



## UD 无极变速机

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**动力传动专业制造商**

**PROFESSIONAL MANUFACTURER OF POWER TRANSMISSION**

**设计理念:** 遵循规律, 总是超越

**DESIGN PHILOSOPHY:** To follow the law, but always beyond.

**经营理念:** 为客户需求而设计, 为客户满意而执着

**BUSINESS PHILOSOPHY:** Design for customer demand, dedication for customer satisfaction





## 蜗轮蜗杆减速机与无级变速机的组合 NMRV+UD COMBINATION OF NMRV WORM GEAR UNITS & UD STEPLESS VARIATOR

**动力传动专业制造商**

PROFESSIONAL MANUFACTURER OF POWER TRANSMISSION

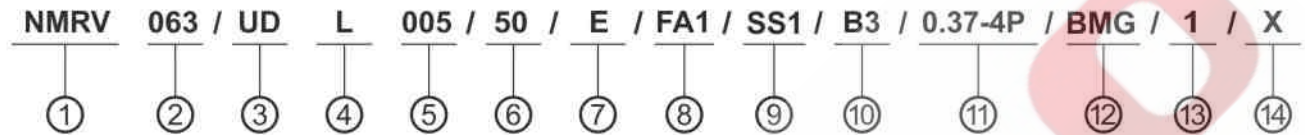
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### NMRV-UD蜗轮蜗杆减速机与无级变速机组合 Combination of worm gear units and stepless speed variator



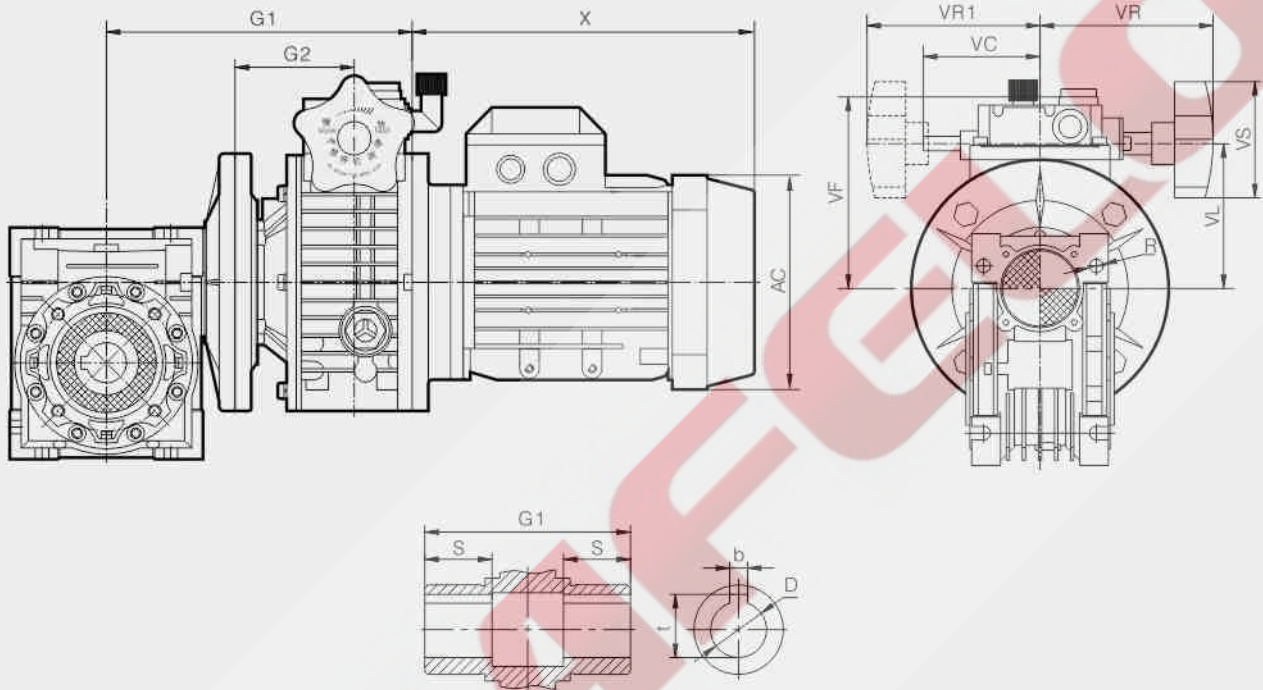
NO	说明	Comments
1	蜗轮蜗杆减速机系列代号	Code for worm gear units series:
2	蜗轮蜗杆减速机中心距 (规格)	Central distance of worm gear units(spec)
3	无级变速机系列代号	Code of stepless speed variator
4	1.L:铝合金机壳 2.T: 铸铁机壳	1.L:Aluminium alloy housing 2.T:Cast iron casing
5	无级变速机机座号	Continuously variable transmission model
6	减速机速比 (i=5,7.5,10,15,20,25,30,40,50,60,80,100)	Speed ratio of reducer (i=5,7.5,10,15,20,25,30,40,50,60,80,100)
7	1.无代号表示不带蜗杆同向尾出轴 2.E: 带蜗杆同向尾出轴	1.No mark means single extension worm shaft 2.E:Double extension worm shaft
8	1.无代号表示不带输出法兰 2.FA,FB,FC,FD,FE(1/2):输出法兰代号和位置	1.No mark means without output flange 2.FA、FB、FC、FD、FE(1/2):output Flange and position
9	1.无代号表示孔输出 2.SS(1/2):单向输出轴和位置 3.DS: 双向输出轴	1.No mark means hole output 2.SS(1/2):Single output shaft and position 3.DS:Double output shaft
10	安装方位代号	Installation position code
11	1.无代号表示不带电机 2.0.37-4P: 电机功率、级数	1. No mark means without motor 1.0.37-4P: Model motors(poles of power)
12	1.无代号表示不带制动器 2.BMG:制动器	1.No mark means without brake 2.BMG:brake
13	电机接线盒位置, 默认位置1可以不写	Position of motor terminal box default position 1 not to write out is ok
14	电机进线位置, 默认位置X 可以不写	Coil position for motor , default position X not to write out is ok

示例Example : NMRV063 / UDL005 / 40 / FA2 / SS1 / B3

NMRV+UD外形尺寸图表

OUTLINE DIMENSION SHEET

NMRV+UD尺寸 / NMRV+UD Size



型号 ( model )	D(H8)	b	t	S	G1	G2	VF	VL	VR	VR1
NMRV030-UDL002	14	5	16.3	21	167.5	119.5	111	78	110	110
NMRV040-UDL002	18(19)	6	20.8(21.8)	26	182.5	134.5	111	78	110	110
NMRV040-UDL005					180	144	123	90	110	110
NMRV050-UDL002	25(24)	8	28.3(27.3)	30	192.5	144.5	111	78	110	110
NMRV050-UDL005					190	154	123	90	110	110
NMRV063-UDL005	25(28)	8	28.3(31.3)	36	205	169	123	90	110	110
NMRV063-UDL010					234	180.5	140	107	120	120
NMRV075-UDL005	28(35)	8(10)	31.3(38.3)	40	222.5	186.5	123	90	110	110
NMRV075-UDL010					251.5	198	140	107	120	120
NMRV075-UDT020					300.5	227.5	144	122	150	-
NMRV090-UDL010	35(38)	10	38.3(41.3)	45	268.5	215	140	107	120	120
NMRV090-UDT020					317.5	244.5	144	122	150	-
NMRV110-UDL010	42	12	45.3	50	299	245.5	140	107	120	120
NMRV110-UDT020					348	275	144	122	150	-
NMRV110-UDT030					368	291	188	150	160	-
NMRV130-UDT020	45	14	48.3	60	368	295	144	122	150	-
NMRV130-UDT030					368	311	188	150	160	-

