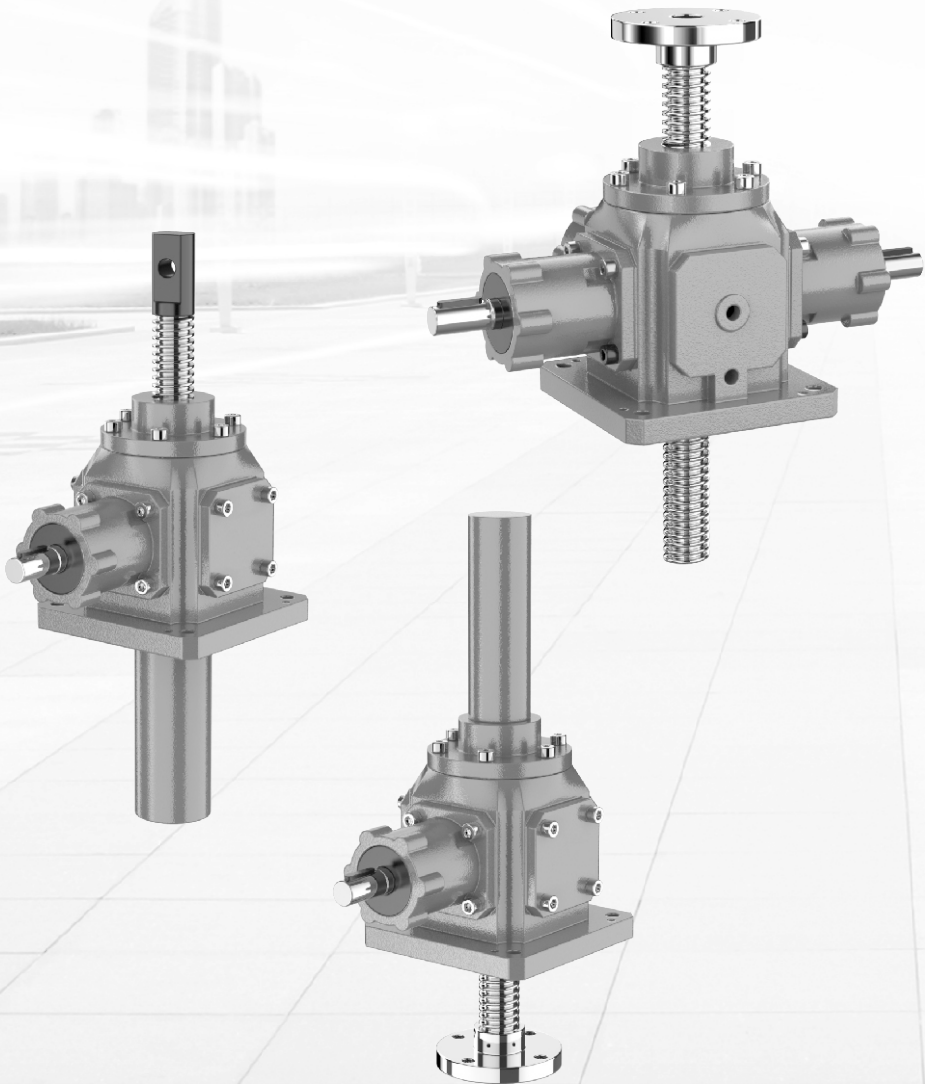


NDL伞齿轮滚珠丝杆升降机系列
NDL Bevel gear ball screw jack series



NDL 说明

当今社会的发展朝着快速，绿色，精准方向在不断迭代，“中国制造2025”亦是如此。“中国制造2025”可以解析成两个“五五”，即是五条方针：创新驱动、质量为先、绿色发展、结构优化和人才为本；即五大工程：1.制造业创新中心(工业技术研究基地)建设工程；2.智能制造工程；3.工业强基工程；4.绿色制造工程；5.高端装备创新工程；

通过解析这两个“五五”，可以看到中国制造势必是基于智能机械，海量数据，云计算，物联网建立一个工业强国。

“诺顿”制作的产品是处于智能机械的基础部件，要想制作成更好地智能机械就必须更智能的线性运动件。基于这个基础建设要求，“诺顿”的技术团队确立开发更高升降速度、更精准的定位精度、更节能的线性运动产品。NDL系列升降机经过“诺顿”团队数十个月的计算和设计，通过1年多的现场应用积累，终于应运而生：NDL系列螺旋伞齿轮-T型丝杆升降机（可以在更紧凑的结构下完成更高速和更高的承载能力）和NDLB系列螺旋伞齿轮-滚珠丝杆升降机（可以在更紧凑的结构下完成更高速和更精准的定位精度）。

NDL Description

Nowadays, the society development is constantly iterating in a fast, green, and precise direction, the same true of “Made in China 2025”. “Made in China 2025” can be parsed into two “Five - Five”, that is, five principles: innovation - driven, quality first, green development, structural optimization and talent-based; five major projects: 1. Manufacturing Innovation Center (Industrial Technology Research Base) Construction Project; 2. Intelligent Manufacturing Engineering; 3. Industrial Foundation Engineering; 4. Green Manufacturing Project; 5. High-end Equipment Innovation Project

By analyzing the “Five – Five”, we can see that Chinese manufacturing is bound to build an industrial power based on intelligent machinery, massive data, cloud computing and the Internet of things.

“Nuodun” produces products that are the basic components of intelligent machines. In order to make better intelligent machines, smarter linear motion parts are necessary. Based on this foundational construction requirement, “Nuodun” technical team has established a linear motion product with higher lifting speed, more precise positioning accuracy and more energy-saving. The NDL series lifts have been calculated and designed by the “Nuodun” team for tens of months. After more than one year of on-site application accumulation, it finally came into being: NDL series spiral bevel gears - T-type screw jacks (can achieve higher speed and higher loading capacity in a more compact structure) and NDLB series spiral bevel gear - Ball screw lifter (can achieve higher speed and more precise positioning accuracy in a more compact structure)

NDL/B初选表 NDL/B primary selection table

型号 Model	单位 Unit	NDL60	NDLB60	NDL80	NDLB80	NDL100	NDLB100	NDL125	NDLB125	NDL140	NDLB140	NDL160	NDLB160
类别 Category													
静载 Static load	Kgf	400	400	800	800	2000	2000	2500	2500	3000	3000	3500	3500
动载 Dynamic load	Kgf	200	200	500	500	1000	1000	1500	1500	2000	2000	2600	2600
丝杆参数 Screw parameter		Tr18×4	1605	Tr20×4	2005	Tr32×6	3210	Tr40×6	4010	Tr50×8	5010	Tr63×10	6310
速比I Speed ratio I		2	2	2	2	2.5	2.5	3	3	3	3	3	3
每输入每转丝杆运动量 Amount of movement per input per revolution of screw	mm	2	2.5	2	2.5	2.4	4	2	3.3	2.67	3.33	3.33	3.33
效率 efficiency		36%	60%	36%	60%	36%	60%	36%	60%	36%	60%	36%	60%
II型螺母材料 Type II nut material		ZCuAl10Fe3	GCr15	ZCuAl10Fe3	GCr15	ZCuAl10Fe3	GCr15	ZCuAl10Fe3	GCr15	ZCuAl10Fe3	GCr15	ZCuAl10Fe3	GCr15
外壳材料 Housing material		YL11	YL11	YL11	YL11	QT450	QT450	QT450	QT450	QT450	QT450	QT450	QT450

