



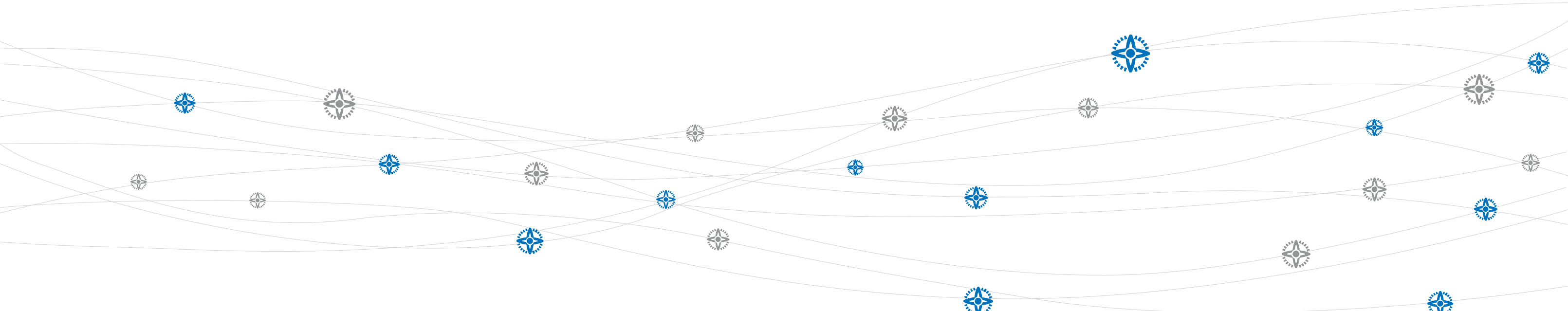
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**WS系列丝杆升降机**  
WS Series screw elevators



**佛山市南海珠江减速机有限公司**

FOSHAN NANHAI ZHUJIANG REDUCTION GEAR CO.,LTD.

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2021版



公司主页



Company homepage

**佛山市南海珠江减速机有限公司**  
FOSHAN NANHAI ZHUJIANG REDUCTION GEAR CO.,LTD.



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## 公司简介

### Company brief introduction

佛山市南海珠江减速机有限公司（下称“公司”）创建于八十年代末，位于广东省佛山市南海区狮山镇南海经济开发区（狮山园）北园工业区兴业北路，公司拥有员工280多名，高中级技术人员三十多名，其中高级工程师十名，占地面积5万平方米，建筑面积4.5万平方米，公司专业生产各类型减速机，是国内大型的减速机制造商，在同行业具有较高评价。

公司在近五年不断对加工设备及检测设备进行升级改造，现有主要加工设备为立式/卧式加工中心、数控磨齿/滚齿机、数控车/铣床等等将近 200 台精密设备及 70 台普通加工设备，并配备齿轮检测中心、三坐标检测中心等高端精密检测设备对工件状况进行监控，并随企业发展过程不断优化加工结构及产品结构。公司加工设备装备先进性和规模性在国内同行尤其是广东省内是少有且别具优势。以数控化、程序化等先进设备技术确保加工的工件稳定性维持在一定的高水平，故公司产品消费群体广泛分布在木工机械、玻璃机械、食品机械、包装机械、陶瓷机械、电力行业及一系列通用机械行业，并取得了市场对公司产品品质稳定性的普遍认同。

佛山市南海珠江减速机有限公司以“创造二十一世纪新型减速机制造业”为己任，必将以更多更好的优质产品为广大减速机应用行业服务。

Foshan City, Nanhai Zhujiang Decelerator Co., Ltd. (hereinafter referred to as the company) was founded in the end of 80s, located in Foshan City, Guangdong Province, the South China Sea Lions The South China Sea town economic development zone ( Lion Hill Park ) Beiyuan Industrial Zone Industrial Road, the company has more than 280 employees, more than and 30 senior technical staff Name, including senior engineer ten, covers an area of 50 thousand square meters, construction area of 45 thousand square meters, the company specialized in the production of various types of reducer, is a large domestic reducer manufacturers, in the same industry has a high evaluation.

In the past five years, the processing equipment and testing equipment to upgrade the existing major processing equipment for vertical / horizontal processing center, CNC gear grinding machine, CNC lathe / milling machine and so on nearly 200 precision equipment and 70 ordinary processing equipment, and equipped with gear testing center, Three coordinate testing center and other high-end precision testing equipment to monitor the status of the workpiece, and with the development process of the enterprise to optimize the processing structure and production Product structure. Processing equipment and equipment advanced nature and scale in the domestic counterparts, especially in the province of Guangdong is rare and do not have the advantage of. With numerical control, Programming and other advanced equipment and technology to ensure that the processing of the workpiece stability at a high level, so the company's products are widely distributed in the consumer group Woodworking machinery, glass machinery, food machinery, packaging machinery, ceramic machinery, electric power industry and a series of general machinery industry, and achieved Market for the company's product quality stability of the general recognition.

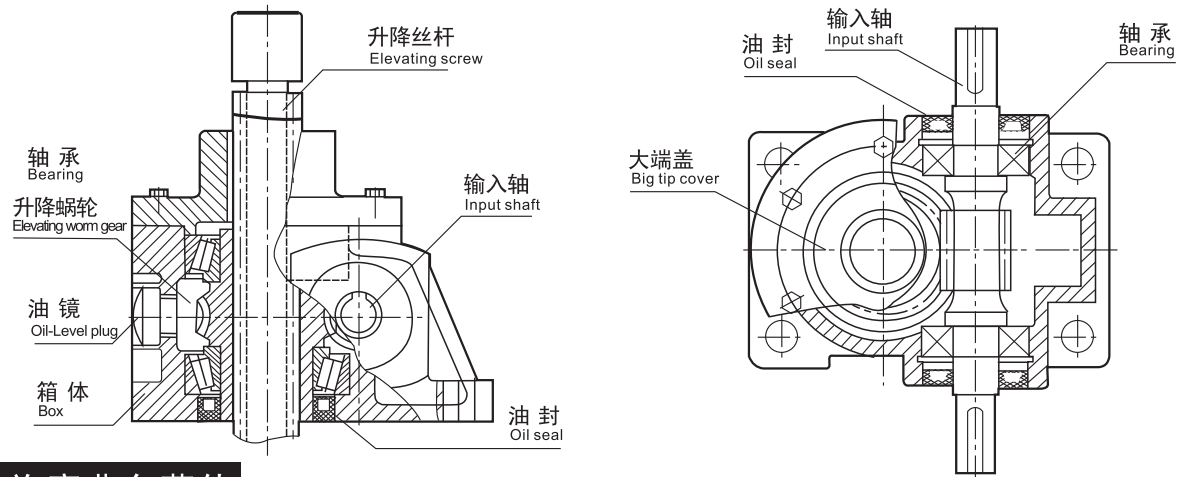
Foshan City Nanhai Zhujiang Decelerator Co., Ltd. to create a new type of reducer manufacturing industry in twenty-first Century, as its responsibility, will be more and better quality products for the majority of reducer application industry services.



## WSH系列蜗轮蜗杆升降机

### WSH series worm gear elevators

#### 结构示意图 Product structure



#### 允许弯曲负荷值 Allowable bending Load-factor

不同型号及轴端各种负荷方式、丝杆长度、允许弯曲负荷请参考以下表格或计算公式：  
Make sure the needed type of worm-gear elevators to screw load mode, screw length, Allowable bending load-factor for the approximated value of load-factor, please see the right table or loads analysis:

$$P_{cr} = n^2 E (k/L)^2 \cdot A \cdot f_B$$

n: 轴端支承因数 (参见右表)  
n: End-screw load-factor (Please the right table)

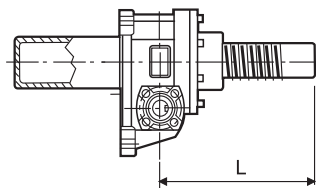
E: 纵向弹性模数  $2.1 \times 10^4 \text{ kgf/mm}^2$   
E: Elastic modulus of lengthways  $2.1 \times 10^4 \text{ kgf/mm}^2$

K: 最小辅助半径 Minimum allowable radius

$$K = \frac{d_1}{4}$$

d<sub>1</sub>: 螺纹底直径 Core diameter of thread

L: 轴支承长度 Length of support (mm)



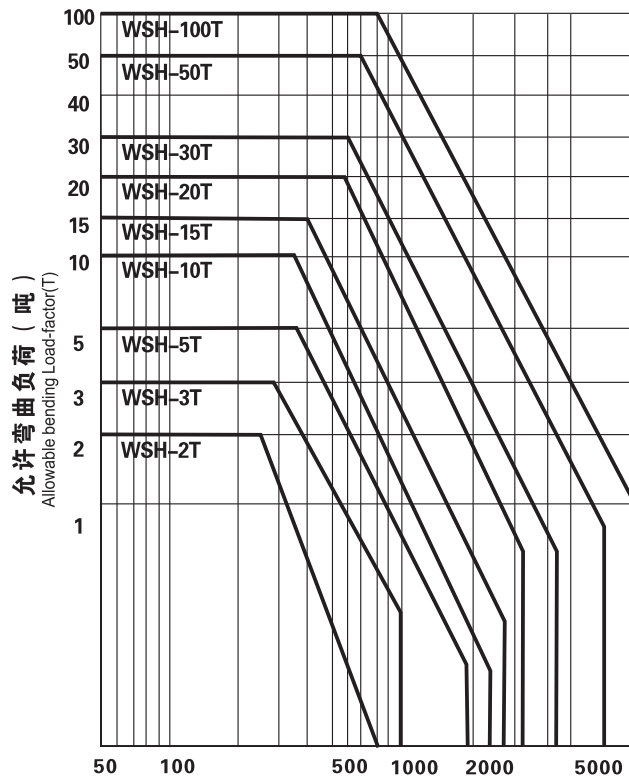
A: 丝杆螺纹底径的模截面积  
A: Core diameter of thread

$$A = \frac{\pi (d_1)^2}{4}$$

f<sub>B</sub>: 安全因数 Safety factor f<sub>B</sub> = 0.25

附: 螺纹底直径 (mm)  
Attach: Core diameter of thread (mm)

型号 Type	d <sub>1</sub>	型号 Type	d <sub>1</sub>
WSH-1T	19.5	WSH-15T	41
WSH-2T	19.5	WSH-20T	54
WSH-3T	25	WSH-30T	62
WSH-5T	31	WSH-50T	74
WSH-10T	36	WSH-100T	82



轴支承长度 (mm)  
Length of support (mm)

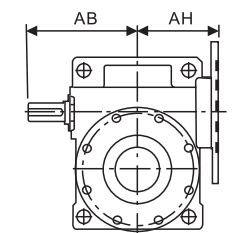
千斤顶固定—轴端游离 (n = 1/4)  
千斤顶支承—轴端支承 (n = 1)  
(栓孔式) — (栓孔式)  
千斤顶固定—顶板固定 (n = 2)

Jack fixation—End-screw dissociate (n=1/4)  
Jack supporting—End-screw supporting (n=1)  
(Keyhole) — (Keyhole)  
Jack fixation—roof supporting (n=2)

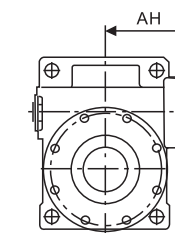
型号 Type	WSH-1T	WSH-2T	WSH-3T	WSH-5T	WSH-10T	WSH-15T	WSH-20T	WSH-30T	WSH-50T	WSH-100T
梯形螺纹直径 Diameter of screw	φ24	φ25	φ32	φ38	φ45	φ50	φ65	φ75	φ90	φ100
螺距 Pitch	P=4	P=5	P=6	P=6	P=8	P=8	P=10	P=12	P=12	P=12
减速比 Ratio	1/8 1/12 1/24	1/5 1/10 1/20	1/6 1/12 1/24	1/6 1/12 1/24	1/8 1/16 1/32	1/8 1/16 1/32	1/10 1/20 1/40	1/12 1/18 1/36	1/14 1/21 1/42	1/10 1/15 1/30
AA	157	170	220	220	256	264	316	390	480	550
AB	78.5	85	110	110	128	132	158	195	240	275
AC	48.5	55	70	70	88	92	108	130	170	180
AD	30	30	40	40	40	40	50	65	70	95
AE	25	25	35	35	35	35	45	60	65	90
AF	65	66	80	90	100	110	140	190	240	250
AG	85	90	110	120	140	150	180	230	300	320
AH			90	92	100	105	120	150	194	218
BA	46	50	57	60	90	90	95	110	160	170
BB	74	85	98	110	140	140	155	200	255	285
BC	36	38	42	45	70	70	75	85	130	135
BD	64	73	83	95	120	120	135	175	225	250
BE	30	35	40	50	60	63	70	100	130	150
CB	36	40	50	50	60	60	70	85	120	125
CC	13	15	18	18	20	20	25	30	30	35
CF	103	110	130	130	160	160	180	220	245	345
φG	48	57	57	57	63	73	89			
φU	14	15	18	18	25	25	28	32	45	50
TxV	5X3	5X3	6X3.5	6X3.5	8X4	8X4	8X4	10X5	14X5.5	14X5.5
L	Stroke +30	Stroke +30	Stroke +30	Stroke +30	Stroke +30	Stroke +30	Stroke +30			
φLA			130	130	165	165	165	215	265	265
φLB			110	110	130	130	130	180	230	230
/LC			160	160	200	200	200	250	300	300
LZ			M8 P1.25	M8 P1.25	M10 P1.5	M10 P1.5	M10 P1.5	M12 P1.75	M16 P2.0	M16 P2.0
φd WxY 直联功率 Coupling power			14 5X2.3 0.25/0.37	14 5X2.3 0.25/0.37	19 6x2.8 0.75	19 6x2.8 0.75	24 8x3.3 1.5	28 8x3.3 2.2	38 10x3.3 5.5	38 10x3.3 7.5
φd WxY 直联功率 Coupling power					24 8x3.3 0.75	24 8x3.3 0.75				
φH	9	12	12	14	18	18	18	22	22	27
重量		6	10.2	13.2	21.5	27.5	42.5	74		
参考页数	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19

注: 减速机重量为丝杆行程为300mm时的参考重量。

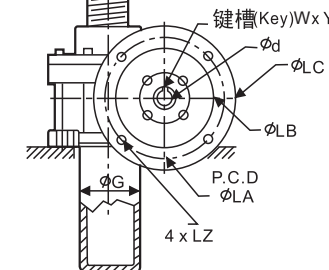
直联双入  
Shaft and flange coupling



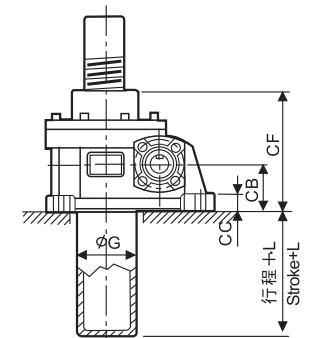
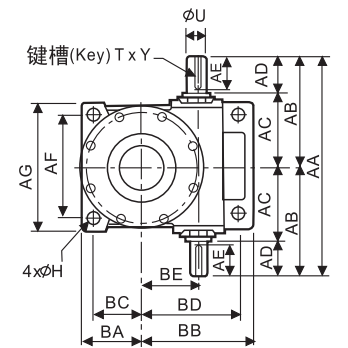
直联单入  
Flange coupling



直联式  
Shaft coupling

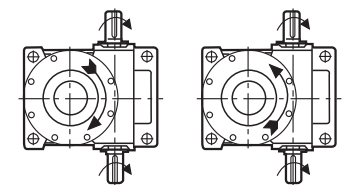


双入力 (标准型)  
Double-shaft input (standard)

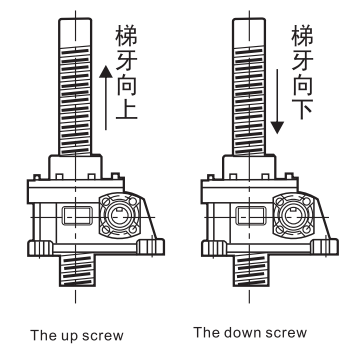


输入转向与丝杆上下运动关系如下 (标准型):  
Input shaft direction of rotation and the up screw or down (standard):

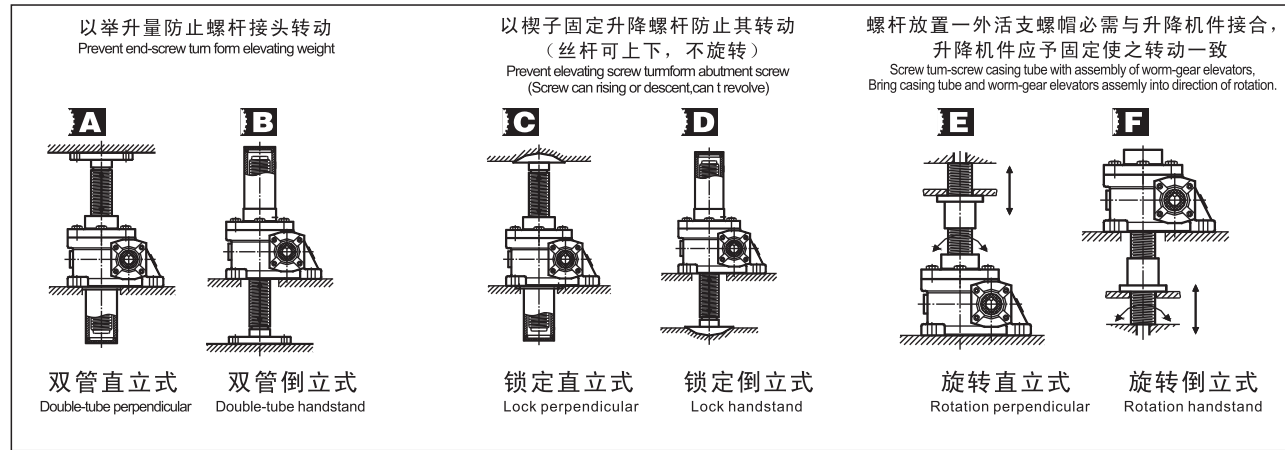
(右旋) (左旋)  
Right-rotation Left-rotation