注：1. NMRV的其它尺寸请参考99页； 2. UD的其它尺寸请参考118, 119页；  
3. X、AC尺寸请参见本公司样本《通用电机》篇中的尺寸部分

NMRV+UD外形尺寸图表

OUTLINE DIMENSION SHEET



NMRV+UD组合表 / NMRV+UD Possible geometrical combinations

n <sub>1</sub>	kW	NMRV+UD		i <sub>NMRV</sub>														
				5	7.5	10	15	20	25	30	40	50	60	80	100			
1400r/min	0.18kW	UDL002	040															
			050															
	0.25kW	UDL005	040															
			050															
	0.37kW	UDL005	050															
			063															
	0.55kW	UDL010	063															
			075															
			090															
	0.75kW	UDL010	063															
			075															
			090															
			110															
	1.1kW	UDT020	075															
			090															
			110															
	1.5kW	UDT020	130															
			075															
090																		
2.2kW	UDT030	110																
		130																
3kW	UDT030	110																
		130																
4kW	UDT030	110																
		130																

NMRV+UD性能参数

PERFORMANCE PARAMETER



NMRV..UD..(n1=1400r/min) / 性能参数 Performance parameter

$P_{1n}$ (kW)	$n_2$ (r/min)	$i$	$i_{NMRV}$	$M_{2n}$ (Nm)				
0.18	117~22.5	12~61.5	7.5	9~18	NMRV040-UDL002	6324		
	88~17	16~82	10	12~23				
	58.7~11.3	24~123	15	17~32				
	44~8.5	32~164	20	22~40				
	35.2~6.8	40~205	25	27~47				
	29.3~5.7	48~246	30	30~51				
	22~4.3	64~328	40	37~62				
	17.6~3.4	80~410	50	43~60				
	22~4.3	64~328	40	38~63			NMRV050-UDL002	6324
	17.6~3.4	80~410	50	44~73				
14.7~2.8	96~492	60	50~80					
11~2.1	128~656	80	59~82					
0.25	133~26.7	10.5~52.5	7.5	13~30	NMRV040-UDL005	7114		
	100~20	14~70	10	16~38				
	66.7~13.3	21~105	15	24~53				
	50~10	28~140	20	32~68				
	40~8	35~175	25	38~80				
	33.3~6.7	42~210	30	43~89				
	25~5	56~280	40	48~96				
	25~5	56~280	40	54~112			NMRV050-UDL005	7114
	20~4	70~350	50	59~122				
	16.7~3.3	84~420	60	66~135				
12.5~2.5	112~560	80	72~120					
0.37	133~26.7	10.5~52.5	7.5	19~36	NMRV050-UDL005	7124		
	100~20	14~70	10	25~47				
	66.7~13.3	21~105	15	36~65				
	50~10	28~140	20	46~82				
	40~8	35~175	25	55~97				
	33.3~6.7	42~210	30	61~107				
	25~5	56~280	40	76~124				
	20~4	70~350	50	89~120				
	25~5	56~280	40	79~134			NMRV063-UDL005	7124
	20~4	70~350	50	92~155				
16.7~3.3	84~420	60	104~173					
12.5~2.5	112~560	80	125~173					
0.55	133~26.7	10.5~52.5	7.5	26~49	NMRV063-UDL010	8014		
	100~20	14~70	10	34~63				
	10~2	140~700	100	139~150				

NMRV+UD性能参数

PERFORMANCE PARAMETER

NMRV..UD..(n1=1400r/min) / 性能参数 Performance parameter



$P_{1n}$ (kW)	$n_2$ (r/min)	$i$	$i_{NMRV}$	$M_{2n}$ (Nm)					
0.55	66.7~13.3	21~105	15	48~88	NMRV063-UDL010	8014			
	50~10	28~140	20	62~112					
	40~8	35~175	25	75~133					
	33.3~6.7	42~210	30	81~146					
	25~5	56~280	40	105~179					
	20~4	70~350	50	123~207					
	20~4	70~350	50	129~216			NMRV075-UDL010	8014	
	16.7~3.3	84~420	60	146~242					
	12.5~2.5	112~560	80	176~250					
	0.55	12.5~2.5	112~560	80			189~309	NMRV090-UDL010	8014
10~2		140~700	100	218~350					
0.75	133~26.7	10.5~52.5	7.5	39~73	NMRV063-UDL010	8024			
	100~20	14~70	10	51~94					
	66.7~13.3	21~105	15	72~132					
	50~10	28~140	20	92~168					
	40~8	35~175	25	112~199					
	33.3~6.7	42~210	30	126~219					
	25~5	56~280	40	156~232					
	20~4	70~350	50	185~310					
	20~4	70~350	50	192~320			NMRV075-UDL010	8024	
	16.7~3.3	84~420	60	219~300					
	16.7~3.3	84~420	60	230~389			NMRV090-UDL010	8024	
	12.5~2.5	112~560	80	265~428					
	10~2	140~700	100	303~410					
	0.75	12.5~2.5	112~560	80			302~503	NMRV110-UDL010	8024
		10~2	140~700	100			348~575		
1.1	133~26.7	10.5~52.5	7.5	59~111	NMRV075-UDT020	9054			
	100~20	14~70	10	77~144					
	66.7~13.3	21~105	15	110~203					
	50~10	28~140	20	142~258					
	40~8	35~175	25	172~308					
	33.3~6.7	42~210	30	195~340					
	25~5	56~280	40	245~360					
	100~20	14~70	10	78~146			NMRV090-UDT020	9054	
	66.7~13.3	21~105	15	113~208					
	50~10	28~140	20	146~266					
	40~8	35~175	25	177~320					
	33.3~6.7	42~210	30	202~356					
25~5	56~280	40	256~442						



