

PHK 非攻
THE EXPERT OF LINEAR MOTION

行星滚柱丝杠产品手册

PLANETARY ROLLER SCREW
PRODUCT MANUAL
ENDURANCE TECHNOLOGY
A PHEAKO Design Principle



PHK 非攻

浙江非攻机械有限公司

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MAKE LINEAR MOTION EXCITING

Contents 目录

关于非攻 About PHEAKO	01
行星滚柱丝杠特性 Planetary roller screw characteristics	08
标准式行星滚柱丝杠RPS系列 Standard planetary roller screw RPS series	
反转式行星滚柱丝杠RPI系列 Reverse planetary roller screw RPI series	
行星滚柱丝杠产品实例说明 Example of planetary roller screw products	09
RPS-0标准式行星滚柱丝杠系列 RPS-0 standard planetary roller screw series	10
RPS-M标准式行星滚柱丝杠系列 RPS-M standard planetary roller screw series	12
RPS-N标准式行星滚柱丝杠系列 RPS-N standard planetary roller screw series	14
RPI-X反转式行星滚柱丝杠系列 RPI-X reverse planetary roller screw series	16
附录 Appendices	18

关于非攻 About PHEAKO

非攻（PHEAKO）是一家专注于线性传动产品研发、制造及销售的中日合资企业，主要产品包括直线导轨、滚珠丝杠、行星滚柱丝杠和直线模组等高精密直线传动元件，广泛应用于各种机械设备中，如数控机床、自动化生产线、机器人、半导体设备、激光设备、橡塑设备、航空航天设备、医疗器械、3D打印、精密仪器等领域。

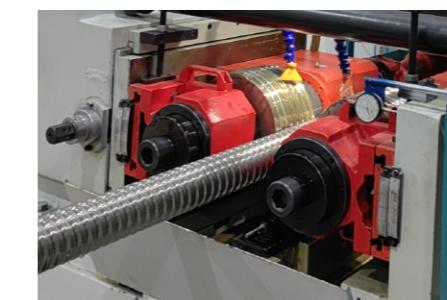
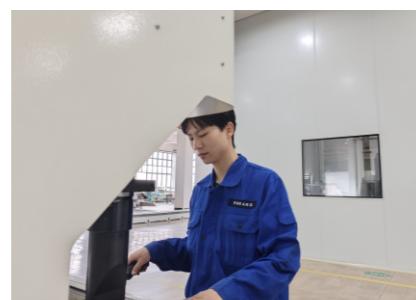
公司先后荣获国家高新技术企业、国家科技型中小企业、市研发中心；公司先后通过质量管理体系ISO9001认证、知识产权管理体系认证；公司建立博士后工作站。

匠心铸就未来。公司将始终坚持“兼爱非攻”的价值观，秉承“以市场为导向、以客户为中心、以品质为基石、以技术为驱动、以诚信为根本”的经营理念，致力成为线性传动行业标杆。

PHEAKO is a Sino-Japanese joint venture focusing on the R&D, manufacturing and sales of linear transmission products. Its main products include high-precision linear transmission components such as linear guides, ball screws, planetary roller screws and linear modules. Used in various mechanical equipment, such as CNC machine tools, automated production lines, robots, semiconductor equipment, laser equipment, rubber and plastic equipment, aerospace equipment, medical devices, 3Dprinting, precision instruments and other fields.

PHEAKO has successively won the titles of National High-tech Enterprise, National Scientific and Technological Middle-and-small Enterprise, and Municipal R&D Center; the company has obtained ISO9001 quality management system certification and intellectual property management system certification; the company has established a postdoctoral workstation.

Ingenuity casts the future. PHEAKO will always insist on the value of " Universal love and non-aggression", adhering to the business philosophy of " Market-oriented, customer-centric, quality based, technology driven, and integrity based ", committed to becoming a benchmark in the linear transmission industry.



