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传动领域的“智”“惠”“加”
控制系统的指挥家

Expert but with Excellent cost performance in Smart
transmission and Precise control system.



**MGR SERIES MINIATURE
LINEAR GUIDE RAIL**

MGR系列微型线性滑轨

上海狄兹精密机械有限公司
Shanghai Dizi Precision Machinery Co.,Ltd.

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3D选型软件
3D Selection
Software

公司简介 About Us

上海狄兹精密机械有限公司成立于2008年, 已通过ISO9001质量管理体系认证, 是上海市高新技术企业, 至今已获得57项专利及2项软件著作权。

本公司在上海拥有超过1.8万平方米的实体生产基地, 拥有员工200余人。

公司主营产品为微型丝杆、直线滑台模组、电缸、电机丝杆直连型、ZR轴执行器、变距滑台、电动夹爪、直线电机模组等传动产品。

2022年我司年销售额已超2亿, 主要客户涉及行业包括:3C、电子、5G半导体、生物医疗、激光焊接、检测设备、锂电新能源设备及各类产线集成, 是米思米及怡合达的合格供应商。

上海狄兹精密机械有限公司全体员工将以朝着成为“世界第一的小型工业机械手制造商”这一目标不断前进。

Shanghai Dizi Precision Machinery Co., Ltd. was established in August 2008, has obtained ISO9001 quality system certification and is a high-tech enterprise in Shanghai. So far, 57 patents and 2 software copyrights have been obtained. Our company has production factories of over 18,000 square meters in Shanghai, with more than 200 employees.

Main products: miniature ball screw, linear slide actuator, electric cylinder, external linear actuator, ZR actuator, variable pitch slide, electric gripper, linear motor actuator and other transmission products.

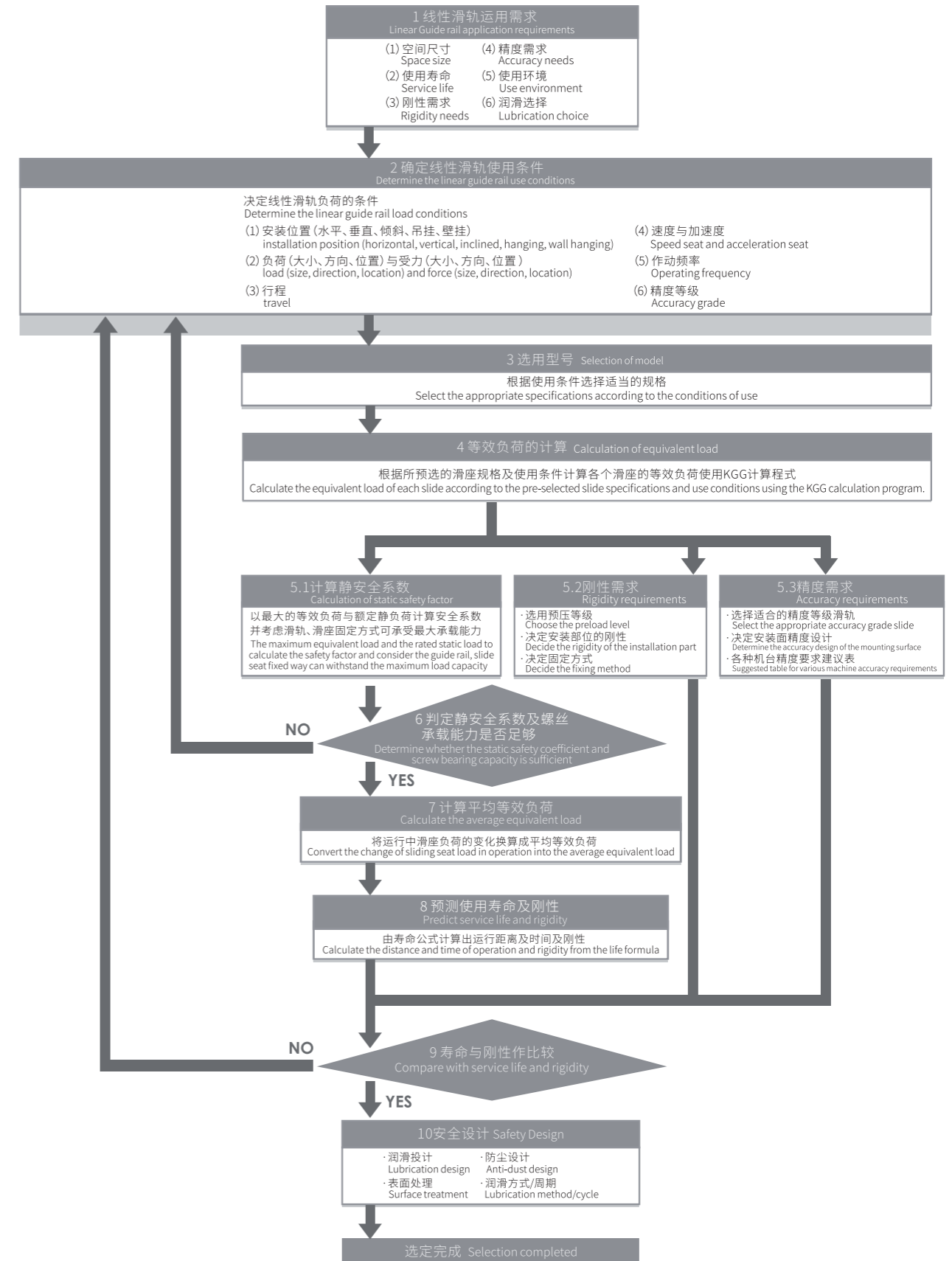
In 2022, our company's annual sales have exceed 200 million, and the industries involved mainly include: 3C, electronics, 5G semiconductor, biomedical, laser welding, testing equipment, lithium batteries, new energy equipment and production line integration, and is the qualified supplier of Misumi and Yiheda.