NMRV+UD性能参数

PERFORMANCE PARAMETER



NMRV..UD..(n1=1400r/min) / 性能参数 Performance parameter

$P_{1n}$ (kW)	$n_2$ (r/min)	$i$	$i_{NMRV}$	$M_{2n}$ (Nm)				
1.1	20~4	70~350	50	304~517	NMRV090-UDT020	90S4		
	20~4	70~350	50	320~550				
	16.7~3.3	84~420	60	368~625				
	1.5	12.5~2.5	112~560	80	455~754	NMRV110-UDT020	90S4	
		10~2	140~700	100	522~710			
		16.7~3.3	84~420	60	373~623			
		1.5	12.5~2.5	112~560	80	460~749	NMRV130-UDT020	90S4
			10~2	140~700	100	531~868		
			133~26.7	10.5~52.5	7.5	78~148		
100~20			14~70	10	102~192			
66.7~13.3			21~105	15	147~270			
50~10			28~140	20	190~344			
40~8	35~175		25	229~330				
33.3~6.7	42~210		30	260~390				
25~5	56~280		40	327~360				
133~26.7	10.5~52.5		7.5	77~150	NMRV090-UDT020	90L4		
100~20	14~70		10	104~195				
66.7~13.3	21~105		15	150~277				
50~10	28~140		20	194~355				
40~8	35~175		25	236~427				
33.3~6.7	42~210		30	270~474				
25~5	56~280		40	341~589				
20~4	70~350		50	406~560				
2.2	20~4		70~350	50	426~733	NMRV110-UDT020	90L4	
	16.7~3.3		84~420	60	490~833			
	16.7~3.3		84~420	60	498~831	NMRV130-UDT020	90L4	
	12.5~2.5		112~560	80	614~999			
	10~2	140~700	100	696~1100				
	2.2	133~26.7	10.5~52.5	7.5	120~226	NMRV110-UDT030	100L1-4	
		100~20	14~70	10	157~294			
		66.7~13.3	21~105	15	228~418			
		50~10	28~140	20	298~549			
		40~8	35~175	25	364~664			
		33.3~6.7	42~210	30	413~717			
		25~5	56~280	40	533~931	NMRV130-UDT030	100L1-4	
25~5		56~280	40	542~932				
20~4		70~350	50	648~1097				
16.7~3.3		84~420	60	746~1246				
12.5~2.5		112~560	80	921~1499				
10~2		140~700	100	1040~169				

NMRV+UD性能参数

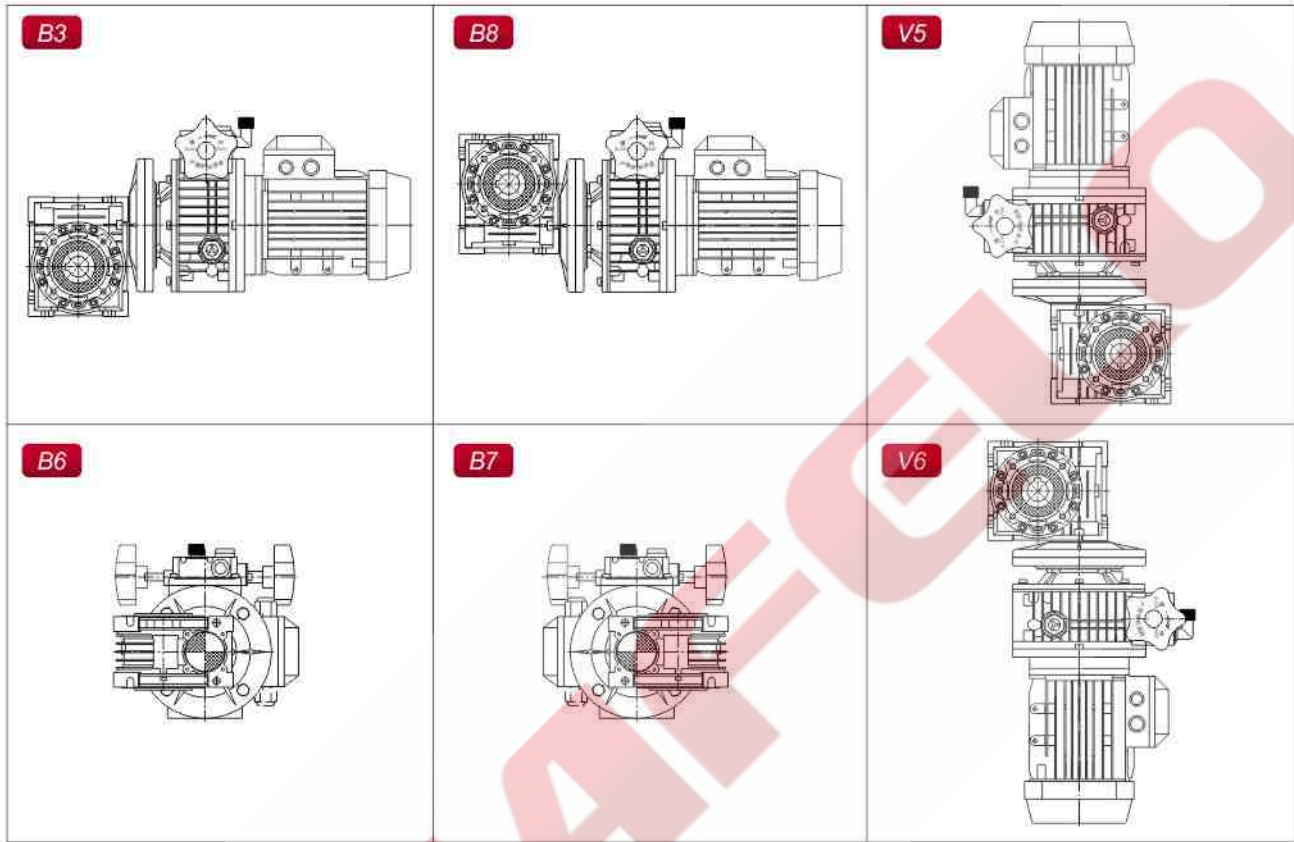
PERFORMANCE PARAMETER

NMRV..UD..(n1=1400r/min) / 性能参数 Performance parameter

$P_{1n}$ (kW)	$n_2$ (r/min)	$i$	$i_{NMRV}$	$M_{2n}$ (Nm)		
3.0	133~26.7	10.5~52.5	7.5	160~302	<b>NMRV110-UDT030</b>	<b>100L2-4</b>
	100~20	14~70	10	210~392		
	66.7~13.3	21~105	15	304~558		
	50~10	28~140	20	398~732		
	40~8	35~175	25	485~885		
	33.3~26.7	42~210	30	547~956		
	25~5	56~280	40	711~1030		
	133~26.7	10.5~52.5	7.5	160~301	<b>NMRV130-UDT030</b>	<b>100L2-4</b>
	100~20	14~70	10	211~395		
	66.7~13.3	21~105	15	307~563		
	50~10	28~140	20	402~733		
	40~8	35~175	25	490~885		
	33.3~6.7	42~210	30	562~973		
	25~5	56~280	40	720~1242		
20~4	70~350	50	864~1462			
4.0	133~26.7	10.5~52.5	7.5	213~402	<b>NMRV110-UDT050</b>	<b>112M4</b>
	100~20	14~70	10	279~523		
	66.7~13.3	21~105	15	405~744		
	50~10	28~140	20	530~975		
	40~8	35~175	25	647~1020	<b>NMRV130-UDT050</b>	<b>112M4</b>
	133~26.7	10.5~52.5	7.5	214~401		
	100~20	14~70	10	281~527		
	66.7~13.3	21~105	15	410~751		
	50~10	28~140	20	536~978		
	40~8	35~175	25	653~1180		
	33.3~6.7	42~210	30	749~1298		
	25~5	56~280	40	960~1650		