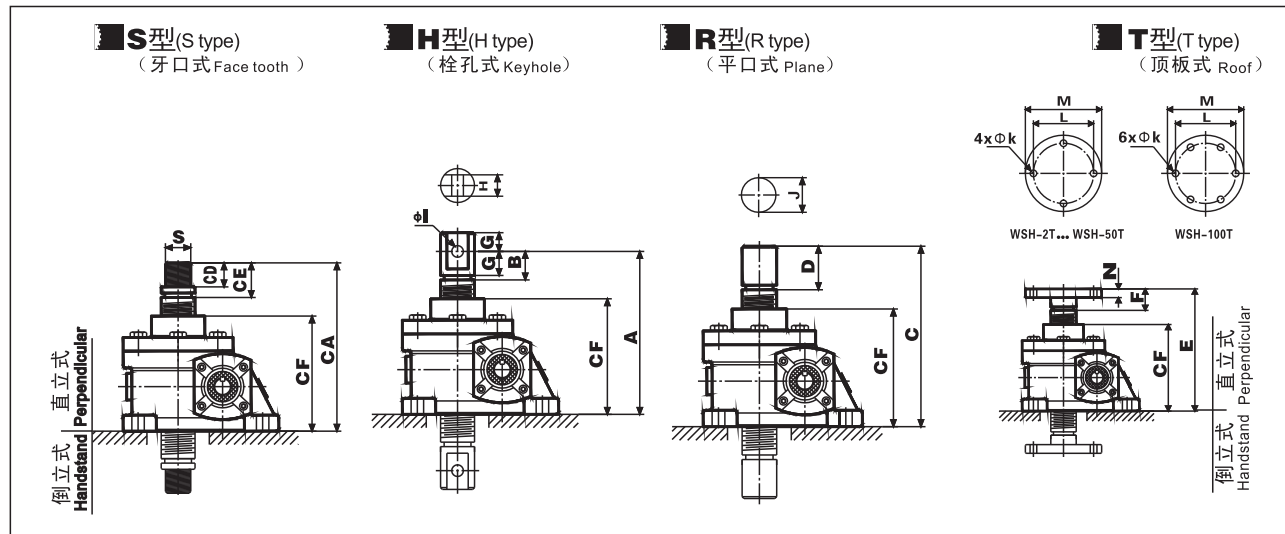
旋转方向 Direction of rotation



**安装方式 Mounting positions**

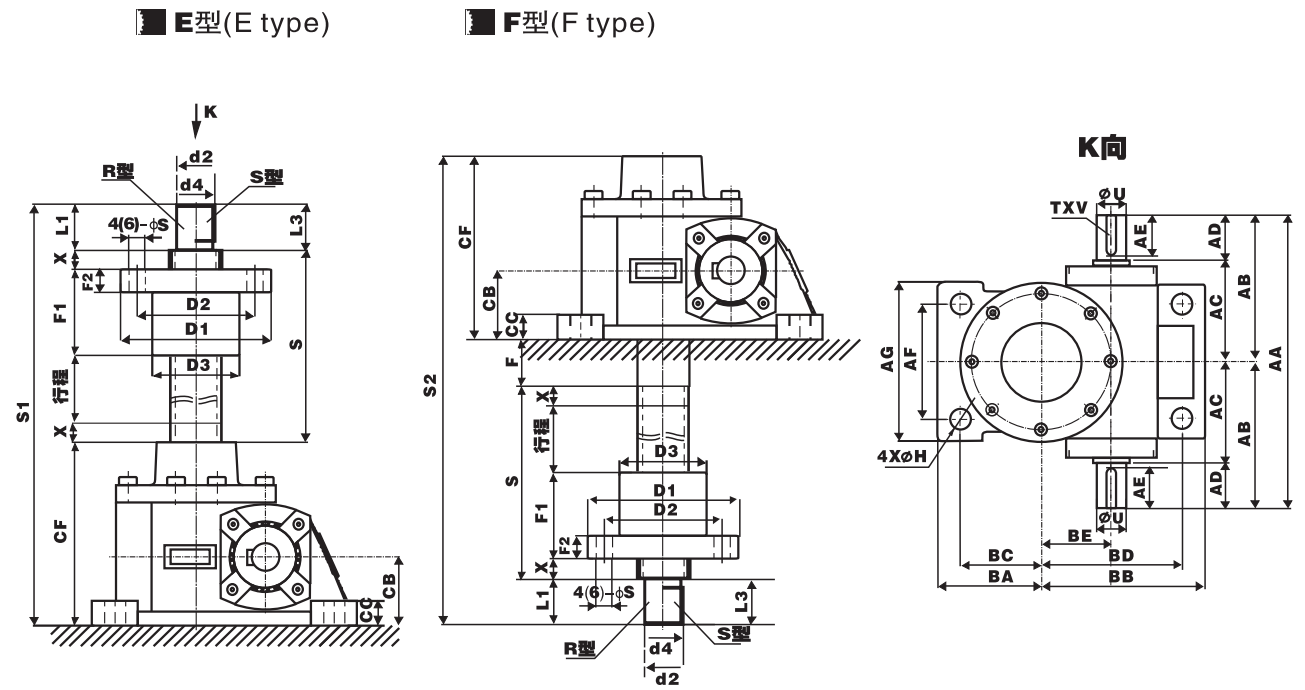


**螺杆端型式 Screw type**



**E、F安装方式结构图**

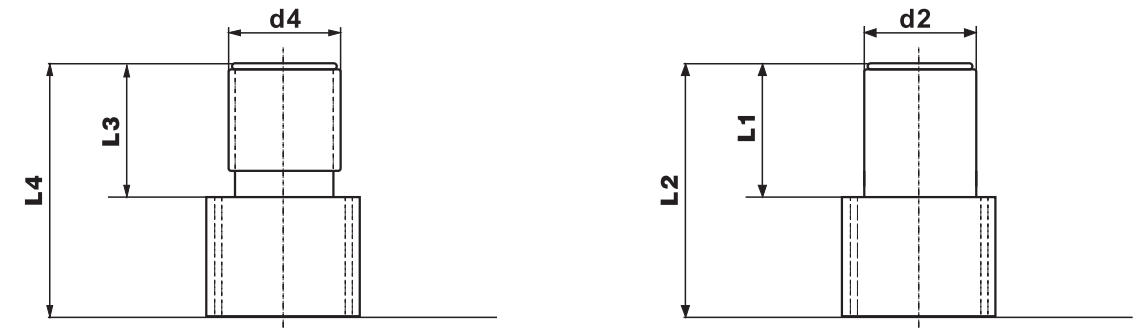
**E、F Mounting structure**



**螺杆端型式 Screw type**

**S型(S type)**

**R型(R type)**

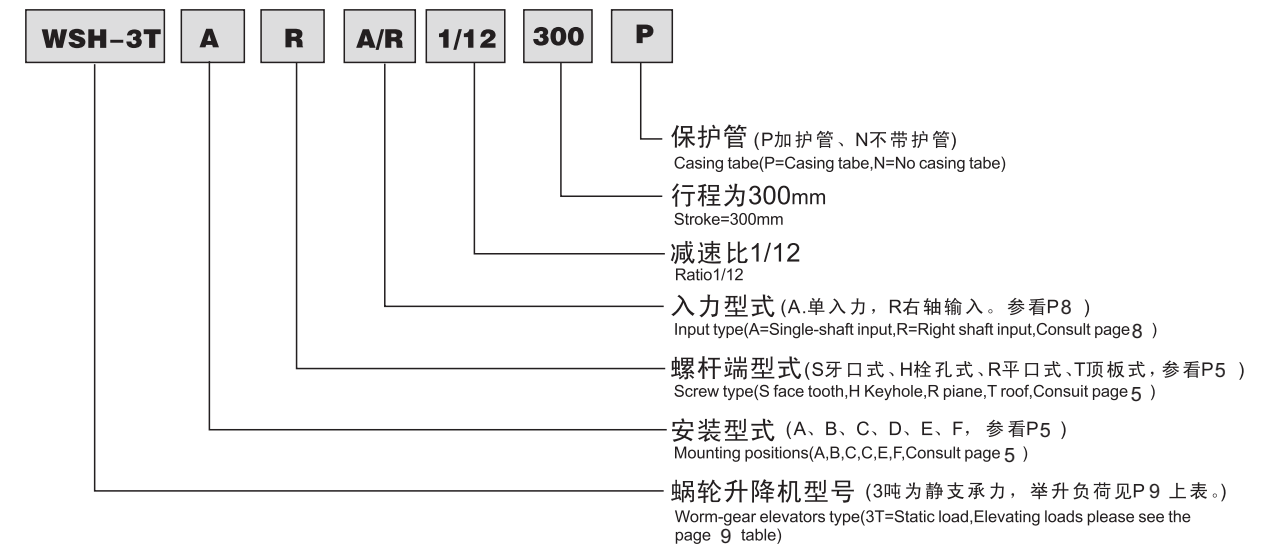


型号 Type	CA	CD	CE	S	A	B	C	D	E	F	G	H	I	J	K	L	M	N
WSH-1T	143	28	40	M16x1.5	158	55	158	55	128	25	20	16	12	24	10	70	88	10
WSH-2T	150	28	40	M16x1.5	165	55	165	55	135	25	20	16	12	25	10	70	88	10
WSH-3T	180	32	50	M22x2	195	65	195	65	160	30	25	20	14	32	10	80	98	13
WSH-5T	180	35	50	M27x2	195	65	195	65	160	30	25	25	16	38	12	90	114	13
WSH-10T	220	40	60	M33x2	255	95	225	65	200	40	32	32	20	45	14	100	138	16
WSH-15T	220	45	60	M36x2	255	95	225	65	210	50	32	36	24	50	18	110	148	20
WSH-20T	260	55	80	M42x2	294	114	250	70	235	55	35	44	26	65	21	120	178	25
WSH-30T	300	65	80	M56x2	355	135	295	75	285	65	44	56	35	75	21	140	188	28
WSH-50T	420	75	120	M76x2	465	165	414	114	375	75	64	70	45	90	27	200	248	32
WSH-100T	495	100	150	M80x2	545	200	485	140	445	100	70	80	55	100	27	280	358	35

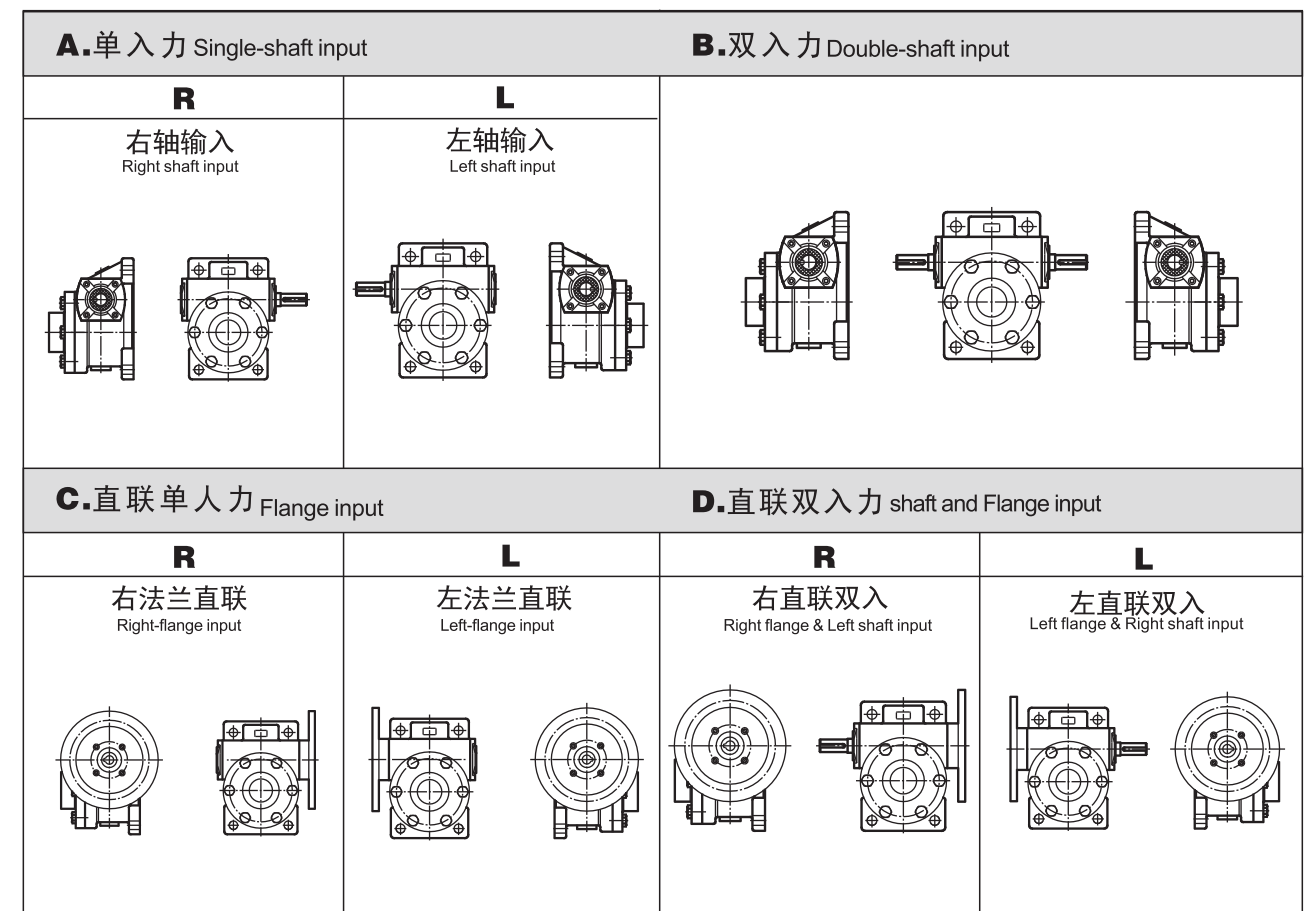
E、F装安装方式结构尺寸表

型号	WSH2T	WSH3T	WSH5T	WSH10T	WSH15T	WSH20T	WSH30T
S	行程+83	行程+88	行程+98	行程+118	行程+123	行程+145	行程+158
S1	行程+223	行程+253	行程+263	行程+318	行程+328	行程+380	行程+443
S2	行程+247	行程+277	行程+287	行程+342	行程+357	行程+419	行程+482
AA	170	220	220	256	264	316	390
AB	85	110	110	128	132	158	195
AC	55	70	70	88	92	108	130
AD	30	40	40	40	40	50	65
AE	25	35	35	35	35	45	60
AF	66	80	90	100	110	140	190
AG	90	110	120	140	148	179	230
BA	50	57	60	90	90	95	110
BB	85	98	110	140	140	155	200
BC	38	42	45	70	70	75	85
BD	73	83	95	120	120	135	175
BE	35	40	50	60	63	70	100
CB	40	50	50	60	60	70	85
CC	15	18	18	20	20	25	30
CF	110	130	130	160	160	180	220
ΦU	15	18	18	25	25	28	32
TXV	5×3	6×3.5	6×3.5	8×4	8×4	8×4	10×5
4-ΦH	12	12	14	18	18	18	22
F	24	24	24	24	29	39	39
X	20	20	20	25	25	25	30
L2	50	70	70	80	85	95	105
L4	48	52	55	65	70	80	95
活动螺母	D1	Φ78	Φ93	Φ108	Φ128	Φ138	Φ158
	D2	Φ60	Φ75	Φ85	Φ100	Φ110	Φ125
	D3	Φ40	Φ53	Φ58	Φ68	Φ78	Φ88
	F1	43	48	58	68	73	98
	F2	13	13	18	18	23	28
	4(6)-ΦS	4-Φ9	4-Φ9	4-Φ11.5	4-Φ14	4-Φ14	4-Φ15.5
螺杆端型式	S型	d4	M16×1.5	M22×2	M27×2	M33×2	M36×2
		L3	28	32	35	40	45
	R型	d2	Φ18	Φ24	Φ30	Φ36	Φ40
		L1	30	35	35	40	45

型号表示说明示例 Code for type



入力型式 Input shaft type





输入轴功率与负载、升降速度的关系 Input shaft power, loads and elevating speed

型号 Type	升降 蜗轮 梯形螺纹 Worm gear Diameter Distance of screw	减速比 Ratio	1800 RPM 输入轴转速 Input speed			1500 RPM 输入轴转速 Input speed			1200 RPM 输入轴转速 Input speed			900 RPM 输入轴转速 Input speed			600 RPM 输入轴转速 Input speed			300 RPM 输入轴转速 Input speed		
			输入功率 (KW)	举升负荷 (kg)	举升速度 (mm/min)	输入功率 (KW)	举升负荷 (kg)	举升速度 (mm/min)	输入功率 (KW)	举升负荷 (kg)	举升速度 (mm/min)	输入功率 (KW)	举升负荷 (kg)	举升速度 (mm/min)	输入功率 (KW)	举升负荷 (kg)	举升速度 (mm/min)	输入功率 (KW)	举升负荷 (kg)	举升速度 (mm/min)
WSH-1T	φ24 P=4	1/8	0.93	500	900	0.86	500	750	0.87	700	600	0.84	900	450	0.62	1000	300	0.50	1000	150
		1/12	0.50	500	600	0.50	500	500	0.50	700	400	0.55	1000	300	0.50	1000	200	0.25	1350	100
		1/24	0.50	600	300	0.50	700	250	0.50	900	200	0.55	1200	150	0.25	1300	100	0.25	1350	50
WSH-2T	φ25 P=5	1/5	0.70	500	1800	0.65	550	1500	0.65	700	1200	0.65	900	900	0.47	1000	600	0.38	1000	300
		1/10	0.38	500	900	0.38	550	750	0.38	700	600	0.38	750	450	0.38	1000	300	0.19	1350	150
		1/20	0.38	600	450	0.38	700	375	0.38	900	300	0.38	1200	225	0.19	1350	150	0.19	1350	75
WSH-3T	φ32 P=6	1/6	0.98	700	1800	0.94	800	1500	0.89	950	1200	0.92	1300	900	0.84	1800	600	0.42	1800	300
		1/12	0.67	950	900	0.65	1100	750	0.61	1300	600	0.58	1650	450	0.47	2000	300	0.38	2000	150
		1/24	0.38	950	450	0.38	1100	375	0.38	1300	300	0.38	1650	225	0.38	2000	150	0.19	2000	75
WSH-5T	φ38 P=6	1/6	1.40	900	1800	1.29	1000	1500	1.25	1200	1200	1.16	1500	900	0.88	1700	600	0.54	2100	300
		1/12	1.10	1350	900	1.02	1500	750	0.98	1800	600	0.88	2150	450	0.59	2150	300	0.38	2500	150
		1/24	0.78	1800	450	0.72	2000	375	0.69	2400	300	0.55	2550	225	0.42	2900	150	0.38	2850	75
WSH-10T	φ45 P=8	1/8	2.13	1300	1800	1.98	1450	1500	1.86	1700	1200	1.73	2100	900	1.67	3050	600	1.31	4800	300
		1/16	1.13	1300	900	1.05	1450	750	0.98	1700	600	0.95	2200	450	0.88	3050	300	0.69	4800	150
		1/32	0.80	1750	450	0.75	1950	375	0.69	2250	300	0.64	2800	225	0.65	4100	150	0.56	6400	75
WSH-15T	φ50 P=8	1/8	2.02	1300	1800	1.88	1450	1500	1.76	1700	1200	1.63	2100	900	1.58	3050	600	1.25	4800	300
		1/16	1.07	1300	900	0.99	1450	750	0.93	1700	600	0.90	2200	450	0.83	3050	300	0.65	4800	150
		1/32	0.76	1750	450	0.71	1950	375	0.65	2250	300	0.61	2800	225	0.59	4100	150	0.46	6400	75
WSH-20T	φ65 P=10	1/10	2.68	1400	1800	2.43	1850	1500	2.26	1950	1200	2.13	2450	900	1.94	3350	600	1.42	4900	300
		1/20	1.43	1600	900	1.48	1850	750	1.38	2250	600	1.29	2800	450	1.19	3850	300	0.86	5600	150
		1/40	1.15	2400	450	1.18	2800	375	1.10	3350	300	1.08	4400	225	0.94	5750	150	0.69	8400	75
WSH-30T	φ75 P=12	1/12	3.65	1850	1800	3.53	2150	1500	3.41	2600	1200	3.20	3250	900	2.96	4500	600	2.10	6400	300
		1/18	2.67	1900	1200	2.69	2300	1000	2.58	2750	800	2.46	3500	600	2.21	4700	400	1.57	6700	200
		1/36	1.67	2200	600	1.64	2600	500	1.61	3200	400	1.48	3900	300	1.37	5400	200	1.21	9600	100
WSH-50T	φ90 P=14	1/14	9.53	2100	1800	9.23	2450	1500	12.10	2850	1200	8.63	4000	900	8.25	5450	600	5.87	7750	300
		1/21	5.79	2350	1200	5.75	2800	1000	0.83	3300	800	5.42	4550	600	5.09	6200	400	3.59	8750	200
		1/42	4.10	3050	600	3.92	3500	500	3.83	4100	400	3.68	5850	300	3.50	7800	200	2.46	11000	100
WSH-100T	φ100 P=16	1/10	16.35	3500	2880	16.13	4000	2400	15.90	5400	1920	15.15	7100	1440	14.93	9850	960	9.75	12950	480
		1/15	11.78	4300	1920	11.63	5400	1600	10.58	7200	1280	11.03	9450	960	9.68	11800	640	7.13	17350	320
		1/30	8.70	5500	960	9.6	6800	800	7.40	10000	640	7.58	14300	480	7.06	15750	320	5.84	26050	160