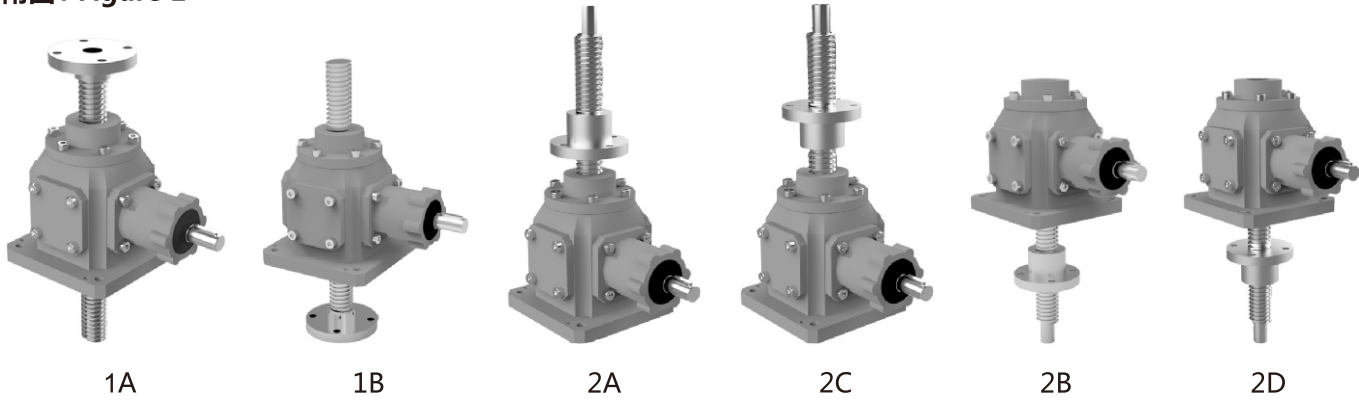
注：表中动载值需满足有良好导向，丝杆安装垂直度和平行度小于0.05mm。2型结构可以通过多导程方式加大承载。
Note: The dynamic load value in the table should be well-oriented, and the screw installation verticality and parallelism are less than 0.05mm. Type 2 structure can be increased by multi-lead mode.

NDL 125 - 3 - 1B - II - U - 2L - 100 - F - Z
1 2 3 4 5 6 7 8 9 10

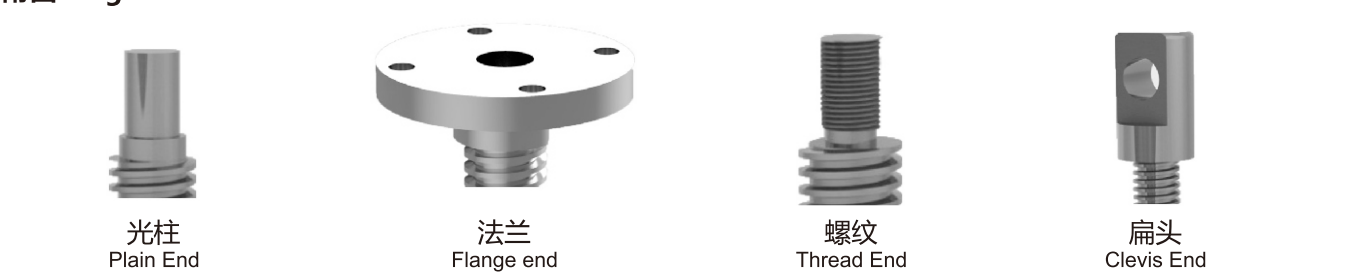
- 1 NDL:T型丝杆伞齿轮升降机；
NDLB:滚珠丝杆伞齿轮升降机；
- 2 125:伞齿轮升降机型号：100（T4），125（T6），140（T7），160（T8）；
- 3 3:速比：2.5、3；
- 4 1B:升降机安装方式：
1A：丝杆运动丝杆在上；1B：丝杆运动丝杆在下；
2A：螺母运动螺母在上并螺母朝上；2B：螺母运动螺母在下并螺母朝上；
2C：螺母运动螺母在上并螺母朝下；2D：螺母运动并螺母朝下；（附图1）
- 5 II:丝杆头部：I光柱，II法兰，III螺纹，IV扁头；（附图2）
- 6 U:齿轮安装位置：
U：输入轴逆时针，丝杆、螺母上升；
D：输入轴逆时针，丝杆、螺母下降；（附图3）
- 7 2L:轴承座安装方式：1L、2L、2L-1、3L、4L；（附图4）
- 8 100:行程：升降机运行线性距离；
- 9 F:是否防旋转：F防旋，不防旋转不填写；
- 10 Z:防护罩：Z防护罩，X伸缩防护罩，Q两种防护罩。

- 1 NDL: T-type screw bevel gear lift;
NDLB: ball beaded bevel gear lift;
- 2 125: Bevel gear lift models: 100 (T4), 125 (T6), 140 (T7), 160 (T8);
- 3 3: speed ratio: 2.5, 3;
- 4 1B: Lift installation method:
1A: the screw moving screw is on; 1B: the screw moving screw is below;
2A: the nut movement nut is on the upper side and the nut is facing upwards;
2B: the nut movement nut is on the lower side and the nut is facing upwards;
2C: nut movement nut on top and nut facing down;
2D: nut movement and nut facing down; (Fig. 1)
- 5 II: screw head: I light column, II flange, III thread, IV flat head; (Fig. 2)
- 6 U: Gear mounting position:
U: The input shaft is counterclockwise, and the lead screw and nut are raised;
D: The input shaft is counterclockwise, and the lead screw and nut are lowered;
(Fig. 3)
- 7 2L: Housing mounting method: 1L, 2L, 2L-1, 3L, 4L; (Fig. 4)
- 8 100: Stroke: the linear distance of the lift operation;
- 9 F: Whether anti-rotation: F anti-rotation, not anti-rotation does not fill;
- 10 Z: Protective cover: Z protective cover, X telescopic protective cover, Q two kinds of protective cover.