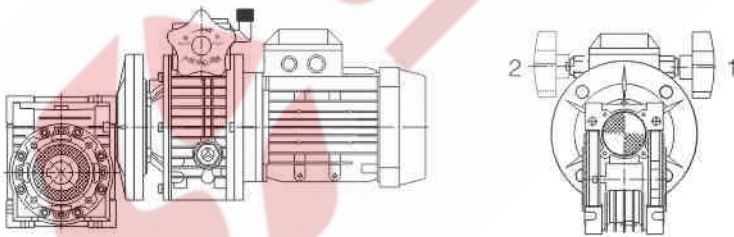
安装方位图

INSTALLATION POSITIONS DIAGRAM



附件位置 / The attachment position

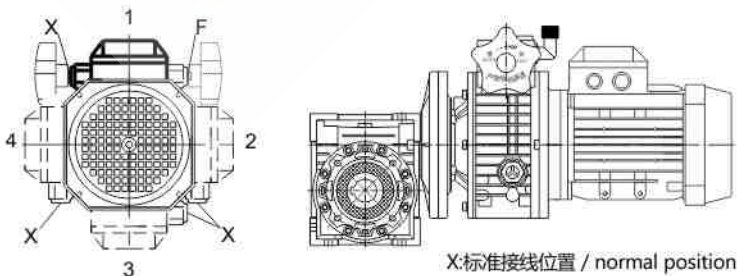
NMRV...UD...手轮位置 / The position of the hand wheel



注：如没有特别说明，手轮将按照如图1位和B3安装方位的组合方式提供。

Note : If no special note,the handwheel will be in accordance with the figure 1 and B3 installation azimuth combination is provided.

NMRV...UD...电机接线盒位置 / The position of the motor terminal box



注：如对电机接线盒位置有特别要求，订购时须参考上图的要求指定接线盒方位，否则接线盒方位将按安装方位图表中的方位提供。

Note : If the motor terminal box position has special requirements, when ordering reference is made to the above requirements special terminal box position, or junction box range according to installation position chart position is provided.



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# DIRECTIONS FOR USE

# 使用说明

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安装方法 / INSTALLATION METHODS

安装使用与保养 / INSTALLATION USAGE & MAINTENANCE

使用须知 / INSTRUCTION

润滑油 / LUBRICATION

订货须知 / NOTICE FOR ORDERING

运转故障 / MULFUNCTIONS

减速机负载特征表(参考件) / MCHARGE CHARACTERISTIC CHART(FOR REFERENCE)

售后服务 / AFTER-SALE SERVICE

使用限制/Critical applications

这本样本给出的参数基本上是按B3安装方位来编的，即第一级没有完全浸入油中。对于其他安装方位和输入转速，请参考下面表格中相应参数。当遇到下列应用情况时，如有必要请与我们技术服务人员联系。

1. 在原有上提高转速时；
2. 应用在惯性特别大的设备上时；
3. 应用在如升降机（需要自锁考虑）时；
4. 当减速机出现故障有可能会对操作者造成危害时；
5. 应用在减速机过度疲劳状态时；
6. 工作环境温度低于-5℃或高于40℃时；
7. 在化学腐蚀环境中使用时；
8. 在盐性环境中使用时；
9. 在辐射性高的环境中使用时；
10. 在环境气压不在正常大气压力下使用时；
11. 安装方位在这样本中没有被提到。

避免把减速机部分或整台浸入水中或其他液体中。

减速机承受的最大负载扭矩不能超过两倍于性能参数表中规定的正常扭矩（当服务系数  $f_s=1$  时）；这里最大负载扭矩是指承受瞬间短暂的过载，他出现在过载启动、刹车、振动或其他动态操作环境中。

1. As a speed increasing;
2. Applications with especially high inertia;
3. Use as a lifting winch;
4. Use in services that could be hazardous for people if the reduction unit fails.
5. Applications with high dynamic strain on the case of the reduction unit.
6. In places with  $T^\circ$  under  $-5^\circ\text{C}$  or over  $40^\circ\text{C}$ .
7. Use in chemically aggressive environments.
8. Use in a salty environment.
9. Use in radioactive environments.
10. Use in environments pressures other than atmospheric pressure.
11. Mounting positions not envisaged in the catalogue.

Avoid applications where even partial immersion of the reduction unit is required.

The maximum torque that the gear reducer can support must not exceed two times the nominal torque ( $f_s=1$ ) stated in the performance tables. Intended for momentary overloads due to starting at full load, braking, shocks or other causes, particularly those are dynamic.

NMRV	025	030	040	050	063	075	090	105	110	130	150
V5: $1500 < n1 < 3000$	-	-	-	-	-	B	B	B	B	B	B
$n1 > 3000$	B	B	B	B	B	A	A	A	A	A	A
v6	B	B	B	B	B	B	B	B	B	B	B

- A. 不被推荐的使用方式
- B. 需要确定应用情况合适性或与我们技术服务人员联系

- A. Application not recommended
- B. Check the application and/or call our technical service

## BKM及NMRV系列安装使用与保养 / BKM and NMRV installation usage & maintenance

安装减速机时要注意以下一些事项：

- (1) 减速机与机械设备装配之前，要检查减速机输出轴的旋转方向是否正确；
- (2) 减速机与原动机、设备装配之前，应检查各轴径、孔径、键和键槽的偏差尺寸，避免装配过紧、过松影响减速机性能；
- (3) 减速机必须牢固地安装在机械设备上，避免有松动或振动；
- (4) 尽可能地避免减速机暴露在烈日阳光下和恶劣环境中；
- (5) 如果减速机存放时间长达4-6个月，应检查油封是否浸润在润滑油中，可能油封唇口会粘在轴上，甚至失去了弹性，由于适合的弹性是油封必须的工作条件，所以推荐更换油封；
- (6) 所有橡胶件和透气孔不能沾有油漆；
- (7) 与减速机的空心轴或实心轴配合连接时，应在轴上配合部分涂上润滑油，以免卡死或氧化；
- (8) 使用时必须检查油位（如油位镜孔或打开油塞，小型号是没有的）；
- (9) 使用新减速机时，不能满负载起动，应该逐步增大负载；
- (10) 使用各类电机直连型减速机时，若电机重量偏大，应设支撑装置；
- (11) 确保电机风扇附近有有良好的通风环境，以免影响散热效果；
- (12) 减速机的标准工作环境温度是-5℃至40℃，如果不在这范围时，请与我们技术服务人员联系。

To install the gear units it is necessary to note the following recommendations:

- (1) Check the correct direction of rotation of the gear units output shaft before fitting the unit to the machine.
- (2) Before mount with the prime mover and device, please check the reducer's every axial diameter, aperture, key and not key and key slot, to be sure their dimensions are not deviation, and avoid assembling too tight or too loose, unless it will influence the reducer's performance.
- (3) The mounting on the machine must be stable to avoid any vibration.
- (4) Whenever possible, protect the gear units against solar radiation and bad weather.
- (5) In the case of particularly lengthy periods of storage (4-6 months), if the oil seal is not immersed in the lubricant inside the unit, it is recommended to change it since the rubber could stick to the shaft or may even have lost the elasticity it needs to function properly.
- (6) Painting must definitely not go over rubber parts and the holes on the breather plugs, if any.
- (7) When connect with hollow or solid shaft, please grease the joint to avoid lock or oxidation.
- (8) Check the correct level of the lubricant through the indicator, if there is one.
- (9) Starting must take place gradually, without immediately applying the maximum load.
- (10) Supporting unit is required when using various of reducer matched with motor directly and the weight of motor is a little bigger than common.
- (11) Ensure the motor cools correctly by assuring good passage of air form the fan side.
- (12) In the case of ambient temperatures  $< -5^{\circ}\text{C}$  or  $> +40^{\circ}\text{C}$  call the Technical Service.