All employees of Shanghai Dizi Precision Machinery Co., Ltd. will continue to move towards the target of becoming "the world's No. 1 manufacturer of small industrial manipulators".

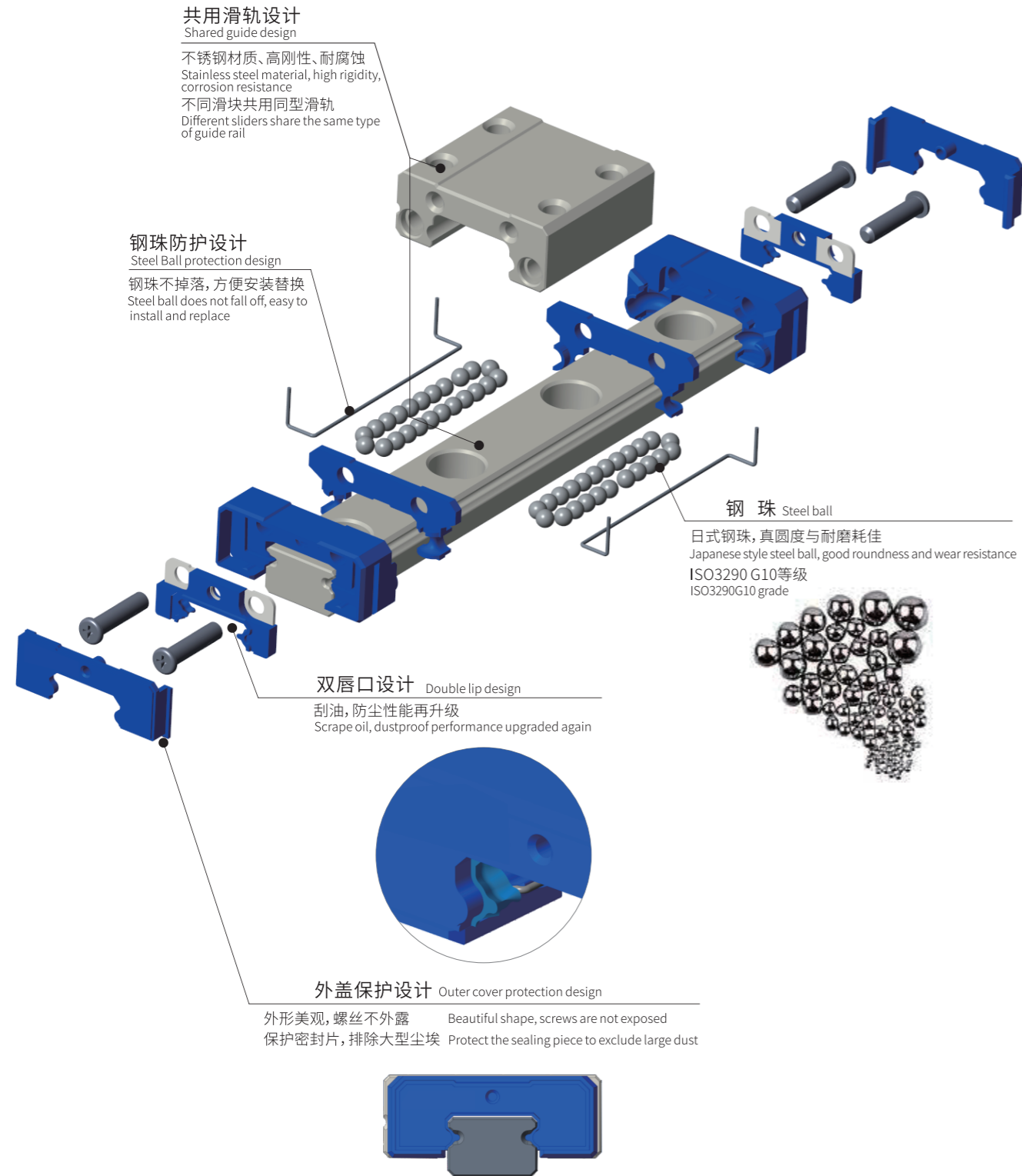
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尺寸规格选用流程表 Specification selection flow chart



