mill

1.3 选型说明

P- 为电机功率 (kW),  $n_2$ - 磨盘转速 (r/min), 所选齿轮箱的  $P/n_2$  必须  $\leq$  样本许用的  $P/n_2$ 。

《DLJML 系列齿轮箱主要性能表》是按工况系数  $KA = 2.5$  编制的, 使用场合不同, 工况系数亦不同, 选用时 P 须乘系数  $\psi$ 。

即:  $KA = 2.5$  时, 所选齿轮箱的  $P/n_2$  必须  $\leq$  样本许用的  $P/n_2$ 。

$KA \neq 2.5$  时, 所选齿轮箱的  $\psi \times P/n_2$  必须  $\leq$  样本许用的  $P/n_2$ 。

1.3 Note for selection

P-motor power(kW),  $n_2$ -grinding disc rotating speed(r/min),  $P/n_2$  of the selected gear unit must be  $P/n_2$  permitted in the catalogue.

"Table of Main Technical Performance of Series DLJML-gear unit" was prepared according to working condition coefficient  $KA=2.5$  the working coefficient will vary as the working condition may vary, P has to multiply coefficient  $\psi$  when selected.

E.g.: When  $KA=2.5$ ,  $P/n_2$  of the selected gear unit must be  $\leq P/n_2$  permitted in the catalogue.

When  $KA \neq 2.5$ ,  $\psi \cdot P/n_2$  of the selected gear unit must be  $\leq P/n_2$  permitted in the catalogue.

1.4 主要技术性能表

1.4 Table of main technical performance

型号 type	$P/n_2$	输入转速 r/min Input speed	速比 i Speed ratio	垂直静载荷 kN Vertical static load kN	润滑方式 Lube type
DLJMLX10	2.3	990	18~30	450	动压润滑系统 Kinetic pressurer lube System
DLJMLX15	3.2		18~33	535	
DLJMLX20	5		20~36	980	
DLJMLX25	7		20~36	1300	
DLJMLX30	10		22~36	1600	
DLJMLX40	13		22~36	1600	
DLJMLX50	16.5		24~40	1820	
DLJMLX60	20		24~40	2150	
DLJMLX70	23		24~40	2150	
DLJMLX80	27		26~42	2600	
DLJMLX90	33		26~42	2700	
DLJMLX110	39		26~45	2700	
DLJMLX140	50		26~45	3100	
DLJMLXSD170	58		27~40	4900	全静压润滑系统 Full static pressure lube system
DLJMLXSD190	68		27~40	5250	
DLJMLXSD200	82		32~42	6150	
DLJMLXSD250	98		32~42	6150	
DLJMLXSD280	115		32~45	8100	
DLJMLXSD330	130		32~45	10500	
DLJMLXSD360	148		32~45	10500	
DLJMLXSD400	172	35~48	13200		
DLJMLXSD450	205	38~48	13200		
DLJMLXSS330	130	36~55	8100		
DLJMLXSS360	148	36~55	9700		
DLJMLXSS400	172	38~50	10500		
DLJMLXSS450	205	38~50	10500		
DLJMLXSS500	230	38~50	13200		
DLJMLXSS600	275	38~50	13200		
DLJMLXSS700	340	38~50	16500		
DLJMLXSS800	380	38~50	16500		

注:  
垂直静载荷为输出法兰盘所承受的额定压力。

Note:  
The vertical static load is the rated pressure on the output flange.

1.5 外型及安装尺寸表

1.5.1 DLJMLX 型齿轮箱外形图见图 A.1，外形尺寸见表 A.1。

1.5 Outline and installation size

1.5.1 Outside view of DLJMLX series gear unit is shown in figure A.1, Outline size of DLJMLX series gear unit is table A.1

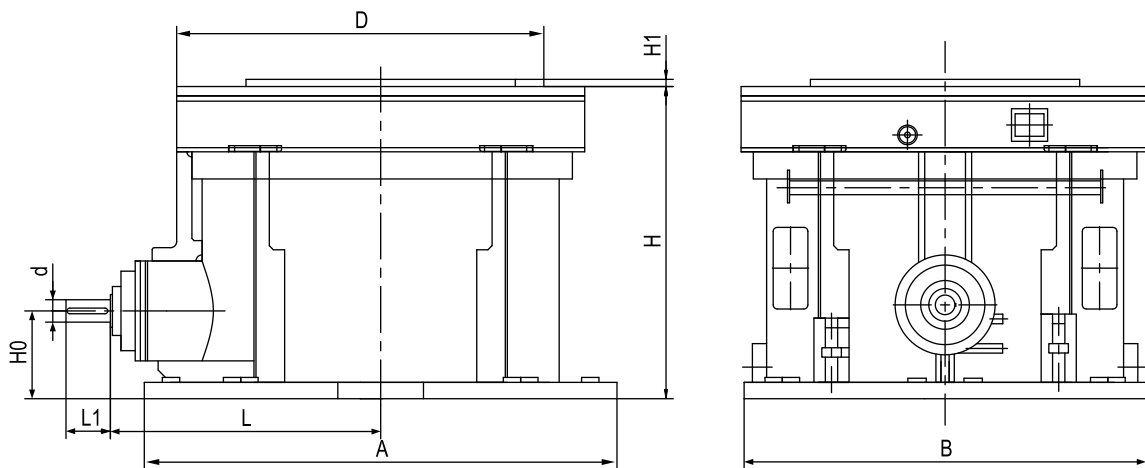


图 A.1 DLJMLX 型齿轮箱外形图

Figure A.1 Outside view of DLJMLX series gear unit

表 A.1 DLJMLX 型齿轮箱外形尺寸 单位：毫米

Table A.1 Outline size of DLJMLX series gear unit Unit:mm

型号 Type	A	B	d	$l_1$	D	$H_1$	$H_0$	H	L
DLJMLX10	900	900	60	110	900	25	300	800	710
DLJMLX15	1000	1000	60	110	1050	25	360	900	755
DLJMLX20	1160	1160	75	140	1300	31	320	1047	810
DLJMLX25	1320	1320	90	140	1350	25	380	1200	860
DLJMLX30	1510	1510	100	140	1500	16	370	1234	900
DLJMLX40	1600	1600	100	180	1600	35	420	1375	1060
DLJMLX50	1600	1600	100	180	1700	35	420	1375	1060
DLJMLX60	1750	1750	110	200	1860	40	470	1530	1060
DLJMLX70	1800	1800	110	200	1900	30	535	1615	1060
DLJMLX80	2000	2000	120	295	2000	40	535	1740	1305
DLJMLX90	2000	2000	130	210	2200	30	590	1770	1390
DLJMLX110	2680	2280	160	280	2200	25	700	1932	1470
DLJMLX140	2640	2200	160	250	2500	25	600	1950	1600

注：  
由于立式辊磨机的结构形式不同，对齿轮箱的外形尺寸、输出法兰、地脚螺栓的连接尺寸允许按用户要求调整。

Note:  
Due to the different structure of vertical roller mill, the outline size of gear unit, the connection dimensions of output flanges and anchor bolts are allowed to be adjusted according to user requirements.

DLJML 系列大功率立磨齿轮箱

DLJML Series Gear Units For Heavy Duty Vertical Mill

1.5.2 DLJMLXSD 型齿轮箱外形图见图 A.2, 外形尺寸见表 A.2。

1.5.2 Outside view of DLJMLXSD series gear unit is shown in figure A.2, Outline size of DLJMLXSD series gear unit is table A.2.

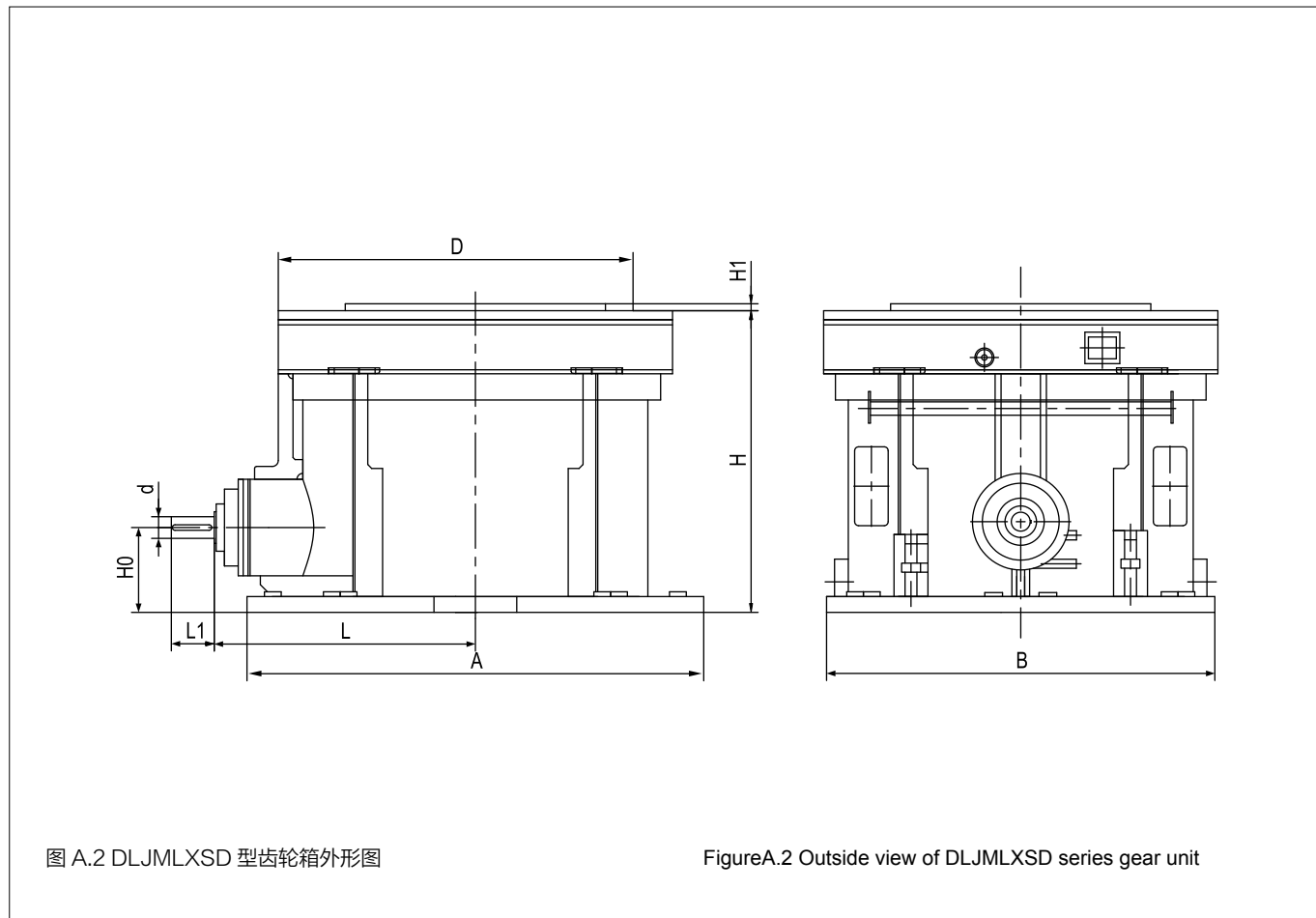


图 A.2 DLJMLXSD 型齿轮箱外形图

Figure A.2 Outside view of DLJMLXSD series gear unit

表 A.2 DLJMLXSD 型齿轮箱外形尺寸 单位: 毫米

Table A.2 Outline size of DLJMLXSD series gear unit Unit:mm

型号 Type	A	B	d	$l_1$	D	$H_1$	$H_0$	H	L
DLJMLXSD170	2800	2550	160	250	2450	30	600	2130	1760
DLJMLXSD190	2640	2550	160	270	2550	35	600	2187	1830
DLJMLXSD200	3200	2600	160	270	2800	42	600	2180	1900
DLJMLXSD250	3200	2600	180	280	2980	42	900	2260	2110
DLJMLXSD280	3265	3040	190	290	3050	40	750	2500	2060
DLJMLXSD330	3350	3200	190	310	3300	40	850	2500	2400
DLJMLXSD360	3350	3200	190	310	3400	40	850	2500	2400
DLJMLXSD400	3700	3450	220	350	3720	40	850	2650	2550
DLJMLXSD450	3700	3450	220	350	3720	40	850	2650	2550

注：  
由于立式辊磨机的结构形式不同，对齿轮箱的外形尺寸、输出法兰、地脚螺栓的连接尺寸允许按用户要求调整。

Note:  
Due to the different structure of vertical roller mill, the outline size of gear unit, the connection dimensions of output flanges and anchor bolts are allowed to be adjusted according to user requirements.

1.5.3 DLJMLXSS 型齿轮箱外形图见图 A.3，外形尺寸见表 A.3。

1.5.3 Outside view of DLJMLXSS series gear unit is shown in figure A.3, Outline size of DLJMLXSS series gear unit is table A.3.