## UD系列安装使用与保养 / UD installation usage & maintenance

- (1) 轴伸形式全部为圆柱形，按《圆柱形轴伸》GB1569-1990选定，键联接按《普通平键》GB1095-2003选定。
- (2) 联轴器与电动机连接时应使轴线保持同心，安装误差不应大于所用联轴器的允许误差值。
- (3) 输出轴装联轴器或带轮时，用轴端螺孔压入，或加热装备，严禁捶打！
- (4) 机械无级变速器不宜用于可能超负荷或堵转适用场合。
- (5) 调速应在运转进行，严禁停车转动调速手轮！
- (6) 操作盒下的两端调速限位螺钉已调整好，请勿再动！
- (7) 本机不宜工作在高于40℃的环境中，温升不得高于45℃。关于本机的温升请看下面的介绍：  
变速器采用四极电机时，此时部件在跑合（空车运转）开始，温度高于正常工作环境温度约为40-50℃。跑合60-80小时后，温升逐渐下降，此后温度高于环境温度20℃，并保持稳定的温升，跑合时高的温升影响正常允许的工作条件，但对部件的使用寿命并无有害影响。
- (8) 变速器采用润滑油油浴润滑。润滑油牌号为Ub-3x，使用前请检查油位。
- (9) 出厂前润滑油已加入，首次使用1000小时后应更换润滑油，以后每隔5000小时换一次油。
- (10) 变速器内润滑油应保持在油标的三分之二高度，用户应经常检查油位高度，严禁在润滑不良的情况下使用。操作盒上的透气螺母出厂时为防止搬运中漏油已旋紧，运转时需松开，严禁未松开使用！

- (1) The shapes of shaft extension are all cylindrical. It is subject to GB1569-1990 Cylindrical shaft extension. The key joint refers to GB1095-2003 Ordinary flat key.
- (2) The shaft lines should be kept concentric when the coupling is connected with a motor. The installation error should be no more than the tolerance value of coupling.
- (3) When the output shaft is installed with the coupling or belt wheel, they should be pressed into the screw hole on shaft end. Or assembled by heating. No hammering on it!
- (4) The mechanical stepless variator is not used in such an occasion when wheel overload or running-blockage happen to occur.
- (5) Speed-regulation should be effected in running. Do not turn the hand wheel of speed-regulation when the machine stops!
- (6) The limit screws of speed-regulation on two ends under the operating box are well adjusted, Please don't touch them!
- (7) This set is not suited to work in the environment over 40℃, especially no more than 45℃ when the temperature rises. In regard to its temperature rise. In regard to its temperature rise please read the explanation as follows:  
If a 4-pole motor is used for the speed variator, the temperature under running-in (empty running) is 40-50℃ higher than that of normal working environment. After running-in up to 60-80 hours, the temperature rise will go down gradually. From that time on, it is 20℃ higher than of environment, and the temperature will keep on rising stably. The high temperature rise in running will affect normal permissible working condition, but it won't bring any bad effects to the service life of parts.
- (8) The liquid lubricating oil is used for the speed variator. Its trade mark is Ub-3x. Please check up the oil level before use.
- (9) The machine is filled with lubricating oil before leaving factory. When it starts to work up to 2000 hours for the first time, its lubricating oil should be replaced, changing the lubricating oil every 5000 hours later.
- (10) The lubricating oil level inside the speed variator should be kept at the height of two-third in the oil scale. Users should usually check the height of oil level. It is strictly prohibited to operate it when short of lubricating oil. The air screw nut on the operating box is screwed up for preventing from oil leakage in moving before leaving factory. It should be loosened when it starts to run. It is strictly forbidden to use it before loosening!

## 使用须知

**工作环境温度不在表中范围内，请与我们联系。**

- (1) 当工作环境温度低于 $-30^{\circ}\text{C}$ 或高于 $60^{\circ}\text{C}$ 时，要使用特殊材质的油封。
- (2) 当工作环境温度低于 $0^{\circ}\text{C}$ 时，必须考虑下列情况：
  - 选用的电机必须在低温下能正常工作；
  - 电机的功率必须满足在低温下有较大启动转矩要求；
  - 如果减速机箱体的材质是铸铁，在温度 $-15^{\circ}\text{C}$ 以下时，箱体变得很脆，要注意尽量避免撞击；
  - 在开始使用阶段时，由于润滑油的粘度很高，可能会产生一些问题，所以刚开始启动时最好让它空载运转几分钟。减速机运转大约10000小时后，应更换润滑，换油频率按减速机实际运行情况和工作环境条件而定。
- (3) NMRV025、030、040、050、063、075、090规格的减速机在出厂时已加注了润滑油，可以按照样本中安装方位所提到的方位安装。V5或V6安装时，请与我们联系。
- (4) 减速机NMRV110、130和150规格在出厂时已加注了矿物润滑油。
- (5) 无级变速器在出厂时也加注了矿物润滑油（广研Ub-3x）。
- (6) 减速机NMRV110、130和150规格的安装方位在下单时要说明，否则润滑油理按B3方位提供。
- (7) NMRV系列的减速机，在特定的工作环境，需配排气阀（可选配件）。
- (8) 对于齿轮箱，首次换油必须在工作大约300小时（齿轮磨合期）后进行，在换油时应使用合适的清洗剂小心地冲洗齿轮箱，不得将矿物油和合成油混合。
- (9) 每3000工作小时，最低程度半年，应检测油以及油位，油封密封不严引起滴漏的常规检测，若是IEC输入的减速机，则检测检查弹性体，必要时进行更换。
- (10) 根据不同的工作条件（见下图）而定，最长每三年检测一次，更换矿物油，更换轴承润滑油脂。
- (11) 根据不同的工作条件而定，更换输出轴上的油封。
- (12) 产品出现故障时，不要拆卸部件，与本公司售后服务部门联系（需提供减速机规格、出厂日期、编号、已使用时间、主机名称、主机生产单位和故障类型）后，再采取合理的措施。