1. 产品介绍 Product introduction

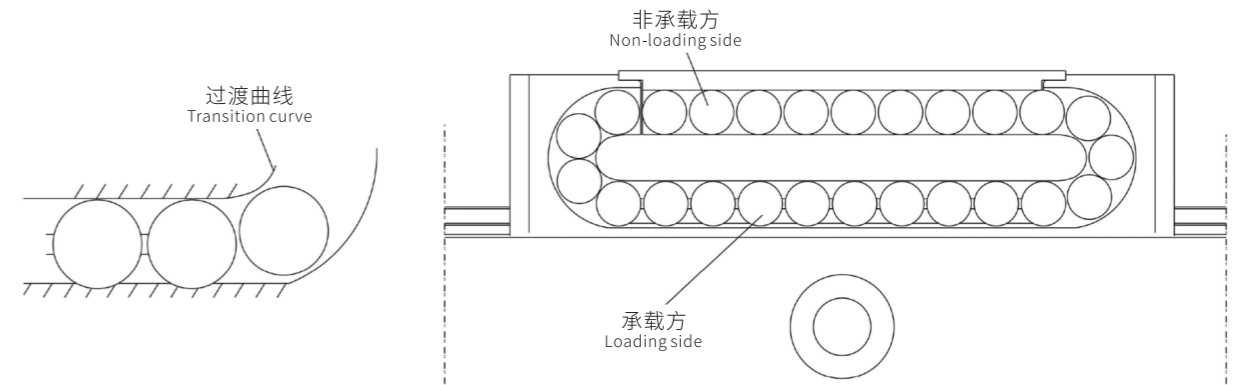


1.1 产品优点 Product advantages

- 滚动直线导轨是在滑块与导轨之间放入适当的钢球, 使滑块与导轨之间的滑动摩擦变为滚动摩擦, 大大降低二者之间的运动摩擦阻力, 从而获得:
 - 1、动、静摩擦力之差很小, 随动性极好, 即驱动信号与机械动作之后的时间间隔极短, 有益于提高数控系统的响应速度和灵敏度;
 - 2、驱动功率大幅度下降, 只相当于普通机械的十分之一;
 - 3、与滑动导轨相比, 摩擦阻力可下降约40倍;
 - a) 适应高速直线运动, 瞬时速度比滑动导轨提高约10倍;
 - b) 能实现高定位精度和重复定位精度。
- 成对使用导轨副时, 具有“误差均化效应”, 从而降低基础件(导轨安装面)的加工精度要求, 降低基础的机械制造成本与难度
- 导轨采用表面硬化处理, 使导轨具有良好的可教性; 心部保持良好的机械性能。
- 过渡曲线设计
根据公司本身的经验积累及对国内外资料的参考, 在滑块滚道两端设置过渡区, 有效降低了钢球通过时产生的高频振动, 因而提高了导轨副的运动精度。

-Rolling linear guide is placed between the slider and the guide into the appropriate steel ball, so that the sliding friction between the slider and the guide into rolling friction, greatly reducing the frictional resistance of the movement between the two, so as to obtain.

- 1, The difference between dynamic and static friction is very small, with the very good dynamic, that is, the drive signal and mechanical action after the time interval is very short, which is beneficial to improve the response speed and sensitivity of the CNC system.
 - 2, The drive power is greatly reduced, only equivalent to one tenth of the ordinary machinery;
 - 3, Compared with the sliding guide, the friction resistance can be reduced by about 40 times.
 - a) Adapt to high-speed linear motion, instantaneous speed than sliding guide about 10 times higher;
 - b) Achieve high positioning accuracy and repeatability.
- "When using guide rail in pairs, it has "deviation equalization effect", thus reducing the processing accuracy requirements of the base parts (guideway mounting surface) and reducing the cost and difficulty of the base machine manufacturing.
- The guide rail adopts surface hardening treatment, so that the guide rail has good teachability; the core part keeps good mechanical properties.
- Transition curve design
According to the company's own experience and reference to domestic and foreign information, the transition zone is set at both ends of the slide raceway, which effectively reduces the high frequency vibration generated when the steel ball passes, thus improving the accuracy of the movement of the guide sub.



2.技术资料 Technical data

2.1精度 Accuracy

精度等级 Accuracy grade

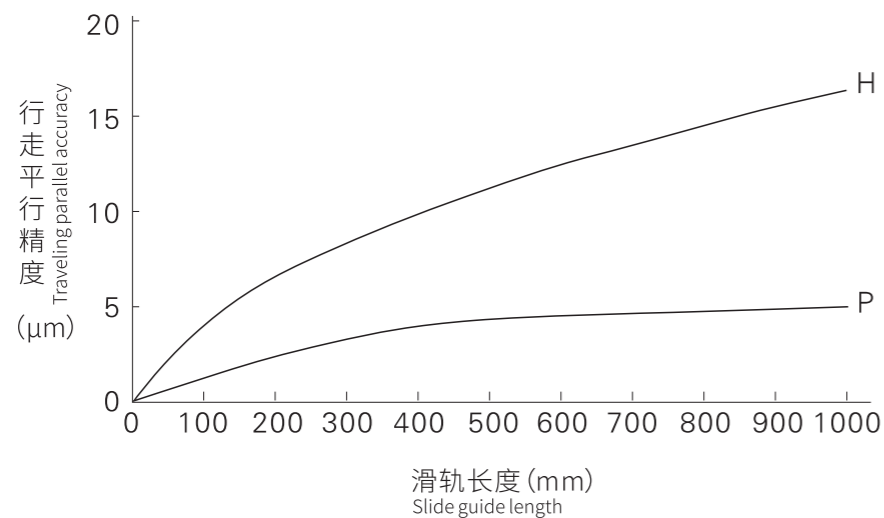
MGR微型滚珠线性滑轨系列提供H/P 2种精度等级供设计选用。

MGR miniature ball bearing linear guide rail series provide H/P 2 kinds of Accuracy grade for design options.