全球布局 Global Footprints



荣誉资质 Honor and Qualification



国家高新技术企业

Nation High-Tech Enterprise

国家科技型中小企业

National technology-based small and medium-sized enterprises

浙江省专精特新中小企业

Zhejiang Province specialized in special new small and medium-sized enterprises

浙江省博士后工作站

Zhejiang Province Postdoctoral Workstation

市级研发中心

City level research and development center

浙江自动化学会

Zhejiang Automation Society

浙师大MBA企业实践基地

Zhejiang Normal University MBA Enterprise Practice Base

浙工大产学研合作基地

Zhejiang University of Technology Industry University Research Cooperation Base

ISO9001认证证书

Iso9001 Certification Certificate

知识产权管理体系认证证书

Intellectual Property Management System Certification

知识产权管理体系评价证书

Intellectual Property Management System Evaluation Certificate



生产与技术 Production And Technology

自主创新 Innovation

发掘市场需求，引领技术创新和行业应用

不断开发和制造技术先进、超越客户期待的产品，是非攻一贯的追求；核心部件和核心技术拥有完全自主知识产权、不断增加产品新价值，用新技术为行业寻求最佳解决方案。

Exploring market demand, leading technological innovation and industry applications

Continuously developing and manufacturing products that are technologically advanced and exceed customer expectations is PHEAKO's consistent pursuit; core components and core technologies have completely independent intellectual property rights, constantly adding new value to products, and using new technologies to seek the best solutions for the industry.



品质管控 Quality

选择“PHEAKO”就是选择“放心”

高性能、高品质是非遗一以贯之的坚持；多年来，非遗对品质的要求和管控，使得客户相信选择了“非遗”就等同选择了“放心”。

Choosing "PHEAKO" means choosing "rest assured"

High performance and high quality are PHEAKO's consistent insistence; over the years, PHEAKO's quality requirements and control have made customers believe that choosing "PHEAKO" is equivalent to choosing "rest assured".



研发团队实力雄厚，荣获五十多项专利证书



客户响应 Response

倾听客户的声音，想客户之所想

永远把客户放在第一位考虑，倾听客户的声音，解决客户的问题，始终贯彻“更好地传递动力和价值”这个使命。

Listening to the customers and thinking about what customers think

Always put customers first, listen to customers, solve the problems, and always implement the mission of " Deliver motivation and value better".



技术服务与时效

Technical Service And Timeliness



全程“一对一”技术支持 One for one support

有专业技术工程师协助客户对选型、设计、校核、安装、调试、维护进行全程“一对一”的专业技术支持。

Continuously developing and manufacturing products that are technologically advanced and exceed customer expectations is PHEAKO's consistent pursuit; core components and core technologies have completely independent intellectual property rights, constantly adding new value to products, and using new technologies to seek the best solutions for the industry.



免费设计与校核工具 Calculation and verification tools

为客户提供负载、速度、加速度、容许力矩、作动周期、工作寿命等参数的计算和校核小工具。

Provide customers with calculation and verification tools for parameters such as load, speed, acceleration, allowable torque, actuation cycle, and working life.



特殊检测报告 Special testing report

可为客户提供特殊环境或特殊要求场合下使用时对产品性能和产品验证报告。

We can provide customers with product performance and product verification reports when used in special environments or occasions with special requirements.



终身维修与保养 Lifetime service and maintenance

对全系列产品推行全生命周期内终身维修和检测。即使质保期外，也仅收取基本的配件费用和人工费用。

Implement lifelong maintenance and testing throughout the entire life cycle of all products. Even if the warranty period is out, only the cost of essential parts and labor will be charged.



品质保证 Quality assurance

导入2次元及3次元检测设备，滑台工作状态噪音检测，激光干涉仪量测，上母线、侧母线直线度，以及重复定位精度，确保超越行业水平的产品品质。

The introduction of 2D and 3D inspection equipment, noise detection of the sliding table working status, laser interferometer measurement, straightness of the upper busbar and side busbar, and repeat positioning accuracy ensure product quality that exceeds the industry level.



标准品7天交货 Delivery lead time:7days

标准品常备大量原材料及半成品库存，保证7个工作日交货。

We have a large inventory of raw materials and semi-finished products for standard products, ensuring delivery within 7 working days.

行星滚柱丝杠特性

Planetary roller screw characteristics

行星滚柱丝杠是一种将旋转运动转换为线性运动的机械装置：在主螺纹丝杠的周围行星分布了数根螺纹滚柱，将电机的旋转运动转换为丝杠或螺母的直线运动。行星滚柱丝杠能在恶劣的环境下承受重载上千个小时，是连续工作制应用场合的理想选择，可广泛应用于数控机床、工业机器人、伺服电缸、航空（飞机、直升机）、航天（火箭、卫星）、注塑机、机械压力机、冶金设备、汽车工业等等。

The planetary roller screw is a mechanical device that converts rotational motion into linear motion: several threaded rollers are distributed around the main thread screw, the rotary motion of the motor is converted into the linear motion of the screw rod or nut. The planetary roller screw, which can withstand heavy loads of up to a thousand hours in harsh conditions, is an ideal choice for continuous working applications, can be widely used in CNC machine tools, industrial robots, servo cylinder, aviation (aircraft, helicopter), Aerospace (rocket, satellite), injection molding machine, mechanical press, metallurgical equipment, automotive industry and so on.

