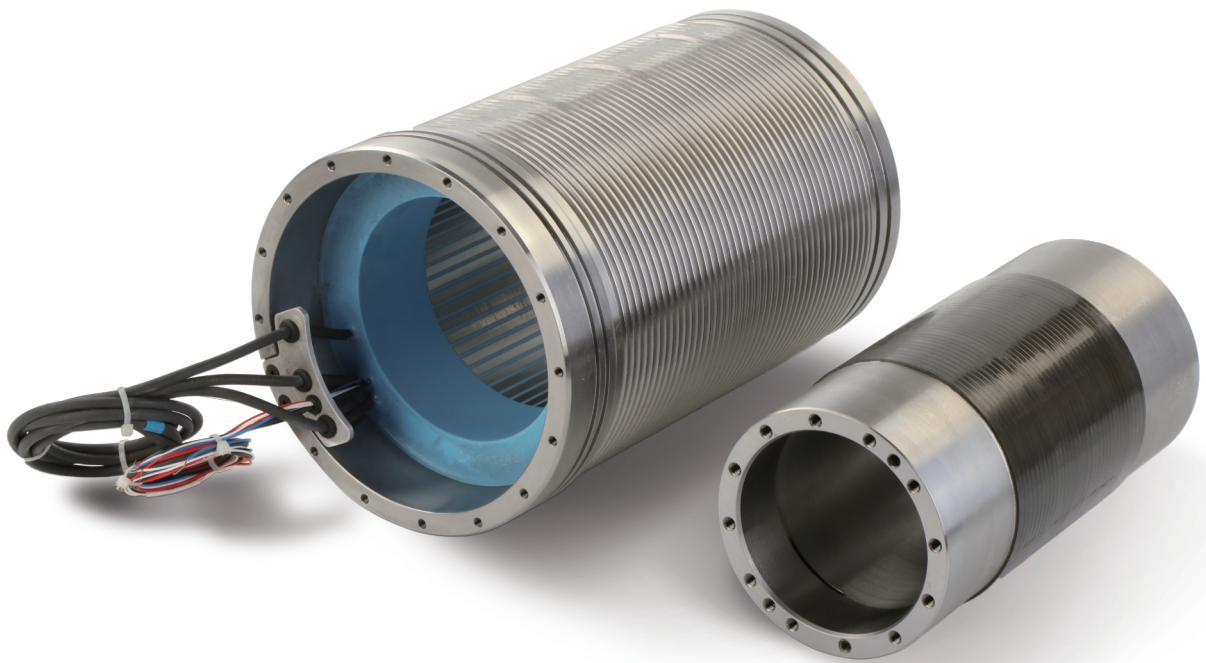


TK Series DD Servo Motors for Machine Tool

TK系列直驱力矩伺服电机--机床行业





Company Profile

企业简介

宁波菲仕技术股份有限公司（简称：菲仕技术）成立于 2001 年，由民营控股、先进制造产业投资基金和宁波和丰创业投资有限公司等战略投资人参股，公司致力于以电驱动技术为核心的创新及产业化，为运动控制和能量转换领域提供系统产品和综合解决方案，经过多年的品牌沉淀，菲仕已成为一家集研发、生产、销售为一体，拥有国内外多家控股子公司的集团化创新型高科技企业。

Ningbo Physis Technology Co., Ltd. was founded in 2001, which is a private enterprise holding group company, invested by Advanced Manufacturing Fund and Ningbo Hefeng Venture Capital Co., Ltd. Physis always devotes to innovation and industrialization of electrical drive technology, provides servo products and solutions for the field of motion control & energy conversion. After years of brand development and accumulation, Physis became a collectivized & innovative high-tech enterprise, which collects together research and development (R&D), production and sale, has a numbers of domestic and overseas subsidiaries.

R&D Team

研发团队

在智能制造全球化的趋势中，菲仕逐步落地国际化的战略布局，在欧洲成立了研发中心，与国内外专业科研机构、专家合作，进行定期交流和互动，以保持公司持续站立在伺服系统科技创新的最前沿，共同推进产业发展。经过多年的沉淀，顶尖人才的积累，菲仕在国内拥有省级工程技术中心、省级高新技术企业研究开发中心，并入选了国家工信部第一批专精特新“小巨人”企业！

2 个
研发中心

3 个
生产基地

200 +
研发团队

300 +
授权专利

In the globalization tendency of intelligent manufacture, Physis implements the strategic layout of the group internationalization gradually, builds the R&D center in Europe, communicate and interact regularly with the world-class scientific research institution & industry experts, which makes Physis hold on the lead of the servo system technology innovation and promote industrial development together! After years of development, accumulation of talents, Physis has provincial engineering & technology center and more than 200 people of R&D team. Until now, Physis has more than 300 patents.

产品介绍

Product Introduction

菲仕 TK 系列直驱力矩伺服电机具有高转矩密度，为高性能的运动控制场景而设计。标准无框架结构，分离式定转子，适于集成到应用设备内部。另可根据行业应用，定制专用结构，比如，金属成型行业可为整机、单轴承结构等等。

TK series direct drive servo motor provide the high torque density for high-performance motion control applications. Standard frameless structure is provided with separate stator and rotor, suitable for integration into the equipments. In addition, it can also be made with special structural design for some industries, for example, a complete machine structure, a single bearing structure for the metal forming industry, etc.