精度等级 Accuracy grade	精度表 Accuracy table	
	高级 High grade (H)	精密级 Accuracy grade (P)
高度H的容许尺寸误差 Allowable dimensional deviation of height H	±0.02	±0.01
宽度N的容许尺寸误差 Allowable dimensional deviation of width N	±0.025	±0.015
成对高度H的相互误差 Mutual deviation of paired heights H	0.015	0.007
成对宽度N的相互误差(基准轴) Mutual deviation of paired width N (reference axis)	0.02	0.01
滑块左右平行度误差 Parallelism deviation of slider left and right	0.015	0.01

滑块相对于滑轨基准面的行走平行精度

Traveling parallelism accuracy of slider relative to the reference surface of slide rail



2.2预压 Preload

预压等级 Preload grade

MGR系列微型线性滑轨提供无预压(A)、轻预压(B)、中预压(C)共三种不同预压等级。适当的预压可提高微型线性滑轨于刚性、精度、抗扭矩等能力的表现,但不当的预压对运转寿命、运行阻力方面则有不良影响。

MGR series miniature linear slide provides no preload (A), light preload (B), medium preload (C) a total of three different preload level. Proper preload can improve the miniature linear slide in rigidity, accuracy, resistance to torque and other capabilities of performance, but improper preload on the operating life, running resistance has a negative impact.

预压等级 Preload level	代码 Code	径向间隙 Radial clearance					应用场合 Pre-pressure level
		5	7	9	12	15	
无预压 No preload	A	-1~+2	-2~+2	-2~+2	-2~+3	-2~+3	运行顺畅 Smooth operation
轻预压 Light preload	B	-3~-1	-4~-2	-5~-2	-6~-2	-7~-2	高精度 High precision
中预压 Medium preload	C	-6~-2	-7~-3	-8~-4	-9~-5	-10~-6	高刚性 High rigidity

2.3润滑 Lubrication

润滑的功能 The function of lubrication

当线性滑轨在良好的润滑状态下,承受负荷的滚动体与轨道面于接触点之间将因润滑油产生一微米厚度的油膜而得以分开,因此良好的润滑可以:

When the linear slide rail in good lubrication state, bearing the load of the rolling body and the track surface in the contact point will be separated by the lubricating oil to produce a micron thickness of the oil film, so good lubrication can.

- 降低摩擦力 Reduce friction
- 防止氧化现象 Prevent oxidation
- 使磨损减至最少 Minimize wear and tear
- 散发热量并提高运转寿命至材料疲乏 Dissipate heat and increase operating life to material fatigue

润滑方式及注意事项 Lubrication method and precautions

- 滑座与滑轨于第一次使用必须先添加润滑油加以保护,并避免接触任何液态或固态污染物。
Slide seat and slide rail in the first use must first add lubricant to protect, and avoid contact with any liquid or solid contaminants.
- 在加注润滑油时,滑座必须以一边前后来回运行,一边加油方式进行。
In the filling of lubricant, slide must be back and forth to run, while oiling the way
- 一般微型线性滑轨润滑方式可用手或自动润滑方式直接对滑道做润滑工作。
General miniature linear slide lubrication can be hand or automatic lubrication method directly to the slide to do lubrication work."
- KGG滑座于两端尚有密闭式润滑注油孔设计,可经由钢珠循环时将润滑油带到轨道面。
KGG slide seat in both ends still have closed lubrication oil injection hole design, can through the steel ball circulation when the lubricant to the track surface
- 滑轨表面必须经常保持目视时有油膜附着。
Slide rail surface must often maintain visual inspection when there is oil film adhesion.
- 再润滑工作必须于润滑油因干渴现象而导致变色前完成。
Re-lubrication work must be completed before the discoloration of the lubricant due to dry thirst phenomenon.
- 用户若有使用于无尘室的设计应用及耐酸碱要求时,须事先提出。
Users have used in clean room design applications and acid and alkali resistance requirements, must be proposed in advance.
- 当滑轨安装方式不同于一般水平固定方向时,使用油润滑必须仔细考量使用条件。
When the guide rail installation method is different from the general horizontal fixed direction, the use of oil lubrication must be carefully considered using conditions
- 如果行程小于滑座钢体的2倍或大于滑座钢体的15倍,则必须缩短其润滑间隔周期。
If the travel is less than 2 times of the slide steel body or more than 15 times of the slide steel body, it is necessary to shorten its lubrication interval cycle

脂润滑 Grease lubrication

当使用润滑脂做润滑时, 建议使用以锂皂基脂为基础油, 黏度则介于ISO VG32-100间的润滑脂。
When using grease for lubrication, it is recommended to use lithium soap-based grease with viscosity between ISOVG32 and 100.

油润滑 Oil lubrication

有关润滑油选用可依喜好, 选择以DIN51517的CPL或CGLP或者依DIN51524为标准的HLP; 工作温度介于0°C~+70°C之间; 黏度则介于ISO VG32-100之间。

(于低温度应用场合建议使用ISO VG10)

Depending on your preference, you can choose CPL or CGLP according to DIN51517 or HLP according to DIN51524; the working temperature is between 0°C and +70°C; the viscosity is between ISOVG32-100.

