树脂进给丝杠
Resin Lead Screws

●特点

- 由于丝杠轴上使用了SUS304（或SUS303），因此耐腐蚀性强。
- 轴径与导程的组合丰富多彩，选择范围广泛。
- MRH（标准材质）含有润滑剂，不加油也可使用。涂抹润滑剂后使用可使运行更顺畅。
- 采用与滚珠丝杠相同的拱弧槽，传动平滑。
- 以MRH型为标准，但可根据用途变更螺母材质。
- 也可通过选择无齿侧间隙型，将轴向齿隙设置为0。

●Features

- The Shaft is manufactured from SUS304 (or SUS303), which gives excellent corrosion resistance.
- Wide range of combination of Shaft dia. and Lead are available.
- MRH incorporates a lubricating agent so it can be used without oiling. It is possible to obtain smooth movement with lubricant.
- Uses the same gothic arc grooves as Ball Screws, ensuring smooth transmission.
- MRH is standard in stock, but Nut material can be changed to order, based on the environmental condition.
- Selecting backlash free type, Axial play can be 0.

●丝杠轴公称外径与导程的组合　Combination of Shaft nominal dia. & Lead

Unit(单位)：mm

Shaft dia. 公称外径 \ Lead 导程	1	2	5	6	8	9	10	12	15	18	20	24	30	36
4	D109	D109												
6	D109	D105 D106 D109		D105 D106		D105 D106 D109				D109				
8	D109	D105 D106 D109	D105 D106		D105 D106			D105 D106 D109				D109		
10		D105 D106 D109		D105 D106			D105 D106		D105 D106 D109		D105 D106		D109	
12		D105 D106 D109		D105 D106			D105 D106			D109	D105 D106		D105 D106	D109

注1）表中的数字表示产品刊载页码，D105和D109为齿侧间隙型的刊载页码，D106为无齿侧间隙型的刊载页码。
Note1）The numbers in each cell show pages in the catalogue. D105 and D109 are for back lash type, D106 is for backlash free type.

●规格

精度等级和间隙

KSS树脂导程丝杠的精度等级以滚珠丝杠的JIS Ct10为准，代表移动量误差按下式计算。
此外，轴向间隙为0.05～0.10mm（无齿侧间隙型除外）。

●Specifications

Accuracy grade and Axial play

Accuracy grade of KSS Resin Lead Screws is based on JIS Ct10. Actual mean travel deviation is calculated by following formula.
Axial play is 0.05 to 0.10mm (except Backlash free type).

代表移动量误差 / Actual mean travel deviation　ep：$ep = \pm \frac{ru}{300} \times 0.21$ (mm)

ru：螺纹部有效长度 / Effective Screw thread length (mm)

材　质　Material

Parts / 零　件	Material / 材质
Shaft / 丝杠轴	SUS304 or SUS303
Nut / 螺母	MC nylon（MC703HL）Nippon POLYPENCO LTD MC尼龙（MC703HL）日本POLYPENCO公司

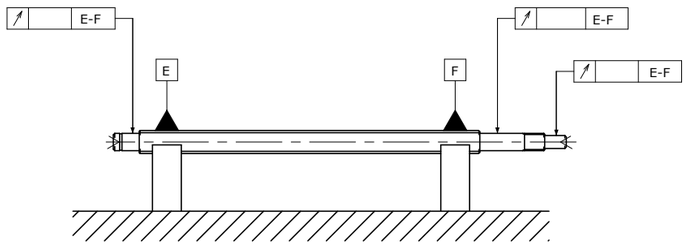
注1）适用于特殊环境的螺母材质请参照p-D104。
注2）需要上述以外的材质时，请垂询本公司。
Note 1) Please refer to p-D104 for Nut material suitable for special environment.
Note 2) If material other than the table is requested, please inquire KSS

丝杠轴安装精度

KSS树脂导程丝杠的丝杠轴安装部精度按下图进行标示、管理。
各部位的跳动精度标准以滚珠丝杠JIS Ct10为准。

Description of Run-out and location tolerance

Description of Run-out and location tolerance for KSS Resin Lead Screws is as follows.
Each part of Run-out tolerance is based on JIS Ct10 of Ball Screws.