额定扭矩：5Nm ~ 20000Nm

额定转速：1rpm ~ 35000rpm

峰值功率：0.5kW ~ 900kW

冷却方式：自然冷，水冷

连接方式：散线，航插，接线盒

温度传感器：KTY84 & PTC130

Rated Torque : 5Nm ~ 20000Nm

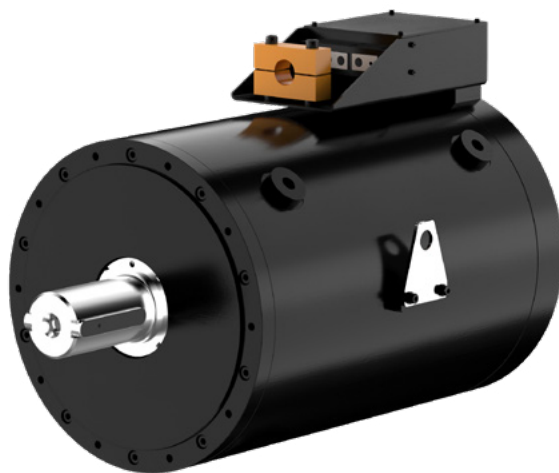
Rated Speed : 1rpm ~ 35000rpm

Peak Power : 0.5kW ~ 900kW

Cooling : natural convection, water cooling

Connection method : power cable, plug connector, connection box

Temperature Sensor : KTY84 & PTC130



主要特点

负载直连，简化传动机构，可靠性高
定转子结构紧凑，体积小，重量轻
低速运转平稳，扭矩大
直接驱动，机械传动效率高
启动扭矩大，噪音小，过载能力强
扭矩常数大，电流小，驱动器成本低
高速弱磁区大扭矩输出

Main Features

Directly-connected load, simplified transmission mechanism, and higher reliability;
The stator and rotor are compact in structure, small size and light weight;
Smooth operation at low speed, with large torque;
Direct-drive, high mechanical transmission efficiency;
High starting torque, low noise, and strong overload capacity;
High torque constant, small current, and low drive cost;
High-speed field weakening area and large torque output;

适用场合

直接驱动应用
低速大扭矩应用
高响应高精度定位控制应用
万转高速应用
空间紧凑的应用

Applications

Direct-drive applications;
Low-speed and high-torque applications;
High-response and high-precision positioning controls applications;
High-speed rotation application;
Compact space applications;



380V Motor Data

380V 电机数据

性能参数

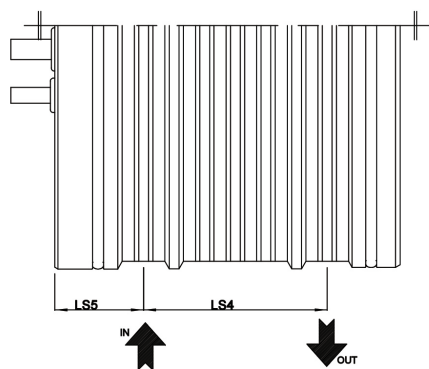
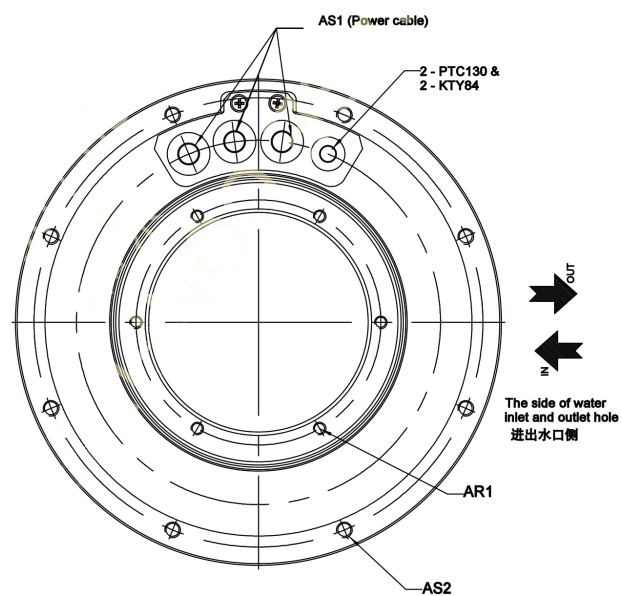
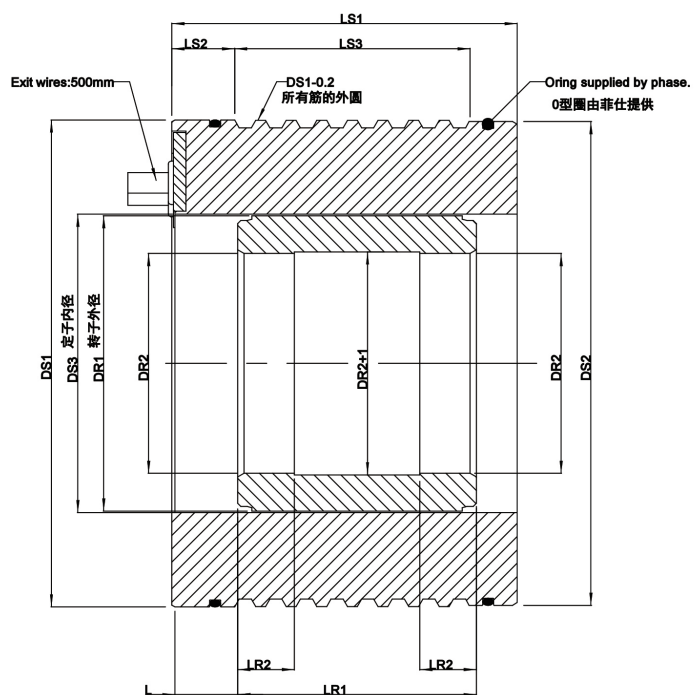
Performance Data