■ 标准式行星滚柱丝杠RPS系列 Standard planetary roller screw RPS series

RPS系列行星滚柱丝杠的丝杠和螺母带有三角形多头螺纹，滚柱为具有一定螺纹升角的球形单头螺纹，两端带有直齿，内齿圈固定在螺母两端并与滚柱两端直齿轮啮合，避免滚柱轴线相对于丝杠倾斜，消除丝杠螺旋升角对滚柱产生倾覆力矩，确保滚柱平行于丝杠轴线转动。

RPS系列行程大，具备高负载和高速的特点，主要应用于精密机床、机器人、军工设备等领域，是目前应用最广泛的类型。

The screw rod and nut of RPS series planetary roller screw are provided with triangular multi-head thread, the roller is a spherical single-head thread with certain thread rising angle, and both ends are provided with straight teeth, the inner gear ring is fixed at both ends of the nut and meshes with the straight gears at both ends of the roller to prevent the roller axis from tilting relative to the screw rod, to eliminate the overturning moment caused by the screw rising angle to the roller, and to ensure that the roller rotates parallel to the screw axis.

RPS series has the characteristics of large stroke, high load and high speed. It is widely used in precision machine tool, robot, military equipment and other fields.

■ 反转式行星滚柱丝杠RPI系列 Reverse planetary roller screw RPI series

与标准式相比，反向式是以螺母为旋转输入，而丝杠作为直线输出，滚柱与丝杠之间无相对轴向位移。体积小，便于集成，可将螺母作为电机转子实现电机和丝杠的一体化设计。

RPI系列结构设计紧凑，方便一体化设计，但行程受螺母螺纹长度限制，主要用于中小负载、小行程和高速的环境下，可应用于航空、航天、船舶、电力等领域。

Compared with the standard type, the reverse type takes the nut as the rotating input and the screw rod as the linear output, and there is no relative axial displacement between the roller and the screw rod. Small size, easy integration, can be used as a motor rotor nut motor and screw to achieve the integrated design.

RPI series structure design is compact, convenient integration design, but the stroke is limited by nut thread length, mainly used for small and medium load, small stroke and high speed environment, the utility model can be applied to the fields of aviation, spaceflight, ships, electric power, etc.

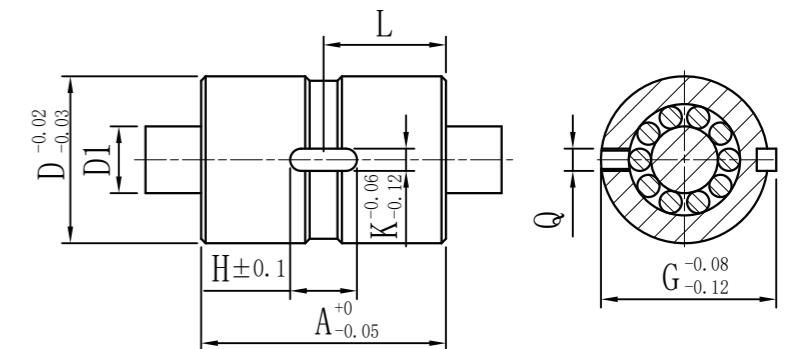
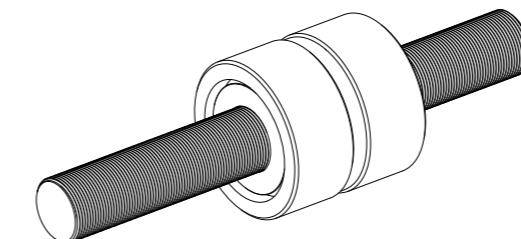
行星滚柱丝杠产品实例说明