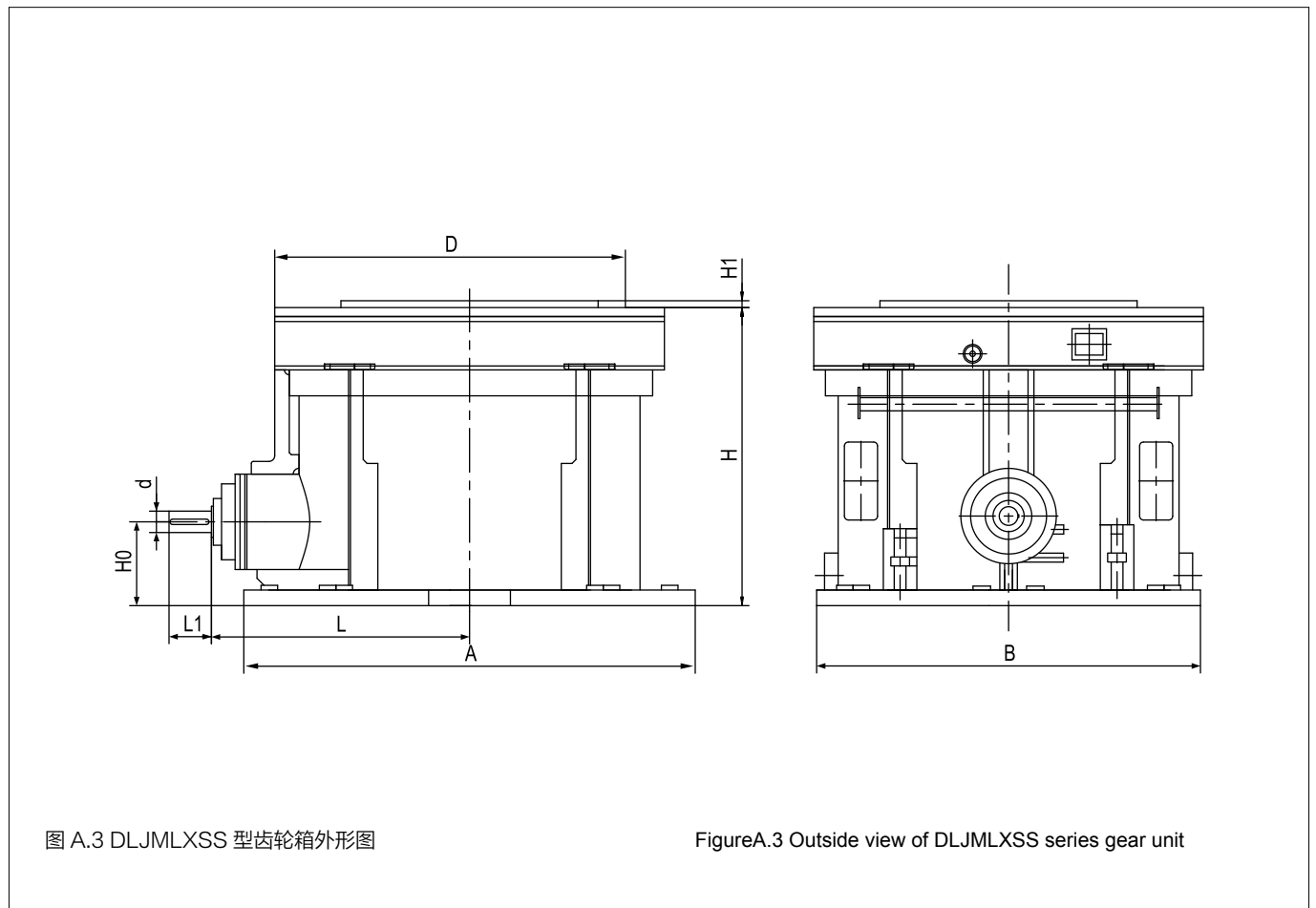


图 A.3 DLJMLXSS 型齿轮箱外形图

Figure A.3 Outside view of DLJMLXSS series gear unit

表 A.3 DLJMLXSS 型齿轮箱尺寸 单位：毫米

Table A.3 Outline size of DLJMLXSS series gear unit Unit:mm

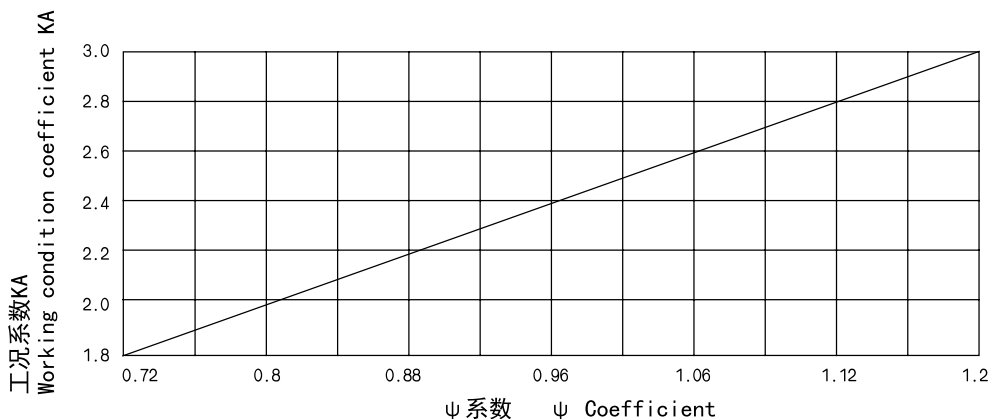
型号 Type	A	B	d	$l_1$	D	$H_1$	$H_0$	H	L
DLJMLXSS330	2850	2850	210	236	2900	43	800	2457	1684
DLJMLXSS360	3100	3120	200	280	3250	30	750	2270	1805
DLJMLXSS400	3700	3500	210	240	3550	40	850	2650	2160
DLJMLXSS450	3350	3350	230	259	3550	40	850	2700	2341
DLJMLXSS500	3900	3500	220	350	3800	40	920	2850	1980
DLJMLXSS600	4050	3500	220	350	3800	40	920	2850	1980
DLJMLXSS700	4150	4150	260	400	4180	40	1055	3130	2350
DLJMLXSS800	4150	4150	260	400	4180	40	1055	3130	2350

注：  
由于立式辊磨机的结构形式不同，对齿轮箱的外形尺寸、输出法兰、地脚螺栓的连接尺寸允许按用户要求调整。

Note:  
Due to the different structure of vertical roller mill, the outline size of gear unit, the connection dimensions of output flanges and anchor bolts are allowed to be adjusted according to user requirements.

1.6  $\psi$  系数曲线图

1.6  $\psi$  coefficient graph



1.7 实例

一台立磨齿轮箱，电机功率  $P=1250\text{kW}$ ，输入转速  $n_1=1000\text{r/min}$ ，输出转速（磨盘转速） $n_2=31.5\text{r/min}$ ，工况系数  $KA=2.5$ 。查表对应的  $\psi=1$ ，则  $P/n_2=1 \times 1250/31.5=39.68 \text{ kW} \cdot \text{min/r}$ ，而 DLJMLX140 许用的  $P/n_2$  为  $50 \text{ kW} \cdot \text{min/r}$ ，所以立磨齿轮箱型号选用 DLJMLX140。

1.7 Example

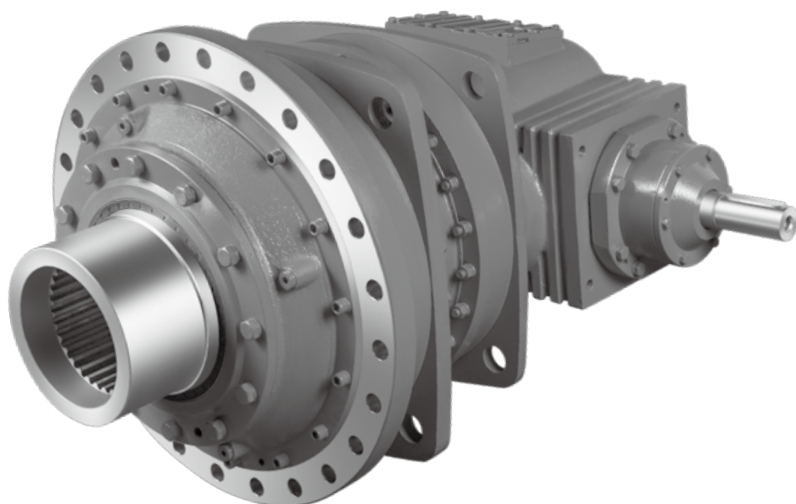
A vertical grinder gear unit, motor power  $P=1250\text{kW}$ , input speed  $n_1=1000\text{r/min}$ , output speed (grinding disc speed)  $n_2=31.5\text{r/min}$ , working condition coefficient  $KA=2.5$ . Check against the Table that the corresponding  $\psi=1$ , then  $P/n_2=1 \times 1250/31.5=39.68 \text{ kW} \cdot \text{min/r}$ , while DLJMLX140 permitted  $P/n_2$  is  $50 \text{ kW} \cdot \text{min/r}$ , So the type DLJMLX140 shall be selected for the vertical grinder gear unit.

一台立磨齿轮箱，电机功率  $P=1250\text{kW}$ ，输入转速  $n_1=1000\text{r/min}$ ，输出转速（磨盘转速） $n_2=31.5\text{r/min}$ ，工况系数  $KA=2.1$ 。查表对应的  $\psi=0.86$ ，则  $P/n_2=0.86 \times 1250/31.5=34.12 \text{ kW} \cdot \text{min/r}$ ，而 DLJMLX110 许用的  $P/n_2$  为  $39 \text{ kW} \cdot \text{min/r}$ ，所以立磨齿轮箱型号选用 DLJMLX110。

A Vertical griner gear unit, motor power  $P=1250\text{kW}$ , input speed  $n_1=1000\text{r/min}$ , output Speed (grinding disc speed)  $n_2=31.5\text{r/min}$ , working condition coefficient  $KA=2.1$ . Check against the Table that the corresponding  $\psi=0.86$ , then,  $P/n_2=0.86 \times 1250/31.5=34.12 \text{ kW} \cdot \text{min/r}$ , while DLJMLX110 permitted  $P/n_2$  is  $39 \text{ kW} \cdot \text{min/r}$ , so the type DLJMLX110 shall be selected for the vertical grinder gear unit.

# DLJG 系列 辊压机行星齿轮箱

DLJG Series Gear Units For Roller Mill



## 2.1 概述

DLJGX (XP) 系列辊压机行星齿轮箱，是吸收国内外同类产品所长，根据国内辊压机实际工作工况，采用先进的设计理念和现代齿轮制造技术，为辊压机配套设计制造的高承载、高效率、长寿命齿轮箱。该系列齿轮箱在设计上采用多分流行星传动方式。通过高精度制造，使行星传动的关键结构——功率分流均载得以保证，因此该系列齿轮箱体积小、重量轻，能在多粉尘环境下承受强冲击、振动的重负荷条件，能充分适应水泥工业辊压机要求。经过十多年的工业运行，证实完全能替代进口。

对该系列所有的太阳轮和行星轮采用独特的齿形修形技术，齿根喷丸强化技术，内齿圈采用磨齿工艺，精度可达 6 级，提高传动效率及可靠度，可为水泥厂节省能源。

该系列齿轮箱主要用于水泥工业辊压机主传动装置上，也可用于其它类似重载传动装置。本公司可另设计带底座安装或电机直联等联接形式。

## 2.2 性能与特点

高承载能力、抗冲击、抗震动；

可正、反两向运转；

传动效率：0.96 以上；

环境温度 -10 ~ + 40℃。低于 0℃时，启动前润滑油应预热；

特别适用于严重冲击、多粉尘及连续运转的情况；

齿轮箱输出为空心轴，采用锁紧盘、法兰连接；

齿轮箱需另配稀油润滑站或循环冷却装置。

## 2.1 General notes

DLJG XP series gear unit for roller mill adopt advantages from foreign counterparts and apply the state-of-the-art design concept and modern manufacture technique of gear while taking account of actual operating conditions of roller mill used in China. They are great-load ,high-efficiency and durable gear unit that are specially designed and manufactured to fit with roller mills. This series accomplishes the transmission in the manner of multiple shunts. The precise manufacture workmanship can guarantee the split-power loading sharing mechanism that is the key for planet transmission. Therefore this series features small volume, light weight adaptability to heavy load such as. strong impact and vibration under the dusty conditions and sufficiency for roller mills in the cement industry, Industrial operations in last 10-odds years demonstrate that this series is an ideal substitution of import.

For sun and planet gears of this series utilize unique tooth profile modification technique, shot peening to strengthen tooth roots and tooth grinding technique for inner teeth ring. It results in the precision of level 6, high transmission efficiency and infallibility. Furthermore it can save energy consumption in cement plants.

This series is mainly mounted at the main drive of roller mill in the cement industry. Alternatively it is suitable for other similar heavy-load transmission devices. Our company can design other connection forms such as mounting with seat or direct connection to electrical motor upon the request of customers.