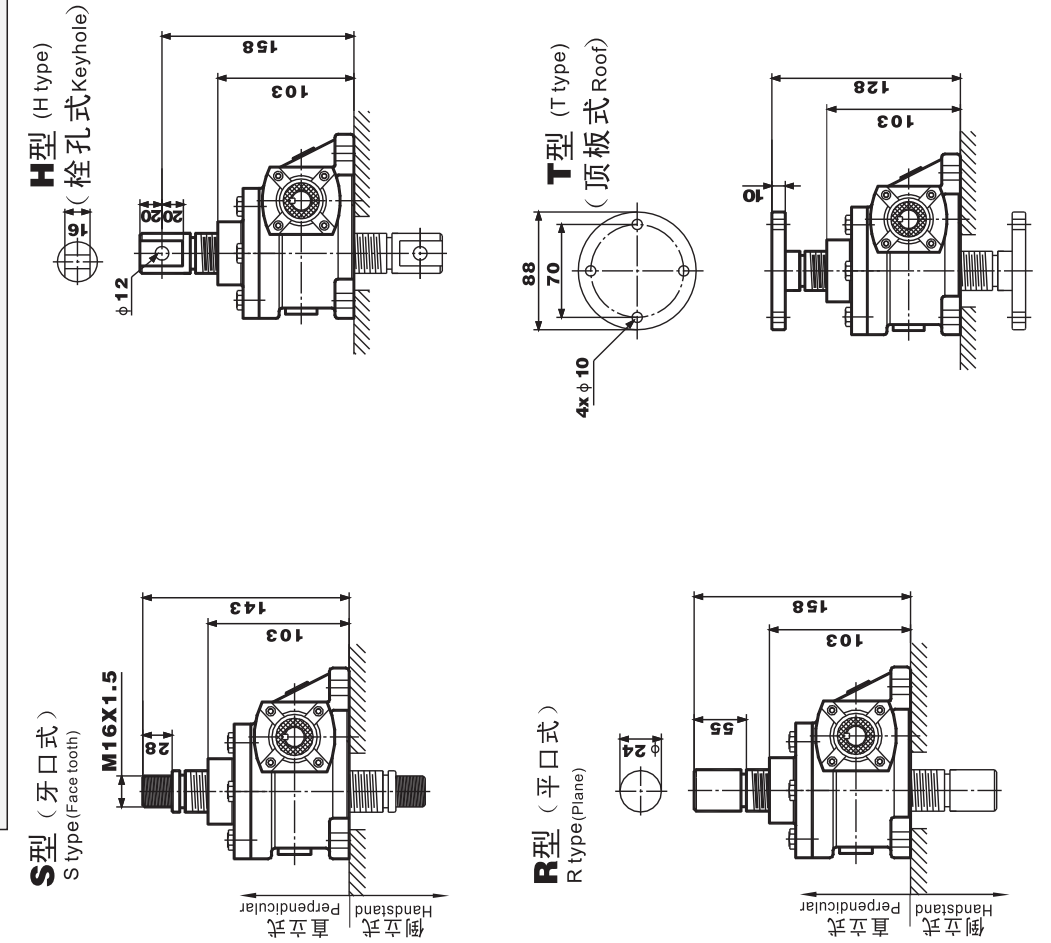
螺杆升降行程与螺杆长度计算 Stroke of elevating screw and screw length analysis

\* 下表行程=300m/m各型式计算范例 \* Right table stroke=300m/m criteria for selection

型号 Type	直径 Diameter	螺距 Pitch	行程Stroke (%) 300m/m	杆端S型 S type		杆端H型 H type		杆端R型 R type		杆端T型 T type	
				机身+CE+行程 =螺杆总长 Qirframe+CE+Stroke+Screw length	螺直总长-CE =牙长 Screw length-S-Stroke+length	机身+B+G+行程 =螺杆总长 Qirframe+B+G+Stroke+Screw length	螺直总长-B-G =牙长 Screw length-B-G-Stroke+length	机身+D+行程 =螺杆总长 Qirframe+D+Stroke+Screw length	螺直总长-D =牙长 Screw length-D-Stroke+length	机身+F+行程 =螺杆总长 Qirframe+F+Stroke+Screw length	螺直总长-F =牙长 Screw length-F-Stroke+length
WSH-1T	24	P=4	300+30=330	103+40+300=443	443-40=403	103+55+20+300=478	478-55-20=403	103+55-300=458	458-55=403	103+25+300=428	428-25=403
WSH-2T	25	P=5	300+30=330	110+40+300=450	450-40=410	110+55+20+300=485	485-55-20=410	110+55+300=465	465-55=410	110+25+300=435	435-26=410
WSH-3T	32	P=6	300+30=330	130+50+300=480	480-50=430	130+65+25+300=520	520-65-25=430	130+65+300=495	495-65=430	130+30+300=460	460-30=430
WSH-5T	38	P=6	300+30=330	130+50+300=480	480-50=430	130+65+25+300=520	520-65-25=430	130+65+300=495	495-65=430	130+30+300=460	460-30=430
WSH-10T	45	P=8	300+30=330	160+60+300=520	520-60=460	160+95+32+300=587	587-95-32=460	160+65+300=525	525-65=460	160+40+300=500	500-40=460
WSH-15T	50	P=8	300+30=330	160+60+300=520	520-60=460	160+95+32+300=587	587-95-32=460	160+65+300=525	525-65=460	160+50+300=510	510-50=460
WSH-20T	65	P=10	300+30=330	180+80+300=560	560-80=480	180+114+35+300=629	629-114-35=480	180+70+300=550	550-70=480	180+55+300=535	535-55=480
WSH-30T	75	P=12		220+80+300=600	600-80=520	220+135+44+300=699	699-135-44=520	220+75+300=595	595-75=520	220+65+300=585	585-65=520
WSH-50T	90	P=14		300+120+300=720	720-120=600	300+165+64+300=829	829+165+64=600	300+114+300=714	714-114=600	300+75+300=675	675-75=600
WSH-100T	100	P=16		345+150+300=795	795-150=645	345+200+70+300=915	915-200-70=645	345+140+300=785	785-140=645	345+100+300=745	745-100=645

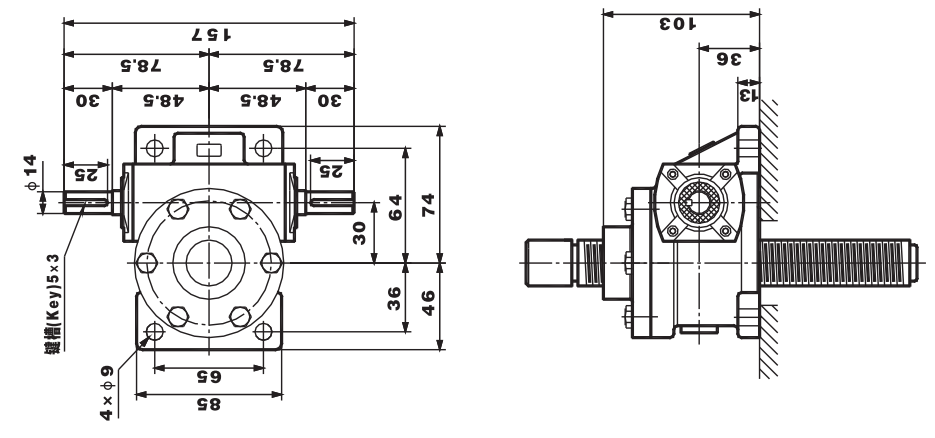
注：丝杆行程共有50、100、150、200、250、300、350、400、500、600、800、1000、1200mm13种规格，根据使用情况选择，如需要其它长度行程，也可定做。

杆端型式及最短距离关系尺寸  
Screw type & minimum allowable distance



螺距 Pitch	P=4
螺杆直径 Screw diameter	φ 24h9
减速比 Ratio	1/8 1/12 1/24
型号 Type	WSH-1T

双入力 (标准型)  
Double-shaft input (standard)

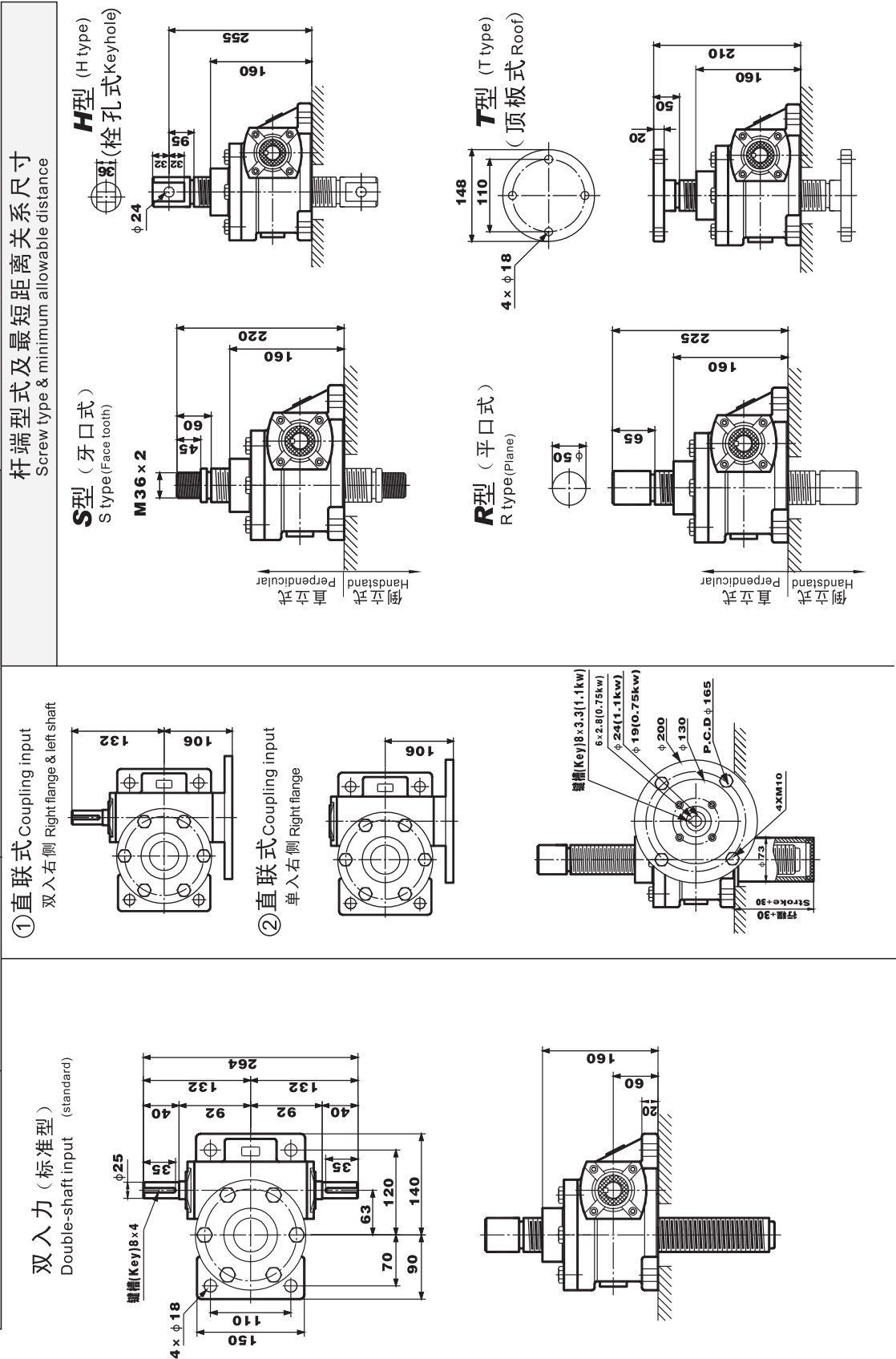




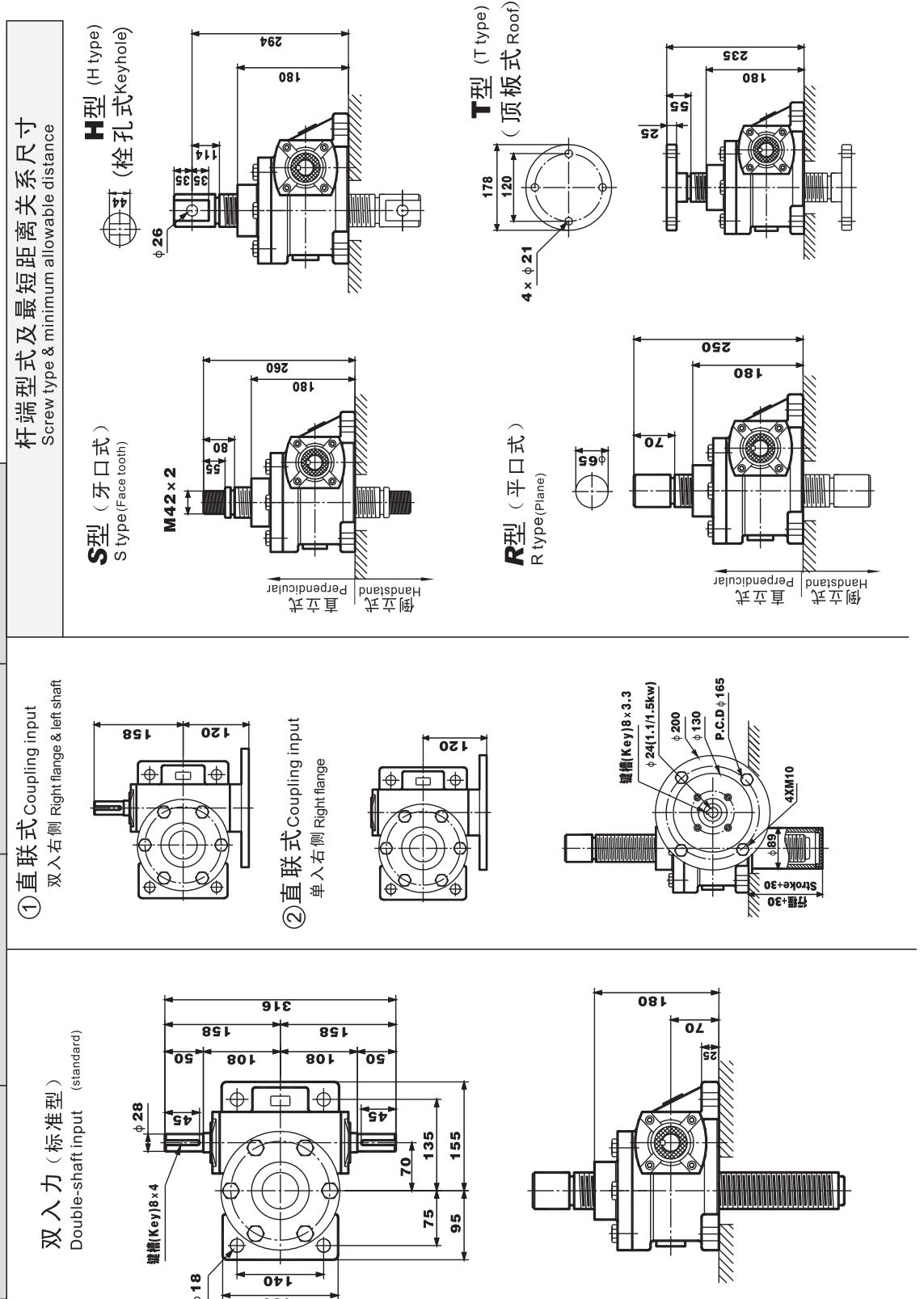




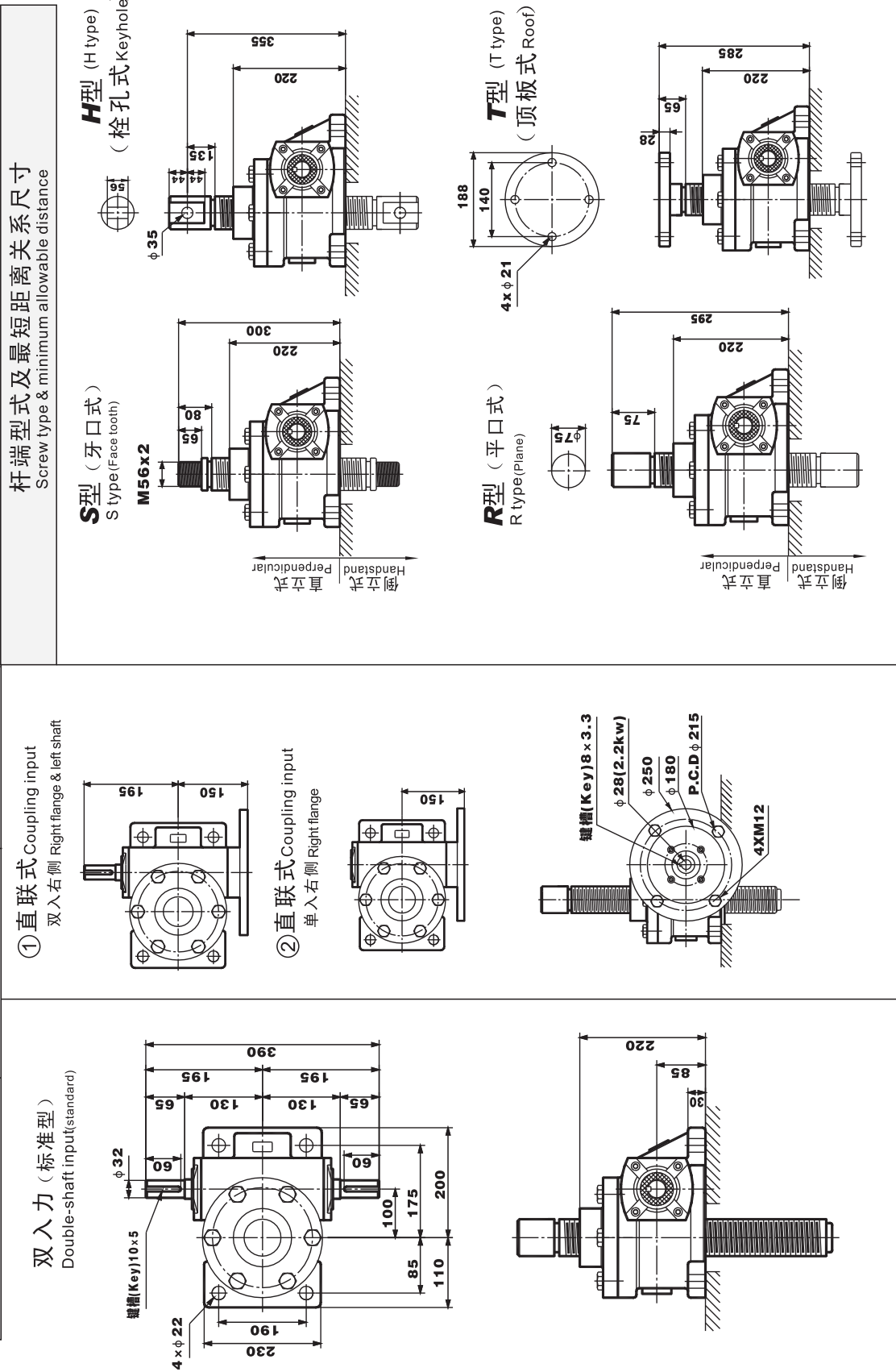
型号 Type	WSH-15T	减速比 Ratio	1/8 1/16 1/32	螺杆直径 Screw diameter	∅50 h9	螺杆螺距 Distance screw-eye	P=8
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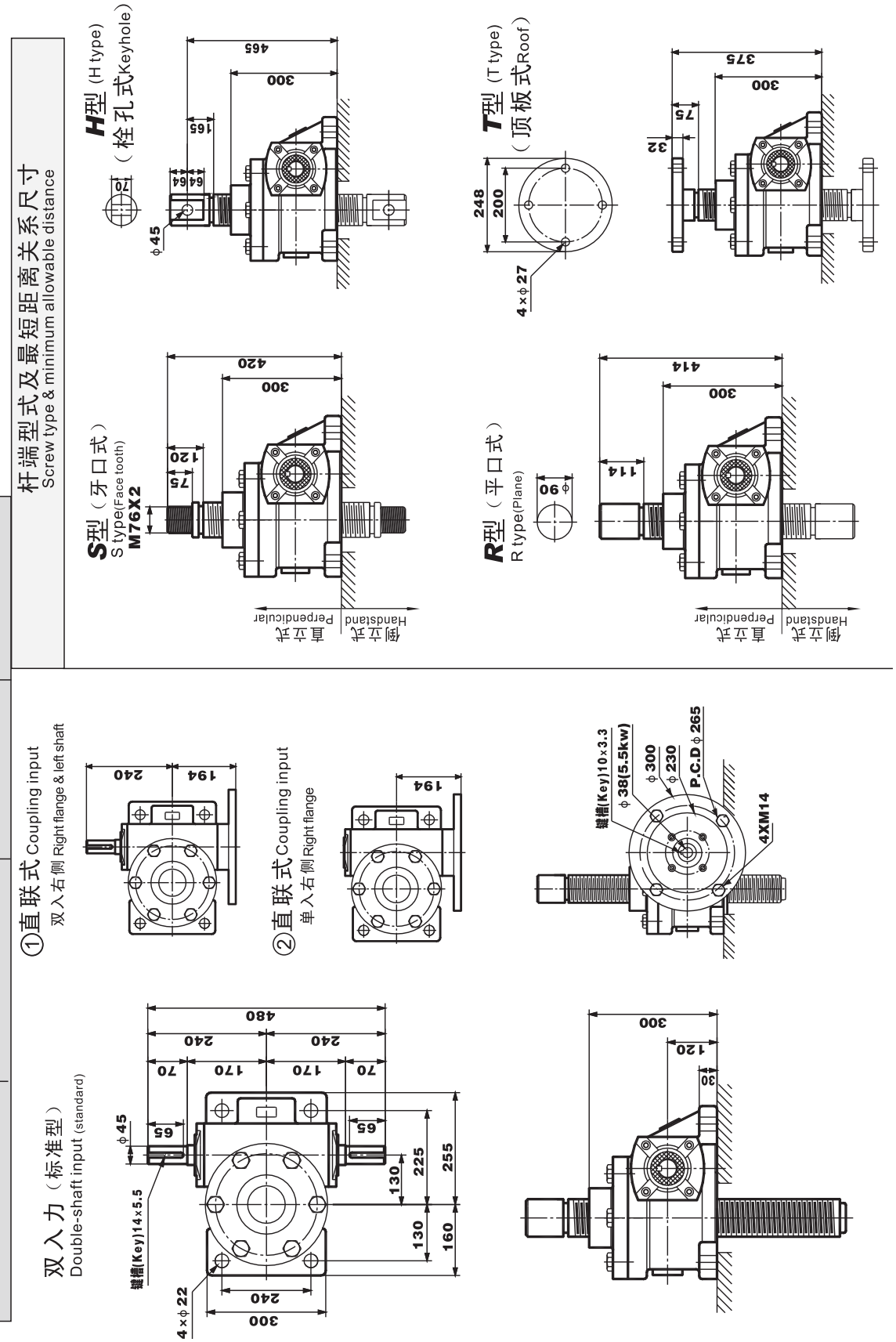
型号 Type	WSH-20T	减速比 Ratio	1/10 1/20 1/40	螺杆直径 Screw diameter	∅65 h9	螺杆螺距 Distance screw-eye	P=10
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型号 Type	WSH-30T
减速比 Ratio	1/12 1/18 1/36
螺杆直径 Screw diameter	φ75h9
螺杆螺距 Distance screw-eye	P=12