电机型号	额定扭矩	额定转速	额定功率	额定电流	峰值扭矩	最高转速
Motor code	Rated torque (Nm)	Rated speed (rpm)	Rated power (kW)	Rated current (A)	Max torque (Nm)	Max speed (rpm)
TK085-050-005C	6	10000	6.3	12	24	15000
TK110-090-016C	18	3000	5.6	14	50	10000
TK142-060-013C	25	3000	8.8	25	70	10000
TK142-080-026C	50	1600	8.4	18.7	100	5000
TK164-030-013C	12	4500	5.6	13	55	7000
TK164-045-016C	20	3500	7.3	17	80	6000
TK164-070-017C	39	3000	12.3	25	130	6000
TK164-100-028C	74	1500	11.6	29	170	6000
TK220-050-023C	55	2000	11.7	27	150	5000
TK220-085-027C	109	1500	17.2	44.5	270	5000
TK220-090-034C	155	1600	26	43	280	5000
TK240-140-04C	220	1150	26.5	63	600	4000
TK240-160-037C	320	1100	36.9	95	690	4000
TK240-200-043C	430	1000	45.6	114	910	4000
TK270-220-063C	570	650	39.1	100	1000	3000

尺寸参数

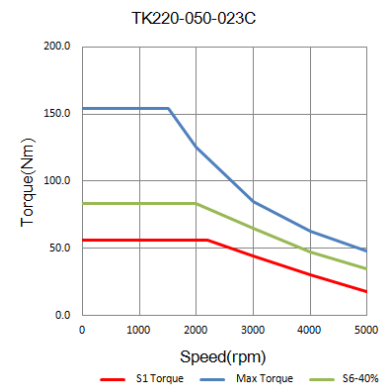
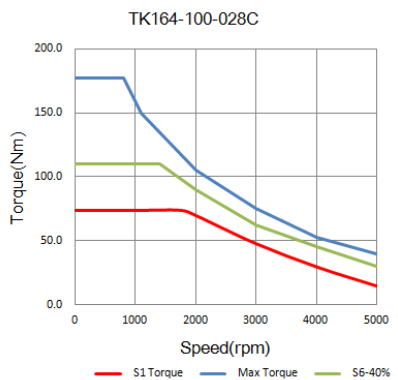
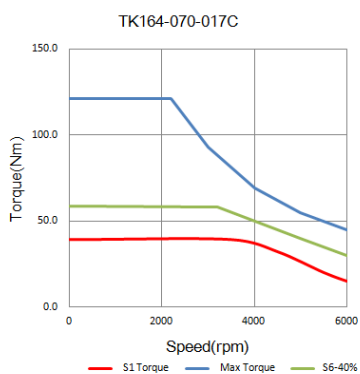
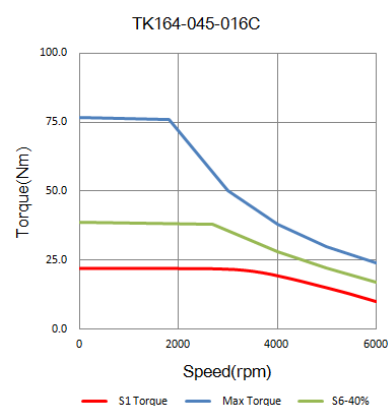
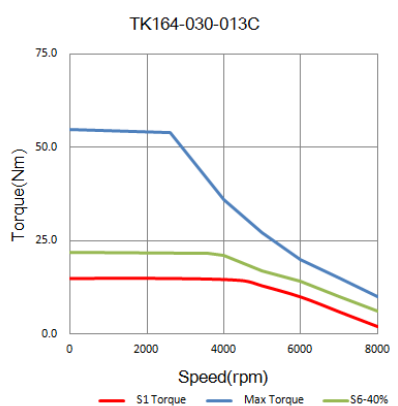
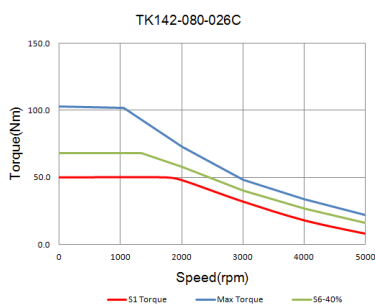
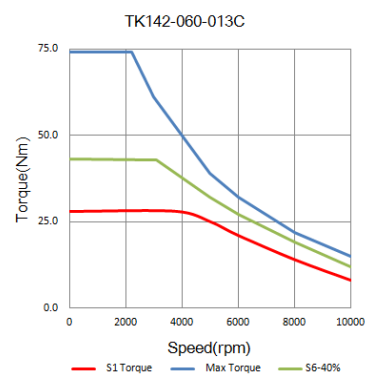
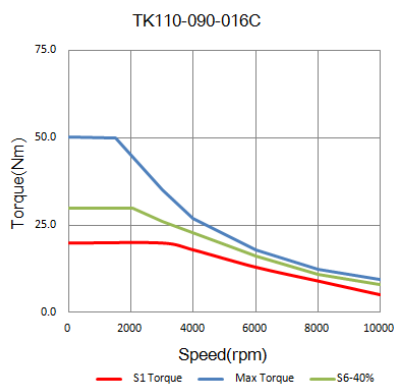
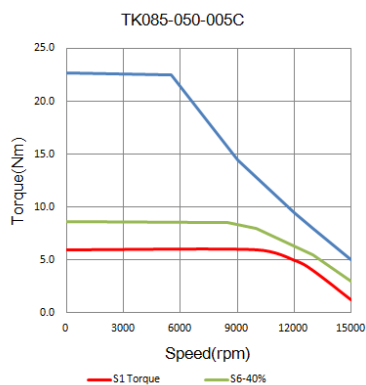
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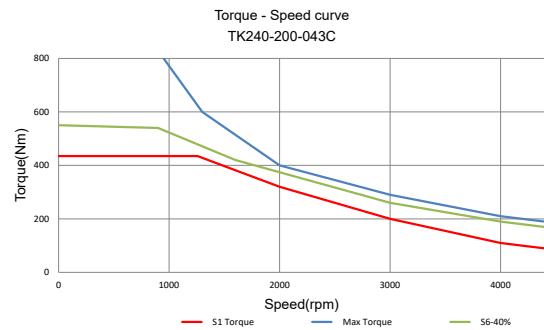
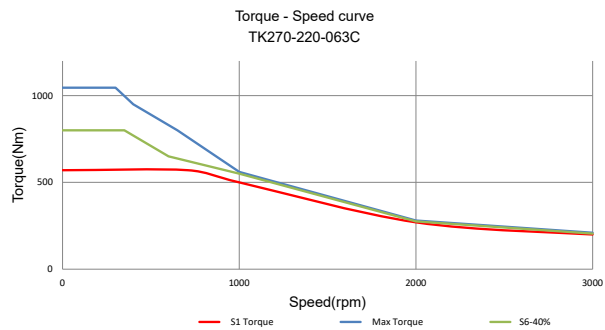
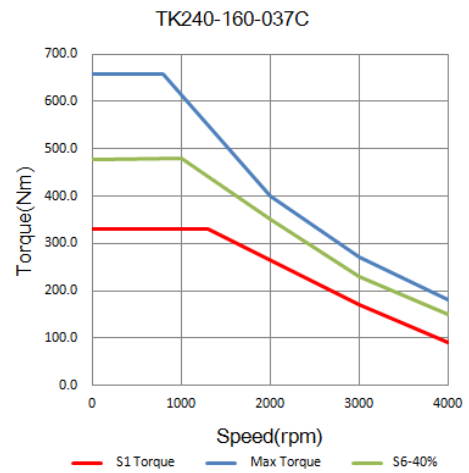
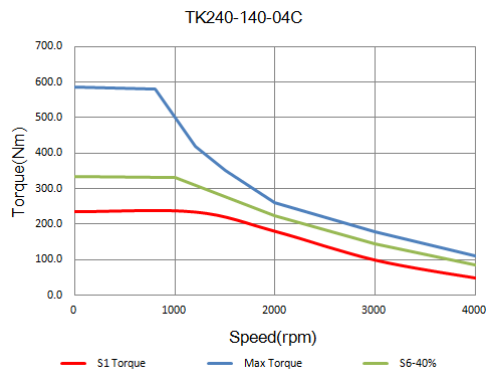
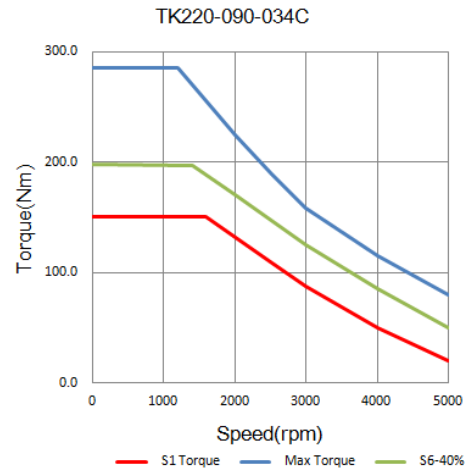
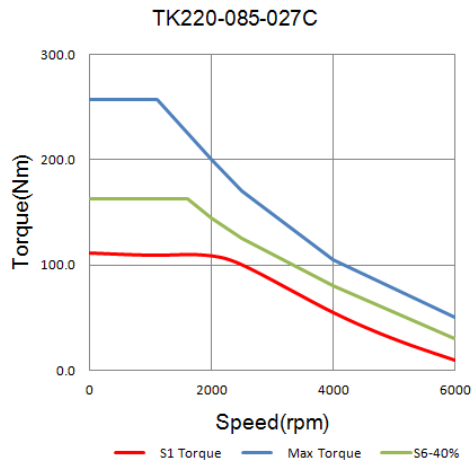