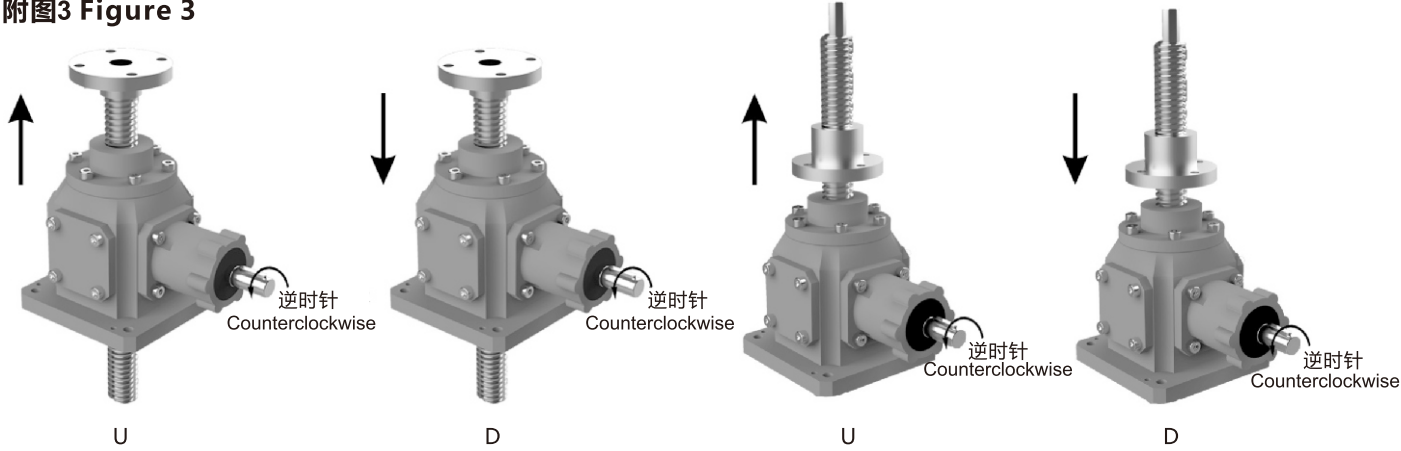
附图1 Figure 1



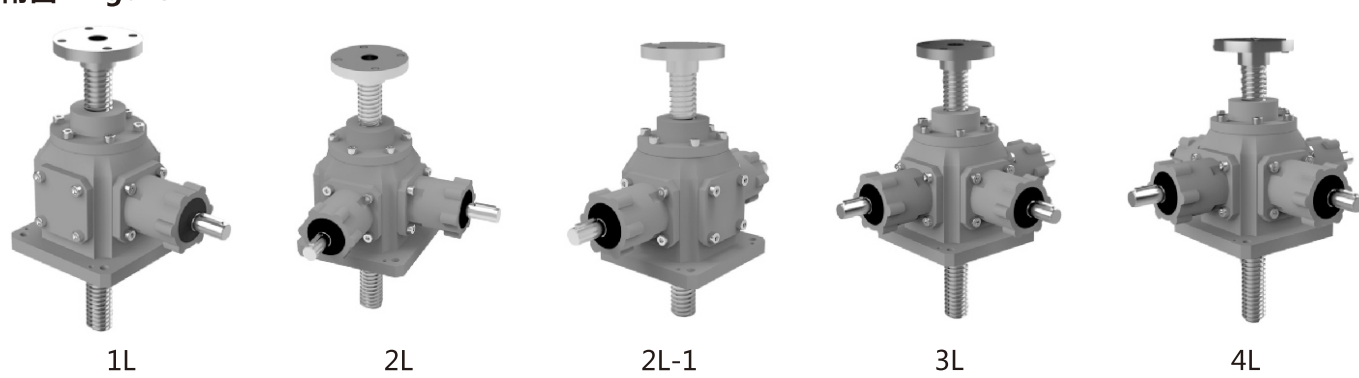
附图2 Figure 2



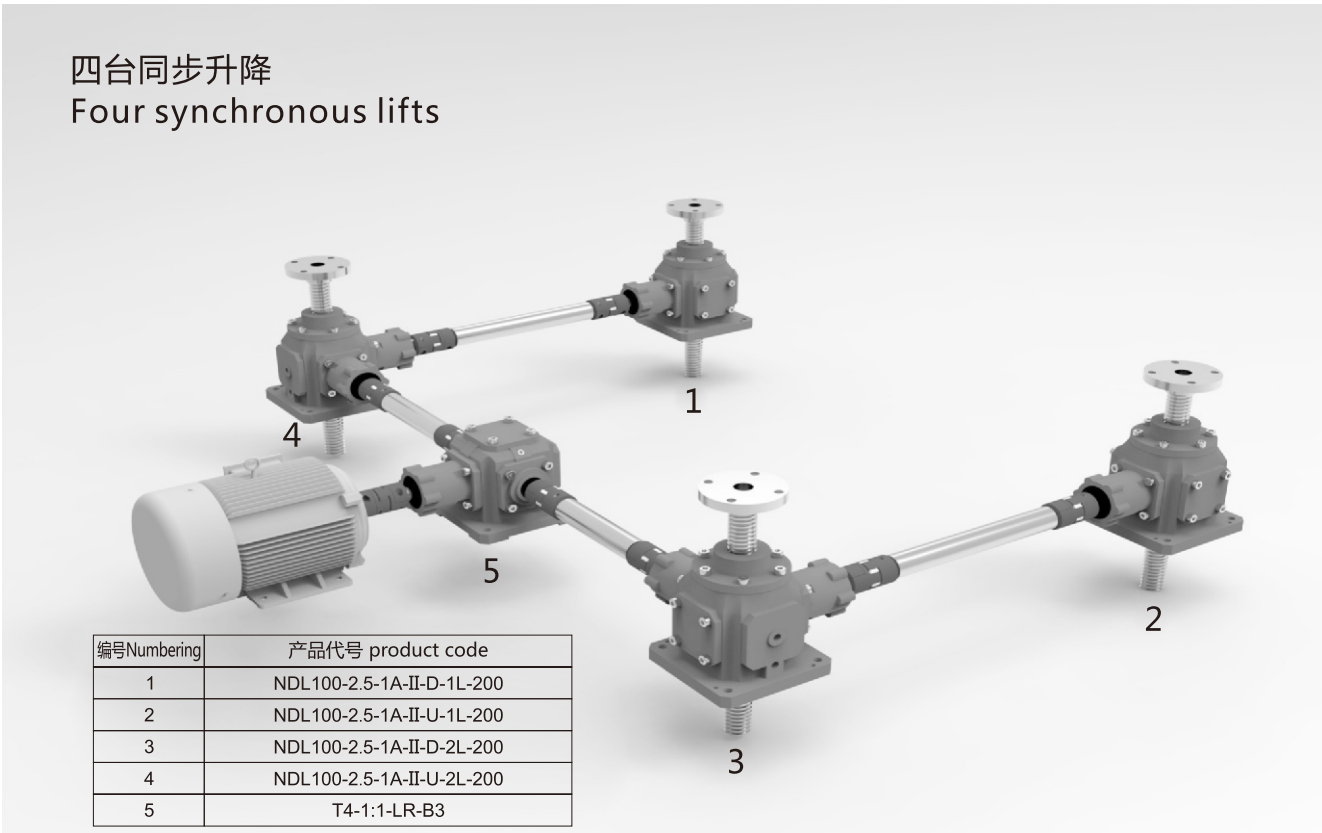
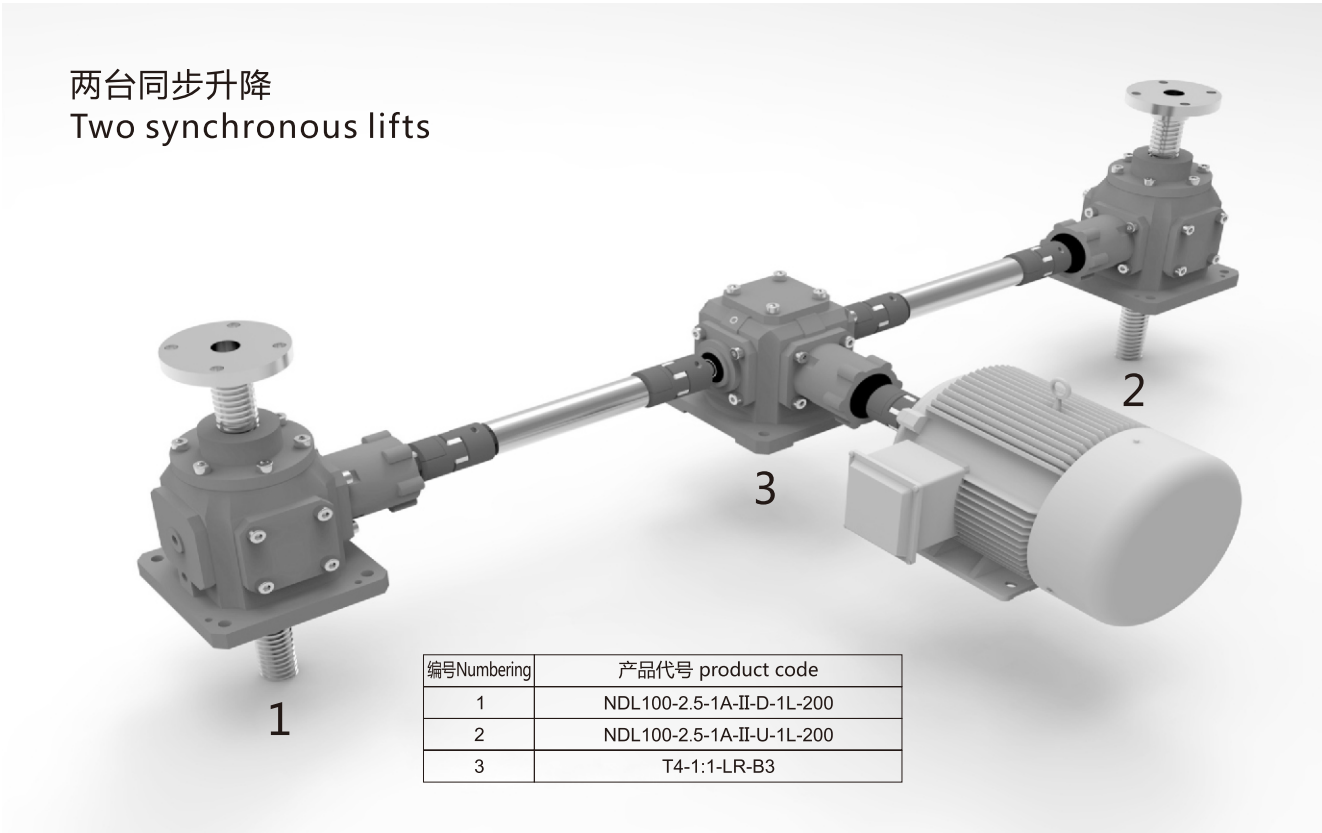
附图3 Figure 3