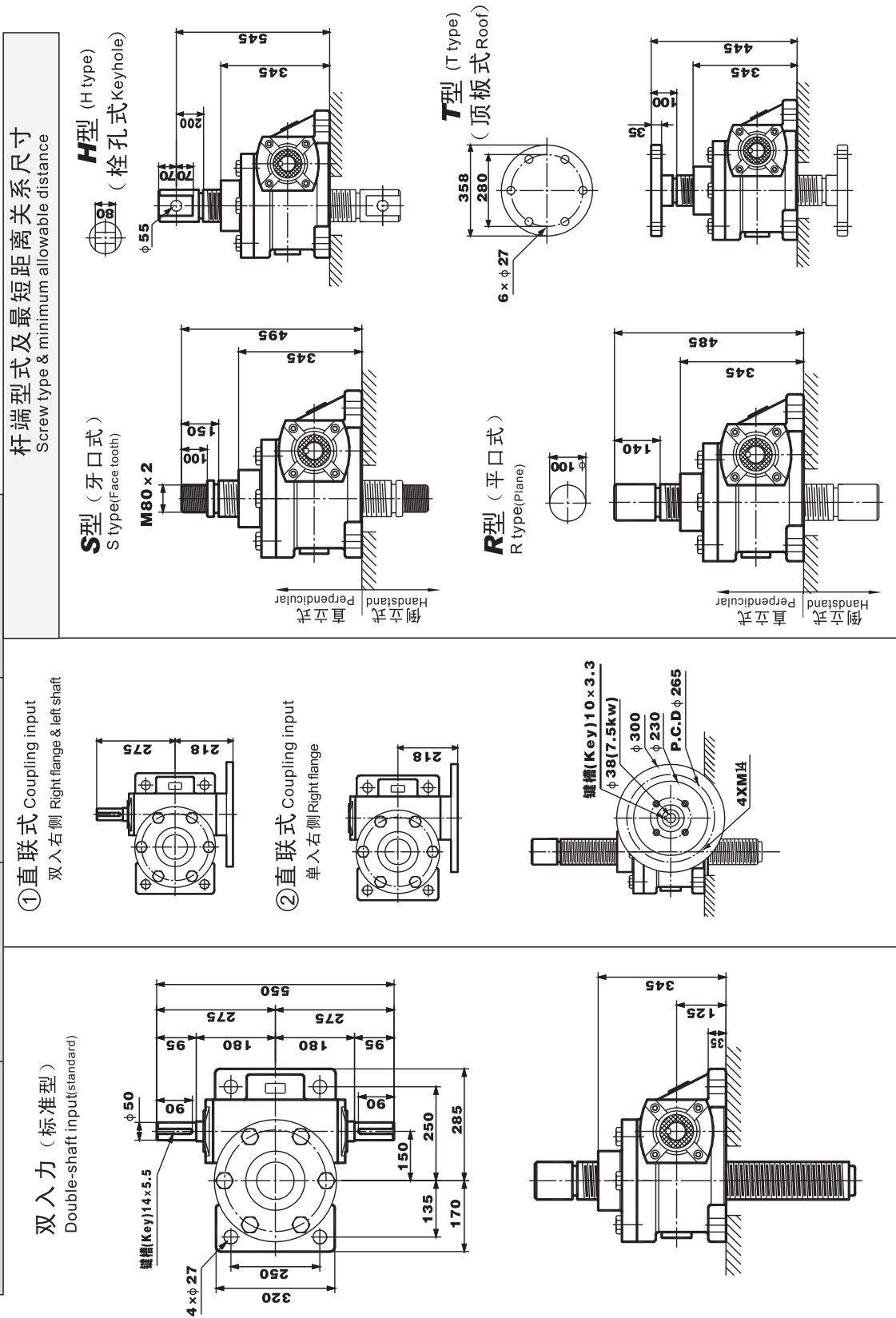


型号 Type	WSH-50T
减速比 Ratio	1/14 1/21 1/42
螺杆直径 Screw diameter	φ90 h9
螺杆螺距 Distance screw-eye	P=14

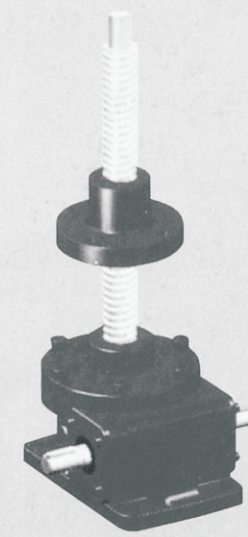
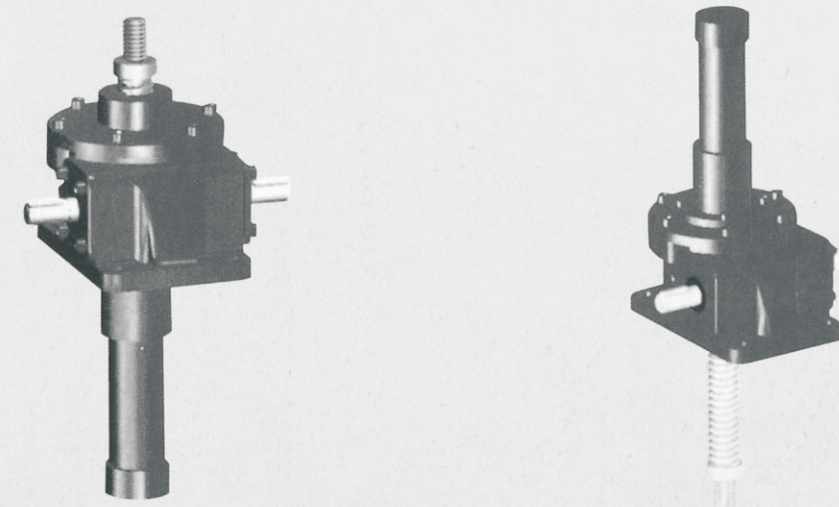




型号 Type	WSH-100T	减速比 Ratio	1/10 1/15 1/30	螺杆直径 Screw diameter	Φ100 h9	螺杆螺距 Distance screw-eye	P=16
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WS 系列  
丝杆升降机  
WS series screw jack



WSL梯形丝杆系列



## 1、WS丝杆升降机概述

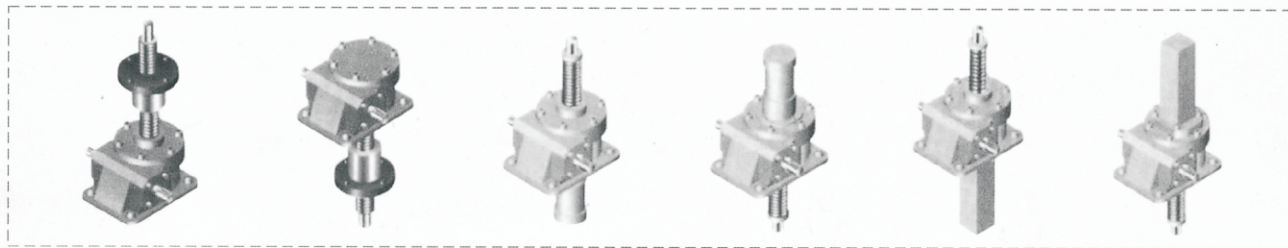
### 1.1 WSL型（梯形丝杆型）

#### 低速、低频率

WSL型（梯形丝杆型）适用于低速、低频率的情况，主要构成部件为：精密梯形丝杆副与高精度蜗轮蜗杆副。

- 1) 价格经济、结构紧凑、操作简单、保养方便。
- 2) 低速、低频率：  
主要用于大负荷、低速与无需频繁工作的场所。
- 3) 保持载重：梯形丝杆具有自动锁定功能，即使没有制动装置也可保持载重。

\* 在受到较大振动，冲击载荷时，可能会使自锁功能失效，此时请外加制动装置。



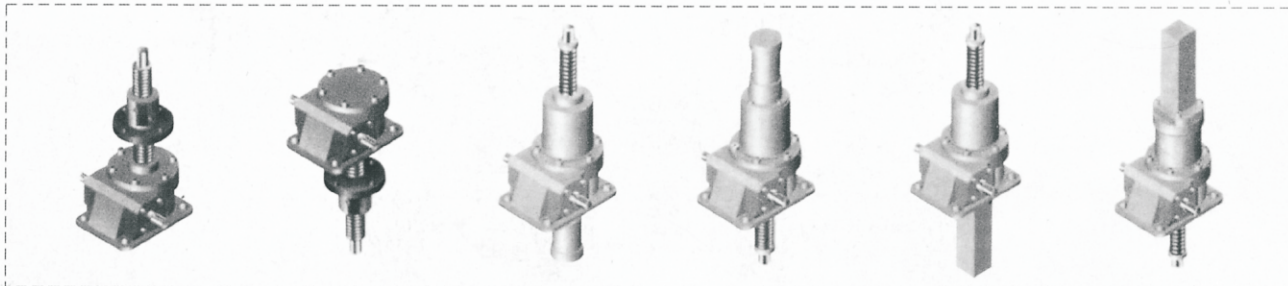
### 1.2 WSG型（滚珠丝杆型）

#### 高速 高频率

WSG型（滚珠丝杆型），适用于高速，高频率和高性能的装置中，主要构成部件为精密滚珠丝杆副与高精度蜗轮蜗杆副。

- 1) 高效率：只需很小的驱动源，就可以产生很大的推动力。
- 2) 高速化：与梯形丝杆相比，速度有很大的提高，能轻松而高速地运转。
- 3) 使用寿命长：采用高质量的滚珠丝杆，使其工作寿命提高3倍以上。

\* 本身无自锁功能，需外加制动装置或选择带有制动的驱动源。



## 1、WS series screw jack overview:

### 1.1 WSL (Trapezoid screw)

#### LOW SPEED LOW FREQUENCY

WSL (trapezoidal screw) is suitable for low speed and low frequency.

Main components: Precision trapezoid screw pair and high precision worm-gears pair.

- 1) Economical:  
Compact design, easy operation, convenient maintenance.
- 2) Low speed, low frequency:  
Be suitable for heavy load, low speed, low service frequency.
- 3) Self-lock  
Trapezoid screw has self-lock function, it can hold up load without braking device when screw stops traveling.

\* Braking device equipped for self-lock will be of malfunction accidentally when large jolt & impact load occur.

### 1.2 WSG (General ball screw)

#### HIGH SPEED HIGH FREQUENCY

WSG (General ball screw) is suitable for high speed, high frequency and excellent performance.

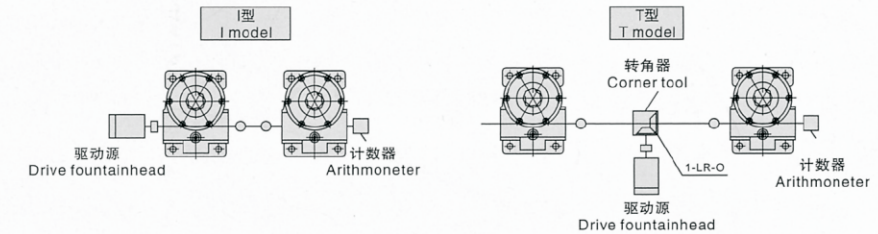
Main components: Precision ball screw pair and high precision worm-gears pair.

- 1) High efficiency  
Rolling friction improve efficiency greatly, only a little drive power can generate great thrust force.
- 2) High speed  
Rolling friction speed up travel of screw easily.
- 3) Lifetime longer  
High precision ball screw can make HMB's lifetime longer by 3 times comparing with HMM.

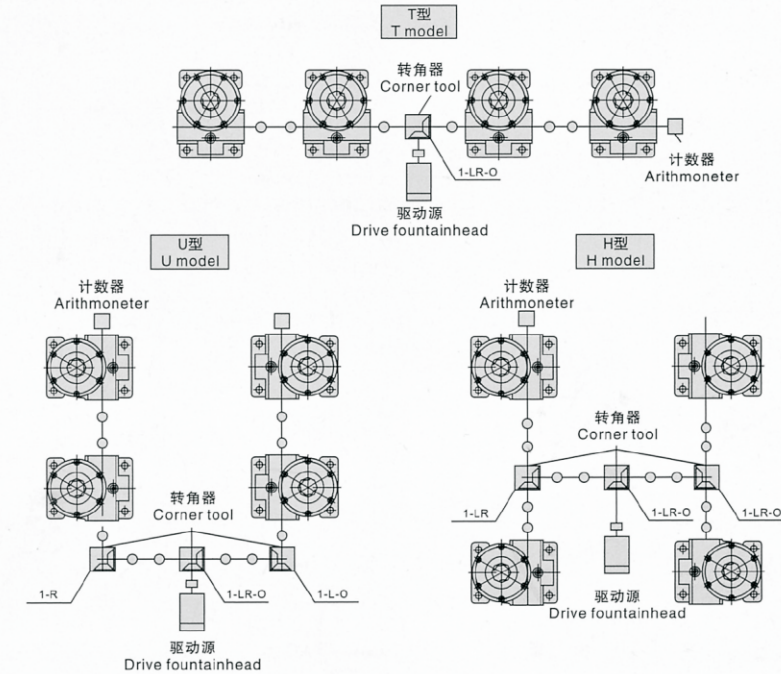
\* Braking devices or motor with braking devices are necessary when choosing HMB

## 2、应用示例 Application Example

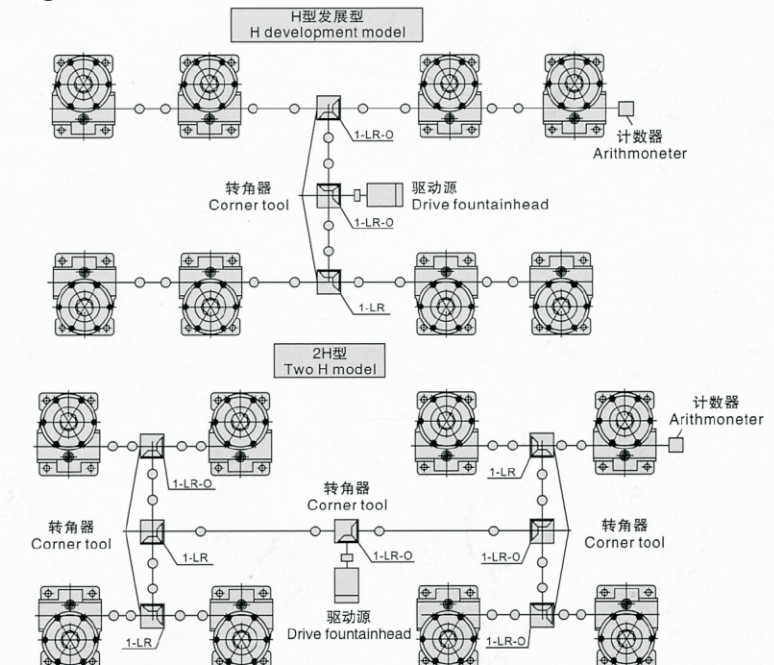
### 2.1 两台联动 Two sets linkage



### 2.2 四台联动 Four sets linkage



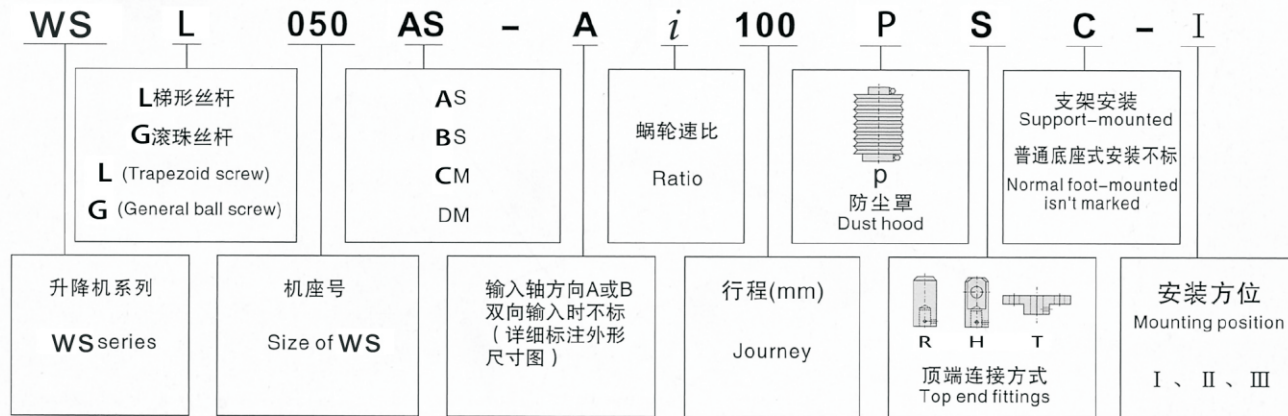
### 2.3 八台联动 Eight sets linkage





### 3、型号表示方法举例：

#### 3.1 基本形式和止旋构造升降机的型号表示方法：



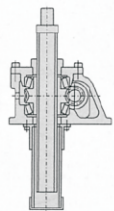
#### 3.1.1 基本形式 (AS, BS)

螺母转动, 丝杆上下移动并伴随附加的旋转运动, (如下图)

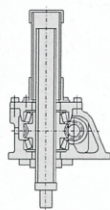
AS: 押上 BS: 吊下

\* 请根据载荷方向、安装方向来选择合适的升降机 (AS或BS)。

\* 丝杆轴在升降时, 会产生旋转力, 所以必须做好防止旋转措施。



AS



BS

### 3、Illustration of types:

#### 3.1 Plain mode and Mode with anti-rotation device:

#### 3.1.1 Plain mode (AS, BS)

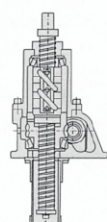
Wor wheel rotating, threaded spidles travel up and down.