电机型号 Motor code	DS1	DS2	DS3	DR1	DR2	L	LS1	LS2	LS3	LS4	LS5	LR1	LR2	AS1	AS2	AR1
TK085-050-005C	102	102	58.4	57.2	35	24	103	11	81	69.2	16.9	64	10	4	8-M4 on Φ91	6-M4 on Φ43
TK110-090-016C	120	120	68.5	66.5	50	33.5	160	21	125	95.9	28.6	103	-	4	8-M3 on Φ114	8-M4 on Φ55
TK142-060-013C	155	154	95	94	70	20	110	20	75	58.5	23.2	76	18	10	8-M5 on Φ143	6-M4 on Φ78
TK142-080-026C	155	154	95	94	70	14	130	10	110	84	23	110	18	6	8-M5 on Φ143	6-M4 on Φ78
TK164-030-013C	180	179	115	113.8	86	26	85	10	65	33.3	25.8	42	15	1.5	8-M5 on Φ165	8-M5 on Φ95
TK164-045-016C	180	179	115	113.8	86	26	102	11	80	41	34.5	59	18	4	8-M5 on Φ165	8-M5 on Φ95
TK164-070-017C	180	179	115	113.8	86	26	127	11	105	53.5	36.7	84	23	10	8-M5 on Φ165	8-M5 on Φ95
TK164-100-028C	180	179	115	113.8	86	29.5	171	18	124	105	27.5	118	15	10	8-M5 on Φ165	8-M5 on Φ95
TK220-050-023C	245	244	150	148.8	110	34.5	130	20	90	46	42	65	15	10	8-M5 on Φ229	8-M6 on Φ125
TK220-085-027C	245	244	150	148.8	110	36.5	168	22	126	96	35	102	15	16	8-M5 on Φ229	8-M6 on Φ125
TK220-090-034C	245	244	150	148.8	110	39	168	20	126	96	35	102	15	10	8-M5 on Φ229	8-M6 on Φ125
TK240-140-04C	256	255	175	173.4	140	26	215	22.5	170	152	31.5	164	30	16	8-M5 on Φ247	8-M6 on Φ152
TK240-160-037C	256	255	175	173.4	140	31	235	30	175	145	45	185	30	35	8-M5 on Φ247	8-M6 on Φ152
TK240-200-043C	256	255	175	173.4	140	36	279	27.5	220	185	50	216	50	35	8-M6 on Φ243	8-M6 on Φ152
TK270-220-063C	288	287	200	198	160	43	300	16	268	225.4	37.3	234	40	35	12-M6 on Φ272	12-M6 on Φ178