附图4 Figure 4

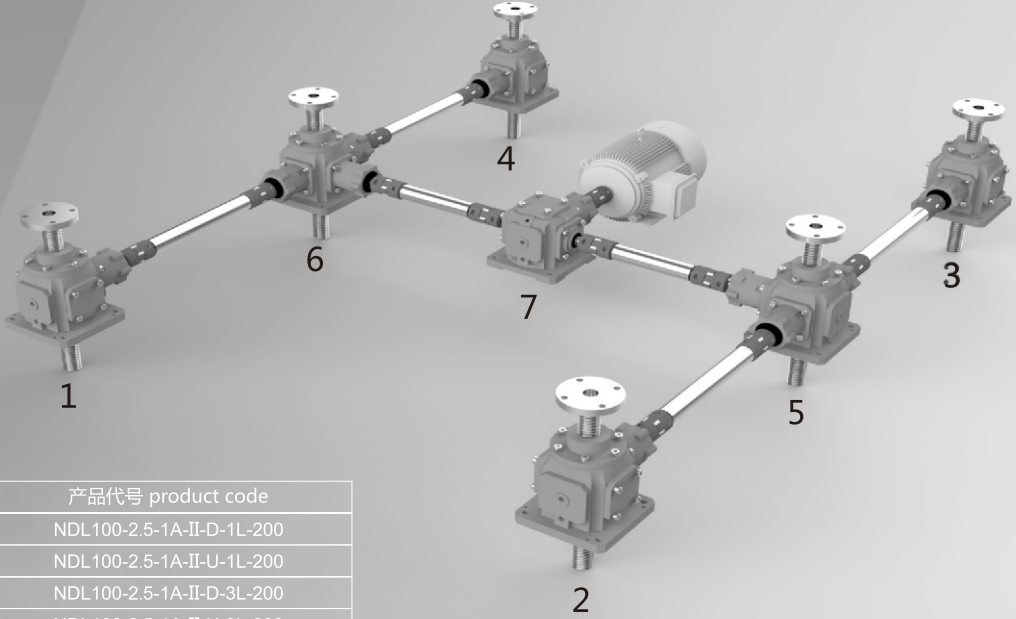


使用范例（升降示意图） Use example (elevation diagram)



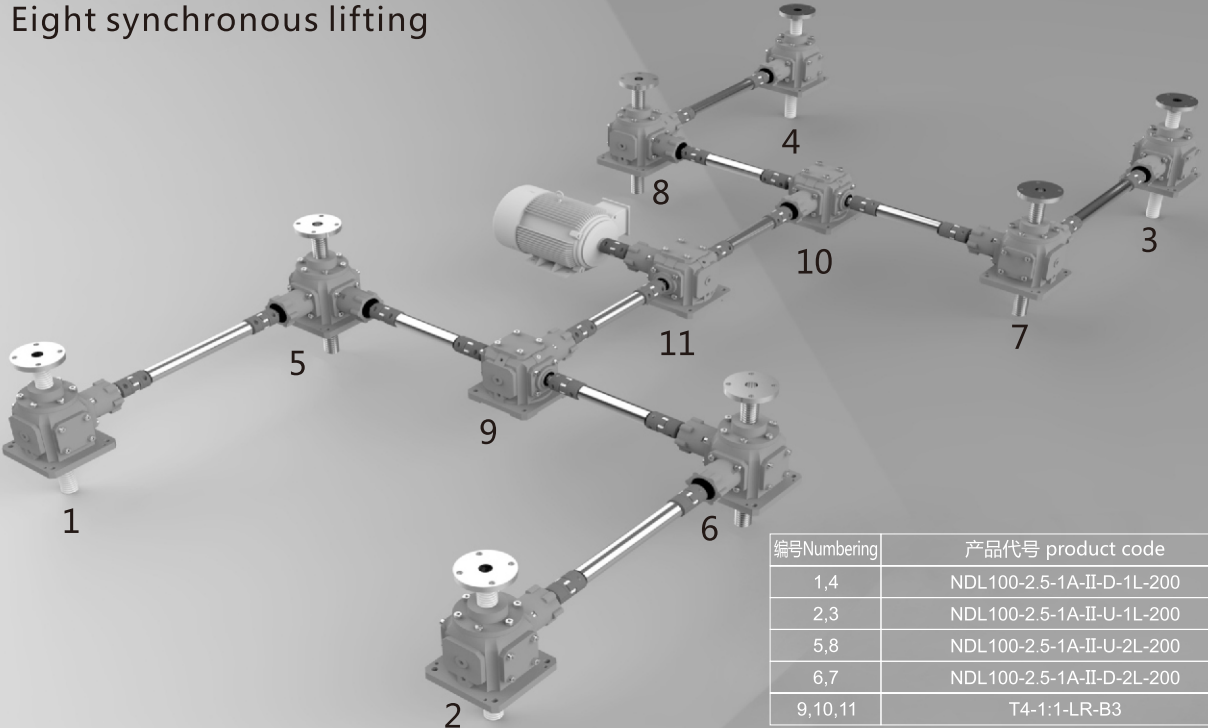
使用范例（升降示意图） Use example (elevation diagram)

六台同步升降
Six synchronous lifts



编号Numbering	产品代号 product code
1,4	NDL100-2.5-1A-II-D-1L-200
2,3	NDL100-2.5-1A-II-U-1L-200
5	NDL100-2.5-1A-II-D-3L-200
6	NDL100-2.5-1A-II-U-3L-200
7	T4-1:1-LR-B3

八台同步升降
Eight synchronous lifting

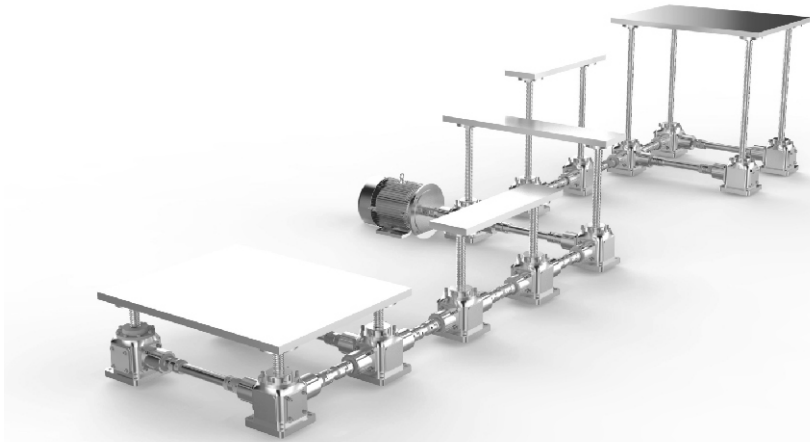


编号Numbering	产品代号 product code
1,4	NDL100-2.5-1A-II-D-1L-200
2,3	NDL100-2.5-1A-II-U-1L-200
5,8	NDL100-2.5-1A-II-U-2L-200
6,7	NDL100-2.5-1A-II-D-2L-200
9,10,11	T4-1:1-LR-B3