Ordinary mounting mode is applied here,

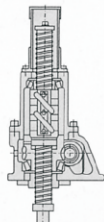
AS:UPRISE BS:DROP

\* Select US or DS according to the load and mounting positiins.

\* Anti-rotation measures must be taken because torque on screw will be caused when screw traveling up and down.



AS



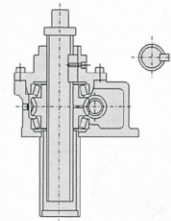
BS

#### 3.1.2 止旋构造 (CM, DM)

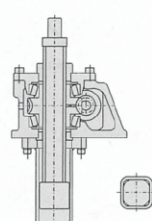
CM: 押上 DM: 吊下

\* 丝杆只能上下移动

\* 请根据载荷方向、安装方向来选择合适的升降机 (UM或DM)。



(JWM100-JWM200)  
CM



(JWM010-JWM050)(JWB010-JWB200)  
DM

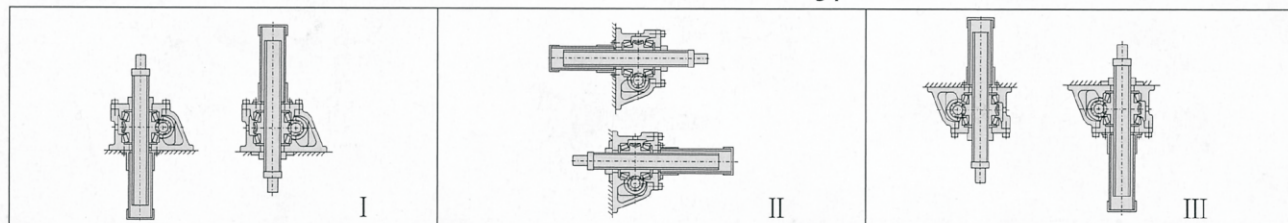
#### 3.1.2 With Anti-rotation device.

CM:UPRISE DM:DROP

\* No rotaion of screw, which only travel up and down.

\* Select UM or DM according to the load and mounting positions.

#### 3.1.3 安装方位

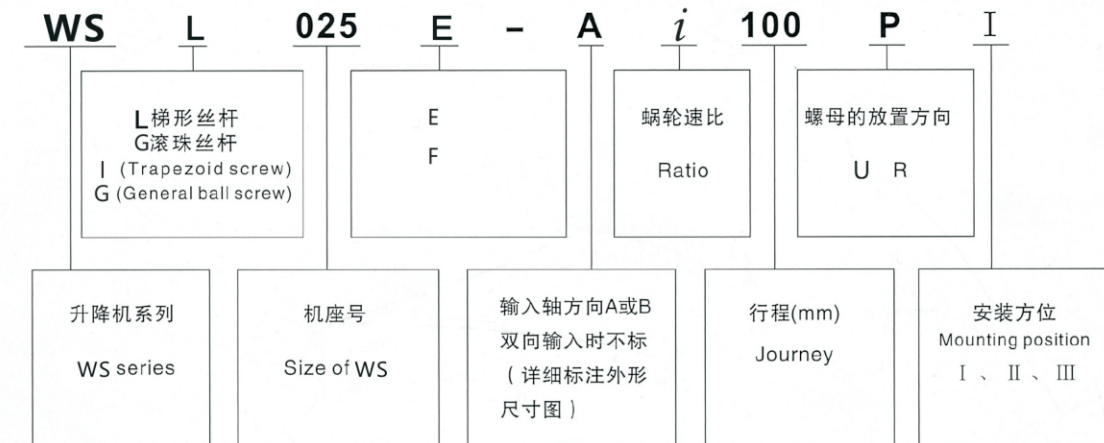


注: 采用III型安装方位时, 底脚安装螺栓的性能等级须为10.9级以上。

Note: Selecting mounting position III, the quality of bolt on housing feet reaches 10.9.

#### 3.2 活动螺母构造升降机的型号表示方法：

#### 3.2 Illustration of type of type with traveling nut



#### 3.2.1 活动螺母构造 (E, F)

一般情况下, 升降机必须具有因丝杆轴的升降而产生的行程和丝杆罩所需的空间, 若想在有限的空间内增长行程时, 使用此活动螺母构造非常适应 (丝杆轴旋转, 活动螺母移动)。丝杆轴顶端为圆柱形, 所以在长行程时, 在轴端采用支撑方式, 可以得到很好的传动效果。

E 押上 F 吊下

请根据载荷方向, 安装方向来选择合适的升降机 (押上或吊下)

#### 3.2.1 JW with Traveling nut

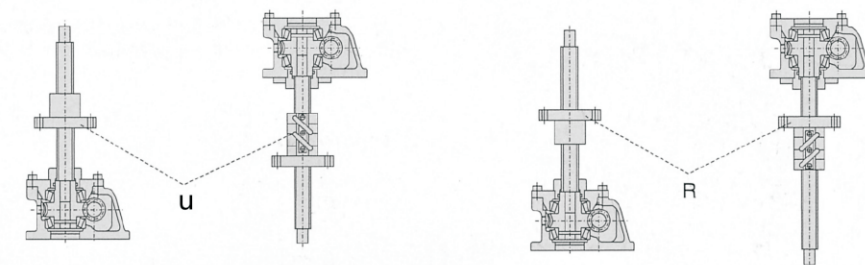
In general, Jack need enough space for screw's traveling journey and dust-hood. Using travling nut can help jacjk realize longer travling journey in limited space. The top end fittings are columm, it can be a supporting point for a good transmossion effect when a long traveling journey is selected.

E uprise F drop

Select E or F according to the load and mounting positiins.

#### 3.2.2 活动螺母的安装方向 (U, R)

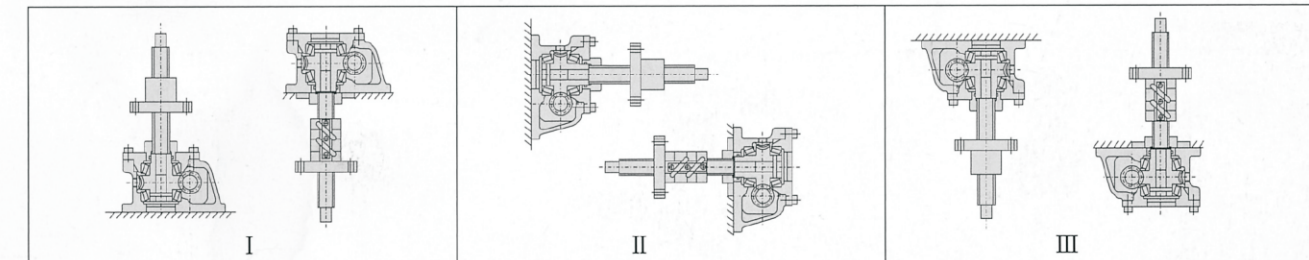
选型和型号表示方法中, 还需注明螺母的放置方向 (如下图)。



#### 3.2.2 Mounting direction of traveling nut (U, R)

The mounting direction of traveling nut should be signed on drawing when selecting types.

#### 3.2.3 安装方位 (I, II, III)



注: 采用III型安装方位时, 底脚安装螺栓的性能等级须为10.9级以上。

Note: Selecting mounting position III, the quality of bolt on housing feet reaches 10.9.



#### 4.WSL(梯形丝杆类型)基本参数一览表

#### WSL( Trapezoid screw ) basic parameter table:

型号 Type		WSL010	WSL025	WSL050	WSL100	WSL150	WSL200	WSL300	WSL500
最大负荷 Maximal load	(kN)	9.80	24.5	49.0	98.0	147	196	294	490
丝杆外径 Outer diameter of screw	(mm)	20	26	40	50	55	65	85	120
丝杆底径 Small diameter of screw d	(mm)	14.8	19.7	30.5	38.4	43.4	49.3	67	102
丝杆螺距 Pitch of screw	L <sub>1</sub> (mm)	4	5	8	10	10	12	16	16
减速比 Ratio i	H速度 Speed	5	6	6	8	8	8	10 <sup>2/3</sup>	10 <sup>2/3</sup>
	L速度 Speed	20	24	24	24	24	24	32	32
综合效率 % Integrated efficiency η	H速度 Speed	21	21	22	22	20	20	19	15
	L速度 Speed	12	12	14	15	14	13	11	10
容许输入最大功率 (kW) Permissible output maximal power	H速度 Speed	0.49	1.0	2.0	2.8	3.1	5.0	8.4	13.4
	L速度 Speed	0.36	0.40	0.63	1.4	2.2	3.2	4.6	5.7
空载扭矩 No-load torque T <sub>0</sub>	(N·m)	0.29	0.62	1.4	2.0	2.6	3.9	9.8	19.6
容许输入轴扭矩 Permissible torque of input shaft	(N·m)	19.6	49.0	153.9	292.0	292.0	292.0	735.5	1372.0
最大负荷时所需输入轴扭矩 ** Required torque of input shaft at maximal load	H速度 Speed	6.2	16.1	48.7	90.7	149.0	238.1	400.0	856.0
	L速度 Speed	2.9	7.4	20.0	45.3	72.3	124.0	244.0	453.3
输入轴每回一圈丝杆(活动螺母)轴向位移量 (mm) Axial journey of screw, when input shaft rotate a circle.	H速度 Speed	0.80	0.83	1.33	1.25	1.25	1.50	1.50	1.50
	L速度 Speed	0.20	0.21	0.33	0.42	0.42	0.50	0.50	0.50
最大负荷时容许输入轴回转速度 Permissible rotational speed of screw shaft at maximal load (rpm)	H速度 Speed	750	600	400	300	200	200	200	150
	L速度 Speed	1200	600	300	300	290	250	180	120
最大负荷时丝杆回转扭矩 (N·m) Rotational torque of screw at maximal load		20.1	65.1	201.5	503.6	813.2	1287.7	2531.9	5551.3

\* 减速机输入轴的容许扭矩。(连动运转时请确认)  
\*\* 包括无负荷空转扭矩的数值。

\* Permission torque of shaft of reducer.  
\*\* Include torque under the condition of no-load operating.

#### 5.WSG(滚珠丝杆)基本参数一览表

#### WSG( General ball screw ) basic parameter table:

型号 Type		WSG010	WSG025	WSG050	WSG100	WSG150	WSG200	WSG300	WSG500
最大负荷 Maximal load	(kN)	9.80	24.5	49.0	98.0	147	196	294	490
丝杆外径 Outer diameter of screw	(mm)	20	25	40	50	55	65	80	100
丝杆底径 Small diameter of screw d	(mm)	17.5	21.4	31.3	39.1	43.1	55.7	74.8	87
丝杆螺距 Pitch of screw	L <sub>1</sub> (mm)	5	8	10	12	12	12	16	20
减速比 Ratio i	H速度 Speed	5	6	6	8	8	8	10 <sup>2/3</sup>	10 <sup>2/3</sup>
	L速度 Speed	20	24	24	24	24	24	32	32
综合效率 % Integrated efficiency η	H速度 Speed	61	62	64	63	63	62	56	60
	L速度 Speed	34	35	39	43	43	41	34	38
容许输入最大功率 (kW) Permissible output maximal power	H速度 Speed	0.54	1.3	2.2	3.6	4.0	5.5	8.9	13.3
	L速度 Speed	0.27	0.63	1.0	1.9	2.1	2.8	4.1	6.5
空载扭矩 No-load torque T <sub>0</sub>	(N·m)	0.29	0.62	1.37	1.96	2.65	3.92	9.81	19.6
保持扭矩 Keeping torque (N·m)	H速度 Speed	1.27	4.31	10.78	19.6	39.2	51.0	68.6	140.1
	L速度 Speed	0.26	0.91	2.4	5.8	11.8	15.0	19.5	41.2
容许输入轴扭矩 Permissible torque of input shaft	(N·m)	19.6	49.0	153.9	292.0	292.0	292.0	735.0	1372.0
最大负荷时所需输入轴扭矩 ** Required torque of input shaft at maximal load	H速度 Speed	2.8	9.0	21.5	39.1	77.0	104.5	169.6	317.5
	L速度 Speed	1.4	4.3	9.6	20.4	39.6	54.2	98.5	177.9
输入轴每回一圈对应丝杆(活动螺母)轴向位移量 (mm) Axial displacement of screw, when input shaft rotate a circle.	H速度 Speed	1	1.33	1.67	1.5	1.5	1.5	1.5	1.88
	L速度 Speed	0.25	0.33	0.42	0.5	0.5	0.5	0.5	0.63
最大负荷时容许输入轴回转速度 Permissible rotational speed of screw shaft at maximal load (rpm)	H速度 Speed	1500	1400	1000	890	500	500	500	400
	L速度 Speed	1500	1400	1000	890	500	500	400	350
最大负荷时丝杆回转扭矩 (N·m) Rotational torque of screw at maximal load		8.7	34.7	86.7	208.2	416.3	555.1	1040.9	2081.7

\* 减速机输入轴的容许扭矩。(连动运转时请确认)  
\*\* 包括无负荷空转扭矩的数值。

\* Permission torque of shaft of reducer.  
\*\* Include torque under the condition of no-load operating.

#### 6、注意事项：

- 1) 选择升降机时不论静载、动载、冲击载荷均不得超过其允许承受的最大载荷，根据安全系数、使用行程、校对丝杆的稳定性选择具有充分容量的升降机；
- 2) 一定要注意丝杆轴转速与承受的载荷进行搭配，对于升降机的容许最大载荷、容许外加负载、容许丝杆轴的旋转速度等项目进行校验，如果超过产品的数据将会造成升降机设备整体的重大损伤；
- 3) 升降机在工作时其减速部表面温度应控制在-15℃~80℃的范围以内，确保活动螺母的表面温度也在上述范围以内；
- 4) 输入轴容许转速为1500r/min，输入轴不得超过此转速；
- 5) WSL 和 WSG 都不可连续运转：

单台升降机的负时时间率(%ED)以30分为单位计算，WSL(梯形丝杆类型)的负荷时间内不得超过20%ED，WSG(普通滚珠丝杆)的负荷时间率不得超过30%ED，

负荷时间率%ED=

$$\frac{\text{1动作周期的工作时间}}{\text{1动作周期的工作时间+1动作周期的停歇时间}} \times 100\%$$

- 6) 对于在同一轴线上连接数台升降机时，请务必对输入轴强度进行校核，使每台升降机所承担的扭矩都应在其容许输入轴扭矩以内；
- 7) 驱动源的启动扭矩应确保在使用扭矩的200%以上；
- 8) 在零摄氏度以下工作时因受润滑油粘性变化的影响使得整机效率下降，所以必须进行充足的驱动源；
- 9) WSL型理论上具有自锁功能，但工作在振动冲击较大的场合时会导致自锁功能失灵，因此须外加一制动装置或选择带有制动的驱动源。

WSG型升降机本身不具有自锁功能，为了防止由于轴向载荷和丝杆的自重而产生逆转，必须外加制动装置或选择带有制动的驱动源，请确保制动扭矩大于保持扭矩；

- 10) 升降机使用的环境如下

使用场所 Working Location	室内无雨水侵入的场所 Indoor location without rainwater
周围空气 Ambient Air	灰尘为一般工厂状态 Normal
环境温度 Ambient Temperature	-15℃~40℃
相对湿度 Relatine Himidity	85%以下 Less than 85%

- 11) 当升降机工作在多灰尘的场所中时请务必选择防尘罩伸缩附件来保护丝杆，在室外使用时请务必考虑使用罩壳等装置，使机器不直接受到风吹雨打；
- 12) 在升降机工作时，不得进行人为的强行停机，否则将使升降机受到严重破坏；
- 13) 在有负载的情况下，请不要将 WSG型的输入轴驱动方式变为手动操作，负载有可能会造成输入轴旋转非常危险。

#### 6、Note:

- 1) Select a Jack with sufficient capacity according to safety factor, service journey and stability. And stationary load, dynamic load and shock load must be lower than permissible maximum load.
- 2) Please note that rotation speed of screw must match load, permissible maximum load, permissible maximum outer load, and permissible rotation speed of screw must be verified. If these figures exceed that of products, jacks will be damaged greatly.
- 3) The surface temperature will be limited in -15° ~80° when jack working to ensure the temperature of traveling nuts in -15° ~80° .
- 4) Maximum input speed is 1500r/min.
- 5) WSL and JWB aren't suitable for continuous operation, Jack Duty(%ED) WSL duty(%E'D) cannot exceed 20%ED, WSG duty(%ED) cannot exceed 30%ED.

Duty %ED=

$$\frac{\text{Jack operating time(lift \& lower cycle)}}{\text{Elapsed cycle time}} \times 100\%$$

- 6) When several Jacks are connected on the same axial line, the loaded torque with each Jack must be verified and limited within permissible input torque.
- 7) Starting torque must be 200% of service torque.
- 8) At below 0° ambient temperature, changed adhesion of lubrication will lower Jack,s efficiency so that sufficient drive is necessary.
- 9) WSL has self-lock function, but an Extra braking device or drive source with braking device is necessary to be equipped because self-lock will be of mal-function when Jack is loaded a heavy shock. WSG has no self-lock function, to avoid backspin of screw under axial load and its weight, a braking device or drive source with braking device is necessary to be equipped and braking torque must be larger than operating torque of Jack.

- 10) Jack's operating conditions

- 11) When working in dusty space, Jack must be equipped with elastic dust-hood on screw; in open air, shield must be equipped to prevent exposure to wind and rain.
- 12) When working, Jack cannot be forced to stop, or it will be damaged seriously.
- 13) Under load, don't change motor drive mode into manual drive, or which will cause backspin of screw and cause great danger.