Performance Curve

性能曲线图





220V Motor Data

220V 电机数据

性能参数

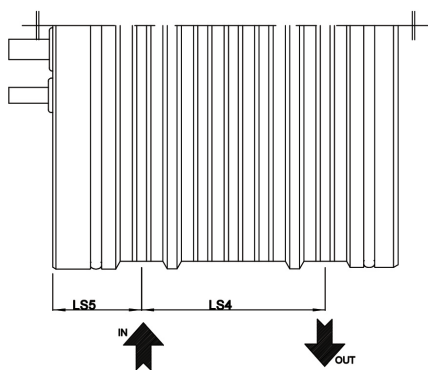
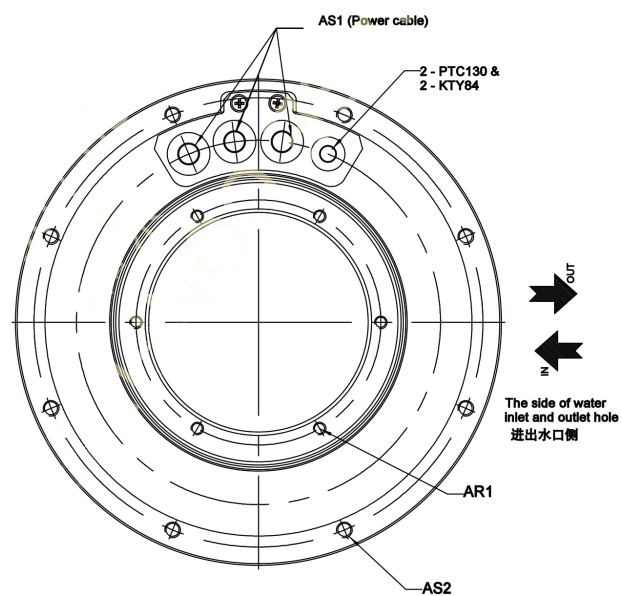
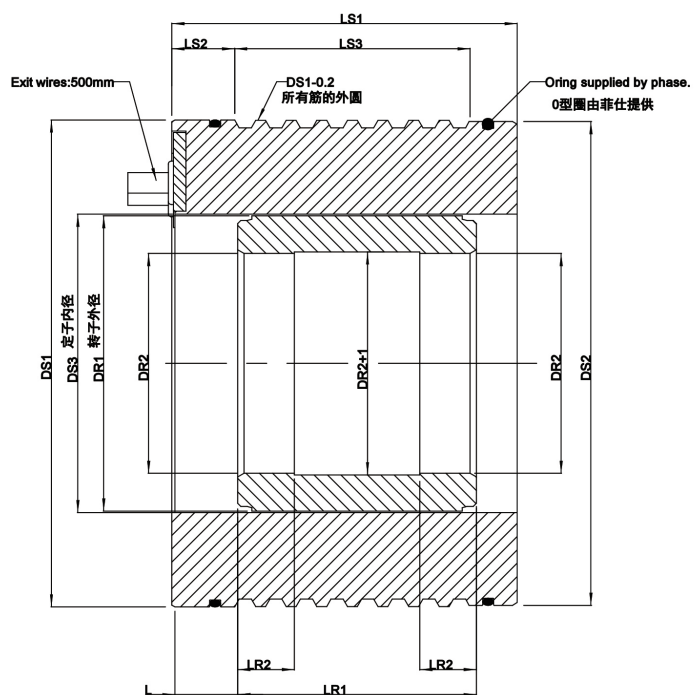
Performance Data