Example of planetary roller screw products



RPS-0标准式行星滚柱丝杠系列

RPS-0 standard planetary roller screw series



单位 Unit:mm

型号 Model	轴径D1 Shaft diameter	导程 Lead	基本额定载荷 (kN) Basic rated load		螺母尺寸 Nut size						
			动态载荷 Dynamic load	静态载荷 Static load	A	D	H	K	G	Q	L
RPS-0 8	8.2	2	8.4	10.8	40	25	12	4	26.5	φ4	20
	8.3	4	10.5	13.5							
RPS-0 12	12.2	2.5	12.9	16.7	44	30	12	4	31.5	φ4	22
	12.4	5	14	18.1							
RPS-0 15	15.4	5	26	43.5	50	35	16	4	36.5	φ4	25
	15.8	10	27.3	40.7							
RPS-0 18	18.4	5	36.8	59.8	58	40	18	5	42	φ5	29
	18.8	10	37.6	56.4							
RPS-0 21	21.4	5	50.5	82	64	45	20	5	47	φ5	32
	21.8	10	59.2	83							
RPS-0 24	22.2	15	63.8	84.2	70	52	20	5	54	φ5	35
	24.4	5	59.5	102							
RPS-0 27	24.8	10	68.7	100.4	80	58	25	6	60.5	φ5	40
	25.2	15	76.2	116							
RPS-0 30	27.4	5	68.4	122	85	64	32	6	66.5	φ5	42.5
	27.8	10	78.6	118							
RPS-0 33	28.2	15	85.6	120	90	70	32	6	72.5	φ5	45
	30.4	5	92.2	178							
RPS-0 36	30.8	10	106	174	95	75	32	6	77.5	φ5	45
	31.2	15	119	182							
RPS-0 39	31.6	20	123	177	100	80	40	8	83	φ7	50
	33.4	5	105.8	213.7							
RPS-0 42	33.8	10	123.8	212.8	112	90	40	8	93	φ7	56
	34.2	15	137.7	217.6							
RPS-0 45	34.6	20	141.5	267.4	120	100	45	8	103	φ7	60
	36.4	5	115.4	252.6							
RPS-0 48	36.8	10	135.1	232.1	127	100	45	8	103	φ7	63.5
	37.2	15	150.2	237.3							
RPS-0 48	37.6	20	154.4	228.5							
	39.4	5	129	269							
RPS-0 48	39.8	10	153	271							
	40.2	15	169	273							
RPS-0 48	40.6	20	173	261							
	41	25	175	249							
RPS-0 48	42.4	5	157.8	362.5	112	90	40	8	93	φ7	56
	42.8	10	185.8	360.1							
RPS-0 48	43.2	15	206.1	366.4	120	100	45	8	103	φ7	60
	43.6	20	212.8	362							
RPS-0 48	44	25	222.5	357.2	127	100	45	8	103	φ7	63.5
	45.4	5	169.1	388.4							
RPS-0 48	45.8	10	199.1	385.8							
	46.2	15	220.8	392.5							
RPS-0 48	46.6	20	228.1	387.9							
	47	25	238.4	382.7							
RPS-0 48	48.4	5	198								

RPS-M标准式行星滚柱丝杠系列

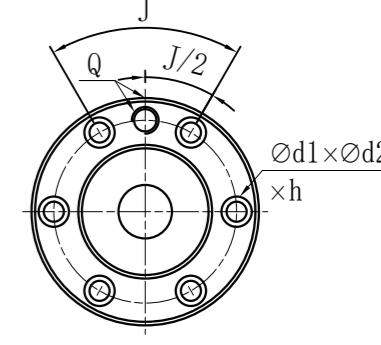
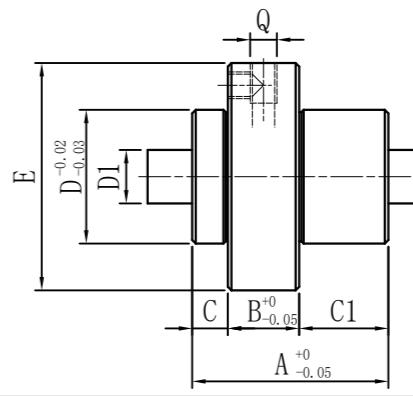
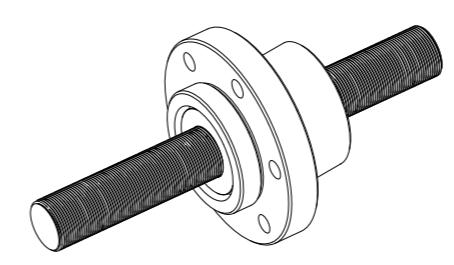
RPS-M standard planetary roller screw series