## 7、选型方法：

### 7.1 升降机型号的确定：

#### 7.1.1 计算总机的当量载荷Ws(N)

$$W_s = \text{最大载荷} W_{\max} \times \text{使用系数} f_1 (N)$$

被驱动设备系数 (f1) 表:

载荷性质 Load character	使用举例 example	被驱动设备系数 (f1) Factor for driven machine
无冲击载荷, 负荷惯性小 shockless load & small inertia load	开关、阀门传送带切换装置 Switch, valve transmission belt swithing devoce	1.0 ~ 1.3
轻微冲击载荷, 负荷惯性中等 moderate shock & moderate inertia	各种移动装置: 升降用各种升降机 All kinds of moving devices, all kinds of elevators	1.3 ~ 1.5
大冲击振动载荷, 负荷惯性大 heavy shock & large inertia	用台车搬运东西; 保持压延滚轮的位置 Carrying something by trolley; to keep the posotion of idling gear	1.5 ~ 3.0

#### 7.1.2 计算单台升降机的当量载荷W,

$$W = \frac{W_s}{\text{连动台数} \times \text{连动系数} f_d}$$

连动系数 Linkage factor (fd):

连动台数 Number of linkege jack	1	2	3	4	5 ~ 8
连动系数 Linkage factor	1	0.95	0.9	0.85	0.8

#### 7.1.3 确定升降机型号：

充分考虑载重, 速度, 行程, 效率, 驱动源后暂时选定型号

7.1.4 根据使用行程、环境条件、输出顶端的联接方式, 确定升降机的整体型号。

#### 7.2 输入功率核算：

负载所需输入功率与许容最大输入功率相比较  
如果超过请提高型号或降低丝杆轴转速再计算。

负载所需输入功率计算 Calculation of required input power under load:

所需输入轴转速 Required rotation speed of input shaft	n1 (r/min)	$n_1 = \frac{V}{L_1} \times i$
所需输入轴扭矩 Required torque of input shaft	T1 (N·m)	$T_1 = \frac{W \times L_1}{2\pi \times i \times \eta}$
所需输入功率 Required input power	P1 (kW)	$P_1 = \frac{T_1 \times n_1}{9550}$

V: 升降机丝杆轴(活动螺母)升降速度 mm/min L1: 丝杆螺距(mm)  
i: 减速比 W: 单台升降机当量载荷(N) π: 圆周率  
η: 升降机的综合效率 T0: 空载扭矩(N·m)  
(L1、i、η、T0参照基本参数表)

#### 7.3 丝杆稳定性校核

当丝杆承受轴向原缩载荷时, 请对其进行稳定性校核, 如超过其临界载荷值请提高型号后再计算。

升降机丝杆临界稳定载荷通过以下公式计算:

$$P_{CR} = f_m \times \left(\frac{d}{L_a}\right)^2 \quad \text{确保} \quad P_{CR} > W \times SF \quad (SF=4)$$

P<sub>CR</sub>: 临界载荷 (N)  
d: 丝杆底径mm (参照基本参数表)  
f<sub>m</sub>: 支撑系数  
L<sub>a</sub>: 作用点间距离, mm  
W: 单台升降机当量载荷 (N)  
SF: 安全系数 (一般SF=4)

## 7、How to select type:

### 7.1 Determine Jack's type:

#### 7.1.1 Calculate total cquivalent load Ws (N):

$$W_s = W_{\max} \times f_1$$

Service factor for driven machine (f1):

使用举例 example	被驱动设备系数 (f1) Factor for drivcn machine
开关、阀门传送带切换装置 Switch, valve transmission belt swithing devoce	1.0 ~ 1.3
各种移动装置: 升降用各种升降机 All kinds of moving devices, all kinds of elevators	1.3 ~ 1.5
用台车搬运东西; 保持压延滚轮的位置 Carrying something by trolley; to keep the posotion of idling gear	1.5 ~ 3.0

#### 7.1.2 Calculate equivalent load of sigle Jack,

$$W = \frac{W_s}{\text{Number} \times \text{Linkage factor} (f_d)}$$

#### 7.1.3 Temporarily determine Jack type:

Temporarily determine Jack type after taking full consideration of load, speed, journey, efficiency and drive source.

7.1.4 Determine HM type according to service journey, ambient conditions, connection mode of end-fittings.

#### 7.2 Verify input power

If required input power under load exceeds permissible maximum input power, please select larger type or lower the speed of screw rotation.

V: linear speed of screw mm/min L: Pitch of screw (m)  
i: ratio W: equivalent load of single jack π: pi  
η: Integrated efficiency T0: No-load torque (Nm)  
(L1、i、η、T0 refer to basic parameter table)

#### 7.3 Verify the stability of screw:

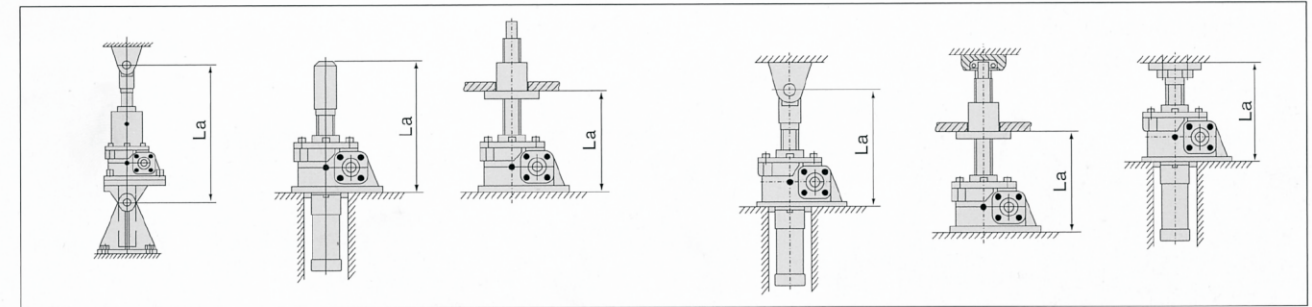
Please verify the stability of screw under axial load, larger type should be used when load exceed the critical load.

The formula to calculate the eritical load as follows,

$$P_{CR} = f_m \times \left(\frac{d}{L_a}\right)^2 \quad \text{确保} \quad P_{CR} > W \times SF \quad (SF=4)$$

P<sub>CR</sub>: Critical load (N)  
d: small diameter of screw end (mm) (refer to basic parameter table)  
f<sub>m</sub>: support factor  
L<sub>a</sub>: distance between load-supporting point and mounting point as drawing.  
W: equivalent load of single Jack (N)  
SF: safety factor (SF=4 as usual)

\* 丝杆轴稳定性校核时, La (La值计算根据各型号尺寸) 与fm (支撑系数) 选取如下:



两端支撑  $f_m = 10 \times 10^4$   
support at both ends  $f_m = 10 \times 10^4$

底座固定轴端自由  $f_m = 2.5 \times 10^4$   
Foot-mounted & movable shaft end  $f_m = 2.5 \times 10^4$

底座固定轴端支撑或固定  $f_m = 20 \times 10^4$   
Foot-mounted & shaft end supporting or fixed  $f_m = 20 \times 10^4$

\* Verifying the stability of screw, the values of La and fm as follows,

#### 7.4 临界转速校核

如为活动螺母选型时, 请务必将丝杆轴转速控制在临界转速以下, 若超出临界转速, 请提高型号再计算。

#### 7.4 verifying critical rotaion speed:

Using traveling nut, the rotation speed of screw must be lower than critical speed, if no, please select larger type and calculate again.

$$n_c = \frac{96 \times f_n \times d \times 10^6}{L_b^2}$$

$$n_s = \frac{n_1}{i}$$

n<sub>c</sub>: 临界转速 r/min

d: 丝杆底径 mm (参照基本参数表)

f<sub>n</sub>: 长度系数

L<sub>b</sub>: 支撑间距离 mm

n<sub>s</sub>: 丝杆转速 r/min

n<sub>1</sub>: 输入速度 r/min

i: 减速比

n<sub>c</sub>: Permissible rotaion speed of screw

n<sub>s</sub>: Rotational speed of screw

d: Small diameter of screw (refer to basic parameter table)

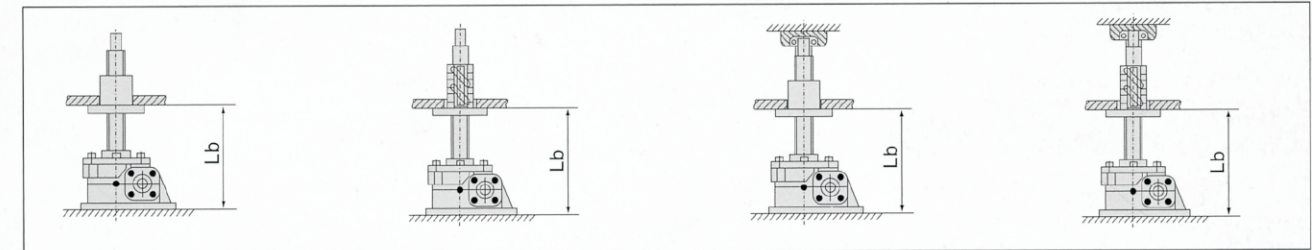
n<sub>1</sub>: Rotaional speed of input shaft

f<sub>n</sub>: Length factor

i: ratio

L<sub>b</sub>: Distance between both supporting face

\* 丝杆轴转速校核时; L<sub>b</sub> (L<sub>b</sub>值计算根据各型号尺寸) 与f<sub>n</sub> (长度系数) 选取如下:



轴端自由  $f_n = 0.36$   
Movable shaft end  $f_n = 0.36$

轴端支撑  $f_n = 1.56$   
Shaft end supporting  $f_n = 1.56$

请确保:  $n_c > n_s$

计算举例: WSL200E-j 1200PI在输入转速为1200r/min,

轴端支撑下运转, 根据外形尺寸与传动能力表查得:

d=49.3 L<sub>b</sub>=1437

Ensure:  $n_c > n_s$

Example for calculation:

Take WSL200E-j 1200PI as example, n<sub>1</sub>=1200r/min, connecting mode of top-end: I, we can know d=49.3, L<sub>b</sub>=1437 referring to dimension and transmission caapaity table.

$$n_s = \frac{n_1}{i} = \frac{1200}{8} = 150 \text{ r/min}$$

$$n_c = \frac{96 \times f_n \times d \times 10^6}{L_b^2} = \frac{96 \times 1.56 \times 49.3 \times 10^6}{(1437)^2} = 3575 \text{ r/min}$$

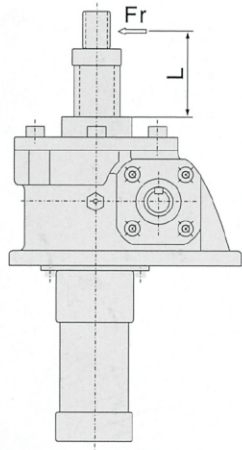
$$n_c = 3575 \text{ r/min} > n_s = 150 \text{ r/min} \dots \dots \text{ok.}$$



7.5 当有横向载荷时，请加导向器。

7.5 When there os radial load, please add guiding device.

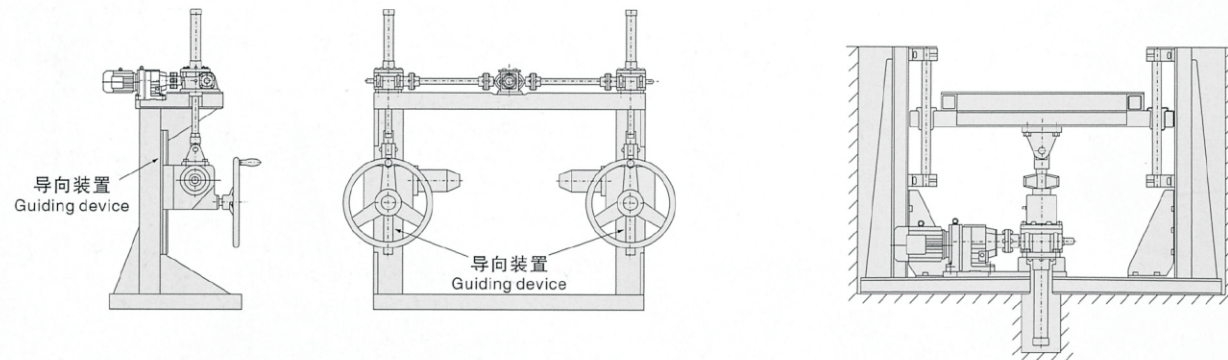
\* WSL许用横向载荷Permitted radial load Fr(N):



Fr (N) \ Type \ L (mm)	010	025	050	100	150	200	300	500	750	1000
100	318	570	2500	4010	4610	8210	38200	85300	73500	186200
20	159	290	1250	2010	2300	4110	23000	50400	56800	145000
300	106	190	830	1340	1540	2740	15300	33600	46100	104700
400	79	140	620	1000	1150	2050	11400	25200	39300	78500
500	64	110	500	800	920	1640	9100	20200	33900	62800
600	53	100	420	670	770	1370	7600	16800	29900	52300
700	51	90	360	570	660	1170	6500	14400	26700	44800
800	48	90	310	500	580	1030	5700	12600	24100	39200
900	45	90	280	450	510	910	5000	11200	22000	34800
1000	42	90	250	400	460	820	4500	10100	20200	31300

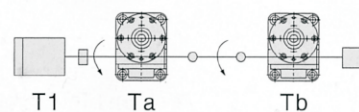
\* WSG或WSL超过许用横向载荷时，请加导向装置，举例如下：

When oprating radial load exceeds critical radial load, please add guiding device, for example,



7.6 当升降机传动配置为串联时（即同一轴线配置了两个或以上数量的升降机）如图须对各升降机输入轴端进行强度校核；

7.6 Please verify input torquc of each Jack when several Jack are connected on the same input axial line as the following,



Ta: 为升降机a的所需输入扭矩  
Tb: 为升降机b的所需输入扭矩  
电机必需的扭矩 T1=Ta+Tb < 升降机a的容许输入轴扭矩

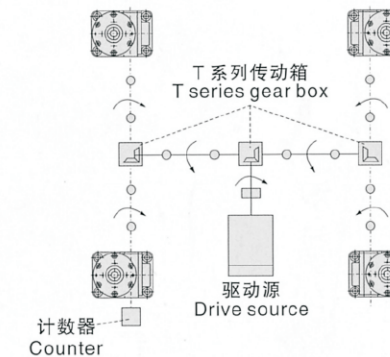
Ta: Required torque of input shaft of jack a.  
Tb: Required torque of input shaft of jack b.  
Required torque of motor T1=Ta+Tb < Promitted input torque of jack a.

8、升降机选择举例：

例题：4台连动押上用，结构如下图所示的4台连动模式，工厂内保持常温，有少许灰尘，有横向负荷在升降机侧面设置了导向器，安装状态采用底座固定，轴端采用一固定一支撑，电源为三相380V/50HZ，使用频率为2次/小时×8小时  
1. 最大轴向载荷：88.2 KN/4台  
2. 升降速度：10mm/s (600mm/min)  
3. 使用行程：260mm

8、Jack selection example:

Example: Four Jacks, 1linked as the following drawing, normal temperature, thin dust, radial load, with guiding devices on one side, foot-mounted, fixed the screw top-end, 380v/50Hz, service frequency: 2 times/hour, service time: 8 hours.  
1. Maximum axial load: 88.2KN/4 Jacks  
2. Linear speed: 10mm/s (600mm/min)  
3. Service journey: 260mm



升降机型号确定：

- 1>.计算总机当量载荷Ws (取被驱动设备系数为1.3)  
 $Ws = W_{max} \cdot f_1 = 88200 \times 1.3 = 114660N$
- 2>.计算中台当量载荷W

Determine Jack type,

- 1> Calculate total equivalent load Ws (Factor for driven machine is 1.3)  
 $Ws = W_{max} \cdot f_1 = 88200 \times 1.3 = 114660N$
- 2> Calculate equivalent load of single jack:

$$W = \frac{114660}{4 \times 0.85} = 33724N$$

- 3>.暂定型号：  
考虑速度、效率、驱动源、载重后暂定选择 WSG050AS (参照基本参数表)
- 4>.行程校核：  
使用行程为260mm，充分考虑余量后选定行程为300mm (参照 WSG050AS尺寸表)
- 5>.输入功率校核：  
(1)所需输入功率计算：

- 3> Tc temporarily determine type, Temporarily determine WSG050AS according to speed, efficiency, drive and Load (refer to basic parameter table)
- 4> Verify journey :  
Service journey is 260mm, determine journey should be 300 after considering surplus. (Please refer to dimension sheet of WSG050AS ).
- 5> Check input power:  
(1) Calculate required input power:

$$\textcircled{1} n_1 = \frac{V}{L_1} \times i = \frac{0.60}{0.010} \times 6 = 360r/min \quad \textcircled{2} T_1 = \frac{W \times L_1}{2\pi \times i \times \eta} + T_0 = \frac{33724 \times 0.010}{2 \times 3.14 \times 6 \times 0.64} + 1.37 = 15.4Nm \quad \textcircled{3} P_1 = \frac{T_1 \times n_1}{9550} = \frac{15.4 \times 360}{9550} = 0.58kW$$

(2)参照基本参数表, Pmax=2.2kW > P1.....OK

- 6>.丝杆稳定性校核：  
因为施加压缩载荷，根据传动能力及外形尺寸图得出：

- 6> Verify the stability of screw  
For under axial load, refer to transmission table and dimension for the following figures,

$$D=31.3 \quad L_a=604+33=637 \quad f_m=20 \times 10^4 \quad SF=4$$

$$P_{CR} = f_m \times \left(\frac{d}{L_a}\right)^2 = 20 \times 10^4 \times \left(\frac{31.3}{637}\right)^2 = 473073N$$

$$P_E = \frac{P_{CR}}{SF} = \frac{473073}{4} = 118268 > W=33724 \quad \dots\dots OK$$



9.WSL WSG 系列外形尺寸图表：

9 Outline dimension sheet of jack:

**WSL010**

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	101	201	161	261	194	5.5
200	101	301	16	361	294	5.7
300	101	401	201	501	434	6.1
400	101	501	201	601	534	6.3
500	101	601	236	736	669	6.6
600	101	701	236	836	769	6.9
800	101	901	271	1071	1004	7.5

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	25	125	75	175	194	5.5
200	25	225	75	275	294	5.7
300	25	325	115	415	434	6.1
400	25	425	115	515	534	6.3
500	25	525	150	650	669	6.6
600	25	625	150	750	769	6.9
800	25	825	185	985	1004	7.5

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	101	201	161	261	194	6.6
200	101	301	161	361	294	7.2
300	101	401	201	501	434	8.1
400	101	501	201	601	534	8.8
500	101	601	236	736	669	9.6
600	101	701	236	836	769	11
800	101	901	271	1071	1004	12

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	25	125	75	175	194	6.6
200	25	225	75	275	294	7.2
300	25	325	115	415	434	8.1
400	25	425	115	515	534	8.8
500	25	525	150	650	669	9.6
600	25	625	150	750	769	11
800	25	825	185	985	1004	12

行程 (mm) Journey	X		Y	m (kg)
	MIN	MAX		
100	108	208	246	5.9
200	108	308	346	6.1
300	108	408	446	6.2
400	108	508	546	6.4
500	108	608	646	6.6
600	108	708	746	6.8
800	108	908	946	7.2

行程 (mm) Journey	X		Y	m (kg)
	MIN	MAX		
100	50	150	160	5.9
200	50	250	260	6.1
300	50	350	360	6.2
400	50	450	460	6.4
500	50	550	560	6.6
600	50	650	660	6.8
800	50	850	860	7.2

注：X<sup>(1)</sup>为加防尘罩时尺寸。

Note: "X<sup>(1)</sup>" is the dimension of jack with dust hood.