S 型平台 S-type platform

设计要求：
一电机同时驱动 5 个平台，5 个平台呈 S 型布置，每个平台互不干涉。电机动作时每个平台分别同时动作，上升或下降，并且升降的距离均等。
($X1=X2=X3=X4=X5$)。
应用场合：舞台机械，自动化流水线等场合。

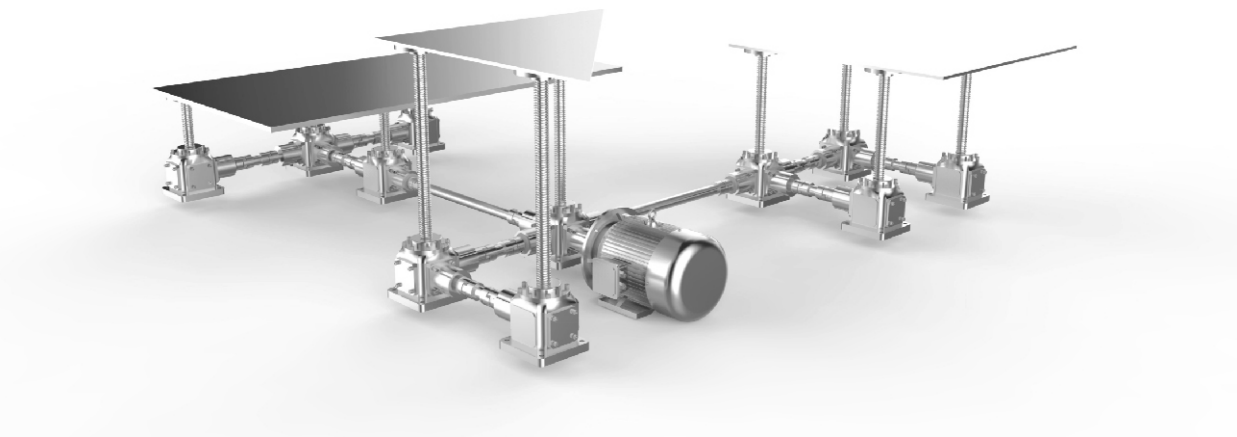
Design requirements:
Motor drives 5 platforms at the same time. The platforms are S-shaped layout. Each platform does not interfere with each other. When the motor moves, each platform moves at the same time, rises or falls, and the distance is equal. ($X1 = X2 = X3 = X4 = X5$). Application: Stage machines, automated assembly line and so on.



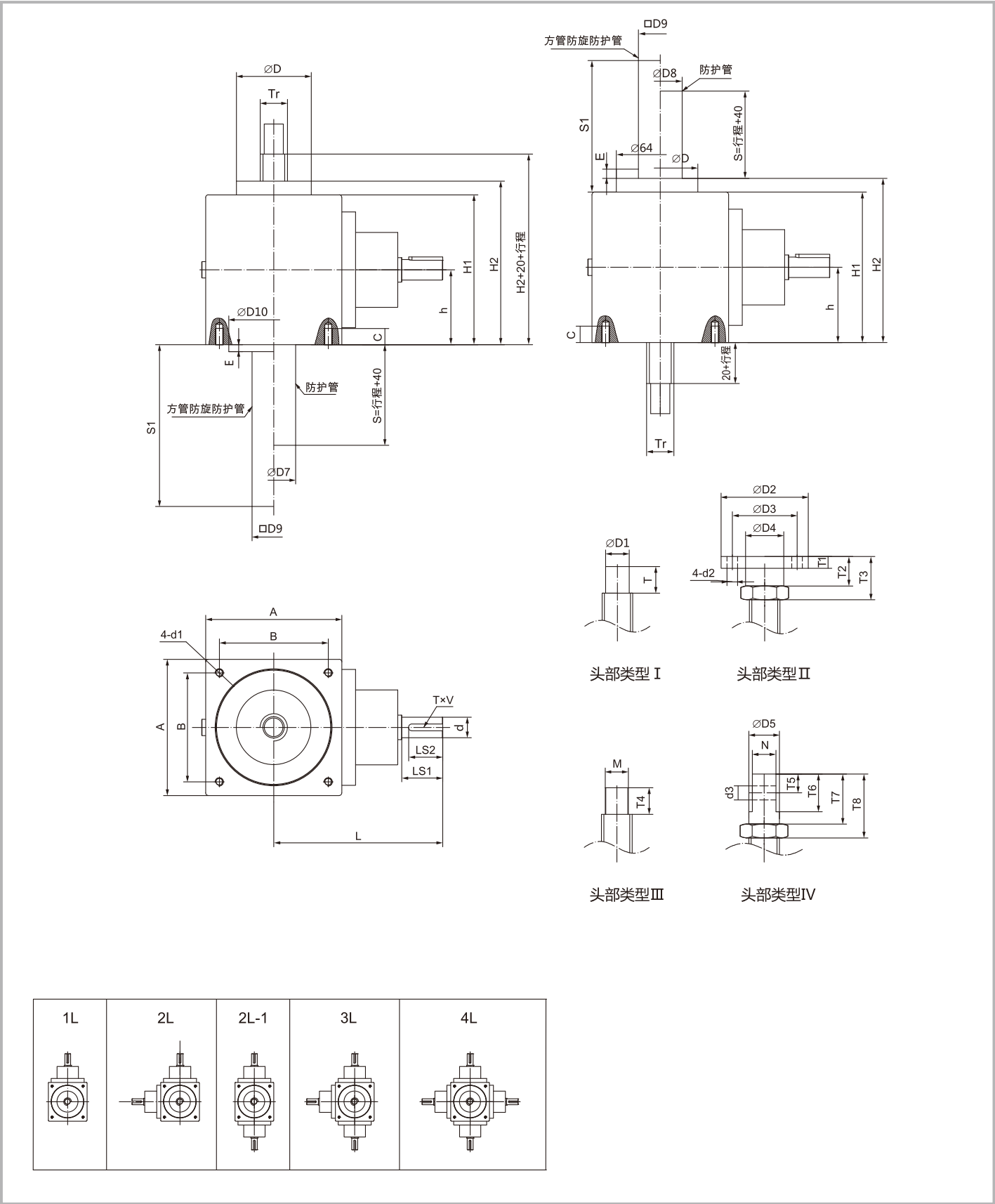
三角型平台 Triangular platform

设计要求：
一电机同时驱动 3 个平台，3 个平台呈三角型布置，每个平台互不干涉。电机动作时每个平台分别同时动作，上升或下降，并且升降的距离均等。
($X1=X2=X3$)。
应用场合：舞台机械，自动化流水线等场合