## 2.2 Performance and characteristics

Great loading capacity and good resistance against impact and vibration

Clockwise and anticlockwise rotation

Transmission efficiency : >0.96

Ambient temperature: -10~+40 ℃ Preheat lubricant before startup where temperature is below 0℃

Especially suitable for applications where strong impact exists ,dust concentration is high and continuous operation of gear is required

Output shaft is hollow and connected with locking mechanism and flanges

gear unit shall be equipped with thin-oil lubrication station or circulating cooling system separately

**2.3 结构特点**

其结构形式分为两级行星结构（代号：X）；两级行星加一级平行轴齿轮结构（代号：XP）。XP 型齿轮箱按装配形式分为 I、II、III、IV

齿轮副均采用铬镍钼合金钢进行渗碳淬火热处理后磨齿工艺，精度达 6 级（GB10095-2001）；

为了保证各行星轮之间的均载，齿轮箱内部采用均载性能良好的浮动元件和有利于浮动的鼓形齿传递，降低噪音，提高整机性能。

**2.4 型号规格**

齿轮箱的标记方式表示如下：

**2.3 Structural characteristics**

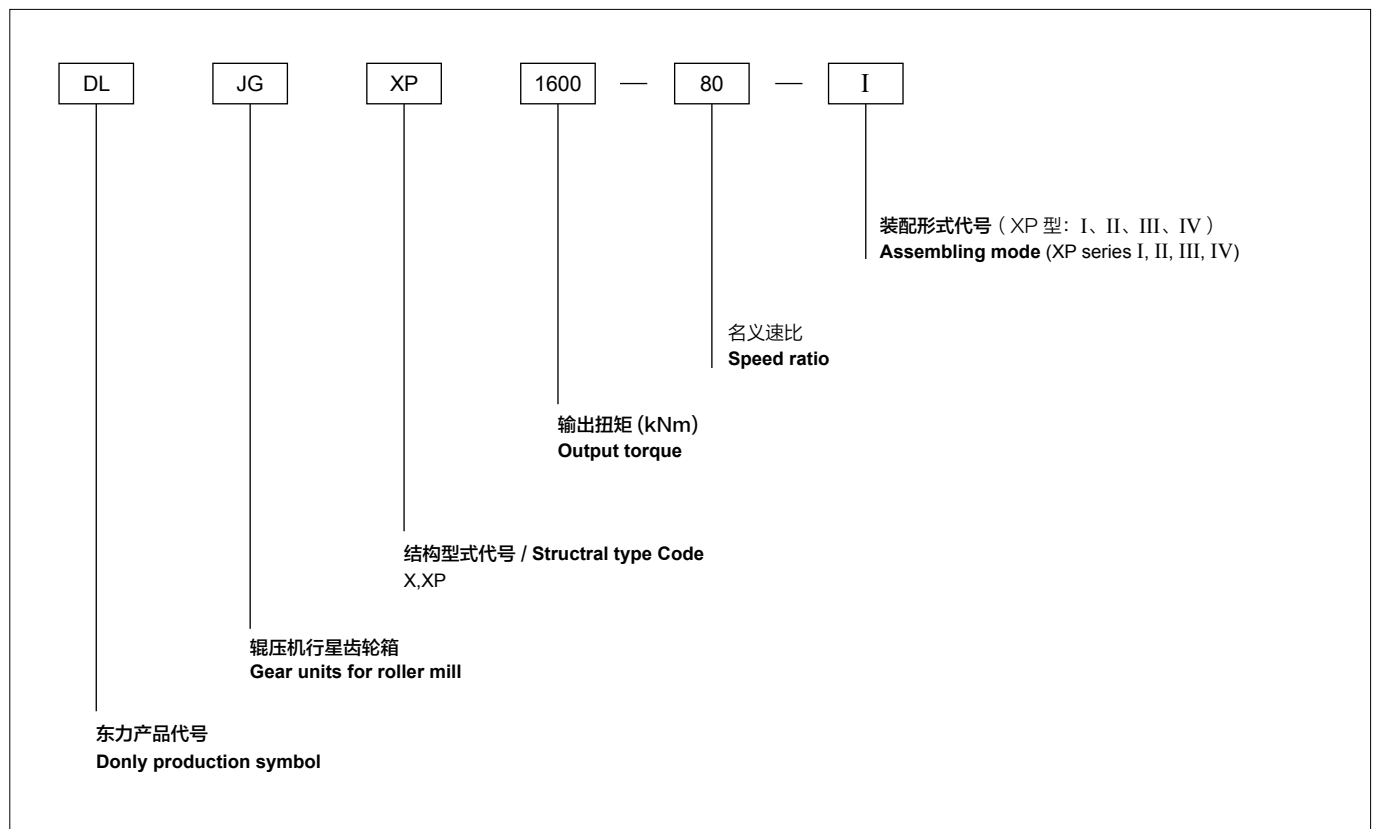
Its structure is divided into two-stage planetary structure (code: x) two-stage planetary plus one-stage parallel shaft gear structure (code XP). XP series gear unit is divided into I, II, III, IV according to assembly.

Gear pairs are made of Cr-Ni-Mo alloy steel and treated with carburizing quenching technique thermally and tooth grinding process. The precision can reach the level 6 in accordance with GB10095-2001.

To share load among planet gears, built-in floating components featuring good sharing properties and drum-type gear transmission mechanism benefiting float are used. which can reduce the running noise and improve the entire performance.

**2.4 Specifications and model**

The gear unit is marked as follows:

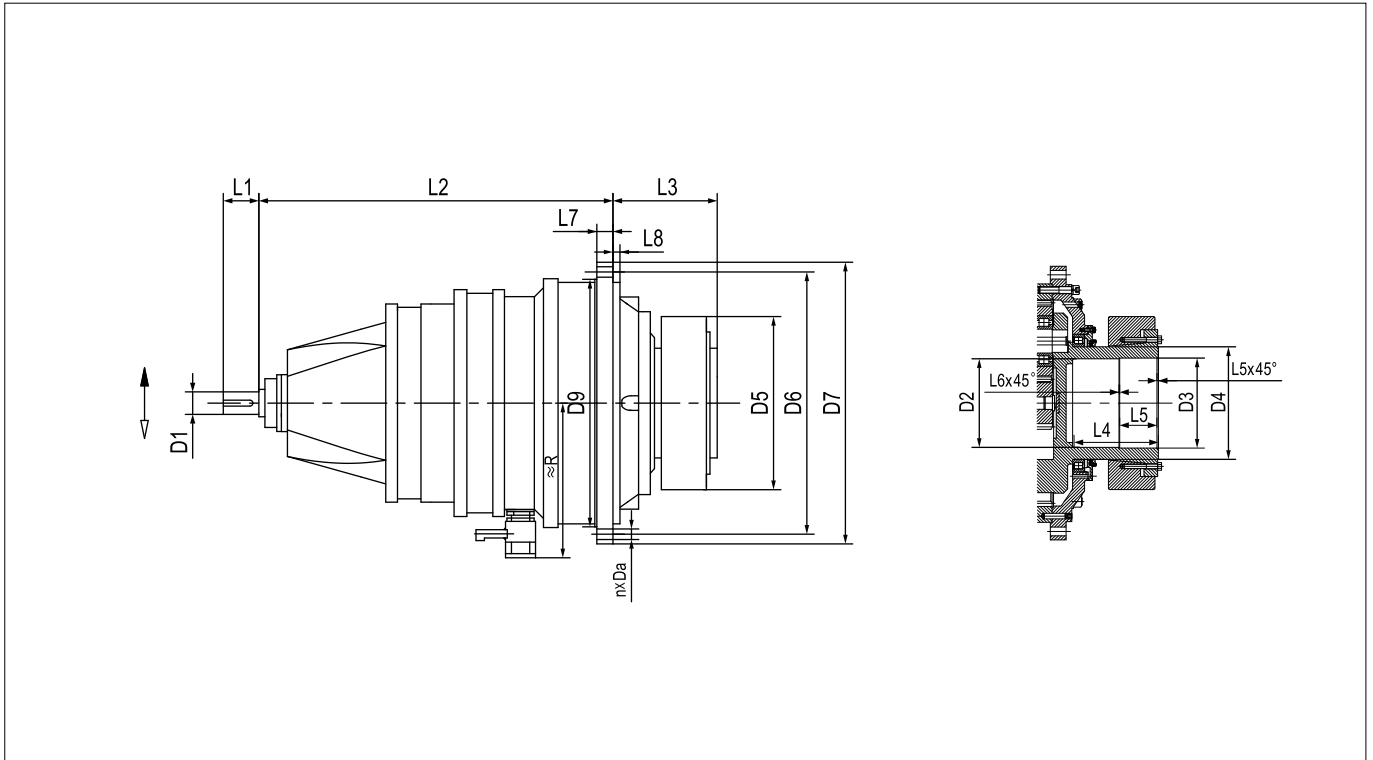


2.5 外形尺寸

2.5 Outline size

2.5.1 DLJGX 齿轮箱外形尺寸

2.5.1 DLJGX gear unit outline size



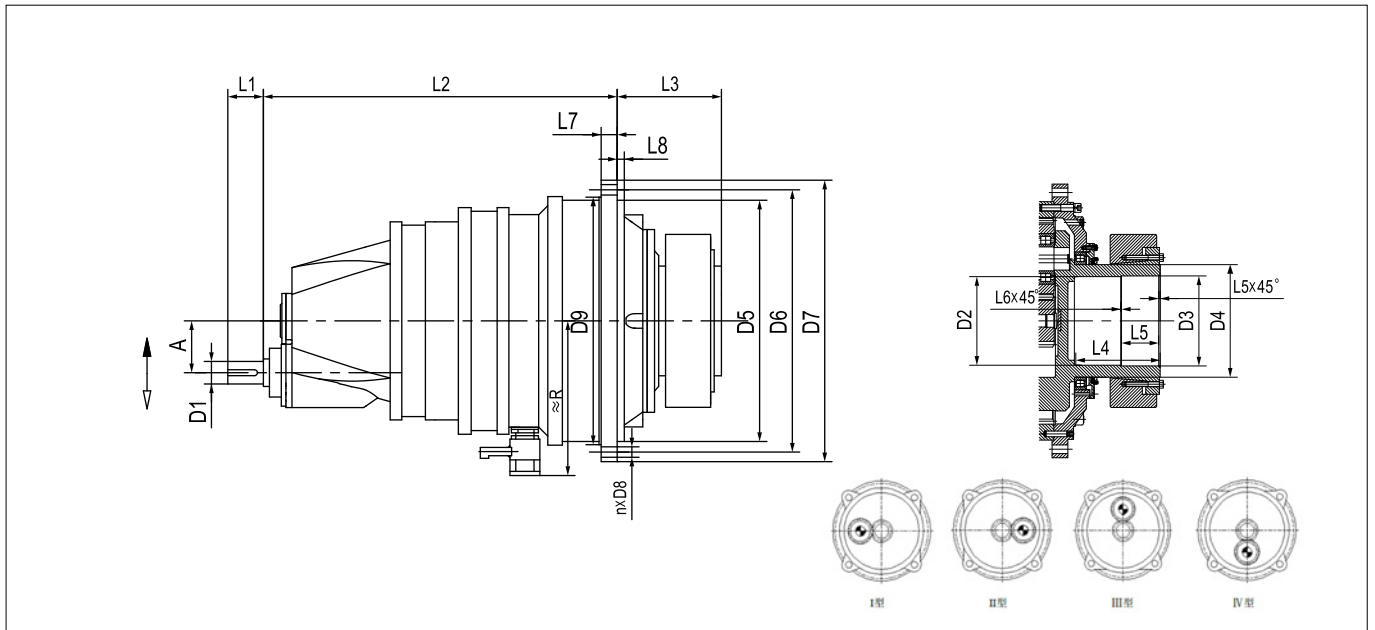
输出扭矩值 Output torque kNm	L1	L2	L3	L4	L5	L6	L7	L8	D1	D2	D3	D4	D5	D6	D7	D8	D9	n	R
100	140	714	241	200	95	2.5	39	9	80	175	180	240	572	630	682	26	535	24	368
130	140	737	278	220	105	2.5	42	9	80	205	210	260	610	665	720	26	610	32	380
190	160	877	294	250	120	2.5	50	10	95	245	250	320	750	830	895	33	750	24	446
250	180	1006	303	250	120	2.5	50	10	110	255	260	340	785	865	930	33	785	32	452
310	180	1029.5	327.5	280	135	2.5	56	12	110	275	280	360	840	915	980	33	840	36	494
370	180	1029.5	327.5	280	135	2.5	56	12	110	295	300	390	840	915	980	33	840	36	512
430	210	1046	354	314	152	2.5	62	24	120	325	330	420	935	1025	1115	39	935	32	556
500	210	1150	380	338	164	2.5	68	28	130	345	350	440	1025	1120	1210	39	1025	36	578
600	210	1150	380	338	164	2.5	68	28	130	355	360	460	1025	1120	1210	39	1050	36	633
730	240	1241	407	370	180	2.5	74	29	140	395	400	500	1115	1220	1320	45	1120	36	645.5
900	240	1379	453	403	191	2.5	81	31	150	445	450	560	1215	1345	1460	52	1230	32	665
1100	270	1457	483	435	197.5	5	87	34	160	450	460	560	1320	1450	1565	52	1330	36	700
1350	270	1607	538	479	232	5	94	36	170	500	510	620	1400	1545	1665	62	1416	32	740
1600	310	1683	573	499	242	5	100	36	180	500	510	620	1495	1635	1755	62	1500	36	765
1900	310	1683	573	514	242	5	100	36	180	560	570	700	1495	1635	1755	62	1510	36	815
2450	310	1899	656	564	272	5	112	40	190	590	600	750	1685	1825	1945	62	1680	40	888

注：  
 1: 键应符合 GB/T 1096 的规定，键槽应符合 GB/T 1095 的规定；  
 2: D1 ≤ 100 时，公差为 m6，D1 > 100 时，公差为 n6；  
 3: D2 公差为 H7，D3 公差为 H7，D4 公差为 f7，D5 公差为 h7；

Note:  
 1: The key should comply with the provisions of GB/T 1096, and the keyway should comply with the provisions of GB/T 1095;  
 2: When D1 ≤ 100mm, the tolerance is m6, and when D1 > 100mm, the tolerance is n6;  
 3: D2 tolerance is H7, D3 tolerance is H7, D4 tolerance is f7, D5 tolerance is h7;