WSL025

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	132	232	147	247	149	7.7
200	132	332	147	347	249	8.1
300	132	432	167	467	369	8.5
400	132	532	167	567	469	8.9
500	132	632	187	687	589	9.4
600	132	732	187	787	689	9.8
800	132	932	207	1007	909	11
1000	132	1132	227	1227	1129	12

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	57	157	149	7.7
200	42	242	57	257	249	8.1
300	42	342	77	377	369	8.5
400	42	442	77	477	469	8.9
500	42	542	97	597	589	9.4
600	42	642	97	697	689	9.8
800	42	842	117	917	909	11
1000	42	1042	137	1137	1129	12

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	132	232	147	247	175	10
200	132	332	147	347	275	12
300	132	432	167	467	395	13
400	132	532	167	567	495	14
500	132	632	187	687	615	15
600	132	732	187	787	715	17
800	132	932	207	1007	935	19
1000	132	1132	227	1227	1155	21

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	57	157	175	10
200	42	242	57	257	275	12
300	42	342	77	377	395	13
400	42	442	77	477	495	14
500	42	542	97	597	615	15
600	42	642	97	697	715	17
800	42	842	117	917	935	19
1000	42	1042	137	1137	1155	21

行程 (mm) Journey	X		Y	m (kg)
	MIN	MAX		
100	133	233	279	9.2
200	133	333	379	9.5
300	133	433	479	9.9
400	133	533	579	11
500	133	633	679	11
600	133	733	779	11
800	133	933	979	12
1000	133	1133	1179	13

行程 (mm) Journey	X		Y	m (kg)
	MIN	MAX		
100	79	179	189	9.2
200	79	279	289	9.5
300	79	379	389	9.9
400	79	479	489	11
500	79	579	589	11
600	79	679	689	11
800	79	879	889	12
1000	79	1079	1089	13

注：X<sup>(1)</sup>为加防尘罩时尺寸。

Note: "X<sup>(1)</sup>" is the dimension of jack with dust hood.



WSL050

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	154	254	169	269	147	18
200	154	354	169	369	247	19
300	154	454	189	489	367	20
400	154	554	189	589	467	21
500	154	654	209	709	587	22
600	154	754	209	809	687	23
800	154	954	229	1029	907	25
1000	154	1154	249	1249	1127	27

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	57	157	147	18
200	42	242	57	257	247	19
300	42	342	77	377	367	20
400	42	442	77	477	467	21
500	42	542	97	597	587	22
600	42	642	97	697	687	23
800	42	842	117	917	907	25
1000	42	1042	137	1137	1127	27

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	154	254	169	269	175	22
200	154	354	169	369	275	24
300	154	454	189	489	395	26
400	154	554	189	589	495	28
500	154	654	209	709	615	30
600	154	754	209	809	715	32
800	154	954	229	1029	935	36
1000	154	1154	249	1249	1155	40

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	57	157	175	22
200	42	242	57	257	275	24
300	42	342	77	377	395	26
400	42	442	77	477	495	28
500	42	542	97	597	615	30
600	42	642	97	697	715	32
800	42	842	117	917	935	36
1000	42	1042	137	1137	1155	40

行程 (mm) Journey	X		Y		m (kg)
	MIN	MAX	MIN	MAX	
100	157	257	330	330	22
200	157	357	430	430	22
300	157	457	530	530	23
400	157	557	630	630	24
500	157	657	730	730	25
600	157	757	830	830	26
800	157	957	1030	1030	27
1000	157	1157	1230	1230	29

行程 (mm) Journey	X		Y	m (kg)
	MIN	MAX		
100	107	207	218	22
200	107	307	318	22
300	107	407	418	23
400	107	507	518	24
500	107	607	618	25
600	107	707	718	26
800	107	907	918	27
1000	107	1107	1118	29

注: X<sup>(1)</sup>为加防尘罩时尺寸。

Note: "X<sup>(1)</sup>" is the dimension of jack with dust hood.

WSL100

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	161	261	171	271	151	27
200	161	361	171	371	252	29
300	161	461	186	486	366	32
400	161	561	186	586	466	34
500	161	661	211	711	591	37
600	161	761	211	811	691	40
800	161	961	226	1026	906	45
1000	161	1161	236	1236	1116	50
1200	161	1361	251	1461	1341	56

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	52	152	151	27
200	42	242	52	252	252	29
300	42	342	67	367	366	32
400	42	442	67	467	466	34
500	42	542	92	592	591	37
600	42	642	92	692	691	40
800	42	842	107	907	906	45
1000	42	1042	117	1117	1116	50
1200	42	1242	142	1342	1341	56

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	194	294	204	304	151	30
200	194	394	204	404	252	32
300	194	494	219	519	366	35
400	194	594	219	619	466	37
500	194	694	244	744	591	40
600	194	794	244	844	691	43
800	194	994	259	1059	906	48
1000	194	1194	269	1269	1116	53
1200	194	1394	294	1494	1341	58

行程 (mm) Journey	X		Y		m (kg)	
	MIN	MAX	MIN	MAX		
100	42	142	52	152	151	30
200	42	242	52	252	252	32
300	42	342	67	367	366	35
400	42	442	67	467	466	37
500	42	542	92	592	591	40
600	42	642	92	692	691	43
800	42	842	107	907	906	48
1000	42	1042	117	1117	1116	53
1200	42	1242	142	1342	1341	58

注: X<sup>(1)</sup>为加防尘罩时尺寸。

Note: "X<sup>(1)</sup>" is the dimension of jack with dust hood.





WSL150

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	183	283	193	293	151	33
200	183	383	193	393	252	35
300	183	483	208	508	366	38
400	183	583	208	608	466	41
500	183	683	233	733	591	45
600	183	783	233	833	691	47
800	183	983	248	1048	906	53
1000	183	1183	258	1258	1116	59
1200	183	1383	283	1463	1341	65

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	52	152	151	33
200	42	242	52	252	252	35
300	42	342	67	367	366	38
400	42	442	67	467	466	41
500	42	542	92	592	591	45
600	42	642	92	692	691	47
800	42	842	107	907	906	53
1000	42	1042	117	1117	1116	59
1200	42	1242	142	1342	1341	65

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	219	319	229	329	151	37
200	219	419	229	429	252	40
300	219	519	244	544	366	43
400	219	619	244	644	466	46
500	219	719	269	769	591	49
600	219	819	269	869	691	52
800	219	1019	284	1084	906	58
1000	219	1219	294	1294	1116	64
1200	219	1419	319	1519	1341	69

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	52	152	151	37
200	42	242	52	252	252	40
300	42	342	67	367	366	43
400	42	442	67	467	466	46
500	42	542	92	592	591	49
600	42	642	92	692	691	52
800	42	842	107	907	906	58
1000	42	1042	117	1117	1116	64
1200	42	1242	142	1342	1341	69

行程 (mm) Journey	X		Y	m (kg)
	MIN	MAX		
100	214	314	379	40
200	214	414	479	42
300	214	514	579	43
400	214	614	679	45
500	214	714	779	46
600	214	814	879	48
800	214	1014	1079	51
1000	214	1214	1279	54
1200	214	1414	1479	57

行程 (mm) Journey	X		Y	m (kg)
	MIN	MAX		
100	128	228	239	40
200	128	328	339	42
300	128	428	439	43
400	128	528	539	45
500	128	628	639	46
600	128	728	739	48
800	128	928	939	51
1000	128	1128	1139	54
1200	128	1328	1339	57

注: X<sup>(1)</sup>为加防尘罩时尺寸。

Note: "X<sup>(1)</sup>" is the dimension of jack with dust hood.

WSL200

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	203	303	213	313	151	42
200	203	403	213	413	252	45
300	203	503	228	528	366	49
400	203	603	228	628	466	53
500	203	703	253	753	591	57
600	203	803	253	853	691	60
800	203	1003	268	1068	906	67
1000	203	1203	278	1278	1116	74
1200	203	1403	303	1503	1341	81

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	52	152	151	42
200	42	242	52	252	252	45
300	42	342	67	367	366	49
400	42	442	67	467	466	53
500	42	542	92	592	591	57
600	42	642	92	692	691	60
800	42	842	107	907	906	67
1000	42	1042	117	1117	1116	74
1200	42	1242	142	1342	1341	81

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	252	352	262	362	151	51
200	252	452	262	462	252	55
300	252	552	277	577	366	58
400	252	652	277	677	466	62
500	252	752	302	802	591	66
600	252	852	302	902	691	69
800	252	1052	317	1117	906	76
1000	252	1252	327	1327	1116	83
1200	252	1452	352	1552	1341	90

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	52	152	151	51
200	42	242	52	252	252	55
300	42	342	67	367	366	58
400	42	442	67	467	466	62
500	42	542	92	592	591	66
600	42	642	92	692	691	69
800	42	842	107	907	906	76
1000	42	1042	117	1117	1116	83
1200	42	1242	142	1342	1341	90

行程 (mm) Journey	X		Y	m (kg)
	MIN	MAX		
100	237	337	422	56
200	237	437	522	58
300	237	537	622	60
400	237	637	722	62
500	237	737	822	64
600	237	837	922	66
800	237	1037	1122	71
1000	237	1237	1322	75
1200	237	1437	1522	79

行程 (mm) Journey	X		Y	m (kg)
	MIN	MAX		
100	151	251	261	56
200	151	351	361	58
300	151	451	461	60
400	151	551	561	62
500	151	651	661	64
600	151	751	761	66
800	151	951	961	71
1000	151	1151	1161	75
1200	151	1351	1361	79

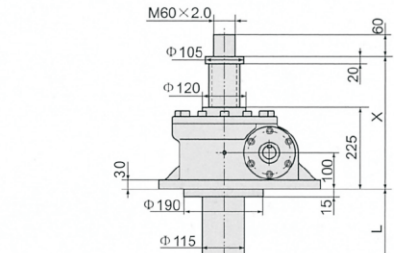
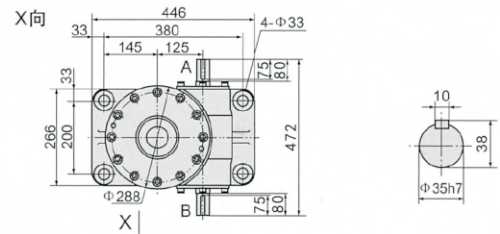
注: X<sup>(1)</sup>为加防尘罩时尺寸。

Note: "X<sup>(1)</sup>" is the dimension of jack with dust hood.

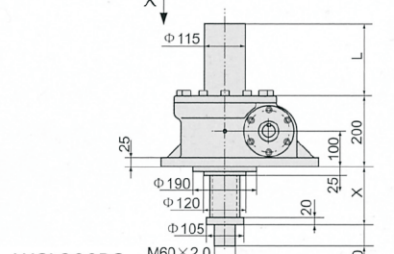
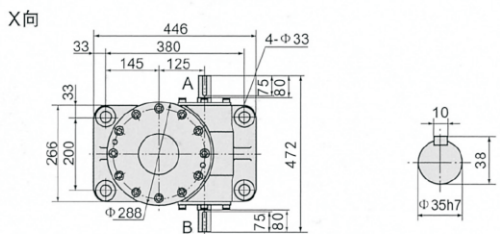


WSL300

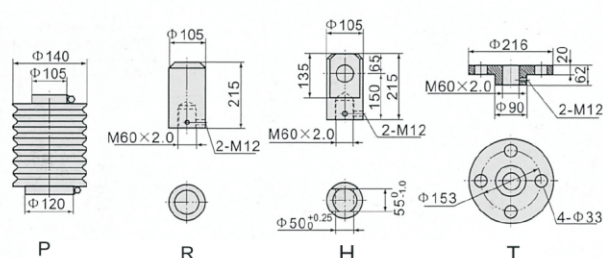
行程 (mm) Journey	AS					BS					m (kg)
	X		X <sup>(1)</sup>		L	X		X <sup>(1)</sup>		L	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX		
100	255	355	265	365	160	55	155	65	165	160	118
200	255	455	265	465	260	55	255	65	265	260	123
300	255	555	280	580	375	55	355	80	380	375	128
400	255	655	280	680	475	55	455	80	480	475	134
500	255	755	295	795	590	55	555	95	595	590	139
600	255	855	295	895	690	55	655	95	695	690	145
800	255	1055	310	1110	905	55	855	110	910	905	155
1000	255	1255	330	1330	1125	55	1055	130	1130	1125	167
1200	255	1455	340	1540	1335	55	1255	140	1340	1335	177
1500	255	1755	365	1865	1660	55	1555	165	1665	1660	194



WSL300AS



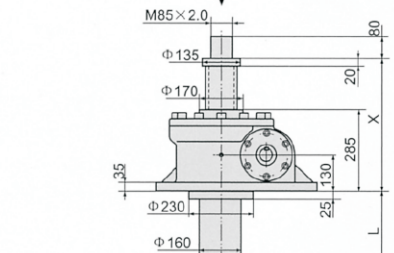
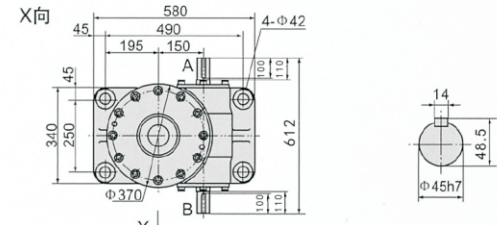
WSL300BS



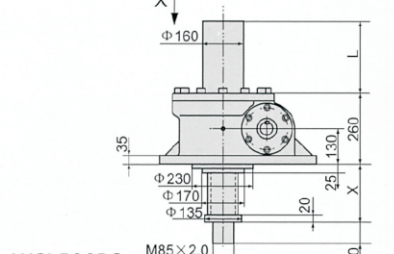
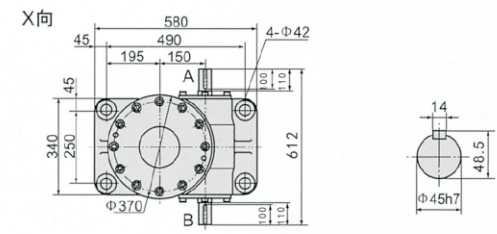
注：X<sup>(1)</sup>为加防尘罩时尺寸。

WSL500

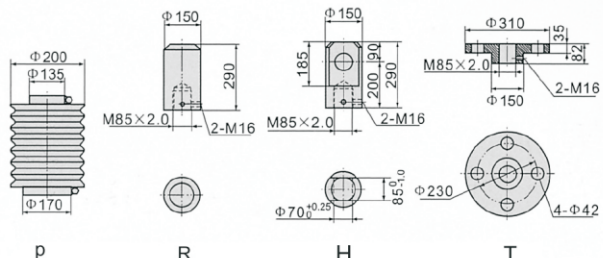
行程 (mm) Journey	AS					BS					m (kg)
	X		X <sup>(1)</sup>		L	X		X <sup>(1)</sup>		L	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX		
100	315	415	320	420	165	55	155	60	160	165	248
200	315	515	320	520	265	55	255	60	260	265	260
300	315	615	340	640	385	55	355	80	380	385	273
400	315	715	340	740	485	55	455	80	480	485	284
500	315	815	350	850	395	55	555	90	590	395	279
600	315	915	350	950	695	55	655	90	690	695	308
800	315	1115	365	1165	910	55	855	105	905	910	332
1000	315	1315	380	1380	1125	55	1055	120	1120	1125	357
1200	315	1515	390	1590	1335	55	1255	130	1330	1335	380
1500	315	1815	410	1910	1665	55	1555	150	1650	1665	417
2000	315	2315	445	2445	2190	55	2055	185	2185	2190	477



WSL500AS



WSL500BS



Note: "X<sup>(1)</sup>" is the dimension of jack with dust hood.

WSG010

WSG010AS

WSG010BS

WSG010CM

WSG010DM

WSG010E

WSG010F

行程 (mm) Journey	AS					m (kg)
	X		X <sup>(1)</sup>		L	
	MIN	MAX	MIN	MAX		
100	162	262	212	312	194	6.7
200	162	362	212	412	294	7.4
300	162	462	252	552	434	7.4
400	162	562	252	652	534	7.6
500	162	662	287	787	669	8.0
600	162	762	287	887	769	8.2

行程 (mm) Journey	BS					m (kg)
	X		X <sup>(1)</sup>		L	
	MIN	MAX	MIN	MAX		
100	25	125	75	175	194	6.7
200	25	225	75	275	294	7.0
300	25	325	115	415	434	7.4
400	25	425	115	515	534	7.6
500	25	525	150	650	669	8.0
600	25	625	150	750	769	8.2

行程 (mm) Journey	CM					m (kg)
	X		X <sup>(1)</sup>		L	
	MIN	MAX	MIN	MAX		
100	162	262	212	312	194	7.5
200	162	362	212	412	294	8.2
300	162	462	252	552	434	9.1
400	162	562	252	652	534	9.8
500	162	662	287	787	669	11
600	162	762	287	887	769	12

行程 (mm) Journey	DM					m (kg)
	X		X <sup>(1)</sup>		L	
	MIN	MAX	MIN	MAX		
100	25	125	75	175	194	7.5
200	25	225	75	275	294	8.2
300	25	325	115	415	434	9.1
400	25	425	115	515	534	9.8
500	25	525	150	650	669	11
600	25	625	150	750	769	12

行程 (mm) Journey	E					m (kg)
	X		Y			
	MIN	MAX				
100	108	208	265		5.9	
200	108	308	365		6.1	
300	108	408	465		6.4	
400	108	508	565		6.6	
500	108	608	665		6.8	
600	108	708	765		7.0	

行程 (mm) Journey	F					m (kg)
	X		Y			
	MIN	MAX				
100	69	169	179		5.9	
200	69	269	279		6.1	
300	69	369	379		6.4	
400	69	469	479		6.6	
500	69	569	579		6.8	
600	69	669	679		7.0	

注：X<sup>(1)</sup>为加防尘罩时尺寸。

Note: "X<sup>(1)</sup>" is the dimension of jack with dust hood.



WSG025

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	225	325	240	340	149	11
200	225	425	240	440	249	11
300	225	525	260	560	369	11
400	225	625	260	680	469	12
500	225	725	280	780	589	12
600	225	825	280	880	689	13
800	225	1025	300	1100	909	14

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	57	157	156	11
200	42	242	57	257	256	11
300	42	342	77	377	376	11
400	42	442	77	477	476	12
500	42	542	97	597	596	12
600	42	642	97	697	696	13
800	42	842	117	917	916	14

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	225	325	240	340	175	12
200	225	425	240	440	275	13
300	225	525	260	560	395	15
400	225	625	260	680	495	16
500	225	725	280	780	615	17
600	225	825	280	880	715	18
800	225	1025	300	1100	935	21

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	57	157	182	12
200	42	242	57	257	282	13
300	42	342	77	377	402	15
400	42	442	77	477	502	16
500	42	542	97	597	622	17
600	42	642	97	697	722	18
800	42	842	117	917	942	21

行程 (mm) Journey	X		Y	m (kg)
	MIN	MAX		
100	133	233	309	9.2
200	133	333	409	9.5
300	133	433	509	9.9
400	133	533	609	11
500	133	633	709	11
600	133	733	809	11
800	133	933	1009	12

行程 (mm) Journey	X		Y	m (kg)
	MIN	MAX		
100	108	208	219	9.2
200	108	308	319	9.5
300	108	408	419	9.9
400	108	508	519	11
500	108	608	619	11
600	108	708	719	11
800	108	908	919	12

注：X<sup>(1)</sup>为加防尘罩时尺寸。

Note: "X<sup>(1)</sup>" is the dimension of jack with dust hood.