(ISO VG10 is recommended for low temperature applications)

润滑量 Lubrication amount		
规格 Specification	初期润滑量 Initial lubrication amount	润滑剂补充量 Lubricant replenishment
MGR5C	0.02	0.01
MGR5H	0.03	0.015
MGR7C	0.1	0.05
MGR7H	0.13	0.07
MGR9C	0.2	0.1
MGR9H	0.28	0.14
MGR12C	0.34	0.17
MGR12H	0.45	0.23
MGR15C	0.72	0.36
MGR15H	1.0	0.50

再润滑须知 Re-lubrication instructions

- 再润滑动作应于轨道受污染前或润滑剂变色之前完成。
Relubrication should be done before the track is contaminated or before the lubricant becomes discolored.
- 润滑的量约为初期润滑量的1/2, 若使用润滑时, 须加至润滑油流出为止。
The amount of lubrication should be about 1/2 of the initial lubrication amount, and if lubrication is used, it should be added until the lubricant flows out.
- 再润滑动作须于滑座尚维持运转温度时进行较佳。在加注润滑剂时, 滑座必须前后来回运行, 使润滑剂均匀分配。
Re-lubrication action should be better when the slide still maintain the operating temperature. When filling the lubricant, the slide must run back and forth, so that the lubricant is evenly distributed.
- 若行程小于滑座钢体的2倍或大于滑座钢体的15倍, 再润滑间隔必须缩短。
If the stroke is less than 2 times the steel body of the slide seat or more than 15 times the steel body of the slide seat, relubrication interval must be shortened.

再润滑间隔 Relubrication interval

- 再润滑间隔的长短取决于工作环境、荷重及受力方式。再润滑间隔的长短因使用者而异, 安全的再润滑间隔只有经过仔细的观察才能得知。
The length of the relubrication interval depends on the working environment, the load and the way the force is applied. The length of the relubrication interval varies from user to user, and the safe relubrication interval can be known only after careful observation.
- 再润滑的间隔不宜超过1年。
The interval of relubrication should not exceed 1 year.
- 水性冷却滑剂不可用于轨道及滑座上。
Water-based cooling lubricants should not be used on tracks and slides
- 润滑可利用特殊注射针筒由滑座两端的注油孔注入。注射针筒可向本公司订购。
Lubrication can be done with special syringes through the oiling holes at both ends of the slide. Injection syringes can be ordered from our company

再润滑注意事项 Re-lubrication precautions

- 润滑量约第一次润滑量的1/2。
Lubricate about 1/2 the amount of the first lubrication.
- 于润滑周期期间分次完成再润滑工作, 比一次完成效果更佳。
It is more effective to do the relubrication work in stages during the lubrication cycle than in one go.
- 必须在滑座尚维持运转温度时加油。
Lubrication must be done while the slide is still at operating temperature.
- 最小行程建议须为滑座钢体长度的4倍。
The minimum travel is recommended to be 4 times the length of the steel body of the slide

2.4 负荷能力及寿命 Load capacity and life

基本静负荷能力 C_0 Basic static load capacity C_0

为沿作用力方向下的静负荷; 在此静负荷下, 于滚珠与轨道接触面中心点所产生最大计算应力:

其值于 曲率半径比 ≤ 0.52 为4200MPa

曲率半径比 ≥ 0.6 为4600MPa

It is the static load along the direction of the force; under this static load, the maximum calculated stress generated at the center of the contact surface of the ball and the track:

The values are radius of curvature ratio ≤ 0.52 that is 4200MPa

radius of curvature ratio ≥ 0.6 that is 4600MPa

静负荷安全系数计算 Static load safety factor calculation

$S_0 = C_0 / P_0$	(2)	运转情形 Operating conditions	S_0
$S_0 = M_0 / M$	(3)	一般运转 General operation	1~1.3
$P_0 = F_{max}$	(4)	震动或撞击 Vibration or impact	2~3
$M_0 = M_{max}$	(5)	高精度及高平稳运行 High precision and high smooth operation	≥ 3

等效静负荷 P_0 及基本静扭矩 M_0 Equivalent static load P_0 and basic static torque M_0

微型线性滑轨系列的静负荷能力应用须考量:

Static load capacity of miniature linear rail series must be considered for application.

- 微型线性滑轨的静负荷
Static load of miniature linear rail
- 螺丝固定的容许负荷
Tolerable load for screw fixing
- 相连机构的容许负荷
Tolerable load of the coupling mechanism
- 应用场合所需静负荷安全系数
Static load safety factor required for the application

等效静负荷及静扭矩为最大负荷及扭矩值, 参考公式(4)、(5)。

Equivalent static load and static torque are the maximum load and torque values, refer to equation (4) and (5)

静负荷安全系数 S_0 Static load safety factor

为在线性轴承可承受永久变形范围内且保证不会影响线性滑轨系统的精度及平稳运行。静负荷安全系数 S_0 算如公式(2)、(3)。

For the linear bearing can withstand the permanent deformation range and ensure that will not affect the accuracy and smooth operation of the linear slide system.

- S_0 静负荷安全系数
Static load safety factor
- C_0 作用力方向之基本负荷 N
Basic load in the direction of action
- P_0 作用力方向之等效静负荷 N
Equivalent static load in the direction of action
- M_0 作用力方向之基本静扭矩 Nm
Basic static torque in the direction of action
- M 作用力方向之等效静扭矩 Nm
Equivalent static torque in the direction of action

基本动负荷能力 C_{100B} Basic dynamic load capacity

为大小和方向不变的径向负荷;当线性轴承受此负荷下,其额定寿命理论上可达到100公里的行走距离。(以上根据ISO 14728-1)

以额定寿命行走50km距离做为标准时的基本额定负荷能力 C_{50B} ,依据ISO 14728-1将会比以额定寿命当行走100km距离为标准的 C_{100B} 高出20%以上。二种定义的基本额定负荷能力换算比较,请参照公式(6)、(7)。

It is a radial load of constant size and direction; when the linear bearing is subjected to this load, its rated life can theoretically reach 100 kilometers of travel distance. (Above according to ISO14728-1) The basic rated load capacity of C_{50B} with a rated life of 50km travel distance as the standard, according to ISO14728-1, will be more than 20% higher than C_{100B} with a rated life of 100km travel distance as the standard.