型号 Model	轴径D1 Shaft diameter	导程 Lead	基本额定载荷 (kN) Basic rated load		螺母尺寸 Nut size						
			动态载荷Dynamic load	静态载荷Static load	A	D	H	K	G	Q	L
RPS-O 54	54.8	10	360.6	834.2	150	110	45	8	113	$\varphi 7$	75
	55.2	15	375.8	845.6							
	55.6	20	390.2	834.8							
	56	25	407.7	856.8							
RPS-O 60	56.4	30	398.9	841.5	171	120	45	10	123	$\varphi 10.5$	85.5
	60.8	10	490	1196							
RPS-O 75	61.2	15	494	1206	213	150	63	10	153	$\varphi 10.5$	106.5
	76.2	15	836	2473							
	76.6	20	846	2455							
	77	25	855	2461							
RPS-O 87	77.4	30	852	2420	245	175	80	12	179	$\varphi 10.5$	122.5
	88.2	15	1059	3527							
	88.6	20	1066	3452							
	89	25	1085	3513							
RPS-O 99	89.4	30	1085	3465	280	200	80	16	204	$\varphi 15$	140
	100.2	15	1277	4671							
	100.6	20	1316	4741							
	101	25	1328	4749							
RPS-O 112.5	101.4	30	1330	4694	300	230	100	16	234	$\varphi 15$	140
	101.8	35	1329	4939							
	113.7	15	1396	5228							
	114.1	20	1421	5297							
RPS-O 120	114.5	25	1446	5341	330	240	100	16	244	$\varphi 15$	165
	114.9	30	1455	5315							
	115.3	35	1461	5289							
	121.2	15	1547	6179							
RPS-O 135	121.6	20	1587	6263	370	280	120	16	285	$\varphi 15$	185
	122	25	1585	6123							
	122.4	30	1614	6207							
	122.8	35	1640	6291							
RPS-O 150	123.2	40	1651	6301	410	320	120	20	325	$\varphi 15$	205
	136.2	15	1843	8037							
	136.6	20	1858	7922							
	137	25	1903	8059							
RPS-O 180	137.4	30	1940	7943	528	390	120	20	395	$\varphi 15$	264
	137	35	1921	7953							
	138.2	40	1909	7796							
	139	50	1944	7901							
RPS-O 210	151.2	15	2200	10446	570	440	120	20	325	$\varphi 15$	285
	151.6	20	2240	10459							
	152	25	2137	9553							
	152.4	30	2167	9611							
RPS-O 240	152.8	35	2167	9483	600	490	120	20	495	$\varphi 15$	300
	153.2	40	2176	9449							
	154	50	2189	9379							
	181.2	15	3073	17366							
RPS-O 180	181.6	20	3123	17319	528	390	120	20	395	$\varphi 15$	264
	182	25	3002	16004							
	182.4	30	3009	15790							
	182.8	35	3023	15690							
RPS-O 210	183.2	40	3075	15931	570	440	120	20	445	$\varphi 15$	285
	184	45	3128	16073							
	211.6	20	3371	19164							
	212	25	3435	19324							
RPS-O 240	212.4	30	3249	17472	600	490	120	20	495	$\varphi 15$	300
	212.8	35	3265	17359							