2.5.2 DLJGXP 齿轮箱外形尺寸

2.5.2 DLJGXP gear unit outline size



输出扭矩值 Output torque kNm	A	L1	L2	L3	L4	L5	L6	L7	L8	D1	D2	D3	D4	D5	D6	D7	D8	D9	n	R
100	140	120	714	241	200	95	2.5	39	9	70	175	180	240	572	630	682	26	535	24	368
130	140	120	737	278	220	105	2.5	42	9	70	205	210	260	610	665	720	26	610	32	380
190	170	140	877	294	250	120	2.5	50	10	80	245	250	320	750	830	895	33	750	24	446
250	200	160	1006	303	250	120	2.5	50	10	90	255	260	340	785	865	930	33	785	32	452
310	200	160	1029.5	327.5	280	135	2.5	56	12	90	275	280	360	840	915	980	33	840	36	494
370	200	160	1029.5	327.5	280	135	2.5	56	12	90	295	300	390	840	915	980	33	840	36	512
430	230	180	1076	354	314	152	2.5	62	24	100	325	330	420	935	1025	1115	39	935	32	556
500	265	210	1175	380	338	164	2.5	68	28	120	345	350	440	1025	1120	1210	39	1025	36	578
600	265	210	1175	380	338	164	2.5	68	28	120	355	360	460	1025	1120	1210	39	1050	36	633
730	300	210	1291	407	370	180	2.5	74	29	130	395	400	500	1115	1220	1320	45	1120	36	645.5
900	320	240	1429	453	403	191	2.5	81	31	140	445	450	560	1215	1345	1460	52	1230	32	665
1100	360	240	1507	483	435	197.5	5	87	34	150	450	460	560	1320	1450	1565	52	1330	36	700
1350	360	240	1662	623	485	234	5	87	33	150	500	510	620	1475	1585	1705	62	1440	36	740
1600	400	270	1662	538	474	240	5	87	33	160	500	510	620	1495	1635	1755	62	1500	36	765
1900	400	270	1743	573	514	242	5	100	36	170	560	570	700	1495	1635	1755	62	1510	36	815
2450	442	310	1960	656	564	272	5	112	40	180	590	600	750	1685	1825	1945	62	1680	40	888
3200	475	310	2010	680	580	350	5	112	40	190	640	650	800	1835	1970	2090	62	1860	40	930
4200	510	330	2300	800	670	335	5	150	45	200	770	780	1000	2060	2260	2400	82	2060	40	1010
5200	580	350	2379	807	700	350	5	110	50	220	820	830	1100	2190	2355	2490	82	2190	40	1090
5800	580	350	2420	832	710	355	5	120	50	220	840	850	1140	2335	2510	2645	82	2335	40	1200

注：  
 1: 键应符合 GB/T 1096 的规定，键槽应符合 GB/T 1095 的规定；  
 2: D1 ≤ 100 时，公差为 m6，D1>100 时，公差为 n6；  
 3: D2 公差为 H7，D3 公差为 H7，D4 公差为 f7，D5 公差为 h7；

Note:  
 1: The key should comply with the provisions of GB/T 1096, and the keyway should comply with the provisions of GB/T 1095;  
 2: When D1 ≤ 100mm, the tolerance is m6, and when D1 > 100mm, the tolerance is n6;  
 3: D2 tolerance is H7, D3 tolerance is H7, D4 tolerance is f7, D5 tolerance is h7;

DLJG 系列辊压机行星齿轮箱

DLJG Series Gear Units For Roller Mill

2.6 技术参数

2.6 Technical parameter

2.6.1 DLJGX 齿轮箱技术参数

2.6.1 DLJGX gear unit technical parameter

输出扭矩值 (kNm) Output torque		100	130	190	250	310	370	430	500	600	730	900	1100	1350	1600	1900	2450	
润滑油站流量最小值 Minimum flow rate of lubricating oil station (L/min)		25	25	25	40	40	63	63	63	100	100	125	125	160	160	200	250	
锁紧装置扭矩最小值 Minimum torque of locking device (kNm)		200	260	380	500	620	740	860	1000	1200	1460	1800	2200	2700	3200	3800	4600	
名义速比 i Speed ratio	n1 (rpm)	n2 (rpm)	计算功率 kW Calculated power (kW)															
	25	1500	60	628	817	1194	1571	1948	2325	2702	3141	3770	4586	5654	6911	8482	10052	11937
1000		40	419	545	796	1047	1298	1550	1801	2094	2513	3058	3770	4607	5654	6702	7958	10262
750		30	314	408	597	785	974	1162	1351	1571	1885	2293	2827	3455	4241	5026	5969	7696
28	1500	53.6	561	730	1066	1403	1740	2077	2412	2805	3366	4095	5049	6171	7573	8975	10658	13743
	1000	35.7	374	486	710	935	1159	1383	1607	1869	2243	2729	3364	4112	5047	5981	7103	9162
	750	26.8	281	365	533	702	870	1038	1207	1403	1684	2049	2526	3087	3788	4490	5332	6872
31	1500	48.4	507	659	963	1267	1571	1875	2179	2534	3041	3700	4561	5575	6842	8109	9629	12413
	1000	32.3	338	440	643	846	1048	1251	1454	1691	2029	2469	3044	3720	4566	5412	6426	8276
	750	24.2	253	329	481	634	786	938	1090	1267	1520	1850	2281	2787	3421	4054	4815	6207
35	1500	42.9	449	584	854	1123	1393	1662	1932	2246	2695	3279	4043	4941	6064	7187	8535	10995
	1000	28.6	299	389	569	749	928	1108	1288	1497	1797	2186	2695	3294	4043	4792	5690	7330
	750	21.4	224	291	426	560	695	829	964	1120	1345	1636	2017	2465	3025	3585	4258	5497
40	1500	37.5	393	510	746	982	1217	1453	1688	1963	2356	2866	3534	4319	5301	6283	7461	9620
	1000	25	262	340	497	654	812	969	1126	1309	1571	1911	2356	2880	3534	4188	4974	6414
	750	18.8	197	256	374	492	610	728	846	984	1181	1437	1772	2165	2658	3150	3740	4810

注:  
1: n1 为输入转速, n2 为输出转速;  
2: 计算功率为服务系数为 1 时对应的功率;

Note:  
1: n1 is the input speed, n2 is the output speed;  
2: Computing power for the corresponding power service coefficient to 1;

2.6.2 DLJGXP 齿轮箱技术参数

2.6.2DLJGXP gear unit technical parameter

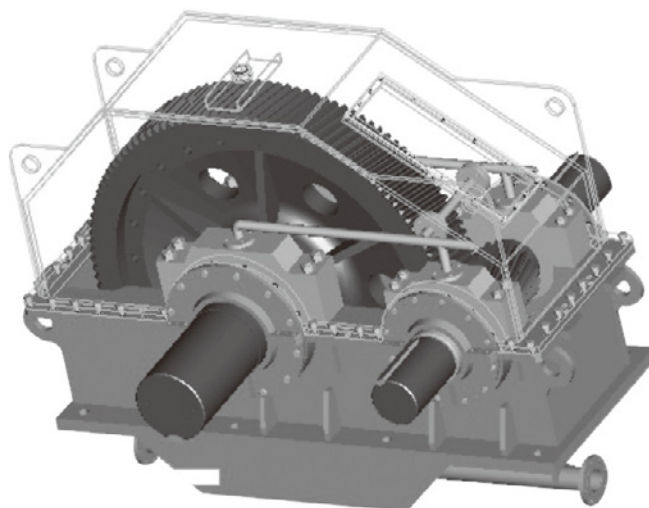
输出扭矩值 (kNm) Output torque		100	130	190	250	310	370	430	500	600	730	900	1100	1350	1600	1900	2450	3200	4200	5200	5800	
润滑油站流量最小值 Minimum flow rate of lubricating oil station (L/min)		25	25	25	40	40	63	63	63	100	100	125	125	160	160	200	250	350	400	500	600	
锁紧装置扭矩最小值 Minimum torque of locking device (kNm)		200	260	380	500	620	740	860	1000	1200	1460	1800	2200	2700	3200	3800	4600	6400	8400	10400	11600	
名义速比 i Speed ratio	n1 (rpm)	n2 (rpm)	计算功率 (kW) Calculated power (kW)																			
			42	1500	35.7	374	486	711	935	1159	1384	1608	1870	2244	2730	3366	4114	5049	5984	7105	9162	11967
	1000	23.8	249	324	474	623	773	922	1072	1247	1496	1820	2244	2742	3366	3989	4737	6108	7978	10471	12964	14460
	750	17.9	187	243	355	467	580	692	804	935	1122	1365	1683	2057	2524	2992	3553	4581	5984	7853	9723	10845
45	1500	33.3	349	454	663	873	1082	1291	1501	1745	2094	2548	3141	3839	4712	5585	6632	8551	11169	14660	18150	20244
	1000	22.2	233	303	442	582	721	861	1001	1163	1396	1699	2094	2560	3141	3723	4421	5701	7446	9773	12100	13496
	750	16.7	175	227	332	436	541	646	750	873	1047	1274	1571	1920	2356	2792	3316	4276	5585	7330	9075	10122
50	1500	30	314	408	597	785	974	1162	1351	1571	1885	2293	2827	3455	4241	5026	5969	7696	10052	13194	16335	18220
	1000	20	209	272	398	524	649	775	901	1047	1257	1529	1885	2304	2827	3351	3979	5131	6702	8796	10890	12147
	750	15	157	204	298	393	487	581	675	785	942	1147	1414	1728	2120	2513	2984	3848	5026	6597	8168	9110
56	1500	26.8	280	365	533	701	869	1038	1206	1402	1683	2047	2524	3085	3786	4488	5329	6872	8975	11780	14585	16268
	1000	17.9	187	243	355	467	580	692	804	935	1122	1365	1683	2057	2524	2992	3553	4581	5984	7853	9723	10845
	750	13.4	140	182	266	351	435	519	603	701	841	1024	1262	1543	1893	2244	2665	3436	4488	5890	7292	8134
63	1500	23.8	249	324	474	623	773	922	1072	1247	1496	1820	2244	2742	3366	3989	4737	6108	7978	10471	12964	14460
	1000	15.9	166	216	316	416	515	615	715	831	997	1213	1496	1828	2244	2659	3158	4072	5319	6981	8643	9640
	750	11.9	125	162	237	312	386	461	536	623	748	910	1122	1371	1683	1995	2368	3054	3989	5236	6482	7230
71	1500	21.1	221	288	420	553	686	819	951	1106	1327	1615	1991	2433	2987	3540	4203	5420	7079	9291	11504	12831
	1000	14.1	147	192	280	369	457	546	634	737	885	1077	1327	1622	1991	2360	2802	3613	4719	6194	7669	8554
	750	10.6	111	144	210	277	343	409	476	553	664	807	996	1217	1493	1770	2102	2710	3540	4646	5752	6415
80	1500	18.8	196	255	373	491	609	726	844	982	1178	1433	1767	2160	2651	3141	3730	4810	6283	8246	10209	11387
	1000	12.5	131	170	249	327	406	484	563	654	785	955	1178	1440	1767	2094	2487	3207	4188	5497	6806	7592
	750	9.4	98	128	187	245	304	363	422	491	589	717	884	1080	1325	1571	1865	2405	3441	4123	5105	5694
90	1500	16.7	175	227	332	436	541	646	750	873	1047	1274	1571	1920	2356	2792	3316	4276	5585	7330	9075	10122
	1000	11.1	116	151	221	291	361	430	500	582	698	849	1047	1280	1571	1862	2211	2850	3723	4887	6050	6748
	750	8.3	87	113	166	218	271	323	375	436	524	637	785	960	1178	1396	1658	2138	2792	3665	4538	5061
100	1500	15	157	204	298	393	487	581	675	785	942	1147	1414	1728	2120	2513	2984	3848	5026	6597	8168	9110
	1000	10	105	136	199	262	325	387	450	524	628	764	942	1152	1414	1675	1990	2565	3351	4398	5445	6073
	750	7.5	79	102	149	196	243	291	338	393	471	573	707	864	1060	1257	1492	1924	2513	3298	4084	4555
112	1500	13.4	140	182	266	351	435	519	603	701	841	1024	1262	1543	1893	2244	2665	3436	4488	5890	7292	8134
	1000	8.9	93	122	178	234	290	346	402	467	561	682	841	1028	1262	1496	1776	2291	2992	3927	4862	5423
	750	6.7	70	91	133	175	217	259	302	351	421	512	631	771	947	1122	1332	1718	2244	2945	3646	4067
125	1500	12	126	163	239	314	390	465	540	628	754	917	1131	1382	1696	2010	2387	3079	4021	5277	6534	7288
	1000	8	84	109	159	209	260	310	360	419	503	612	754	921	1131	1340	1592	2052	2681	3518	4356	4859
	750	6	63	82	119	157	195	232	270	314	377	459	565	691	848	1005	1194	1539	2010	2639	3267	3644

注:  
1: n1 为输入转速, n2 为输出转速;  
2: 计算功率为服务系数为 1 时对应的功率;

Note:  
1: n1 is the input speed, n2 is the output speed;  
2: Computing power for the corresponding power service coefficient to 1;

# DLBYX 系列 边缘传动磨机齿轮箱

DLBYX Series Gear Units For Side Transmission Mill



3.1 性能与特点

DLBYX 系列边缘传动磨机齿轮箱采用了现代齿轮设计制造技术，吸取了德国、日本等同类产品的优点，进一步总结了国内长期设计制造同类产品的经验和使用中出现的的问题，如小齿轮点蚀，幅板螺栓断裂等，不断改进和提高、精益求精。过去设计的基础上，除了外形尺寸基本保持不变外，另提高了齿轮的强度和箱体的刚性，从而一步提高可取性和使用寿命，根据水泥等行业使用工况恶劣，低速重载，要求安全可靠，使用寿命长的特点，专门设计用于水泥，煤磨等用途的边缘传动磨机齿轮箱。

DLBYX 系列齿轮箱采用单级减速，带专用油站，齿轮全部为硬齿面，渗碳淬火磨齿、修形，精度达 6 级（ISO1328-1995, 1997）以上，高可靠度设计，设计寿命为持久寿命，与国内外同类产品相比，具有体积小、重量轻、外形简洁大方、操作简单、维修方便、安全可靠、使用寿命长的特点。

3.2 适用范围

主要用于水泥磨、煤磨的边缘传动磨机齿轮箱。

由于体积小，安装简单方便，适用于老厂的技术改造和设备的更新换代。

可参照使用于其他行业用途，根据情况可提高负荷使用。

3.3 型号规格

3.1 Performance and characteristics

DLBYX Series gear unit for Side Transmission Mill adapts modern design and manufacture technique for gear and absorbs the advantages of similar products made in Germany and Japan, etc and also summarizes further the experience of domestic similar products during the period of long term design and manufacture and problem taken place in application, such as pitting corrosion of pinion Bolt of breadth plate broken, etc and improves continuously. Keep improving, on the basis of past design, besides keeping overall dimension basically, the strength of gear and rigid of box body has been improved, therefore the reliability and long life have been improved further. According to the features of cement industry, i.e.bad work condition, low speed heavy load. required safety and reliability, long life, design specially gear unit for Side Transmission Mill used for cement .coal ,etc, application.