寿命计算 Life calculation

$C_{50B} = 1.26 \cdot C_{100B}$ — (6)	L = 行走100km的额定寿命 (m) Rated life for 100km travel
$C_{100B} = 0.79 \cdot C_{50B}$ — (7)	L_h = 额定寿命 (h) Rated life
$L = \left(\frac{C_{100B}}{P}\right)^3 \cdot 10^5$ — (8)	C_{100B} = 额定动负荷 (N) Rated dynamic load
$L_h = \frac{L}{2 \cdot s \cdot n \cdot 60} = \frac{L}{v_m \cdot 60}$ — (9)	P = 等效负荷 (N) Equivalent load
	s = 单行程 (m) Single travel
	n = 往复行程频率 (min^{-1}) Reciprocating travel frequency
	v_m = 平均速度 (m/min) Average speed

额定寿命 L Rated life L

为在现行技术所使用的轴承钢材,正常的制造品质及正常的运转条件下,单一或一批足量且相同的线性轴承所达到90%存活率的计算寿命。(以上根据ISO 14728-1)

For the current technology used bearing steel, normal manufacturing quality and normal operating conditions, a single or a batch of sufficient and the same linear bearing to achieve 90% survival rate of the calculated life. (The above according to ISO14728-1)

额定寿命的计算 Calculation of rated life

假设等效负荷及平均速度是不变情况下的计算公式如(8)、(9)。

Assuming that the equivalent load and the average speed are constant cases are calculated as in (8) and (9).

等效负荷及速度 Equivalent load and speed

当负荷及速度并非常数时,每一实际负荷和速度都必须加以考量,且对寿命都会产生影响。

When the load and speed are not constant, each actual load and speed must be taken into account and will have an effect on the life.

等效负荷 Equivalent load

当只有负荷产生变动时,等效负荷依公式(10)计算。

When only the load varies, the equivalent load is calculated according to equation (10)

等效速度 Equivalent speed

当速度产生变动时,等效速度依公式(11)计算。当负荷及速度皆产生变动时,等效负荷依公式(12)计算。

When the speed changes, the equivalent speed is calculated according to Equation (11). When both load and speed change, the equivalent load is calculated according to Equation (12).

等效负荷及速度计算 Equivalent load and speed calculation.

$P = 3 \sqrt{\frac{q_1 \cdot F_1^3 + q_2 \cdot F_2^3 + \dots + q_n \cdot F_n^3}{100}}$ — (10)	P = 等效负荷 (N) Equivalent load
$\bar{v} = \frac{q_1 \cdot v_1 + q_2 \cdot v_2 + \dots + q_n \cdot v_n}{100}$ — (11)	q = 每个分段行走距离百分比 (%) Percentage of distance traveled by each segment
$P = 3 \sqrt{\frac{q_1 \cdot v_1 \cdot F_1^3 + q_2 \cdot v_2 \cdot F_2^3 + \dots + q_n \cdot v_n \cdot F_n^3}{100 \bar{v}}}$ — (12)	F_1 = 每个分段的负荷 (N) Load of each segment
$P = F_x + F_y $ — (13)	\bar{v} = 等效速度 (m/min) Equivalent speed
$P = F + M \cdot \frac{C_0}{M_0}$ — (14)	v = 每个分段速度 (m/min) Speed per segment
	F = 施于线性滑轨的负荷 N Load applied to linear slide
	F_y = 垂直方向分力 N Vertical force
	F_x = 水平方向分力 N Horizontal force
	C_0 = 作用力方向基本静负荷 N Basic static load in the direction of action
	M = 静扭矩 Nm Static torque
	M_0 = 作用力方向基本静扭矩 Nm Basic static torque in the direction of action

合成等效负荷 Synthetic equivalent load

当线性滑轨承受任意角度负荷,作用力方向与水平或垂直方向不一致时,其等效负荷之计算公式如(13)。

When the linear slide is subjected to any angle load, the direction of force and horizontal or vertical direction is not the same, the equivalent load calculation formula as (13).

有扭矩情况时 When there is torque case

当线性滑轨同时承受负荷及扭矩时,等效负荷的计算公式如(4)。

When the linear guide rail bear the load and torque at the same time, the equivalent load calculation formula such as (4).

根据ISO14728-1说明等效负荷在 $P \leq 0.5CP \leq C_0$ 时,可以得到可靠的寿命计算值。

According to ISO14728-1 Ruming equivalent load at $PS0.5CPSC$ can get a reliable life calculation value.

滑座单独承受扭矩时 When the sliding seat is subjected to torque alone

在一结构设计下并承受各种负荷时,若其中滑座必须单独承受 M_p, M_y 方向的扭矩时,其滑座在顺畅运行下可承受的扭矩为静扭矩的0.3~0.1倍,其中预压越大承受值越大,反之则越小。若有上述设计问题时,请洽询本公司技术部。

In a structure designed and subjected to various loads, if the slide must separately withstand the M_p, M_y direction of the torque, the slide can withstand the torque in the smooth operation of the static torque of 0.3 to 0.1 times, of which the greater the preload withstand the greater the value, and vice versa, the smaller. If you have any questions about the above design, please contact our technical department.