●种类

标准库存品

MRH-A、B系列：KSS产品

MRH标准库存品的螺母采用滑动性能良好的聚酰胺类树脂材质。该材质含有润滑剂，即使不加油也可使用。此外，其他材质也可作为选购件提供。

●Type

Standard products in stock

MRH-A,B series：KSS products

A Polyamide type Resin with good sliding properties is employed in the standard MRH Nut material. And because a lubricating agent is incorporated in the material, it can be used without oiling. Additionally, other Nut materials are available as options.

接单生产

MRH-BP2系列：KSS产品

采用滑动性能良好的聚酰胺类树脂，可通过双螺母＋中间弹簧组成无齿侧间隙构造。

Customized products

MRH-BP2 series：KSS products

A Polyamide type Resin with good sliding properties is employed.
Backlash free construction made possible with Double Nuts and a Spring in between.

接单生产

R-MSS(Y)系列：
NTN精密树脂产品

具有耐腐蚀性、耐热性等性能，适用于多种环境，同时还备有高导程型（轴径的3倍）。

Customized products

R-MSS(Y) series：NTN Engineering plastics Corp. products

Corresponding to a wide range of environment and having corrosion resistance, heat resistance. High lead types (3 times as dia.) are available.

●技术数据

螺纹槽形状

螺纹槽采用拱弧形状。与本公司滚珠丝杠所使用的槽形状基本相同。

机械效率

KSS树脂导程丝杠的机械效率η(%)可按下式计算。根据实测值统计得出的机械效率期待值为20～50%。一般情况下，导程越大，机械效率就越大。请以此为参考标准。

●Technical Data

Thread groove profile

The thread grooves are of a gothic arc design. This is basically the same as those used in our Ball Screws.

Mechanical efficiency

Mechanical efficiency of KSS Resin Lead Screws η (%) can be calculated by the following formula. The expected "Mechanical efficiency" calculated from measurements is 20%-50%.
Generally, as the Lead increases, "Mechanical efficiency" tends to be high. Please use this number as a reference.

$$\eta = \frac{Fa \times r}{T \times 2\pi} \times 100 \quad (\%)$$

Fa：轴向负载 / Axial load (N)
R：丝杠导程 / Screw Lead (m)
T ：旋转扭矩 / Rotational torque (Nm)

使用界限FV值和耐久数据

・使用界限FV值

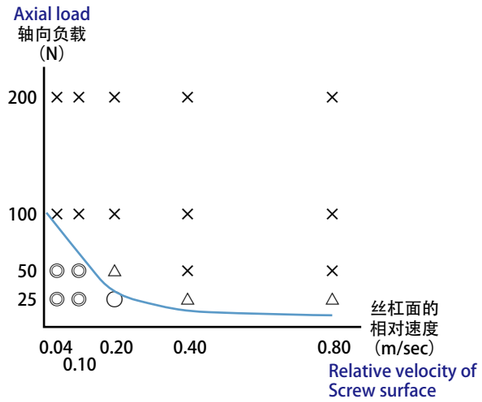
KSS树脂导程丝杠将轴向负载(F)与丝杠面相对速度(V)的乘积定义为FV值，是判断KSS树脂导程丝杠是否可用的大致标准。图D-11表示以MRH(材质:MC703HL)为螺母材料时，可进行无润滑运转的使用界限FV值。使用时，请用作参考。此外，可通过涂抹润滑剂改善运行条件。

FV value limits on use and endurance data

・FV value limits on use

For KSS Resin Lead Screws, the product of Axial Load and relative velocity of Screw surface is defined as FV, and this definition is reference to check if it is usable or not. Fig. D-11 is maximum FV which can be operated without lubricants in case of using Nut material MRH (Material：MC703HL).
Please use it as one of the reference. It is expected to improve operational condition by applying lubricants.