电机规格	额定扭矩	额定转速	额定功率	额定电流	峰值扭矩	最高转速
Motor type	Rated torque (Nm)	Rated speed (rpm)	Rated power (kW)	Rated current (A)	Max torque (Nm)	Max speed (rpm)
TK110-090-009C2	21	3100	6.8	27.1	60	10000
TK142-060-013C2	24	2300	6.3	24	70	8000
TK164-045-008C2	25	4300	11.3	35.5	80	6000
TK164-070-01C2	45	3500	16.5	51.3	130	6000
TK164-100-01C2	80	1600	13.4	48.8	180	5000
TK220-050-012C2	61	2600	16.6	54.3	150	5000
TK220-085-016C2	105	1700	18.7	73.5	360	4500
TK240-140-02C2	220	1500	34.6	124.5	600	4000

尺寸参数

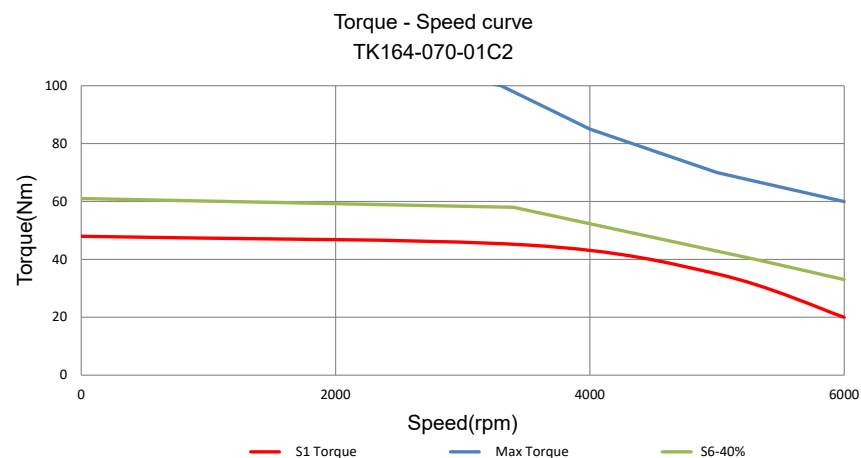
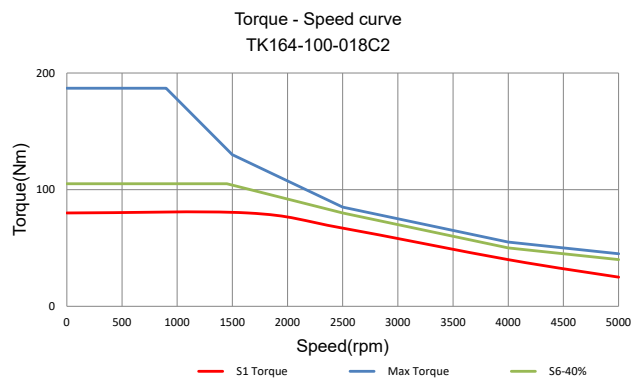
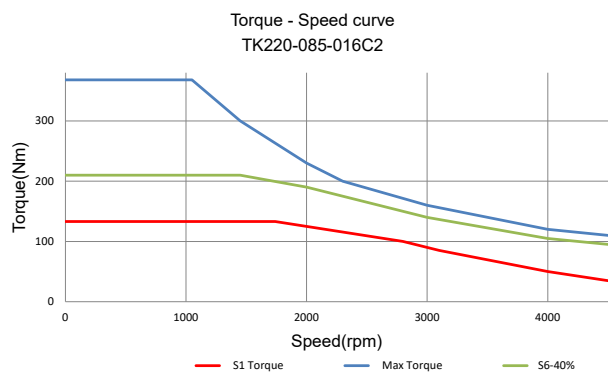
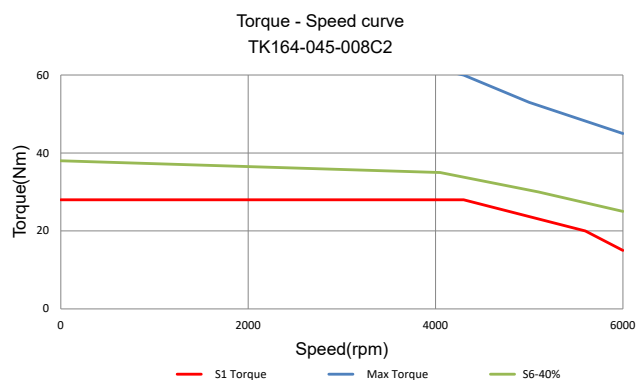
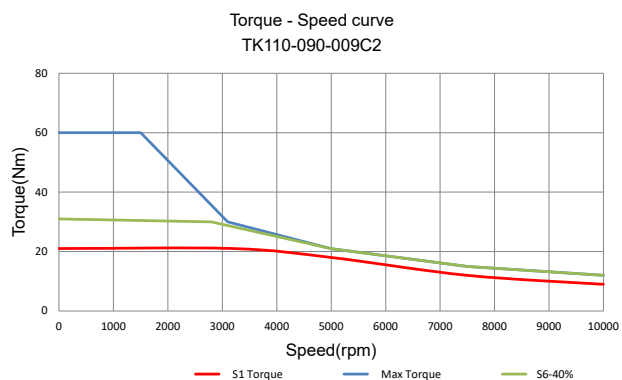
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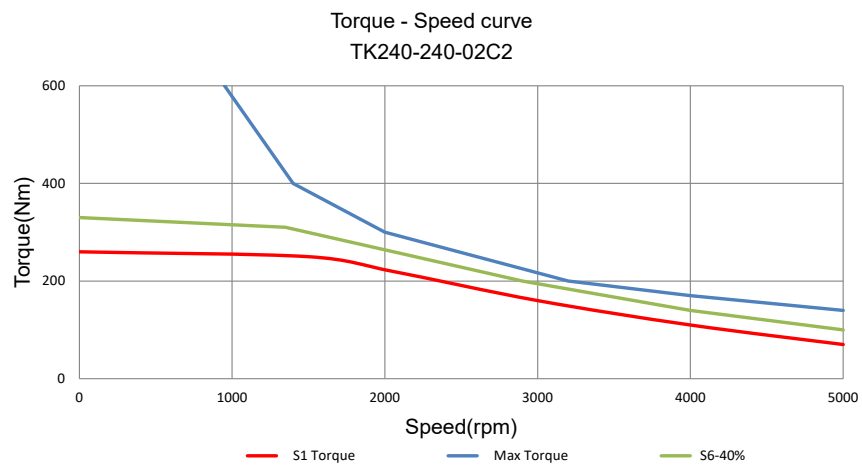
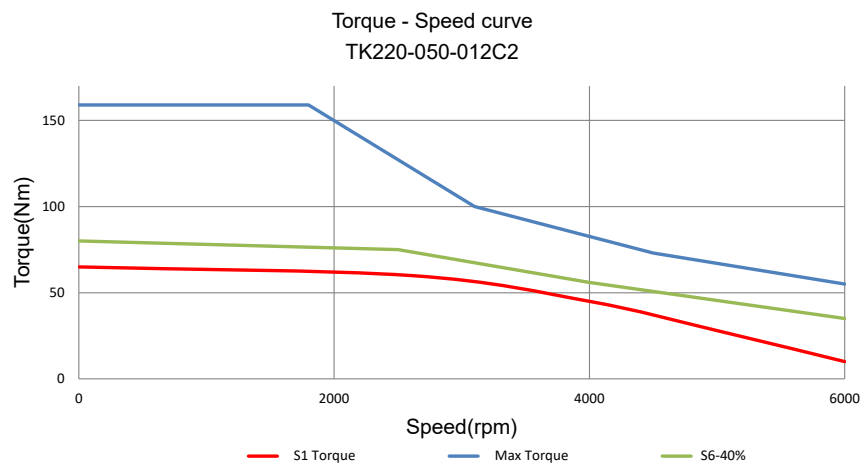
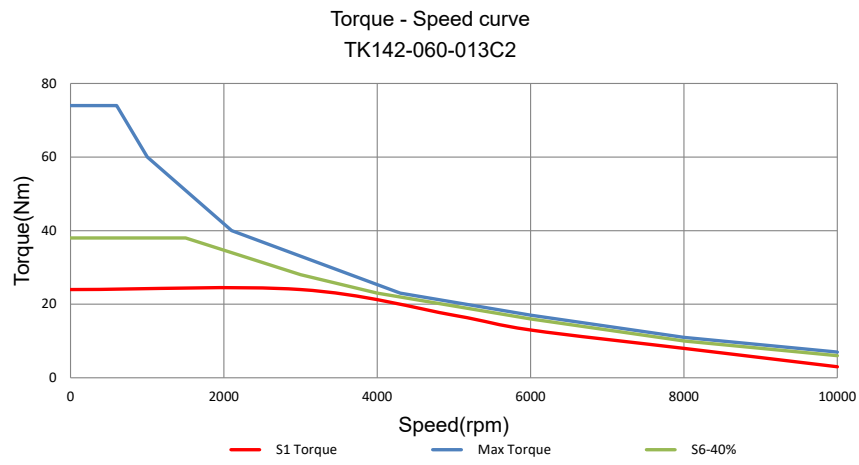