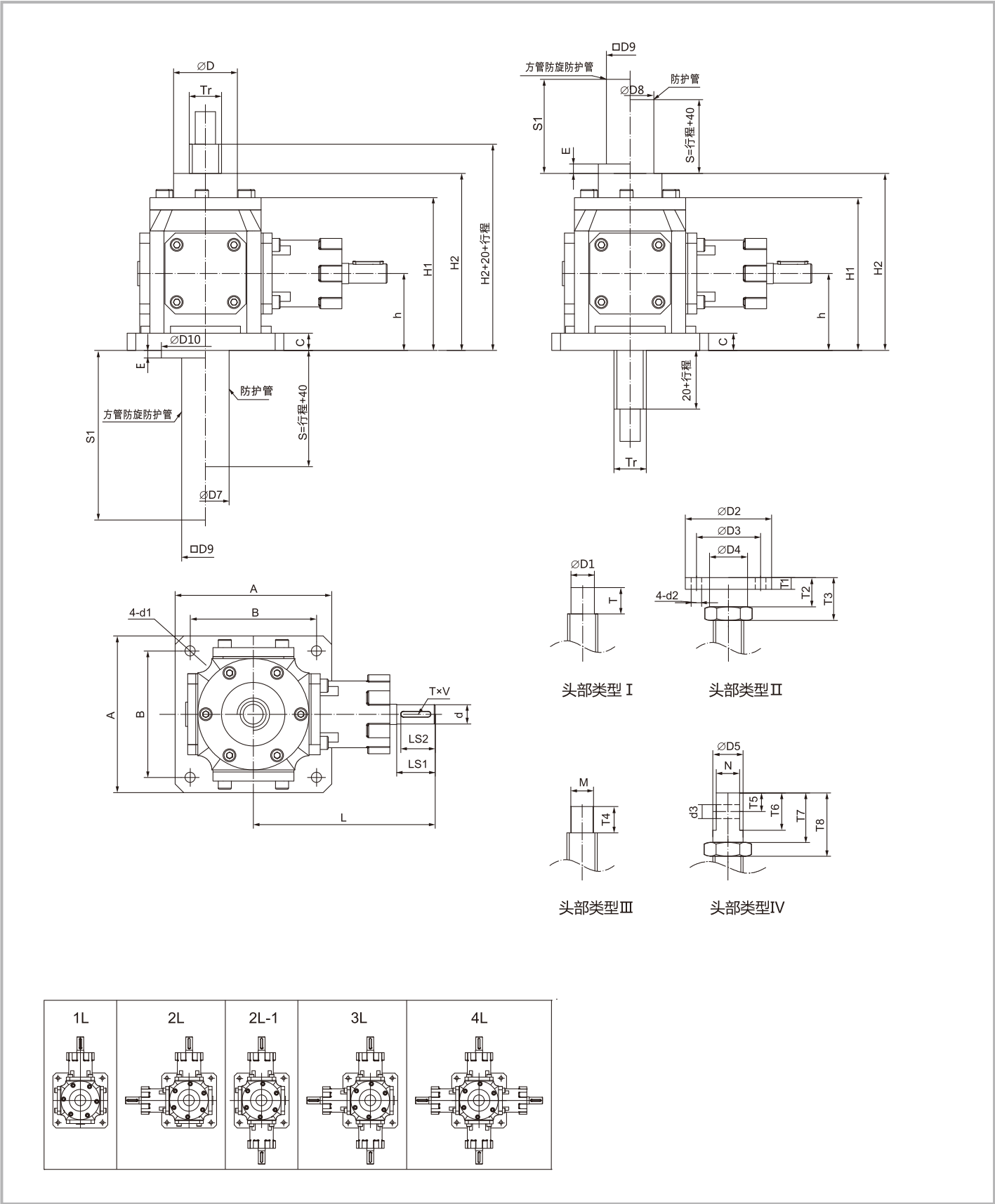
Design requirements:
A motor drive three platforms, three platforms were triangular layout, each platform does not interfere with each other. When the motor moves, each platform moves at the same time, rises or falls, and the distance is equal. ($X1 = X2 = X3$). Application: Stage machines; automated assembly line etc.