DLBYX Series gear unit adapts single stage speed-down and is equipped with special oil station. All gears are hard tooth face, carburization, quenching, teeth grinding. shape finishing, accuracy may reach to over 6 grades (ISO1328-1995. 1997), high reliability design, the design life is durable life. Compared with domestic similar products, it features compact, light, simple and in good taste of outer cylinder, easy to operate convenient to maintain, safety, reliability, long life, etc.

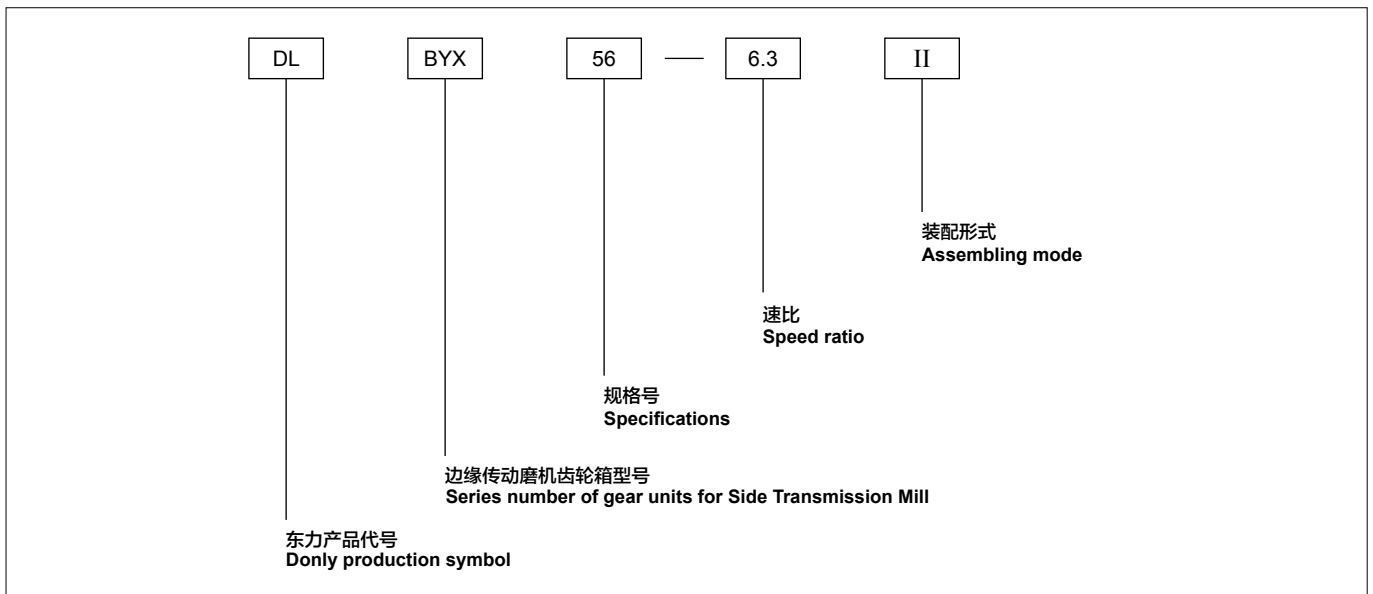
3.2 Suitable scope

It is mainly used for gear unit for Side Transmission Grinding Mill of cement mill and coal mill.

Because of compact, easy and convenient to install, it is suitable for technical reform and renewing equipment of old factory.

May refer to and apply to the applications of other industry. It can be used while increase load in accordance with actual condition.

3.3 Specifications and model

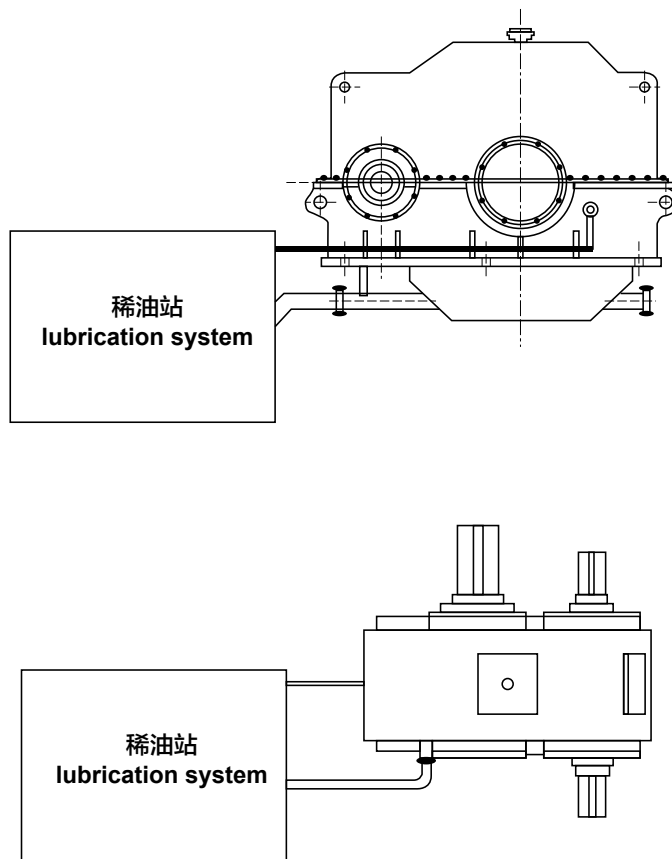


3.4 齿轮箱与稀油站的安装

油站可安在齿轮箱附近的任何位置，无需地脚螺栓，一般安放在车间地平面上。

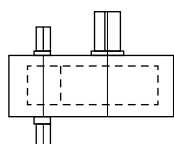
3.4 Installation of gear unit and lubrication system

The Lubrication system can be installed at any place where is nearby speed gear unit, without anchor bolts. In general it is put onto the ground of workshop.

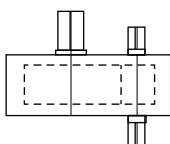


DLBYX 齿轮箱装配方式代号

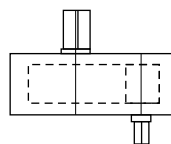
Assembling mode of gear unit and its code



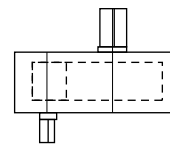
I



II



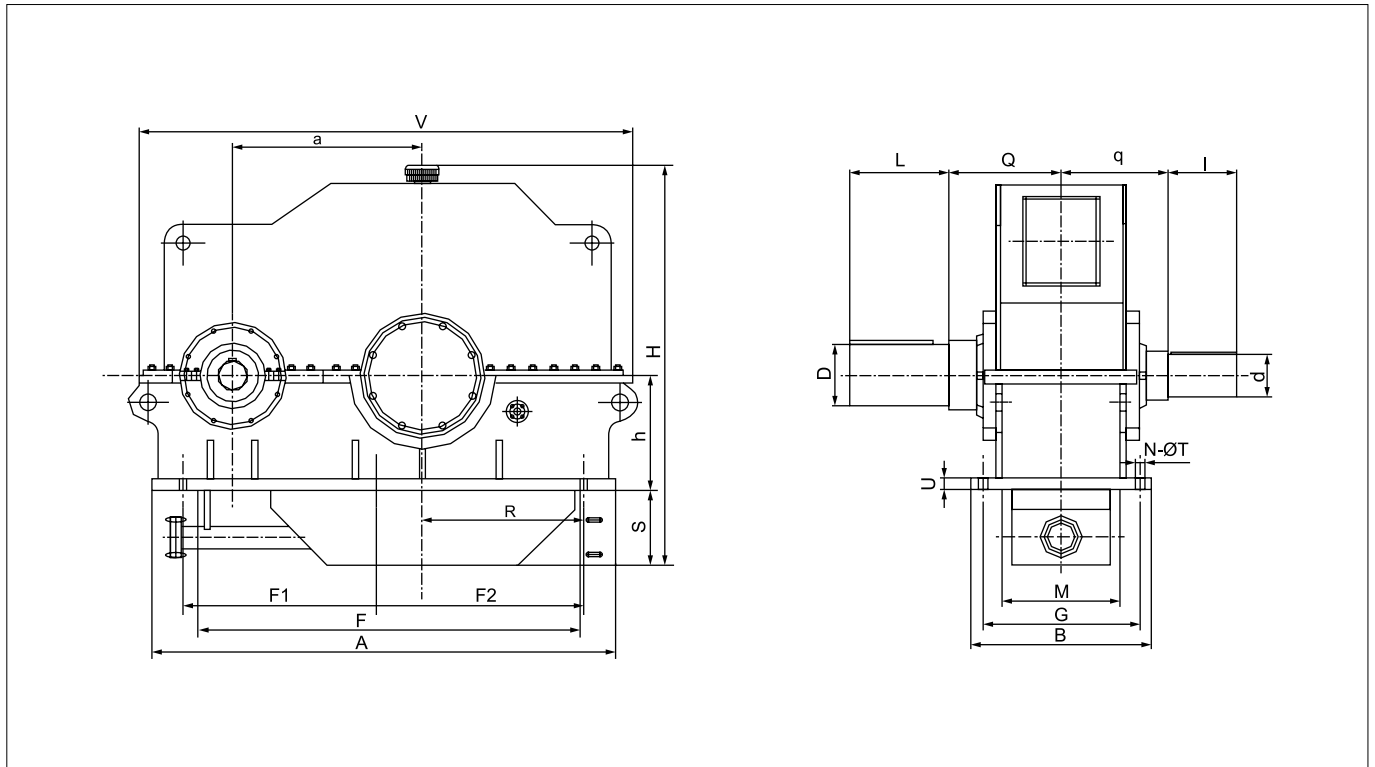
III



IV

3.5 外形尺寸

3.5 Outline size



3.6 尺寸表

3.6 Table of size

序号 NO.	型号 Type	主动轴 The driving shaft											从动轴 The driven shaft			
		U=3.15-4			U=4.5-5.0			U=5.6-6.3			U=7.1		U=3.15-7.1			
		d	q	l	d	q	l	d	q	l	d	q	l	D	Q	L
1	DLBYX28	80	215	180	70	195	160	55	195	140	50	195	120	125	215	200
2	DLBYX36	115	245	200	85	225	180	75	225	160	60	225	140	145	255	230
3	DLBYX40	125	275	210	100	260	185	85	260	170	70	260	155	160	270	240
4	DLBYX45	135	305	230	115	295	185	95	295	175	80	295	165	170	315	240
5	DLBYX50	145	305	260	125	310	200	105	310	185	90	310	175	180	335	260
6	DLBYX56	155	305	300	135	330	230	115	330	200	105	330	200	225	355	340
7	DLBYX63	170	375	340	150	350	260	130	350	230	110	350	200	245	375	380
8	DLBYX71	180	390	340	160	365	300	150	365	230	130	365	230	260	390	400
9	DLBYX80	220	450	380	200	425	340	180	425	260	150	425	230	280	450	460
10	DLBYX90	260	520	400	240	495	340	200	495	300	175	495	260	300	520	480
11	DLBYX100	280	590	460	260	565	400	220	565	360	190	565	300	330	590	520

序号 NO.	型号 Type	外型及安装尺寸 Dimensions of outline and installation(mm)															质量 Weight (kg)	
		a	A	B	F1	F2	G	h	H	R	N	T	U	V	F	M		S
1	DLBYX28	280	710	290	305	305	240	360	680	210	6	23	40	848				500
2	DLBYX36	360	927	360	390	390	300	450	850	273	6	23	40	1047				900
3	DLBYX40	400	1050	420	440	440	360	500	970	350	6	35	40	1128				1360
4	DLBYX45	450	1220	480	520	580	420	560	1036	420	6	35	40	1300				1750
5	DLBYX50	500	1310	560	570	600	480	610	1136	425	6	39	40	1460				2250
6	DLBYX56	560	1400	640	620	620	540	500	1330	435	6	39	35	1620	1000	340	250	2700
7	DLBYX63	630	1520	680	680	680	590	500	1490	480	6	39	35	1740	1145	375	300	3300
8	DLBYX71	710	1740	700	750	750	600	500	1530	530	6	39	40	1950	1445	415	350	4900
9	DLBYX80	800	1950	800	850	850	690	500	1764	600	6	45	50	2190	1625	430	450	5800
10	DLBYX90	900	2145	900	930	960	800	600	1990	665	6	45	50	2425	1785	500	500	8500
11	DLBYX100	1000	2440	950	1500/2	610	830	600	2120	850	8	51	60	2720	2040	560	500	10600