## Instruction

### In cases of ambient temperature not envisaged in the table, call our Technical Service.

- 1 In the case of temperature  $-30^{\circ}\text{C}$  or over  $60^{\circ}\text{C}$ . It is necessary to use oil seals with special material.
- 2 For operating ranges with temperatures under  $0^{\circ}\text{C}$ . It is necessary to consider the following.
  - The motors need to be suitable for operation at the envisaged ambient temperature.
  - The power of the electric motor needs to be adequate for exceeding the higher starting torques required.
  - In the case of reduction units with a cast-iron case, pay attention to impact loads since cast iron may have problems of fragility at temperatures under  $-15^{\circ}\text{C}$ .
  - During the early stages of service, problems of lubrication may arise due to the high level of viscosity taken on by the oil and so it is wise to have a few minutes of rotation under no load. The oil needs to be changed after approximately 10000 hours. This period depends on the type of service and the environment where the reduction unit works.
- 3 The reduction units size NMRV025、030、040、050、063、075、090 are supplied complete with lubricant, and can therefore be mounted in any position envisaged in the catalogue. V5/V6 for which you should call our Technical Service to assess the conditions of use.
- 4 The reduction units size 110、130 and 150 are supplied complete with lubricant, mineral oil.
- 5 The variator speed are supplied complete with lubricant, mineral oil(GUANGYAN Ub-3x)
- 6 For sizes 110、130 and 150 it is necessary to specify the position, otherwise the reduction units are supplied with the quantity of oil relating to pos. B3.
- 7 NMRV series worm gearbox should mount breather plug (optional parts) under special working condition.
- 8 For gear units, first oil change should be after about 300hours(run-in period).The right lotion is required to clean the gear units with care.Never mix the synthetic oil and mineral oil together.
- 9 Every 3000 working time,at least every 6 months,you have to check the oil and oil level,the seals visually for leakage.For IEC input gear units,the elastomer should be tested or replaced if necessary.
- 10 Depending on the operating conditions(see chart below),every 3 years at the latest for inspection is needed.Then change the mineral oil and replace the bearing grease.
- 11 Depending on the operating conditions,change the oil seals on output shaft.
- 12 Once the malfunctions appear,stop disassembling the parts,and firstly please contact the customer service(the information about specification,delivery date,series number,time used,name of machine,machine manufacturer,malfunction problems is required),then take the reasonable measures.

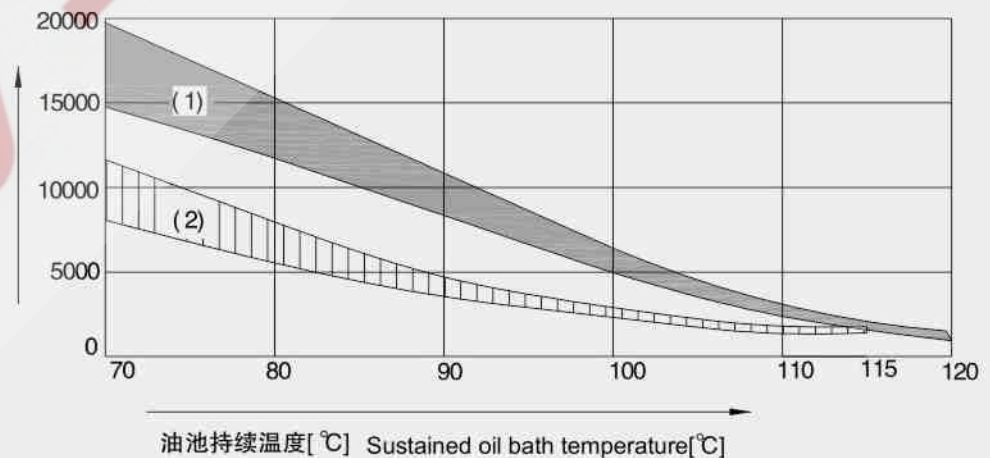
润滑油型号 / Types of lubrication

	环境温度(°C) Ambient Temperature(°C) 	ISO粘度 ISO Viscosity Class		AGIP	ESSO		CASTROL		广研	润滑油类型 Lubrication type
BKM	-10 +40	VG220	Shell Omala 220			Mobil gear 630		BP Energol GX-XP 220		矿物油 Mineral oil
	-20 +25	VG150 VG100	Shell Omala 100			Mobil gear 627		BP Energol GX-XP 100		
	-30 +10	VG110-46 VG32	Shell Omala T32			Mobil D.T.E 13M				
	-40 -20	VG22 VG15	Shell Omala T15			Mobil D.T.E 11M		BP Energol HLP-HM 15		合成油 Synthetic oil
	-40 +80	VG220	Shell Omala HD220			Mobil SHC630				
	-40 +40	VG150	Mobil SHC629			Mobil SHC629				
	-40 +10	VG32	Mobil SHC624			Mobil SHC624				
NMRV025 - 090	-25 +50	VG320	Tivela OIL S320	Tellium VSF 320	S320	Glygoyle 30	Alphasyn Pg320	Energol SG-XP 320		合成油 Synthetic oil
NMRV110 - 150	-5 +40	VG460	Omala OIL 460	Blasia 460	Spartan Ep460	Mobilear 634	Alpha MAX 460	Energol GR-XP 460	CKE460	矿物油 Mineral oil
	-15 +25	VG220	Omala OIL 220	Blasia 220	Spartan Ep220	Mobilear 630	Alpha MAX 220	Energol SG-XP 220		
UD	-25 +40	VG32	A.T.F. DXRON	A.T.F. DXRON	A.T.F. DXRON	A.T.F.220	TQ. DXRON II	Autran DX	Ub-3x	矿物油 Mineral oil

适用于正常环境条件下标准减速机的更换时间间隔

Oil change intervals for standard gear units under normal environmental conditions

工作小时数 (h)  
Operating hours[h]



● 每种机油类型的平均值为70°C / Average value per oil type at 70°C

(1) 合成油 / Synthetic oil      (2) 矿物油 / Mineral oil

润滑油加注量/Lubricant fill quantity

减速机型号 Gear units		加注量 Fill quantity in liters				单位：升(L)	
		B3	B6	B7	B8	V5	V6
BKM	BKM0502	0.22	0.20*	0.13*	0.15	0.25	0.14
	BKM0503 <sup>#</sup>	0.08	0.05	0.05	0.06	0.09	0.10
	BKM0632	0.42	0.35*	0.24*	0.22	0.46	0.25
	BKM0633 <sup>#</sup>	0.07	0.05	0.05	0.06	0.09	0.10
	BKM0752	0.70	0.58*	0.42*	0.42	0.75	0.45
	BKM0753 <sup>#</sup>	0.15	0.11	0.11	0.11	0.17	0.20
	BKM0902	1.21	0.95*	0.72*	0.67	1.30	0.74
	BKM0903 <sup>#</sup>	0.15	0.11	0.11	0.11	0.17	0.20
	BKM1102	2.15	1.70*	1.10*	1.25	2.20	1.20
	BKM1103 <sup>#</sup>	0.25	0.17	0.17	0.20	0.32	0.36
NMRV	NMRV025			0.02			
	NMRV030			0.042			
	NMRV040			0.081			
	NMRV050			0.153			
	NMRV063			0.30			
	NMRV075			0.58			
	NMRV090			1.02			
	NMRV110	3.02	2.55		2.25	3.02	
	NMRV130	4.55	3.55		3.35	4.55	
	NMRV150	7	5.4		5.1	5.4	
		B3、B5		V3、V6		V1、V5	
UD	UDL002			0.13		0.15	
	UDL005			0.23		0.33	
	UDL010	0.33		0.43		0.6	
	UDT020			0.8		1	
	UDT030			1.2		1.5	
	UDT050			2		2.5	

规定的加注量为参考值。精确值的变化与级数和传动比有关。请您在加注润滑油时一定要检查油位螺栓所指示的精确油量。

后期调整安装方式时，您必须根据改变后的安装方式相应调整加注润滑油。

The specified fill quantities are recommended values. The precise values vary depending on the number of stages and gear ratio.