NDL80 1型结构 / NDL80 type 1 structure

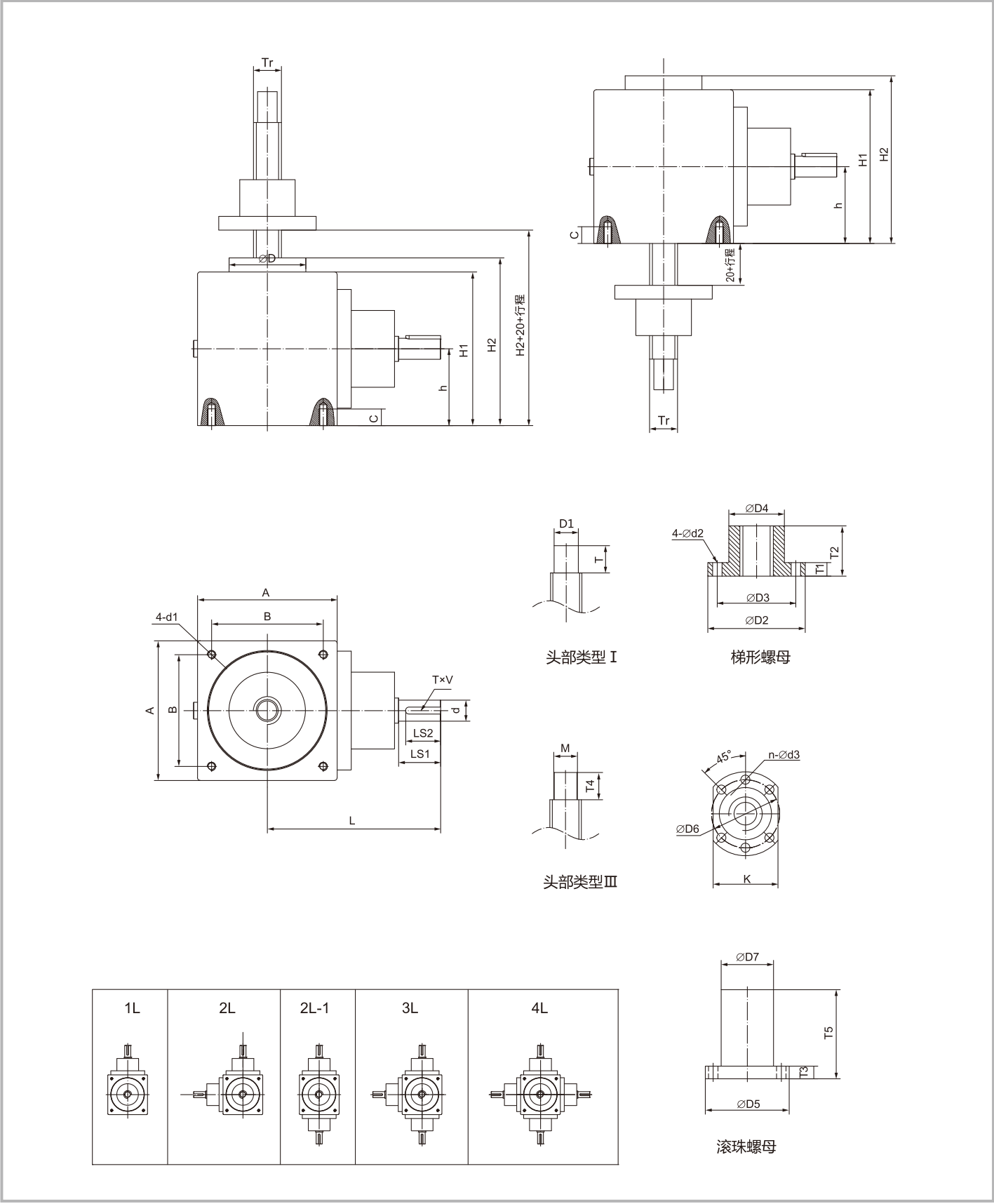


NDL100-160 1型结构 / NDL100-160 type 2 structure

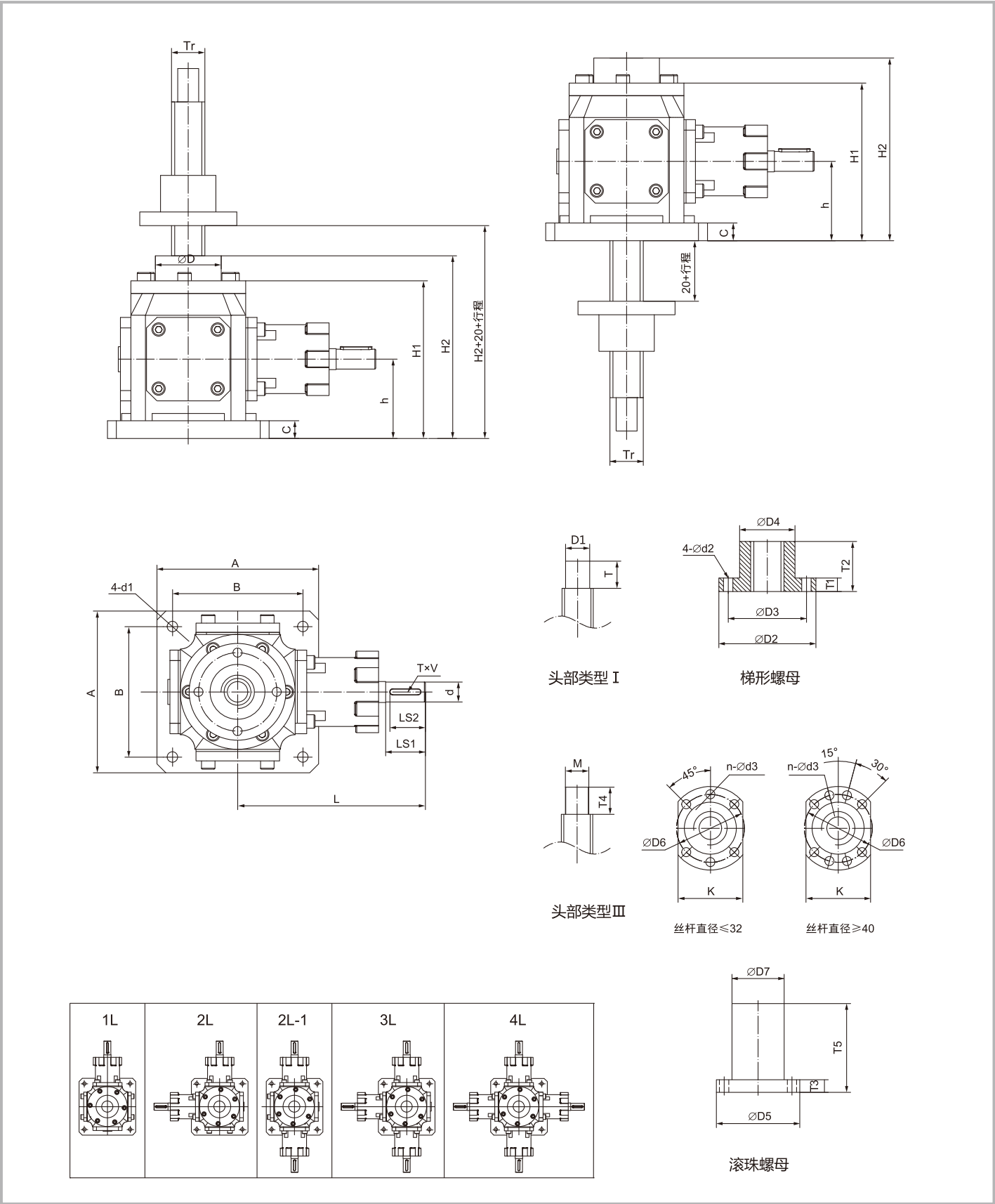


	型号 Model	NDL80	NDL100	NDL125	NDL140	NDL160
丝杆 Screw shaft	Tr	Tr20×4	Tr32×6	Tr40×6	Tr50×8	Tr63×10
		滚珠2005	滚珠3210	滚珠4010	滚珠5010	滚珠6310
基本安装尺寸 Basic installation dimensions	S	行程+40	行程+40	行程+40	行程+40	行程+40
	D7	47	60	76	88	114
	D8	32	47	76	88	114
	S1	行程+100	行程+100	行程+110	行程+110	行程+125
	D9	40	40	50	60	80
	D10	64	95	120	132	160
	E	8	10	12	15	15
	A	100	155	190	210	235
	B	80	125	152	174	195
	C	12	17	25	20	22
	D	55	63	100	100	130
	d1	M6	10.5	14	14	14
	h	55	76	90	100	115
	H1	110	151	180	205	240
	H2	120	175	200	235	270
	L	124	180	225	265	308
	LS1	30	38	50	62	75
	LS2	25	34	40	56	67.5
	d	15	19	25	32	40
	T×V	5×25	6×30	8×40	10×50	12×60
头部 I Head I	D1	17	20	25	35	40
	T	28	32	40	56	50
头部 II Head II	D2	79	98	118	146	148
	D3	60	80	85	105	105
	D4	32	40	50	55	65
	d2	9	10	17	22	21
	T1	10	13	18	16	20
	T2	22	30	40	33	50
头部 III Head III	T3	31	40	54	48	/
	M	M18×1.5	M22×1.5	M30×2	M32×2	M42×2
头部 IV Head IV	T4	22	32	40	32	50
	d3	20	25	35	30	50
	D5	32	50	64	63	90
	N	25	30	42	36	60
	T5	20	25	37.5	35	50
	T6	44	50	75	77	100
	T7	70	70	105	115	130
	T8	79	80	119	130	/

NDL80 2型结构 / NDL80 type 2 structure



NDL100-160 2型结构 / NDL100-160 type 2 structure



	型号 Model	NDL80	NDL100	NDL125	NDL140	NDL160
丝杆 Screw shaft	Tr	Tr20×4	Tr32×6	Tr40×6	Tr50×8	Tr63×10
		滚珠2005	滚珠3210	滚珠4010	滚珠5010	滚珠6310
基本安装尺寸 Basic installation dimensions	A	100	155	190	210	235
	B	80	125	152	174	195
	C	12	17	25	20	22
	D	55	63	100	100	130
	d1	M6	10.5	14	14	14
	h	55	76	90	100	115
	H1	110	151	180	205	240
	H2	120	175	200	235	270
	L	124	180	225	265	308
	LS1	30	38	50	62	75
	LS2	25	34	40	56	67.5
	d	15	19	25	32	40
	T×V	5×25	6×30	8×40	10×50	12×60
头部 I Head I	D1	17	20	25	35	40
	T	28	32	40	56	50
头部 III Head III	M	M18×1.5	M22×1.5	M30×2	M32×2	M42×2
	T4	22	32	40	32	50
梯形螺母 Flange nut	D2	80	93	125	144	158
	D3	63	75	103	120	125
	D4	36	53	68	78	88
	d2	9	9	13	13	18
	T1	12	13	18	25	28
	T2	40	48	80	75	95
	T5	51	85	88	88	93
滚珠螺母 Ball nut	D5	58	80	93	110	125
	D6	47	65	78	93	108
	D7	36	50	63	75	90
	n-∅d3	6-∅6.6	6-∅9	8-∅9	8-∅11	8-∅11
	K	44	62	70	85	95
	T3	10	12	14	16	18
	T5	51	85	88	88	93

NDL80	提升负载（KN） Improve load（KN）											
	6.00			4.50			3.00			1.50		
R.P.M	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm
2000.00	\	\	\	\	\	\	\	\	\	\	\	\
1500.00	1.00	6.37	0.65	0.75	4.78	0.49	0.50	3.18	0.32	0.25	1.59	0.16
1200.00	0.80	6.37	0.65	0.60	4.78	0.49	0.40	3.18	0.32	0.25	1.59	0.16
900.00	0.62	6.59	0.67	0.47	4.94	0.50	0.31	3.29	0.34	0.16	1.65	0.17
600.00	0.48	7.64	0.78	0.36	5.73	0.58	0.24	3.82	0.39	0.12	1.91	0.19
300.00	0.30	9.55	0.97	0.23	7.17	0.73	0.15	4.78	0.49	0.08	2.39	0.24