\* 主动轴径 d 和从动轴径 D 的公差范围是 : m6

\* Tolerance range of driving shaft diameter d and driven shaft diameter D: m6

\* 键的尺寸根据轴径按 GB1095-79 确定

\* Dimensions of key can be obtained from GB 1095-79 according to shaft diameter

3.7 使用功率表

3.7 Table of power to be used

名义速比 Normal speed ratio U	输入转速 Input speed n(rpm)	齿轮箱型号 Specification of gear unit										
		DLBYX28	DLBYX36	DLBYX40	DLBYX45	DLBYX50	DLBYX56	DLBYX63	DLBYX71	DLBYX80	DLBYX90	DLBYX100
3.15	1500	593	1187	1908	2448	3066						
	1000	395	791	1272	1632	2044	2560	3200	4800	6400		
	750	296	593	954	1224	1533	1920	2400	3600	4800	7920	10800
	600	237	475	763	980	1226	1635	1920	2800	3840	6336	8460
3.55	1500	497	986	1630	2160	2694						
	1000	331	657	1086	1440	1796	2240	2880	4032	5440		
	750	248	493	815	1080	1347	1680	2160	3024	4080	4960	9240
	600	198	394	652	864	1078	1344	1728	2420	3264	5568	7392
4	1500	428	840	1310	1560	2043						
	1000	285	560	873	1002	1362	1852	2565	3570	4740	6682	8835
	750	214	420	655	765	1022	1372	1905	2646	3510	4950	6547
	600	171	336	524	615	818	110	1545	2145	2835	4005	5250
4.5	1500	360	737	1134	1488	1745						
	1000	240	491	756	870	1163	1554	2167	3016	4005	5649	7440
	750	180	368	567	645	872	1152	1605	2235	2907	4185	5514
	600	144	294	454	525	698	930	1290	1800	2400	3375	4455
5	1500	312	659	998	1248	1512						
	1000	208	439	665	765	1008	1329	1860	2565	3420	4839	6375
	750	156	329	499	570	756	985	1377	1905	2535	3588	4725
	600	125	264	399	462	605	795	1110	1545	2055	2895	3825
5.6	1500	200	450	428	960	407	1632	2160				
	1000	133	300	285	627	271	117	1560	2167	2875	4050	5377
	750	100	225	214	465	203	828	1155	1605	2130	3000	3984
	600	80	180	171	375	162	675	930	1290	1725	2430	3225
6.3	1500	168	366	620	768	1049	1344	1920				
	1000	112	244	413	525	699	930	1296	1800	2385	3375	4434
	750	78	183	310	390	524	690	960	1335	1770	2505	3285
	600	62	146	248	315	419	555	780	1080	1425	2025	2655
7.1	1500	168	317	524	672	867	1056	1632				
	1000	112	211	349	435	578	769	1053	1485	2040	2790	3600
	750	63	158	262	322	434	570	780	1101	1515	2070	2700
	600	50	126	210	262	347	460	630	885	1200	1650	2190

3.8 速比

3.8 Speed ratio

型号 Type	名义速比 Normal speed ratio							
	3.15	3.55	4	4.5	5	5.6	6.3	7.1
	实际速比 Actual speed ratio							
DLBYX28	3.136	3.55	3.955	4.45	5.056	5.667	6.211	7.158
DLBYX36	3.167	3.545	4.043	4.524	4.9	5.684	6.368	7.158
DLBYX40	3.174	3.571	4.045	4.55	4.895	5.55	6.278	7.158
DLBYX45	3.143	3.571	4.053	4.45	4.905	5.526	6.25	7.111
DLBYX50	3.174	3.571	4.143	4.45	5.05	5.619	6.316	7.1
DLBYX56	3.136	3.55	3.955	4.45	5.05	5.667	6.211	7.059
DLBYX63	3.208	3.591	4.083	4.545	4.857	5.524	6.211	7.105
DLBYX71	3.125	3.5	4.043	4.476	5.053	5.571	6.263	7.105
DLBYX80	3.111	3.625	3.962	4.417	4.909	5.5	6.222	7.158
DLBYX90	3.154	3.5	4.04	4.478	4.952	5.636	6.3	7.111
DLBYX100	3.172	3.654	3.964	4.52	5.043	5.619	6.316	7.118

3.9 订货选型说明

齿轮箱的选用根据所需要的功率、输入转速、减速比，直接选出齿轮箱的型号即可（无需考虑使用系数、服务系数、传动系数等）。

订货时除了注明齿轮箱的型号，需要的功率、输入转速（通常为740r/min）、减速比外，还需注明装配方式代号，油站随机配套。

如有其他特殊订货要求（如单输入双输出边缘传动齿轮箱等特殊结构形式）或用于其他行业及用途，请您发出咨询。

本公司亦可设计制造本齿轮箱之后的慢速齿轮箱、联轴器、传动轴及开式齿轮等部件。

3.9 Explanation of model choosing when order

The selection and application of gear unit can choose the model directly in accordance with needed power, input revolution, speed-down ratio (It is necessary to consider application coefficient, service coefficient and transmission coefficient.etc.).

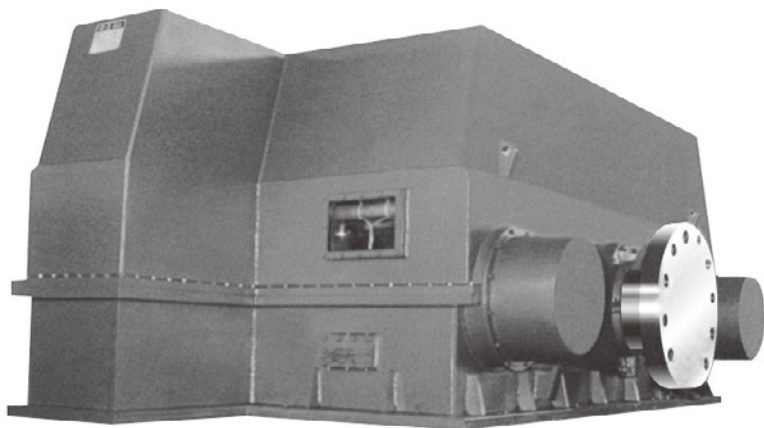
When order, besides indicate model of gear unit, needed power, input revolution (in general: 740r/min), speed-down ratio, it should also indicate the code of assembling mode and oil thinning station accompanied the machine.

If have other special order requirement (for example, special structural mode, single input double output side transmission gear unit) or used for other industry and application, please consult us.

The company can also manufacture slow gear unit, coupling, transmission shaft and opening gear, etc pars which are followed up the gear unit.

# DLMFY 系列 中心传动磨机齿轮箱

DLMFY Series Gear Units For Central Transmission Mill



## DLMFY 系列中心传动磨机齿轮箱

## DLMFY Series Gear Units For Central Transmission Mill

### 4.1 性能与特点

DLMFY 系列中心传动磨机齿轮箱采用了现代齿轮设计制造技术，综合吸取了日本、丹麦、德国、美国等先进国家的技术，进一步总结了大型磨机齿轮箱在使用中容易出现的问题，进而重新设计的新型低速重载齿轮箱。与过去相比，安全性、可靠性更加提高，使用寿命更加持久、安装使用更加方便，日趋完美，可跟国内外任何同类产品相媲美。

DLMFY 系列中心传动磨机齿轮箱采用功率双分流、两级减速、同心传动。DLMFY-X 系列磨机齿轮箱采用三级减速，第一级采用行星齿轮传动，第二、三级采用 DLMFY 系列磨机齿轮箱的结构形式，DLMFY-X 系列特别适用于大速比的情况。其中行星传动技术也取得了巨大成功，至今已安全运行 20 年。

DLMFY 系列中心传动磨机齿轮箱全部采用硬齿面、渗碳、淬火、磨齿修形、精度 (ISO1328)5 级以上，齿轮设计寿命为持久寿命，滑动轴承为永不磨损型，无须备件，所有零部件的设计寿命均在 20 年以上，可做到十年不开箱。此外，还设有安全可靠的电控和检测系统，可实现全部轴承温度巡检、振动检测和计算机控制。

该系列齿轮箱具有体积小、重量轻、传递能力大、使用寿命长的特点，安装维护更加方便，操作更加简单容易，传动平稳，噪音低。由于实现了系列的标准化、模块化设计，对用户的维护保养及备件供应提供了更加方便有利的条件，售后服务更加快捷、准确。

### 4.2 适用范围

DLMFY、DLMFY-X 系列中心传动磨机齿轮主要用于建材行业水泥厂的大型磨机齿轮箱。

### 4.1 Performance and characteristics

DLMFY Series Gear unit for Central Transmission Grinding Mill adapts modern design and manufacture technique for gear and absorbs comprehensively advanced technique of Germany, USA, Denmark, etc, and also summarizes further the troubles that is easy to appear in gear unit of dig grinding mill and designs again new-style low speed heavy load gear unit. Compared with past, the safety and reliability has improved greatly and the lie of operation is more durable and the installation and use are more convenient and perfect. It can be compared. With any similar products both at home and abroad.

DLMFY Series gear unit for Central Transmission Grinding Mill adapts power double-shunt, Two-stage speed-down and concentric transmission. DLMFY-X Series gear unit for Grinding Mill adapts three-stage speed-down. The first grade adapts gear transmission, the second and the third stage adapts the structural form of DLMFY Series gear unit for Grinding ML DLMFY-X Series is suitable for the condition of big speed ratio particularly. In which the planet transmission technique has got great successful. It has operated for more 20 years till now.

DLMFY Series gear unit for Central Transmission Grinding Mill adapts hard tooth face, carburization, quenching, teeth grinding, shape finishing, accuracy may reach to over 5 grades (ISO 1328), the design life of gear is durable life. The sliding bearing is non-worn type forever. It is not necessary to prepare spare parts. The design life of all parts will be over 20 years. It guarantees that not necessary to open the box within 10 years. Meanwhile it has safety and reliable electric control and detection system. The iteration inspection for temperature as well as vibration and computer control of all bearings can be realized.

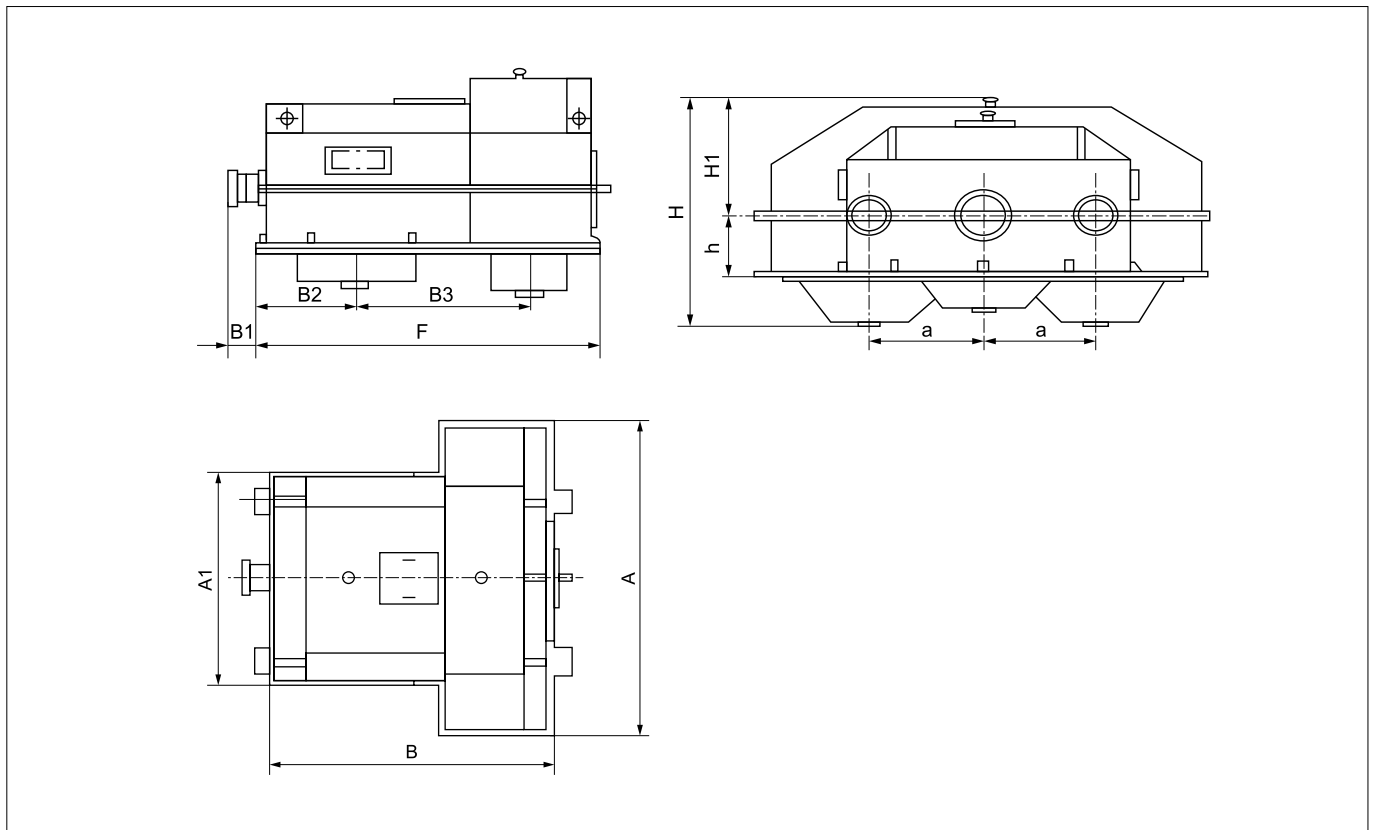
It features compact, light, big transmission capacity and long life, etc, easy to operate, convenient to maintain, constant transmission, low noise. Being realized standardized series, module design. It provides more convenient and benefit condition to customer for maintenance and benefit condition to customer for maintenance and spare parts supply and more quick and accuracy after service.