WSG050

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	269	369	284	384	147	23
200	269	469	284	484	247	23
300	269	569	304	604	367	24
400	269	669	304	704	467	25
500	269	769	324	824	587	26
600	269	869	324	924	687	27
800	269	1069	344	1144	907	29
1000	269	1269	364	1364	1127	30

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	57	157	147	23
200	42	242	57	257	247	23
300	42	342	77	377	367	24
400	42	442	77	477	467	25
500	42	542	97	597	587	26
600	42	642	97	697	687	27
800	42	842	117	917	907	29
1000	42	1042	137	1137	1127	30

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	269	369	284	384	175	25
200	269	469	284	484	275	27
300	269	569	304	604	395	29
400	269	669	304	704	495	31
500	269	769	324	824	615	33
600	269	869	324	924	715	35
800	269	1069	344	1144	935	39
1000	269	1269	364	1364	1155	43

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	57	157	175	25
200	42	242	57	257	275	27
300	42	342	77	377	395	29
400	42	442	77	477	495	31
500	42	542	97	597	615	33
600	42	642	97	697	715	35
800	42	842	117	917	935	39
1000	42	1042	137	1137	1155	43

注：X<sup>(1)</sup>为加防尘罩时尺寸。

Note: "X<sup>(1)</sup>" is the dimension of jack with dust hood.



WSG100

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	302	402	312	412	151	36
200	302	502	312	512	252	38
300	302	602	327	627	356	41
400	302	702	327	727	456	43
500	302	802	352	852	591	46
600	302	902	352	952	691	48
800	302	1102	367	1167	906	53
1000	302	1302	377	1377	1116	58
1200	302	1502	402	1602	1341	63

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	52	152	151	36
200	42	242	52	252	252	38
300	42	342	67	367	356	41
400	42	442	67	467	456	43
500	42	542	92	592	591	46
600	42	642	92	692	691	48
800	42	842	107	907	906	53
1000	42	1042	117	1117	1116	58
1200	42	1242	142	1342	1341	63

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	52	152	192	39
200	42	242	52	252	292	42
300	42	342	67	367	407	45
400	42	442	67	467	507	48
500	42	542	92	592	632	52
600	42	642	92	692	732	55
800	42	842	107	907	947	61
1000	42	1042	117	1117	1157	67
1200	42	1242	142	1342	1382	74

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	52	152	192	39
200	42	242	52	252	292	42
300	42	342	67	367	407	45
400	42	442	67	467	507	48
500	42	542	92	592	632	52
600	42	642	92	692	732	55
800	42	842	107	907	947	61
1000	42	1042	117	1117	1157	67
1200	42	1242	142	1342	1382	74

行程 (mm) Journey	X		Y		m (kg)
	MIN	MAX	MIN	MAX	
100	176	276	387	31	
200	176	376	487	32	
300	176	476	587	33	
400	176	576	687	34	
500	176	676	787	35	
600	176	776	887	36	
800	176	976	1087	39	
1000	176	1176	1287	41	
1200	176	1376	1487	43	

行程 (mm) Journey	X		Y		m (kg)
	MIN	MAX	MIN	MAX	
100	158	258	268	31	
200	158	358	368	32	
300	158	458	468	33	
400	158	558	568	34	
500	158	658	668	35	
600	158	758	768	36	
800	158	958	968	39	
1000	158	1158	1168	41	
1200	158	1358	1368	43	

注：X<sup>(1)</sup>为加防尘罩时尺寸。

Note: "X<sup>(1)</sup>" is the dimension of jack with dust hood.

WSG200

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	406	506	416	516	151	65
200	406	606	416	616	252	68
300	406	706	431	731	356	72
400	406	806	431	831	456	76
500	406	906	456	956	591	80
600	406	1006	456	1056	691	83
800	406	1206	471	1271	906	90
1000	406	1406	481	1481	1116	97
1200	406	1606	506	1706	1341	105

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	52	152	151	65
200	42	242	52	252	252	68
300	42	342	67	367	356	72
400	42	442	67	467	456	76
500	42	542	92	592	591	80
600	42	642	92	692	691	83
800	42	842	107	907	906	90
1000	42	1042	117	1117	1116	97
1200	42	1242	142	1342	1357	105

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	406	506	416	516	230	72
200	406	606	416	616	330	76
300	406	706	431	731	445	80
400	406	806	431	831	545	84
500	406	906	456	956	670	89
600	406	1006	456	1056	770	93
800	406	1206	471	1271	985	102
1000	406	1406	481	1481	1195	110
1200	406	1606	506	1706	1420	119

行程 (mm) Journey	X		X <sup>(1)</sup>		L	m (kg)
	MIN	MAX	MIN	MAX		
100	42	142	52	152	230	72
200	42	242	52	252	330	76
300	42	342	67	367	445	80
400	42	442	67	467	545	84
500	42	542	92	592	670	89
600	42	642	92	692	770	93
800	42	842	107	907	985	102
1000	42	1042	117	1117	1195	110
1200	42	1242	142	1342	1420	119

注：X<sup>(1)</sup>为加防尘罩时尺寸。

Note: "X<sup>(1)</sup>" is the dimension of jack with dust hood.





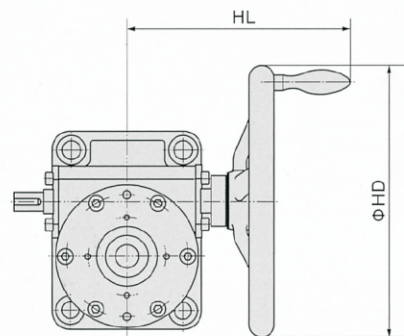
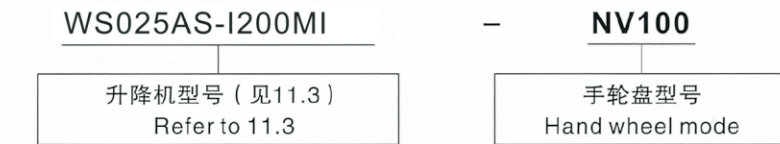


### 10.2 手轮盘:

此件只适应于 WS型工作在冲击、振动不大的场合, 请不要应用在HMB结构中。

手动操作扭矩=所需输入扭矩/手轮操作盘半径

型号表示:



尺寸表:

Dimension sheet: (mm)

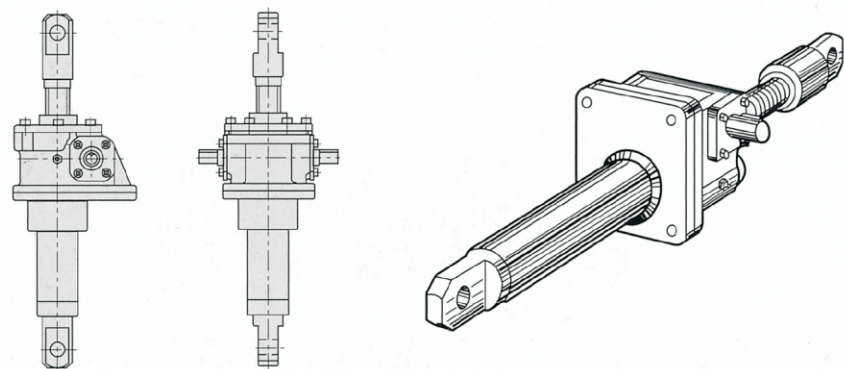
型号 Type	NV80		NV100		NV200		NV250		NV450	
	HD	HL	HD	HL	HD	HL	HD	HL	HD	HL
WS010	80	122	100	125	—	—	—	—	—	—
WS025	—	—	100	140	200	198	—	—	—	—
WS050	—	—	—	—	200	221	250	229	—	—
WS100	—	—	—	—	—	—	250	242	450	295
WS150	—	—	—	—	—	—	250	247	450	300
WS200	—	—	—	—	—	—	—	—	450	304

注: 手轮为外购件, 以定货时实物尺寸为准。

Note: The dimension of hand wheel is subject to product purchased from other factories.

### 10.3 双头输出:

适用于开闭装置、反转装置。



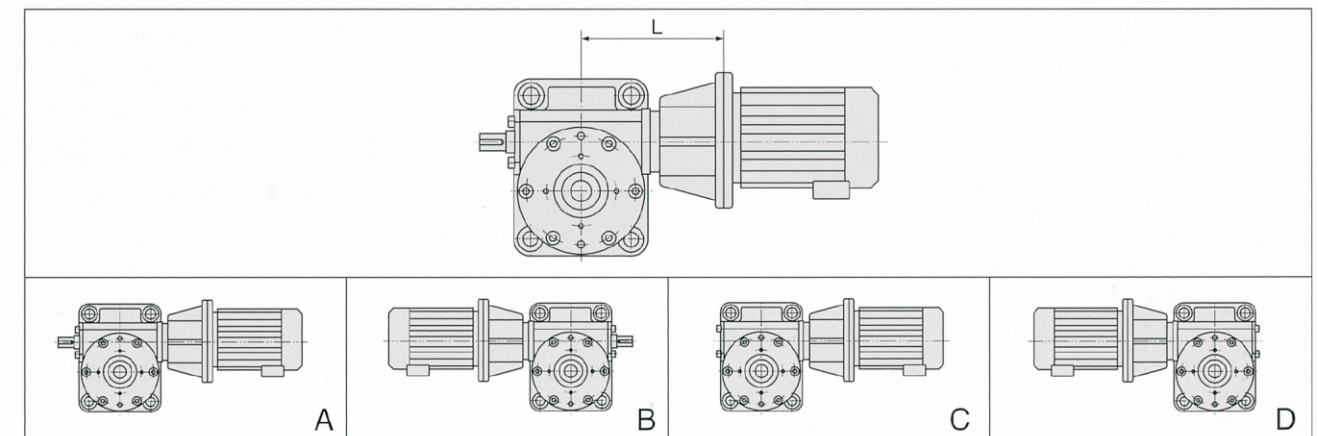
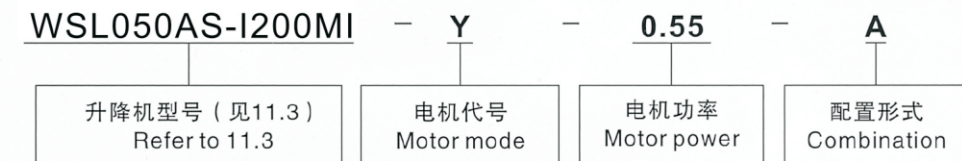
### 10.3 Double end output:

Apply to open and close devices, reversing devices.

### 10.4 组合型式:

#### 10.4.1 电机直联:

型号表示 Illustration of types:



型号	WSL010				WSL025				WSL050							
电机功率(kW) Motor Power	0.12	0.18	0.25*	0.37*	0.12	0.18	0.25	0.37	0.55*	0.75*	0.25	0.37	0.55	0.75	1.1*	1.5*

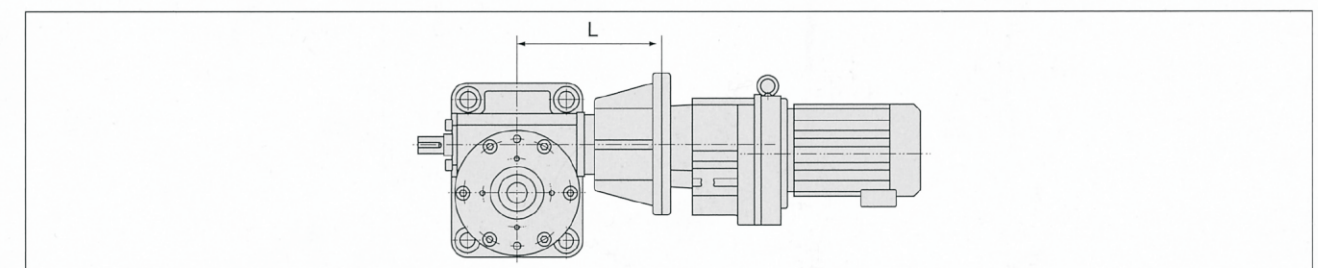
型号	WSL100					WSL150				WSL200								
电机功率(kW) Motor Power	0.37	0.55	0.75	1.1	1.5	2.2*	0.55	0.75	1.1	1.5	2.2*	3*	0.75	1.1	1.5	2.2	3	4*

注: 1.电机功率的选择应符合传动能力表;  
2.表中所列功率为4极电机功率;  
3.当与所联电机为6极或标有“\*”的电机为变频、制动时, 因电机过重, 应选择带有底脚安装的电机。

Note: 1. Motor power must accord with JM basic parameter table.  
2. 4-pole motor power are available in the table.  
3. 6-pole motors or “\*” frequency conversion and braking motors should be foot-mounted for their heavy weight.

#### 10.4.2 与减速电机组式

型号表示 Illustration of types:



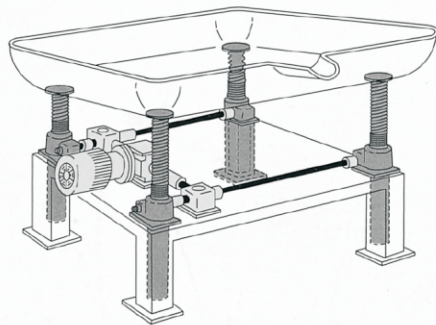
注: 当直联的减速电机重量过重时, 请咨询我司。

Note: If gear motor is over weight, consult us please.

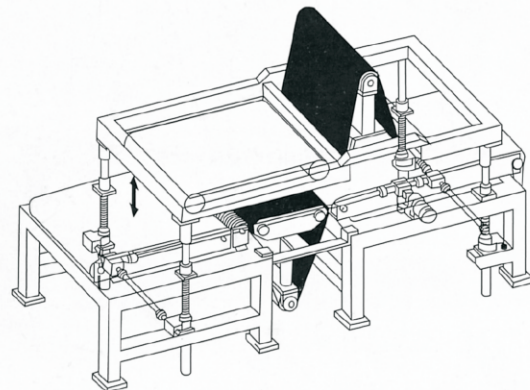
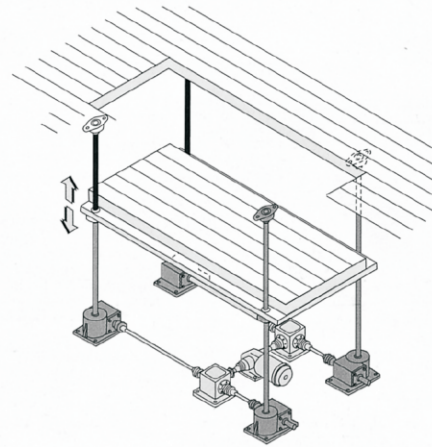


### 11、应用举例

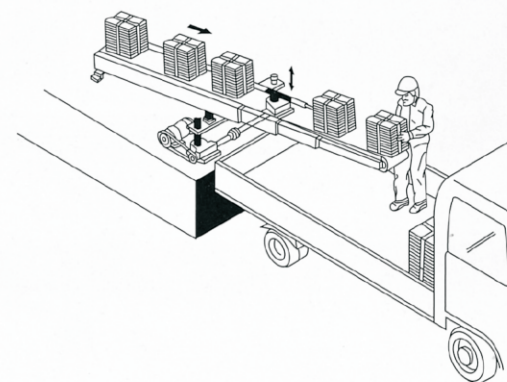
### 11、Application example:



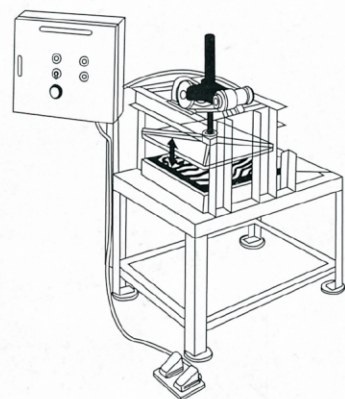
平台升降  
Ascending and descending of flat slab



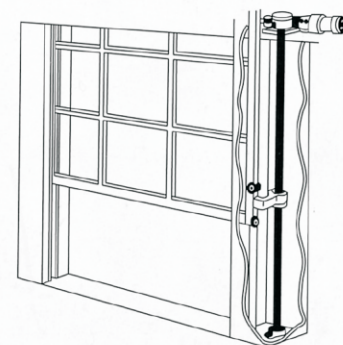
调整表面加工机的工作高度  
Adjust operation height of surface machining tool



调整滑动传送带的倾斜程度  
Adjust inclination pitch of conveyer apron



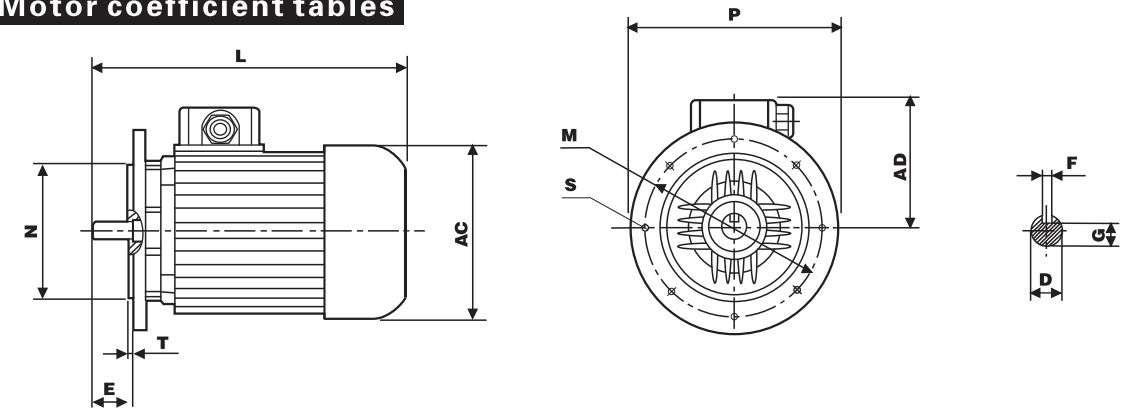
更改校正器的作业高  
Operation height of straightening machine



大型窗户(门)自动开关  
Automatic switch on large windows (doors)

### 电动机型号参数表

### Motor coefficient tables



### B5 型机座安装型式 B5 Mounting position

机座号 Frame Size	4级 4P	6级 6P	外型尺寸 External dimensions			安装尺寸 Mounting Size					轴伸尺寸 Shaft Extension				重量 kg
	KW	KW	AC	AD	L	P	N	T	M	S	E	F	D	G	
56	0.06	-	108	83	204	Φ120	Φ80	3	Φ100	4xΦ7	20	3	9	7.2	2.2
	0.09														
63	0.12	-	121	88	211	Φ140	Φ95	3	Φ115	4xΦ9	23	4	11	8.5	6.7
	0.18														
71	0.25	0.18	138	93	247	Φ160	Φ110	3.5	Φ130	4xΦ10	30	5	14	11	7.5
	0.37	0.25													
80	0.55	0.25	154	108	270	Φ200	Φ130	3.5	Φ165	4xΦ10	40	6	19	15.5	18
	0.75	0.37													
90S	1.1	0.75	174	116	312	Φ200	Φ130	3.5	Φ165	4xΦ10	50	8	24	20	22
	90L	1.5	1.1	174	116	339	Φ200	Φ130	3.5	Φ165	4xΦ10	50	8	24	20
100	2.2	1.5	184	137	379	Φ250	Φ180	4	Φ215	4xΦ15	60	8	28	24	38
	3														
112	4	2.2	207	143	395	Φ250	Φ180	4	Φ215	4xΦ15	60	8	28	24	49
132S	5.5	3	244	165	505	Φ300	Φ230	4	Φ265	4xΦ15	80	10	38	33	67
132M	7.5	4	244	165	505	Φ300	Φ230	4	Φ265	4xΦ15	80	10	38	33	80
		5.5													
160M	11	7.5	325	255	600	Φ350	Φ250	5	Φ300	4xΦ19	110	12	42	37	126
160L	15	11			645										139

注: 4级三相异步电动机同步转速1500r/min. 380V. 50HZ  
6级三相异步电动机同步转速1000r/min. 380V. 50HZ  
56~71机座为铝合金外壳; 80~160机座为铸铁外壳。

Note: 4P 3-Phase driving induction motor rotation synchronization speed is 1500r/min. 380V. 50HZ.  
6P 3-Phase driving induction motor rotation synchronization speed is 1000r/min. 380V. 50HZ.  
56-71 are aluminum alloy boxes; 80-160 are cast iron boxes.





# 备忘录