RPS-N标准式行星滚柱丝杠系列

RPS-N standard planetary roller screw series

型号 Model	轴径D1 Shaft diameter	导程 Lead	基本额定载荷 (kN) Basic rated load		螺母尺寸 Nut size								
			动态载荷 Dynamic load	静态载荷 Static load	A	B	C	D	E	W	Q	$\phi d_1 \times$ $\phi d_2 \times h$	J
RPS-M 54	54.8	10	360.6	834.2	150	40	55	110	170	140	M8	$\phi 15 \times$ $\phi 22 \times 20$	36°×10
	55.2	15	375.8	845.6									
	55.6	20	390.2	834.8									
	56	25	407.7	856.8									
	56.4	30	398.9	841.5									
RPS-M 60	60.8	10	490	1196	171	45	63	122	180	150	M8	$\phi 17 \times$ $\phi 25 \times 25$	36°×10
	61.2	15	494	1206									
	61.6	20	515	1181									
	62	25	530	1227									
	62.4	30	528	1216									
RPS-M 75	76.2	15	836	2473	213	45	84	150	210	180	M8	$\phi 17 \times$ $\phi 25 \times 25$	30°×12
	76.6	20	846	2455									
	77	25	855	2461									
	77.4	30	852	2420									
RPS-M 87	88.2	15	1059	3527	245	45	100	175	235	200	M8	$\phi 17 \times$ $\phi 25 \times 25$	30°×12
	88.6	20	1066	3452									
	89	25	1085	3513									
	89.4	30	1085	3465									
RPS-M 99	100.2	15	1277	4671	280	50	115	200	270	235	M8	$\phi 17 \times$ $\phi 25 \times 25$	22.5°×16
	100.6	20	1316	4741									
	101	25	1328	4749									
	101.4	30	1330	4694									
	101.8	35	1329	4639									
RPS-M 112.5	113.7	15	1396	5228	300	50	125	230	286	260	M12	$\phi 17 \times$ $\phi 25 \times 25$	22.5°×16
	114.1	20	1421	5297									
	114.5	25	1446	5341									
	114.9	30	1455	5315									
	115.3	35	1461	5289									
RPS-M 120	121.2	15	1547	6179	330	55	137.5	240	296	268	M12	$\phi 19 \times$ $\phi 28 \times 25$	22.5°×16
	121.6	20	1587	6263									
	122	25	1585	6123									
	122.4	30	1614	6207									
	122.8	35	1640	6291									
RPS-M 135	123.2	40	1651	6301	370	60	155	280	345	313	M12	$\phi 19 \times$ $\phi 28 \times 25$	22.5°×16
	136.2	15	1843	8037									
	136.6	20	1858	7922									
	137	25	1903	8059									
	137.4	30	1940	7943									
RPS-M 150	137.8	35	1921	7953	410	70	170	320	385	353	M12	$\phi 19 \times$ $\phi 28 \times 25$	22.5°×16
	138.2	40	1909	7796									
	139	45	1944	7901									
	151.2	15	2200	10446									
	151.6	20	2240	10459									
RPS-M 180	152	25	2137	9553	528	90	219	390	470	430	M12	$\phi 23 \times$ $\phi 35 \times 30$	22.5°×16
	152.4	30	2167	9611									
	152.8	35	2167	9483									
	153.2	40	2176	9449									
	154	50	2186	9379									
RPS-M 210	181.2	15	3073	17366	570	100	235	440	530	485	M12	$\phi 25 \times$ $\phi 38 \times 40$	22.5°×16
	181.6	20	3123	17319									
	182	25	3002	16004									
	182.4	30	3009	15790									
	182.8	35	3023	15690									
RPS-M 240	183.2	40	3079	15931	600	100	250	490	560	520	M12	$\phi 25 \times$ $\phi 38 \times 40$	22.5°×16
	184	50	3128	16073									
	211.6	20	3371	19164									
	212	25	3435	19324									
	212.4	30	3249	17472									
RPS-N 8	212.8	35	3265	17359	40								
	213.2	40	3322	17635									
	214	50	3381	17789									
	242	25	3919	23387									
	242.4	30	3931	23089									
RPS-N 12	242.8	35	3994	23350									
	243.2	40	3808	21497									
	244	50	3860	21539									