### 4.2 Suitable scope

DLMFY, DLMFY-X Series gear unit for Central Transmission Grinding Mill are mainly used for cement factory of construction material industry.

4.3 DLMFY 系列技术性能及外形尺寸

4.3 Outline dimensions and features for DLMFY series



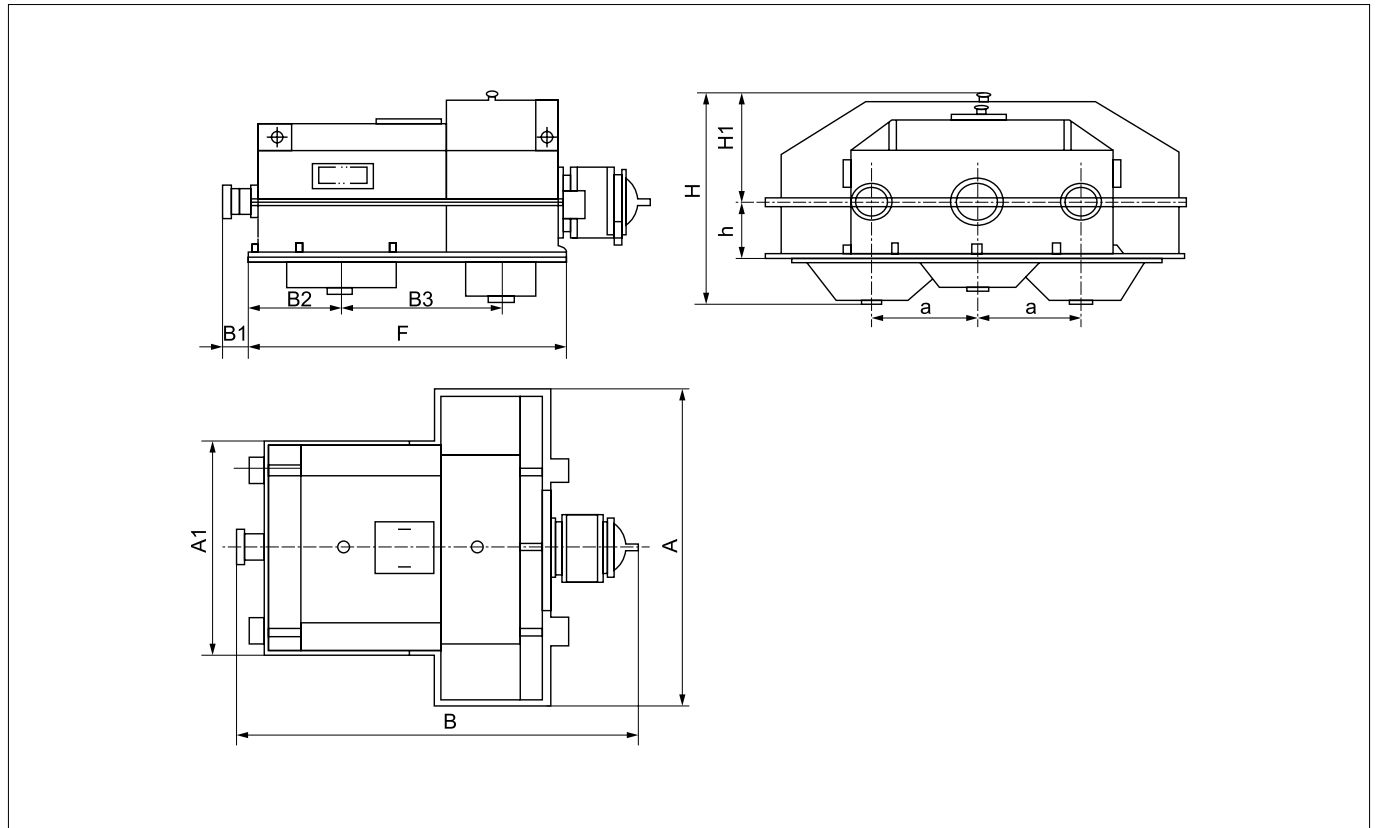
4.4 外形尺寸及技术性能 (二级)

4.4 Outline size and technical performance(two-stage)

序号 NO.	型号 Type	使用 功率 Power (kW)	输入 转速 Input speed (r/min)	输出转速 Output speed (r/min)	尺寸 Dimension(mm)											重量 Weight (t)
					A	A1	B	B1	B2	B3	F	H	h	H1	a	
1	DLMFY80	800	740 600	20.6 19.8 19.3	3800	2560	2385	285	530	865	1800	1950	600	1000	900	21
2	DLMFY100	1000		19.5 17.6	4216	3000	2380	285	545	822.5	1770	2150	600	1075	1000	26
3	DLMFY125	1250		16.9 17.6 18 18.85	4500	3200	2590	300	625	875	1940	2300	600	1170	1100	32
4	DLMFY140	1400		16.5 17 18.3	4500	3200	2690	300	610	975	2015	2300	600	1170	1100	35
5	DLMFY160	1600		16.5 16.8 17.1	4840	3400	2514	385	477.5	892.5	1860	2400	600	1200	1200	38
6	DLMFY180	1800		16.5	5040	3500	2510	385	477.5	892.5	1860	2400	600	1200	1250	40
7	DLMFY200	2000		15.6 16.3	5200	3600	2840	390	630	1050	2100	2500	650	1250	1300	43
8	DLMFY225	2250		16 16.3	5200	3600	2900	390	660	1080	2160	2500	650	1250	1300	45
9	DLMFY250	2500		15 15.75 16.3 16.5	5400	3800	3040	390	730	1150	2300	2620	650	1350	1350	48
10	DLMFY280	2800		15 15.78 16.5	5760	3900	3040	390	730	1150	2300	2800	650	1373	1450	52
11	DLMFY300	3000		15	6130	4150	3090	390	742.5	1177.5	2350	3060	710	1450	1500	56
12	DLMFY320	3200		15.6	6130	4150	3090	390	742.5	1177.5	2350	3060	710	1450	1500	60
13	DLMFY355	3550		15	6220	4200	3370	390	865	1310	2660	3260	710	1550	1533	66
14	DLMFY400	4000		14.5 15	6120	4240	3710	420	1030	1360	2880	3068	710	1550	1550	71
15	DLMFY420	4200		14.5 15	6360	4360	3700	420	1030	1350	2860	3185	710	1560	1600	75
16	DLMFY450	4500		14 14.5	6590	4550	3820	420	1060	1390	2940	3310	710	1600	1650	80
17	DLMFY500	5000		14 14.5	6590	4550	3940	420	1110	1450	3060	3310	710	1600	1650	85
18	DLMFY560	5600		14 14.5	6800	4625	4080	420	1140	1520	3180	3300	710	1650	1700	90

4.5 DLMFY-X 系列技术性能及外形尺寸

4.5 Outline dimensions and features for DLMFY-X series



4.6 外形尺寸及技术性能 (三级)

4.6 Outline size and technical performance(three-stage)

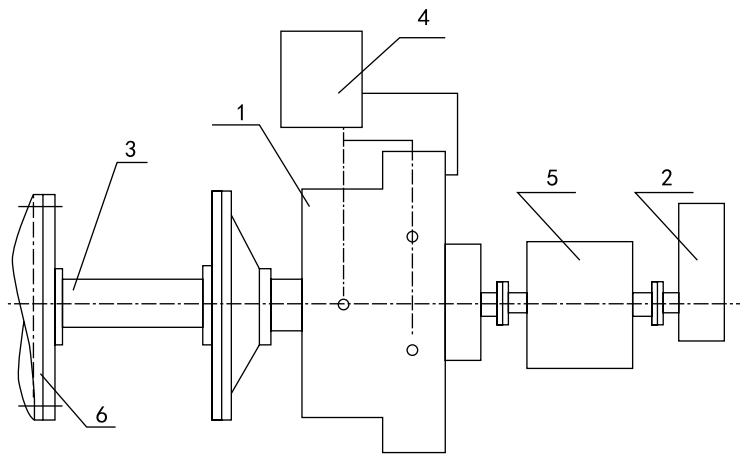
序号 NO.	型号 Type	使用 功率 Power (kW)	输入 转速 Input speed (r/min)	输出转速 Output speed(r/ min)	尺寸 Dimension(mm)										重量 Weight (t)	
					A	A1	B	B1	B2	B3	F	H	h	H1		a
1	DLMFY160X	1600	740 1000	16.5 16.8 17.1	4500	3200	3165	300	610	975	2015	2300	600	1170	1100	39
2	DLMFY180X	1800		16.5	4840	3400	3165	385	477.5	892.5	1860	2400	600	1200	1200	41
3	DLMFY200X	2000		15.6 16.3	5040	3500	3165	385	477.5	892.5	1860	2400	600	1200	1250	44
4	DLMFY225X	2250		16 16.3	5200	3600	3490	390	630	1050	2100	2500	650	1250	1300	46
5	DLMFY250X	2500		15 15.75 16.3 16.5	5200	3600	3600	390	660	1080	2160	2500	650	1250	1300	49
6	DLMFY280X	2800		15 15.78 16.3	5400	3800	3740	390	730	1150	2300	2620	650	1350	1350	53
7	DLMFY300X	3000		15	5760	3900	3740	390	730	1150	2300	2800	650	1373	1450	56
8	DLMFY320X	3200		15.6	6130	4150	3790	390	742.5	1177.5	2350	3000	650	1450	1500	59
9	DLMFY355X	3550		15	6130	4150	3840	390	742.5	1177.5	2350	3000	650	1450	1500	61
10	DLMFY400X	4000		14.5 15	6220	4200	4120	390	865	1310	2660	3200	650	1550	1533	66
11	DLMFY420X	4200		14.5 15	6120	4240	4460	420	1030	1360	2880	3008	650	1500	1550	71
12	DLMFY450X	4500		14 14.5	6360	4360	4460	420	1030	1350	2860	3125	650	1560	1600	76
13	DLMFY500X	5000		14 14.5	6590	4550	4570	420	1060	1390	2940	3250	650	1600	1650	82
14	DLMFY560X	5600		14 14.5	6590	4550	4690	420	1110	1450	3060	3250	650	1600	1650	88

4.7 订货选型说明

4.7 Explanation of model choosing when order

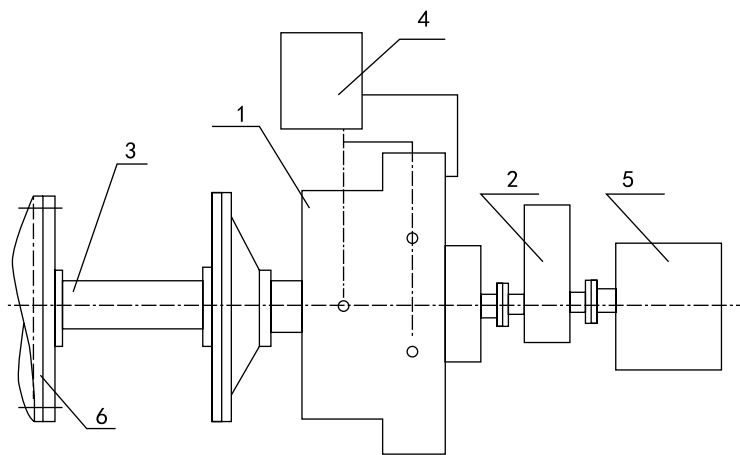
第一种布置形式:

The First Arrangement Form:



第二种布置形式:

The Second Arrangement Form:



- 1. 主齿轮箱
- 2. 慢速齿轮箱
- 3. 传动轴及膜片联轴器
- 4. 稀油站
- 5. 主电机
- 6. 磨机端

- 1. Main gear unit
- 2. Slow gear unit
- 3. Coupling of transmission shaft and film sheet
- 4. Lubrication system
- 5. Main motor
- 6. End of grinding mill

## DLMFY 系列中心传动磨机齿轮箱

## DLMFY Series Gear Units For Central Transmission Mill

本公司可根据用户要求按类别供货，见下表

The company can supply goods based on kind in accordance with the requirements of customer, please refer to following table:

供货代号 Code of supplied goods	供货内容 Content of supplied goods	备注 Remarks
一 One	1+4	通常订货内容 Ordinary content of supplied goods
二 Two	1+2+4	
三 Three	1+2+3+4	
四 Four	1+2+3+4+5	

#### 4.8 订货须知

主齿轮箱含有输入联轴器、主电机端半联轴器，慢速齿轮箱中含慢速电动机、稀油站中含电控柜、仪表柜，此外还包括地脚螺栓、垫铁、各种管系、专用工具、备件等等。

稀油站一般安放在车间地平面上，无须地脚螺栓，还可根据用户要求安装在车间的其他位置。

电控部分根据用户要求，有各种方案可选择。

表中的“输出转速”为已实际使用过的磨机转速，若变化较大，须与我司联系。

本公司可根据用户要求进行非标设计、特殊订货。

#### 4.8 Order instructions

Main gear unit contains input coupling. At the end of main motor there is half coupling. Slow gear unit contains slow motor. There is electric control cabinet, meters and instruments cabinet in Lubrication system. Moreover, there are anchor bolts, sizing block, different pipeline, special tools and spare parts, etc.