图D-11：使用界限FV值
Fig. D-11：FV value limits



实验型号 / Model：MRH0805　　润　　滑 / Lubricant：无 / None
运行评价 / Evaluation：
◎可长时间保持稳定的运行状态。
Stable operational conditions were maintained for the long term.
○运行状态良好，但螺母处有磨损。
Operation were good, but some wears were seen on the Nuts.
△较短时间内即出现运行困难。
Operations became difficult in a relatively short time.
×很快出现运行困难。
Operations became difficult in the short time.

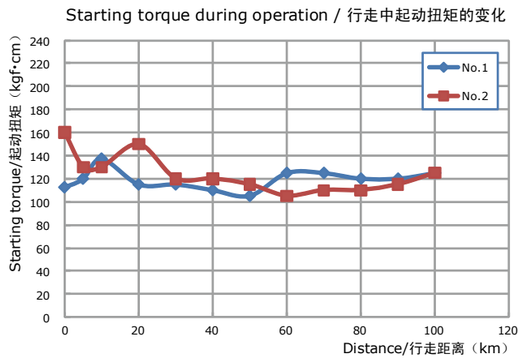
结果显示，FV＜5(N•m/s)时运行较为稳定。
FV＞10 (N•m/s)时，难以稳定运行。
轴向负载的上限设定应比相对速度更为严格。

In case of FV＜5(N• m/s), stable operations were maintained.
Operations under FV＞10 (N• m/s), maintaining stability was difficult.
Axial Load should be treated more carefully as to upper limits rather than relative speed.

・预压品(BP2型)的耐久试验数据

Endurance test data of Preloaded products (BP2 type)

型　　号 / Model　：φ10mm、导程 / Lead ＝ 6mm
负　　载 / Load　：空载 / None
速　　度 / Speed　：1000rpm
行　　程 / Travel　：400mm(往复 / 2-way)
润　　滑 / Lubricant　：无 / None
耐久结果 / Result　：行走100km后无异常
After running 100km, operation were good.
起动扭矩变化 / Starting Torque monitor：参照右表
see Diagram right



●特殊品

KSS树脂导程丝杠除标准材质MC尼龙(MC703HL)外，也可采用下述螺母材质。
螺纹槽也可采用梯形螺纹、ACME螺纹等特殊形状，详情请垂询本公司。
大批量订购时，选择以注塑为前提的材料可降低螺母成本。

●Special products

Regarding KSS Resin Lead Screws, the standard material of Nut is MC nylon (MC703HL), but we also provide with the following Nut materials.
Please inquire KSS if Trapezoidal thread and ACME thread are needed.
In case of bulk order, it is possible to save the price to select material which is manufactured by injection molding.

表D-12：各种产品性能比较表　Table D-12：Product performance comparison

Product 产品名称	MRH	MRS	MRE	MRZ
Classification 产品类别	Standard 标准库存品	Customized 接单生产		
Operating environment 使用环境	Standard environment 常规环境			Special environment 特殊环境
Nut appearnce 螺母外观				
Material 材质	Polyamide type 聚酰胺类			Polyether ether ketone type 聚醚醚酮类
Features 特点	Balanced performance 平衡特性			Flame resistance, heat/water resistance 阻燃性　耐热水性
Other 其他	Good sliding properties 滑动特性良好	—	Good electrical conductivity 导电性良好	Food hygiene, chemical resistance 食品卫生性　耐热性
Mechanical strength 机械强度	○	○	○	◎
Heat resistance 耐热性	○	○	○	◎
Wear resistance 耐磨损性	◎	◎	◎	○
Chemical resistance 耐药品性	○	○	○	◎
Machinability 机械加工性	◎	◎	◎	○

◎ 优异 / superior
○ 可用 / usable
△ 略差 / relatively inferior
▲ 较差 / Inferior

图D-13：各种材料评价　Fig. D-13：Evaluation each material