型号 Model	轴径D1 Shaft diameter	导程 Lead	基本额定	

RPI-X反转式行星滚柱丝杠系列

RPI-X reverse planetary roller screw series

型号 Model	轴径D1 Shaft diameter	导程 Lead	基本额定载荷 (kN) Basic rated load		螺母尺寸 Nut size									
			动态载荷Dynamic load	静态载荷Static load	A	B	C	C1	D	E	W	Q	$\phi d_1 \times$ $\phi d_2 \times h$	
RPS-N 54	54.8	10	360.6	834.2	150	40	25	85	110	170	140	M8	$\phi 15 \times$ $\phi 22 \times 20$	36°×10
	55.2	15	375.8	845.6										
	55.6	20	390.2	834.8										
	56	25	407.7	856.8										
	56.4	30	398.9	841.2										
RPS-N 60	60.8	10	490	1196	171	45	25	101	122	180	150	M8	$\phi 17 \times$ $\phi 25 \times 25$	36°×10
	61.2	15	494	1206										
	61.6	20	515	1181										
	62	25	530	1227										
	62.4	30	528	1216										
IRPS-N 75	76.2	15	836	2473	213	45	25	143	150	210	180	M8	$\phi 17 \times$ $\phi 25 \times 25$	30°×12
	76.6	20	846	2455										
	77	25	855	2461										
	77.4	30	852	2420										
	88.2	15	1059	3527	245	45	25	175	175	235	200	M8	$\phi 17 \times$ $\phi 25 \times 25$	30°×12
RPS-N 87	88.6	20	1066	3452										
	89	25	1085	3513										
	89.4	30	1085	3465										
	100.2	15	1277	4671										
	100.6	20	1316	4741	280	50	25	205	200	270	235	M8	$\phi 17 \times$ $\phi 25 \times 25$	22.5°×16
RPS-N 99	101	25	1328	4749										
	101.4	30	1330	4694										
	101.8	35	1329	4639										
	113.7	15	1396	5228	300	50	25	225	230	286	260	M12	$\phi 17 \times$ $\phi 25 \times 25$	22.5°×16
	114.1	20	1421	5297										
RPS-N 112.5	114.5	25	1446	5341										
	114.9	30	1455	5315										
	115.3	35	1461	5289										
	121.2	15	1547	6179	330	55	25	250	240	296	268	M12	$\phi 19 \times$ $\phi 28 \times 25$	22.5°×16
	121.6	20	1587	6263										
RPS-N 120	122	25	1585	6123										
	122.4	30	1614	6207										
	122.8	35	1640	6291										
	123.2	40	1651	6301										
	136.2	15	1843	8037	370	60	30	280	280	345	313	M12	$\phi 19 \times$ $\phi 28 \times 25$	22.5°×16
IRPS-N 135	136.6	20	1858	7922										
	137	25	1903	8059										
	137.4	30	1940	7943										
	137.8	35	1921	7953										
	138.2	40	1909	7796										
RPS-N 150	151.2	15	2200	10446	410	70	35	305	320	385	M45	$\phi 19 \times$ $\phi 28 \times 25$	22.5°×16	
	151.6	20	2240	10459										
	152	25	2137	9553										
	152.4	30	2167	9611										
	152.8	35	2167	9483										
RPS-N 180	153.2													

附录 Appendixes

型号 Model	轴径D1 Shaft diameter	导程 Lead	基本额定载荷 (kN) Basic rated load		丝杆尺寸Screw size			螺母尺寸Nut size	
			动态载荷Dynamic load	静态载荷Static load	推杆最大直径dmax Maximum diameter of push rod	最大行程 Maximum stroke	组合辊长度Ls Combination roller length	螺母内径D0 Nut inner diameter	螺母最小外径D Minimum outer diameter of nut
RPI-X 39	39	39	3	159.5	372	36	158	72	65
			4	170.3	369.9				
			5	178.9	367.8				
			6	186.1	365.7				
			7	194.1	369.4				
			8	201.4	373.1				
RPI-X 44	44	44	3	135.1	338.4	40	140	90	66
			4	145.6	341.5				
			5	153.1	339.8				
			6	157.9	333.2				
			7	166.8	343.6				
			8	169.2	334.6				
			9	171.8	328				
			3	218.7	556.2	44	135	95	80
			4	234.6	557.2				
RPI-X 48	48	48	5	246.8	554.6				
			6	259	559.1				
			7	262.4	538.7				
			8	277.7	561.1				
			9	285.7	562.1				
			10	285	541.7				
RPI-X 51	51	51	3	263.1	725.9	47	105	125	85
			4	279.5	715.2				
			5	298.1	727.9				
			6	308.5	717.3				
			7	320.2	718.3				
			8	326.2	703.9				
			9	340.3	720.4				
			10	346.6	713.7				
RPI-X 56	56	56	4	219.6	584.9	52	118	112	84
			5	231.9	585.8				
			6	240.8	580.4				
			7	250.8	584.4				
			8	256.5	575.9				
			9	260.4	564.4				
			10	274.4	590				
			12	279	566.9				
RPI-X 60	60	60	4	248.6	689.4	56	115	115	90
			5	259.3	676.9				
			6	272.7	684.5				
			7	281.4	678.7				
			8	290.7	679.7				
			9	298.2	677.2				
			10	306.9	681.5				
			12	316.7	669.9				
RPI-X 70	70	70	6	260.3	722.7	65	90	140	98
			8	276.2	712.1				
			10	291.6	713.8				
			12	308	727.8				
			14	317.9	723.3				
			15	317.2	702.6				