电机型号 Motor code	DS1	DS2	DS3	DR1	DR2	L	LS1	LS2	LS3	LS4	LS5	LR1	LR2	AS1	AS2	AR1
TK110-090-009C2	120	120	68.5	66.5	50	33.5	160	21	125	95.9	28.6	103	-	4	8-M4 on Φ91	6-M4 on Φ43
TK142-060-013C2	155	154	95	94	70	20	110	20	75	58.5	23.2	76	18	10	8-M3 on Φ114	8-M4 on Φ55
TK164-045-008C2	180	179	115	113.8	86	33	110	15	80	41	34.5	59	18	10	8-M5 on Φ143	6-M4 on Φ78
TK164-070-01C2	180	179	115	113.8	86	26	127	11	105	53.5	36.7	84	23	10	8-M5 on Φ143	6-M4 on Φ78
TK164-100-018C2	180	179	115	113.8	86	29.5	171	18	124	105	27.5	118	15	10	8-M5 on Φ165	8-M5 on Φ95
TK220-050-012C2	245	244	150	148.8	110	60.5	157.5	15	110	84.6	28.2	65	15	16	8-M5 on Φ165	8-M5 on Φ95
TK220-085-016C2	245	244	150	148.8	110	36.5	168	22	126	96	35	102	15	16	8-M5 on Φ165	8-M5 on Φ95
TK240-140-02C2	256	255	175	173.4	140	59	235	30	192	146.3	35.8	156	30	35	8-M5 on Φ165	8-M5 on Φ95