3.保护措施 Protection measures

防尘措施 Anti-dust measures

当滑块以速度V运动时,在滑块运动方向的后方将形成负压区域,这样将吸入尘埃。吸入的尘埃积聚在导轨的固定螺钉内及导轨面上使滚动直线导轨的使用寿命急剧下降。

为了保证其使用寿命,必须采取适当的防尘措施。

When the slider to speed V movement, in the back of the slider movement direction will form a negative pressure area, so will inhale dust. Inhaled dust accumulates in the guide fixed screw and guide surface to make the service life of rolling linear guide drop sharply. In order to ensure its service life, must take appropriate dust control measures.

- 用塑料螺孔帽将导轨安装孔堵上,使安装孔面与导轨顶面成同一平面,可防止杂物混入滑块内。螺孔帽安装方法如图所示。通过一个扁平夹具,用塑料锤一点点地将螺孔帽敲入安装孔,直到与导轨顶面成一平面为止。

With plastic screw hole cap will guide installation hole plugging, so that the installation hole surface and the top surface of the guide into the same plane, can prevent debris mixed into the slider. Screw hole cap installation method as shown in the figure. Through a flat fixture, use a plastic hammer to knock the screw hole cap into the mounting hole little by little until it becomes a plane with the top surface of the rail.

- 防护带板:防护带板主要用于封堵导轨的安装孔,使导轨表面光滑平整,不能积聚异物,不仅提高密封效果,且美观实用。

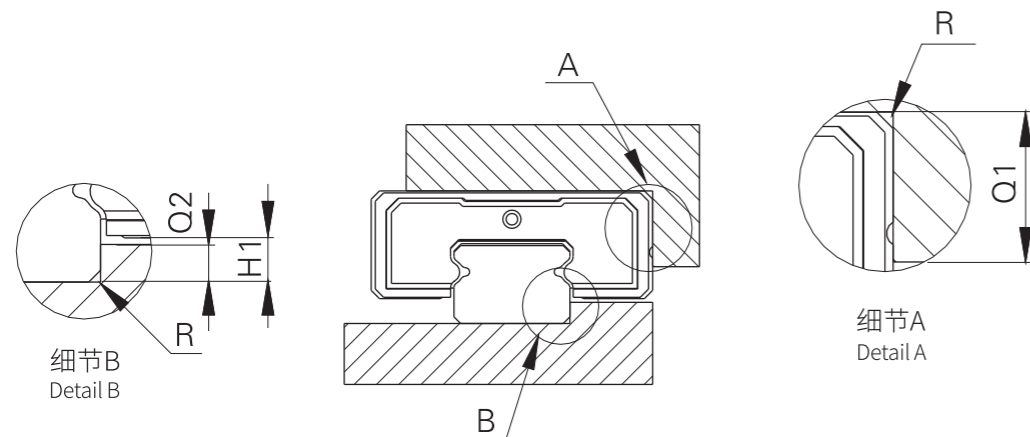
Protective tape plate: Protective tape plate is mainly used to block the installation hole of the guide, so that the surface of the guide is smooth and flat, can not accumulate foreign matter, not only improve the sealing effect and beautiful and practical.

4.安装说明 Installation instructions

安装面肩部高度及倒角 Installation surface shoulder height and chamfering

为确保线轨与组配件精确结合,圆角请勿超过尺寸建议值,规格尺寸与肩高请参考下表。

In order to ensure the precise combination of wire rail and group fittings, rounded corners please do not exceed the size of the recommended value, specifications and shoulder height, please refer to the following table.



尺寸表 Size table

规格 Specification	Q1	Q2	H1	R(Max)
MGR5	1.4	1.2	1.5	0.2
MGR7	5.5	1.2	1.5	0.2
MGR9	7	1.7	2	0.3
MGR12	9	2.7	3	0.4
MGR15	10	3.2	3.5	0.5

滑轨螺丝建议安装力矩 Sliding rail screw recommended installation torque

安装滑轨时,是否锁紧贴平基准面对线性滑轨精度影响较大,因此为达到每颗螺丝都锁紧的目的,建议使用下表所列扭力值锁紧装配螺丝。

When installing the slide rail, whether to lock the flat reference surface of the linear slide rail accuracy is greater, so in order to achieve the purpose of each screw are locked, it is recommended to use the torque value listed in the table below to lock the assembly screws.

规格 Specification	螺丝规格 Screw specification	螺丝安装力矩 (N.cm) Screw installation torque (N.cm)		
		铁件材质 Iron material	铸件材质 Casting material	铝合金材质 Aluminum material
MGR5	M2	58.8	39.2	29.4
MGR7				
MGR9	M3	196	127	98
MGR12				
MGR15				

安装基准 Installation reference

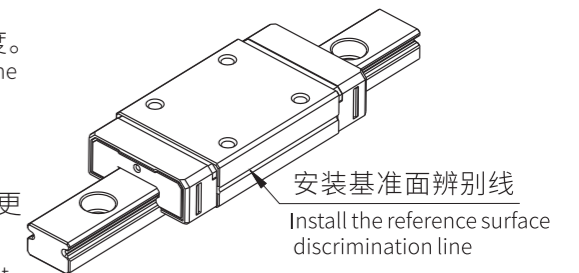
安装基准面必须经过研磨或精铣加工,以确保线轨行走精度。The installation datum surface must be ground or finely milled to ensure the accuracy of the line rail travel.