When filling, it is essential to check the oil level plug since it indicates the precise oil capacity.

#: 采用3级传动减速器时，各自加注3级箱体和2级箱体的润滑油，润滑油互不相通，表中的加注量为3级箱体润滑油加注量。

#: Means the oil quantity in the 3rd stage housing, as this one is separated from the 2nd housing, please fill them separately while in 3 stages.

\*: 表示在此安装方式，不能仅凭油位塞加注润滑油，油位需高出油位塞，加注量按表中所示。

\*: It means the lubricant can't be according to the oil level line plug, but also higher the plug the fill quantity as shown in the table.

### 存放 / Storage

- (1) 有顶棚，防雨雪，无振动。
  - (2) 在设备和地面之间垫放木块或其他材料。
  - (3) 开箱后暂不使用的减速机在其加工表面涂上防锈油，并应及时放回包装箱内。
  - (4) 在定期检查的情况下，两年以及更长时间。在进行检查时，应检查清洁度和机械损伤，检查防锈层是否完好。
- 
- (1) Under roof"protected against rain and snow"no shock loads.
  - (2) Underlay the block and other material between the ground and equipment.
  - (3) The opened but not used gear units should be added with the anti-corrosive oil on its surface,and then return to the packing containers timesly.
  - (4) Two years or more given regular inspections.Check for cleanliness and mechanical damage as part of the inspection,Check corrosion protection.

### 订货须知 / Notice for order

- 订货时请根据使用需要的转速范围，输出转矩，结构形式，对照性能参数、尺寸表、安装和操作方位图，合理选择机型，写明型号标记（下单时是否带电机请说明，一般按不带电机供应）。订货时选择的安装方位应与安装方法一致，不然容易造成漏油，影响使用寿命，若安装方位特殊请另加说明。
- 订货时请尽量选择本目录内的标准产品，如有特殊要求或配用特殊电机请附加说明。
- Please refer to the sheet of performance parameter , NMRV series dimensions, Mounting and operation positions diagram, make reasonable choice of model, and write down model mark to your required revolution scope, output torque and structural from on ordering(when ordering, you should show whether the reducers are equipped with motors, otherwise reducers aren't with motors)
- Please make the best choice of standard products in this catalogue, and give an additional explanation for your special requirement and motors.

减速机运转故障 / Gear unit malfunctions

故障 Problem	可能的原因 Possible cause	解决方法 Remedy
异常、均匀的运转噪声 Unusual,regular running noise	A.滚动/碾压噪声:轴承损坏 B.冲击型噪声:齿轮啮合不均匀 A.Meshing/grinding noise: Bearing damage. B.Knocking noise:Irregularity in the gearing	A.检测润滑油,更换轴承 B.请向客户服务部咨询 A.Check the oil,change bearings B.Contact customer service
异常、不均匀的运转噪声 Unusual,irregular running noise	机油中有异物 Foreign bodies in the oil	A.检测润滑 B.停止运转传动装置,向客户服务部咨询 A.Check the oil B.Stop the drive,contact customer service
机油泄漏 A.在减速机盖上 B.在电机凸缘上 C.在电机轴密封圈上 D.在减速机凸缘上 F.在输出端轴密封圈上 Oil leaking A. From the gear cover plate B. From the motor flange C. From the motor oil seal D. From the gear unit flange F. From the output end oil sea	A. 减速机底座上的橡胶密封发生渗漏 B. 密封圈损坏 C. 减速机没有排气 A. Rubber seal on the gear cover plate leaking B. Seal defective C. Gear unit not vented	A.拧紧各个外盖上的螺钉并且观察减速机。如果机油继续泄露, 请向客户服务部咨询 B.请向客户服务部咨询 C.给减速机排气(参见"安装方式") A.Tighten the bolts on the gear cover plate and observe the gear unit.Oil still leaking: Contactcustomer service B.Contact customer service C.Vent the gear unit(see "Mounting Positions")
机油从排气阀门旁渗出 Oil leaking from breaking valve	A. 机油太多 B. 传动装置安装方式错误 C. 频繁冷启动(机油起泡沫)和/或者较高的油位 A. Too much oil B. Drive operated in incorrect mounting position C. Frequent cold starts(oil foams)and/or high oillevel	A.修正油量(参见"润滑油") B.正确安装排气阀并且矫正油位(参见"安装方式") A.Correct the oil level("see Sec.Inspection and Maintenance") B.Mount the breather valve correctly(see Sec."Mounting Positions")and correct the oil leve(see"Lubricants")
尽管电机在运转或者传动轴已经被驱动,但是传动轴不转动 Oil leaking from breaking valve	减速机中的轴轮毂联接断裂 Connection between shaft and hub in gear unit interrupted	将减速机或减速电机送修 Send in the gear unit/gearmotor for repair

- 在磨合试运转阶段(24小时的运转时间内),轴密封圈有可能出现短期内的漏油/油脂的现象  
Short-term oil/grease leakage at the oil seal is possible in the run-in phase (24 hours running time)

减速机负载特征表  
(参考件)

MCHAGRE CHARACTERISTIC CHART  
(FOR REFERBCE)