NDL100	提升负载（KN） Improve load（KN）											
	10.00			7.50			5.00			2.50		
R.P.M	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm
2000.00	\	\	\	\	\	\	\	\	\	\	\	\
1500.00	2.00	12.74	1.30	1.50	9.55	0.97	1.00	6.37	0.65	0.50	3.18	0.32
1200.00	1.66	13.18	1.34	1.24	9.88	1.01	0.83	6.59	0.67	0.41	3.29	0.34
900.00	1.29	13.65	1.39	0.96	10.24	1.04	0.64	6.82	0.70	0.32	3.41	0.35
600.00	0.96	15.29	1.56	0.72	11.46	1.17	0.48	7.64	0.78	0.24	3.82	0.39
300.00	0.60	19.11	1.95	0.45	14.33	1.46	0.30	9.55	0.97	0.15	4.78	0.49

NDL125	提升负载（KN） Improve load（KN）											
	12.00			9.00			6.00			3.00		
R.P.M	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm
2000.00	\	\	\	\	\	\	\	\	\	\	\	\
1500.00	2.50	15.92	1.62	1.80	11.46	1.17	1.20	7.64	0.78	0.60	3.82	0.39
1200.00	2.00	15.92	1.62	1.44	11.46	1.17	0.96	7.64	0.78	0.48	3.82	0.39
900.00	1.56	16.59	1.69	1.13	11.94	1.22	0.75	7.96	0.81	0.38	3.98	0.41
600.00	1.14	18.09	1.85	0.82	13.03	1.33	0.55	8.69	0.89	0.27	4.34	0.44
300.00	0.69	22.12	2.26	0.50	15.92	1.62	0.33	10.62	1.08	0.17	5.31	0.54

NDL140	提升负载（KN） Improve load（KN）											
	20.00			15.00			10.00			5.00		
R.P.M	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm
2000.00	\	\	\	\	\	\	\	\	\	\	\	\
1500.00	5.34	34.01	3.47	4.01	25.51	2.60	2.67	17.01	1.74	1.34	8.50	0.87
1200.00	4.27	34.01	3.47	3.21	25.51	2.60	2.14	17.01	1.74	1.07	8.50	0.87
900.00	3.34	35.43	3.62	2.50	26.57	2.71	1.67	17.71	1.81	0.83	8.86	0.90
600.00	2.43	38.65	3.94	1.82	28.99	2.96	1.21	19.33	1.97	0.61	9.66	0.99
300.00	1.48	47.24	4.82	1.11	35.43	3.62	0.74	23.62	2.41	0.37	11.81	1.21

NDL160	提升负载（KN） Improve load（KN）											
	25.00			18.50			12.50			6.00		
R.P.M	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm
2000.00	\	\	\	\	\	\	\	\	\	\	\	\
1500.00	7.37	46.92	4.79	6.11	38.89	3.97	4.13	26.27	2.68	1.98	12.61	1.29
1200.00	6.11	48.66	4.96	4.89	38.89	3.97	3.30	26.27	2.68	1.58	12.61	1.29
900.00	4.76	50.53	5.16	3.82	40.51	4.13	2.58	27.37	2.79	1.24	13.14	1.34
600.00	3.30	52.55	5.36	2.78	44.19	4.51	1.88	29.86	3.05	0.90	14.33	1.46
300.00	2.06	65.68	6.70	1.70	54.01	5.51	1.15	36.49	3.72	0.55	17.52	1.79

NDLB80	提升负载（KN） Improve load（KN）											
	6.00			4.50			3.00			1.50		
R.P.M	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm
2000.00	0.56	2.68	0.27	0.42	2.01	0.21	0.28	1.34	0.14	0.14	0.67	0.07
1500.00	0.42	2.68	0.27	0.32	2.01	0.21	0.21	1.34	0.14	0.11	0.67	0.07
1200.00	0.34	2.68	0.27	0.25	2.01	0.21	0.17	1.34	0.14	0.08	0.67	0.07
900.00	0.25	2.68	0.27	0.19	2.01	0.21	0.13	1.34	0.14	0.06	0.67	0.07
600.00	0.17	2.68	0.27	0.13	2.01	0.21	0.08	1.34	0.14	0.04	0.67	0.07
300.00	0.08	2.68	0.27	0.06	2.01	0.21	0.04	1.34	0.14	0.02	0.67	0.07

NDLB100	提升负载（KN） Improve load（KN）											
	10.00			7.50			5.00			2.50		
R.P.M	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm
2000.00	1.23	5.89	0.60	0.93	4.42	0.45	0.62	2.95	0.30	0.31	1.47	0.15
1500.00	0.93	5.89	0.60	0.67	3.18	0.32	0.46	2.95	0.30	0.23	1.47	0.15
1200.00	0.74	5.89	0.60	0.67	3.18	0.32	0.37	2.95	0.30	0.19	1.47	0.15
900.00	0.56	5.89	0.60	0.67	3.18	0.32	0.28	2.95	0.30	0.14	1.47	0.15
600.00	0.37	5.89	0.60	0.67	3.18	0.32	0.19	2.95	0.30	0.09	1.47	0.15
300.00	0.19	5.89	0.60	0.67	3.18	0.32	0.09	2.95	0.30	0.05	1.47	0.15

NDLB125	提升负载（KN） Improve load（KN）											
	12.00			9.00			6.00			3.00		
R.P.M	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm
2000.00	1.56	7.45	0.76	1.12	5.36	0.55	0.75	3.57	0.36	0.37	1.79	0.18
1500.00	1.17	7.45	0.76	0.84	5.36	0.55	0.56	3.57	0.36	0.28	1.79	0.18
1200.00	0.94	7.45	0.76	0.67	5.36	0.55	0.45	3.57	0.36	0.22	1.79	0.18
900.00	0.70	7.45	0.76	0.51	5.36	0.55	0.34	3.57	0.36	0.17	1.79	0.18
600.00	0.47	7.45	0.76	0.34	5.36	0.55	0.22	3.57	0.36	0.11	1.79	0.18
300.00	0.23	7.45	0.76	0.17	5.36	0.55	0.11	3.57	0.36	0.06	1.79	0.18

NDLB140	提升负载（KN） Improve load（KN）											
	20.00			15.00			10.00			5.00		
R.P.M	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm
2000.00	2.58	12.33	1.26	1.94	9.25	0.94	1.29	6.17	0.63	0.65	3.08	0.31
1500.00	1.94	12.33	1.26	1.45	9.25	0.94	0.97	6.17	0.63	0.48	3.08	0.31
1200.00	1.55	12.33	1.26	1.16	9.25	0.94	0.77	6.17	0.63	0.39	3.08	0.31
900.00	1.16	12.33	1.26	0.87	9.25	0.94	0.58	6.17	0.63	0.29	3.08	0.31
600.00	0.77	12.33	1.26	0.58	9.25	0.94	0.39	6.17	0.63	0.19	3.08	0.31
300.00	0.39	12.33	1.26	0.29	9.25	0.94	0.19	6.17	0.63	0.10	3.08	0.31

NDLB160	提升负载（KN） Improve load（KN）											
	25.00			18.50			12.50			6.00		
R.P.M	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm	Kw	Nm	Kgm
2000.00	3.34	15.97	1.63	2.48	11.82	1.21	1.67	7.99	0.81	0.80	3.83	0.39
1500.00	2.51	15.97	1.63	1.86	11.82	1.21	1.25	7.99	0.81	0.60	3.83	0.39
1200.00	2.01	15.97	1.63	1.49	11.82	1.21	1.00	7.99	0.81	0.48	3.83	0.39
900.00	1.51	15.97	1.63	1.11	11.82	1.21	0.75	7.99	0.81	0.36	3.83	0.39
600.00	1.00	15.97	1.63	0.74	11.82	1.21	0.50	7.99	0.81	0.24	3.83	0.39
300.00	0.50	15.97	1.63	0.37	11.82	1.21	0.25	7.99	0.81	0.12	3.83	0.39