Performance Curve

性能曲线图





Precision Machining Lathes 精密加工车床

方案配置：

西门子 828D 数控系统
主轴电机：TK085-050-005C
编码器：弦波

Scheme Configuration :

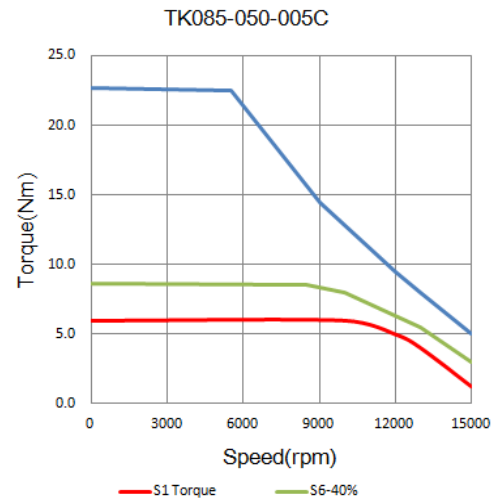
SIEMENS 828D CNC system
Spindle motor : TK085-050-005C
Encoder : Sine wave

电机参数：

额定扭矩 6Nm(6.3kW)
额定转速 10000rpm
最高转速 15000rpm
峰值扭矩 24Nm
电机最大外径 102mm
转子内径 41mm

Motor parameters :

Rated torque 6Nm(6.3kW)
Rated speed 10000rpm
Max. speed 15000rpm
Max. torque 24Nm
Max. outer diameter of motor 102mm
Rotor inner diameter 41mm



Numerical Control Lathe 数控车床

方案配置：

FANUC 数控系统
主轴电机：TK142-060-013C
主轴驱动：AxN15.30
编码器：磁感应

Scheme Configuration :

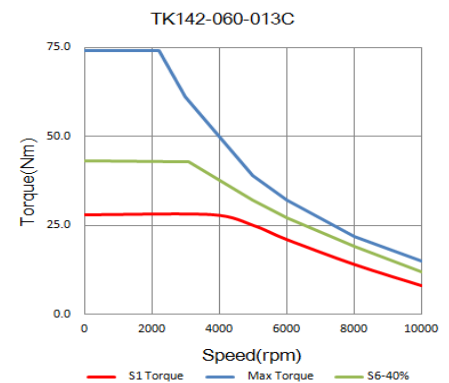
FANUC CNC system
Spindle motor : TK142-060-013C
Spindle drive : AxN15.30
Encoder : Magnetic induction

电机参数：

额定扭矩 23.5Nm(3.7kW)
最高转速 6000rpm
峰值扭矩 80Nm
电机最大外径 180mm
转子内径 85mm
0~6000rpm < 2S

Motor parameters :

Rated torque 23.5Nm(3.7kW)
Max. speed 6000rpm
Max. torque 80Nm
Max. outer diameter of motor 180mm
Rotor inner diameter 85mm
0~6000rpm < 2S



CNC 加工中心

方案配置：

海德汉数控系统
转台电机：TK440C
摆头电机：TK440C
编码器：海德汉

Scheme Configuration :

Heidenhain CNC system
Turntable motor : TK440C
Oscillating motor : TK440C
Encoder: Heidenhain



电机参数：

转台电机额定 430Nm，峰值 850Nm
摆头电机额定 1200Nm，峰值 2200Nm
最大外径 440mm
转子内孔 300mm

Motor parameters :

The turntable motor rated torque 430Nm, Max. torque 850Nm
Oscillating motor rated torque 1200rpm, Max. torque 2200Nm
Max. outer diameter of motor 440mm
Rotor inner diameter 300mm

Composite Processing Machine 复合加工专机

方案配置：

力士乐数控系统
菲仕 AxN 驱动器
主轴电机：TK85&TK110C
编码器：磁感应

Scheme Configuration :

Rexroth CNC system
Physis AxN series drive
Spindle motor : TK85&TK110C
Encoder: Magnetic induction

电机参数：

主轴电机 7.5kW，峰值 12000rpm
主轴电机 15kW，峰值 8000rpm

Motor parameters :

Spindle motor 7.5kW, Max.12000rpm
Spindle motor 15kW, Max.8000rpm



菲仕总部 PHYSIS HEADQUARTER

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