<b>风机类 AIR BLOWERS</b>		转臂式起重传动齿轮装置 Bracket swing gear assembly	B
风机 (轴向和径向) Air blower (axial or radial)	A	吊杆起落齿轮传动装置 Derrick gear assembly	B
冷却塔风扇 Fan of cooling tower	B	转向齿轮传动装置 Steering gear assembly	B
引风机 Induced draught fan	B	行走齿轮传动装置 Moving gear assembly	C
螺旋活塞式风机 Rotary piston type fan	B	<b>挖泥机类 LAND DREDGER</b>	
蜗轮式风机 Turbo-fan	A	筒式传送机 Drum-type conveyer	C
<b>建筑机械类 CONSTRUCTION MACHINERY</b>		筒式转动机 Drum-type rotation wheel	C
混凝土搅拌机 Concrete mixer	B	挖泥头 Dredger head	C
卷扬机 Hoist	B	机动绞车 Powered crab	B
路面建筑机械 Road building machinery	B	泵 Pump	B
钻孔机 Boring mill	B	泵转向齿轮传动装置 Pump turning gear assembly	B
<b>化工机械类 CHEMICAL MACHINERY</b>		行走齿轮传动装置 (履带) Moving gear assembly (apron wheel)	C
搅拌机 (液体) Mixer (liquid)	A	行走齿轮传动装置 (铁轨) Moving gear assembly (track)	B
搅拌机 (半液体) Mixer (half liquid)	B	<b>食品工业机械类 FOODSTUFF PROCESSING MACHINERY</b>	
离心机 (重型) Centrifuge (heavy)	B	灌注及装箱机器 Placer or box filler	A
离心机 (轻型) Centrifuge (light)	A	甘蔗压榨机 Cane crusher	A
冷却滚筒** Cooling rolling drum	B	甘蔗切断机** Cane cutter	B
干燥滚筒** Dry rolling drum	B	甘蔗粉碎机** Cane crasher	C
搅拌机 Mixer	B	搅拌机 Mixer	B
<b>压缩机类 COMPRESSOR</b>		蓄状物吊筒 Paste bucket	B
活塞式压缩机 Piston type compressor	C	包装机 Packager	A
蜗轮式压缩机 Turbo-compressor	B	糖甜菜切断机 Beet slicer	B
<b>传送运输机类 TRANSMISSION FREIGHTER</b>		糖和甜菜清洗机 Beet washing machine	B
平板传送机 Pan conveyer	B	<b>发动机及转换器类 MOTOR AND CONVERSION EQUIPMENTS</b>	
平衡块升降机 Balance lifter	B	频率转换器 Frequency converter	C
槽式传送机 Trough conveyer	B	发动机 Motor	C
带式传送机 (大件) Ribbon conveyer (large piece)	C	焊接发动机 Welding motor	C
带式传送机 (碎料) Ribbon conveyer (small piece)	B	<b>洗衣机类 WASHING MACHINE</b>	
筒式面粉传送机 Drum-type flour conveyer	A	滚筒 Rolling drum	B
链式传送机 Chain conveyer	B	洗衣机 Washing machine	B
环式传送机 Ring type conveyer	B	<b>金属滚轧机类 METAL ROLLER MACHINE</b>	
货物升降机 Lifter	B	钢坯剪断机** Steel cutter	C
卷扬机 Hoist	B	链式输送机** Chain converter	B
连杆式传送机 Crank-connecting conveyer	B	冷轧机** Cold mill	C
载入升降机 Lifter	B	连铸成套设备 Continuous casting equipments	B
螺旋式传送机 Worm conveyer	B	冷床** Cold bed	B
钢带式传送机 Steel-band conveyer	B	剪料机头** Cropper	C
链式槽型传送机 Chain reed-type conveyer	B	交叉转弯输送机** Cross steering transmitter	B
绞车运输机 Crab freighter	B	除锈机** Druster	C
<b>起重机械类 HOIST</b>		重型和中型板轧机** Heavy and medium steel mill	C
卷扬机齿轮传动装置 Hoist gear assembly	A	棒坯切轧机** Bar mill	C

减速机负载特征表  
(参考件)

MCHAGRE CHARACTERISTIC CHART  
(FOR REFERBCE)

棒坯转运机类 BAR TRANSMISSION EQUIPMENTS		B	泵类 PUMPS	
棒坯推料机 Bar pusher	B	离心泵 (稀液体) Centrifugal pump(thin liquid)		A
推床 Push bed	B	离心泵 (半液体) Centrifugal pump(half liquid)		B
剪板机** Shears	C	活塞泵 Displacement pump		C
板材摆升降台** Lumber elevator platform	B	柱塞泵 Plunger pump		C
轧辊调整装置 Roll adjusting equipments	B	压力泵 Force pump		C
辊式矫直机 Roller leveling machine	B	<b>塑料机械类 PLASTIC EQUIPMENTS</b>		
轧钢机辊道 (重型) ** Mill rolling way(heavy)	C	压光机** Glazing press		B
轧钢机辊道 (轻型) ** Mill rolling way(light)	B	挤压机** Ejecting press		B
薄板轧机** Sheet rolling mill	C	螺旋压出机** Spiral extruding machine		B
修整剪切机** Trimming shears	B	混合机** Mixing machine		B
焊管机 Pipe welder	C	<b>橡胶机械类 RUBBER EQUIPMENT</b>		
焊管机 (带材和线材) Soldering machine(belt material and wire rod)	B	压光机** Glazing press		B
线材拉拔机 Wire drawbench	B	挤压机** Ejecting press		C
<b>金属加工机床类 METAL PROCESSING MACHINE TOOLS</b>			混合搅拌机** Mixing stir machin	B
动力轴 Power shaft	A	捏合机 Kneading machine		B
锻造机** Forging machine	C	滚压机** Roller machine		C
锻锤 Drop hammer	C	<b>石料、瓷土料加工机械类 STONE PORCELAIN CLAY PROCESSING EQUIPMENTS</b>		
机床及辅助装置 Machine tool and necessary	A	球磨机 Ball crusher		B
机床及主要传动装置 Machine tool and main driving equipment	B	挤压料破碎机 Ejecting press and breaker		C
金属刨床 Metal facing machine	C	破碎机 Breaker		C
板材矫直机床 Plate-leveling machine tool	C	压砖机 Brick press		C
冲床 Backing-out punch	C	锤料破碎机** Beating crusher		C
冲压机床 Press machine tool	C	转炉** Converter		C
剪床 Cutting machine	B	筒型磨机** Cylinder mill		C
薄板弯曲机床 Sheet bending machine tool	B	<b>纺织机械类 TEXTILE MACHINERY</b>		
<b>石油工业机械类 PETROLEUM PROCESSING MACHINERY</b>			送料机 Feeding machine	B
输油管油泵** Pump of oil pipe line	B	织布机 Loom machine		B
转子钻井设备 Rotary drilling equipment	C	印染机 Dyeing machine		B
<b>制纸机类 PAPERING MACHINE</b>			精致筒 Purified drum	B
压光机** Glazing press	C	威罗机 Welon machine		B
多层纸板机** Multilayer paper board machine	C	<b>水处理设备类 WASTER TREATMENT EQUIPMENTS</b>		
干燥滚筒** Drying cylinder	C	鼓风机** Air blast		B
上光滚筒** Glazing cylinder	C	螺杆泵 Screw pump		B
搅浆机** Masher	C	<b>木料加工机床 WOOD PROCESSING MACHINE TOOL</b>		
搅浆擦碎机** Mashing and breaking machine	C	剥皮机 Barker		C
吸水滚** Suction oil	C	刨床 Facing machine		B
潮纸滚压机** Wet paper roller machine	C	锯床 Saw bench		C
吸水滚压机木** Water absorbing roller machine	C	木材加工机床 Wood processing machine tool		A
威罗机 Welon machine	C			

注：A—均匀冲击负载；B—中等冲击负载；C—重冲击负载；\*\*—用于24小时工作制。

Note：A-Uniform load；B-Moderate shock load；C-Heavy shock load；\*\*-for 24hour system.

客户发现有质量问题时，不要先拆卸零件，应说明以下情况后与本公司售后服务部联系，说明现象后确认问题所在，再采用较理想的方法处理。

Customers have found the quality problem,do not remove parts,should show the company after contact with after-sale service,After the phenomenon that problem, then confirm the ideal method to dealwith.

型号规格Model :

出厂日期Date :

编号Number :

已使用时间Use Time :

质量问题Problem :

用户单位(Name)

地址(Add)

电话(Tel)

传真(Fax)

邮编(Post)

联系人(Link man)





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