In general, the oil thinning station will be put onto the ground of workshop. It is not necessary to use anchor bolts. It can also be put onto other place of workshop in accordance with the requirement of customer.

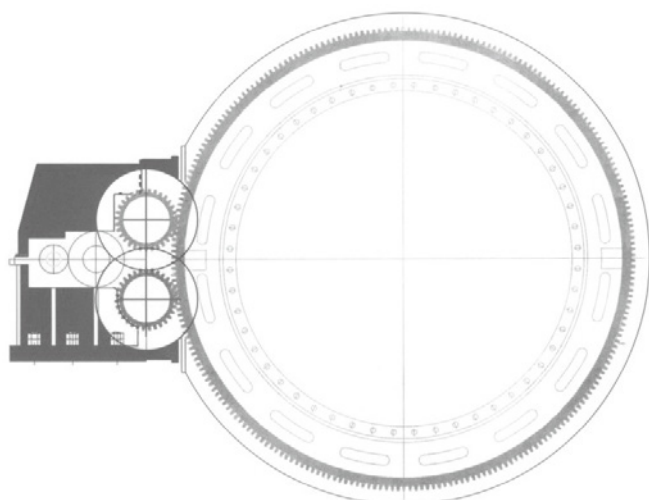
Electric control part has different scheme for choosing in accordance with the requirements of customer.

The output revolution in table means actual operated revolution of grinding mill. If the change is larger, please contact us.

The company can also carry out non-standard design and special order in accordance with the requirements of customer.

# DLMBYS 系列 单边双传动磨机齿轮箱

DLMBYS Series Girth Gear Units For Mills



## 5.1 概述

单边双传动磨机齿轮箱是用于大型磨机传动的又一新型传动装置。与单边单传动（通常说的边缘传动）相比，有突出的优点。单边单传动是一个输出小齿轮直接带动磨机上的大齿圈转运，而单边双传动是两个输出小齿轮同时驱动磨机上的大齿圈，因而传递功率增加了一倍。在这个传动系统中，传动轴系、联轴器、在两个轴承座上的小齿轮以及黄油润滑系统都省掉了，齿轮箱结构更为紧凑。节省了很多费用，厂房和基础的投资也可节省，占地面积节省了 35%，减少了部件意味着减少了潜在的故障源，减少了安装和校正的部件，可以节省安装时间，降低维修要求，因此也降低了投资。再加上一些磨机结构的需要，单边双传动磨机齿轮箱的应用越来越广泛。

DLMBYS 系列单边双传动磨机齿轮箱是在吸取国外先进经验的基础上，经过多年的研究，设计开发的一种新型齿轮箱。

该系列齿轮箱采用三级减速（含大齿圈），功率双分流、侧传动，齿轮箱与磨机形成了一个整体。突出解决了此类磨机齿轮箱存在的两个主要问题：一是彻底解决了密封问题，该齿轮箱是主齿轮箱与大齿圈共用一个循环润滑系统，采用稀油润滑，密封问题更为突出。为此设计有三道防漏油措施，实践证明，现在漏油问题已经不存在。二是均载问题，解决功率双分流的关键是均载。此系统的两个重要部件是与大齿圈啮合的自调节小齿轮，由于允许的加工和安装误差，小齿轮与大齿圈的啮合线与理想线存在一定的偏差，磨机可以因荷载、温度变化和基础沉降而改变其自身位置，从而改变小齿轮和大齿圈的啮合状态。也就是在齿轮齿向方向出现不均载的情况。采用自调式小齿轮便可解决这一问题。与大齿圈啮合的两个小齿轮的位置能够随大齿圈的改变而改变，对自身进行调整，始终保持两个小齿轮与大齿圈的均匀啮合，终保持理想的均载效果。径向的均载（功率的均匀分配）是通过中间轴的浮动来实现的，本设计在吸取国外先进经验和实践经验的基础上，在齿轮箱的结构、齿轮强度、安装调整、维护保养上均作了改进和提高，因而更加安全可靠，使用寿命长。

DLMBYS 系列齿轮箱的主齿轮箱分四种规格，四种规格中，只有第一级是按不同速比设计制造，其他部件始终相同。由于内部部件是对称的，因此将齿轮翻转使用，使非工作面变成工作面，使用寿命将延长。采用等强度，高可靠性设计大齿圈，可满足 800kW-5600kW 磨机齿轮箱的需要，如果一台磨机配双台齿轮箱则功率可达 10000kW 以上，可满足国内外所有的要求，该系列齿轮箱系统全面、先进可靠。

## 5.1 General notes

Girth gear for mills are another new transmission mechanism for drive of large-capacity mills. Compared with unilateral transmission (commonly named edge transmission), girth transmission boasts outstanding benefits. Unilateral transmission mechanism drives the larger teeth ring of mill directly by a smaller output gear. Girth transmission mechanism drives the larger teeth ring of mill directly by two smaller output gears, doubling the transmission efficiency. Furthermore the use of girth transmission mechanism can eliminate transmission shafts, couplings and small gears and lubricating system on two bearing seats. It makes contributions to compact structure of speed gear unit as well as less expense and investment in workshops and foundation. The space is saved by 35%. Reduction of components implies less cause of potential errors, saves mounting and calibration tools and time, lowers maintenance and reduces the amount of investment. Therefore, the application scope of girth gear unit will be wider and wider while taking account of needs of some mills.

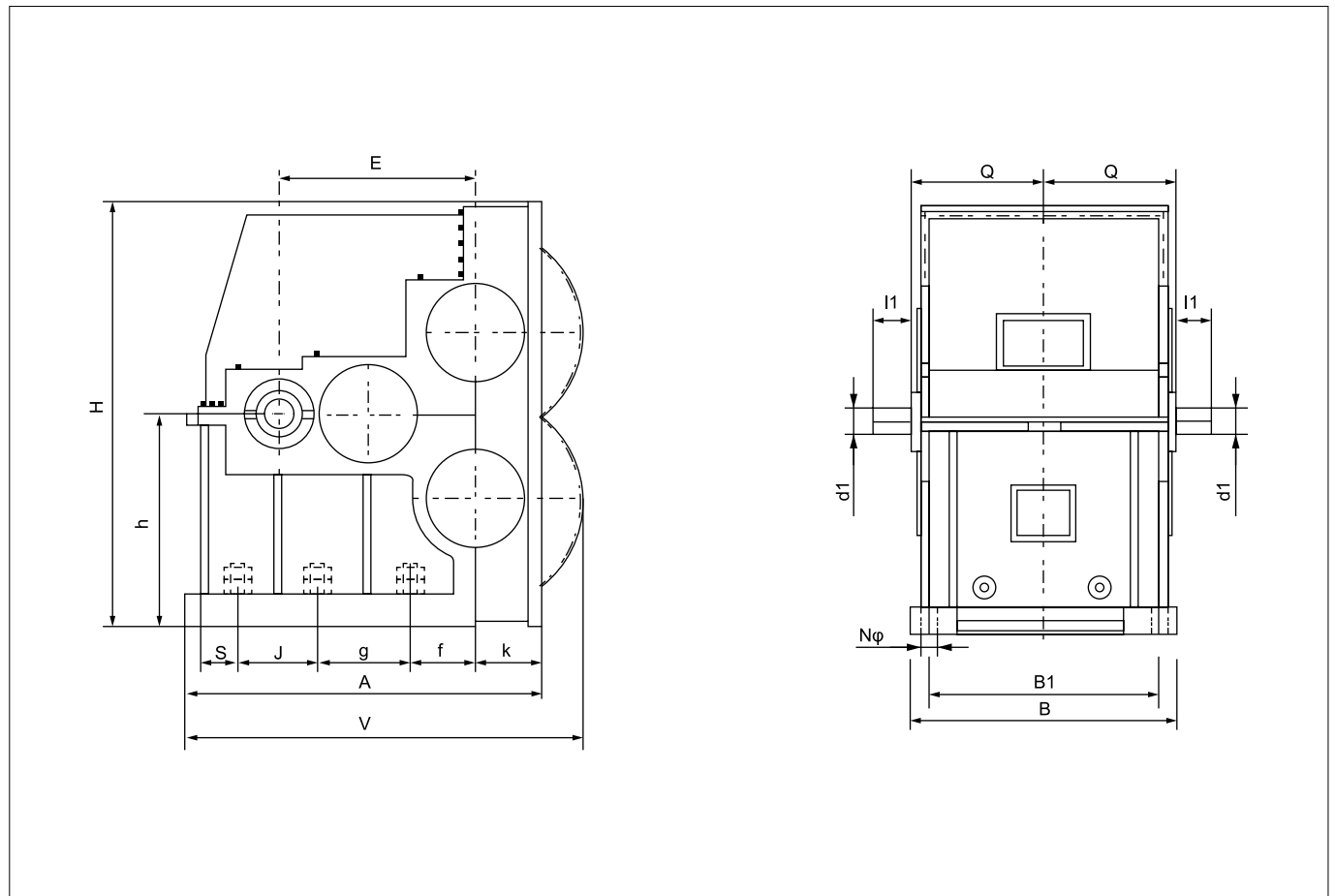
This series is new gear unit that is based on the advanced practices of foreign counterparts and developed and designed after study of several years.

It adopts the three-stage speed-down including larger teeth ring, power double-shunt and side transmission so that gear unit and mill constitute a complete assembly. It is prominent in solutions to two main concerns currently existing in gear unit of same mills. First it resolves the concern of sealing. Traditionally main gear unit and larger teeth ring share a circulating lubrication system, which may cause the sealing defect especially when thin oil is used. This gear unit is designed with three anti-leakage layers. The actual operations prove that leakage disappears with this gear unit. Second it resolves the concern of load sharing. The key for power double-shunt is the load sharing. There are two important self-aligning pinions engaged with larger teeth ring in this system. As a result of permissible machining and mounting deviation, the actual engagement path is more or less discrepant from theoretical path. Mill is able to alter the position with change of temperature and load as well as foundation settlement. It results in the engagement between pinion and larger teeth ring different from original state. In other words, biased load sharing occurs in the direction of teeth. Self-aligning pinions are the solution. Two pinions can align their positions as a function of engaged larger teeth ring so that the engagement with larger teeth ring is uniform at any time and ideal load sharing is kept. Radial load sharing (i.e. uniform distribution of power) can be realized by floating of intermediate shaft. On the basis of foreign cutting-edge experience and practice, the gear unit improves the structure of speed gear unit, rigidity of gear wheel, mounting adjustment and maintenance and then it is safer, more reliable and durable.

Four specifications of main gear unit in this series are same structurally except for the first-stage that is designed and manufactured to different speed ratio. Inside components are symmetrical so that non-working face of gear can be overturned to function as working face, which extends the duration of gear unit. Larger teeth ring is designed to be uniform in strength and infallible and meet demands of gear unit for 800kW-5600kW mills. If one mill is fitted with two gear unit of this kind, the power can exceed 10000kW, satisfying all demands home and abroad. This series is characterized by comprehensive system, advancement and infallibility.

5.2 外形尺寸

5.2 Outline size



5.3 尺寸表

5.3 Table of size

输入转速: 995r/min

序号 NO.	型号 Type	传递功率 Power (kW)	尺寸 Dimension(mm)															平均重量 Weight (kg)	大齿圈 Ring gear		
			d1	l1	Q	E	h	H	V	A	K	f	g	J	S	B	B1		Nφ	模数 mm	齿宽 mm
1	DLMBYS80	800	120	200	675	811	950	2003	1524	1234	290	264	400	345	1350	1230	6-φ60 (M56)	11000	16	380	
2	DLMBYS100	1000																			
3	DLMBYS125	1250																			
4	DLMBYS140	1400																			
5	DLMBYS160	1600																			
6	DLMBYS180	1800	140	230	748	911	1060	2240	1897	1705	325	296	450	385	1496	1330	6-φ86 (M80×6)	17500	18	480	
7	DLMBYS200	2000																			
8	DLMBYS225	2250																			
9	DLMBYS250	2500	170	250	875	1097	1200	2420	2222	1997	380	347	525	450	1700	1480	6-φ100 (M90×6)	27500	22	580	
10	DLMBYS280	2800																			
11	DLMBYS300	3000																			
12	DLMBYS320	3200																			
13	DLMBYS355	3550																			
14	DLMBYS380	3800	180	295	1026	1224	1450	2900	2675	2425	430	385	590	500	400	2000	1760	6-φ100 (M90×6)	46500	25	660
15	DLMBYS400	4000																			
16	DLMBYS420	4200																			
17	DLMBYS450	4500																			
18	DLMBYS500	5000																			
19	DLMBYS560	5600																			

## DLMBYS 系列单边双传动磨机齿轮箱

## DLMBYS Series Girth Gear Units For Mills

**5.4 供货范围**

1. 主齿轮箱
2. 大齿圈及罩壳
3. 慢速齿轮箱
4. 稀油站
5. 其他

**5.5 主要用途**

水泥磨、水煤浆磨等

**5.4 Supply range**

1. Main gear unit
2. Ring gear and casing
3. Slow gear unit
4. Lubrication system
5. Other

**5.5 Main applications**

Cement grind, coal-water slurry grind, etc.

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