滑轨、滑块:两侧均可作为安装基准面

Slide rail, slider: both sides can be used as the installation datum

单轨使用两个以上滑块时,建议基准面安装于同侧,可达到更好的行走精度。

When using more than two sliders on a single track, it is recommended that the datum be installed on the same side to achieve better walking accuracy.



滑轨拼接 Guide rail splicing

滑轨拼接安装时必须依照拼接标识顺序安装,以确保线性滑轨精度。拼接标识在拼接端的上表面,请将相同拼接标识的两端接在一起。

Guide rail splicing installation must be installed in accordance with the splicing logo order to ensure the accuracy of the linear slide rail. Splicing mark in the splicing end of the upper surface, please splice the same splicing mark of the two ends together

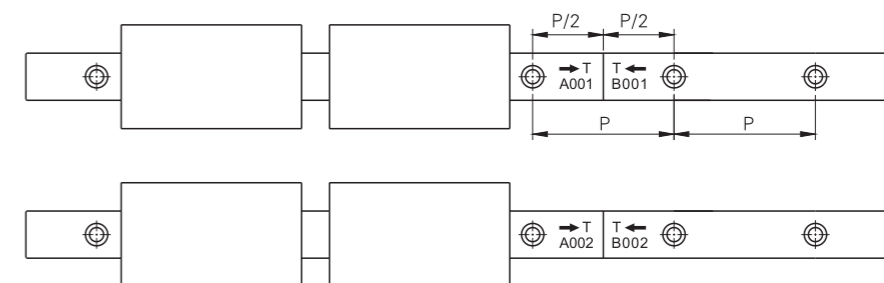


安装时请注意流水号,A001、B001为一组,A002、B002为一组,以此类推。

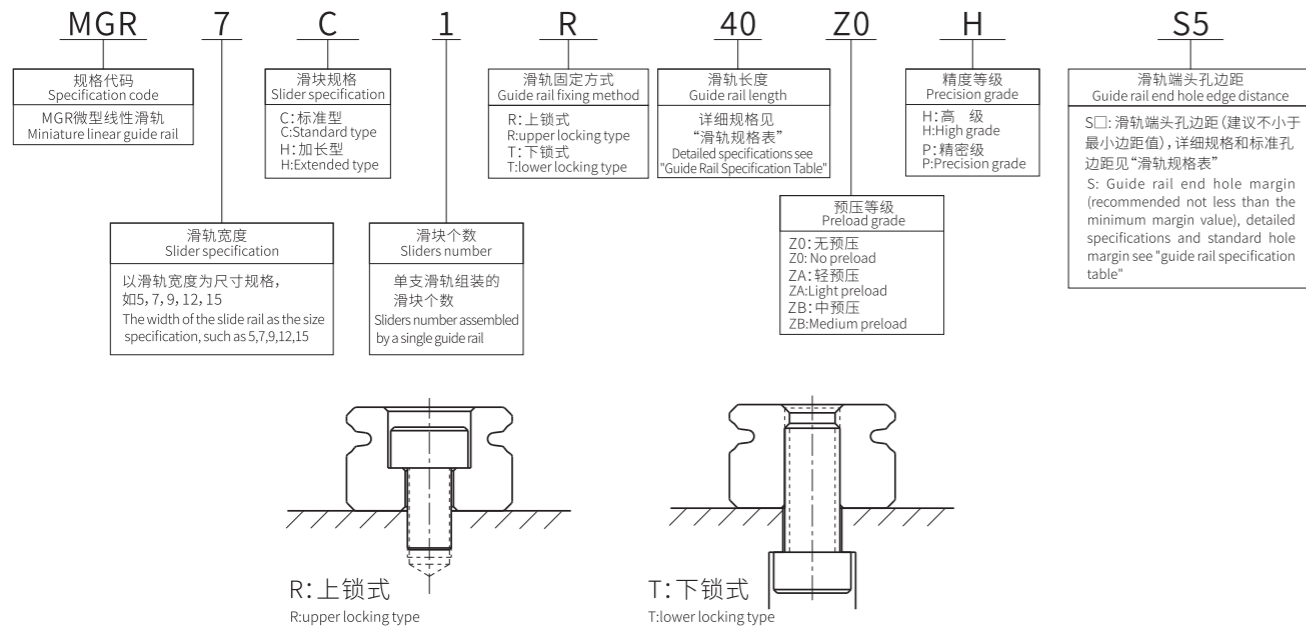
Please pay attention to the running number when installing, A001, B001 for a group, A002, B002 for a group, and so on.

两条滑轨拼接时,须注意安装方向,使字母方向一致及箭头符号比邻对齐。

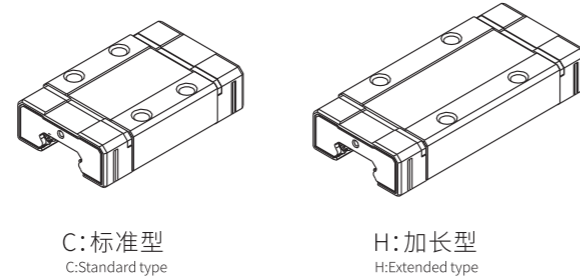
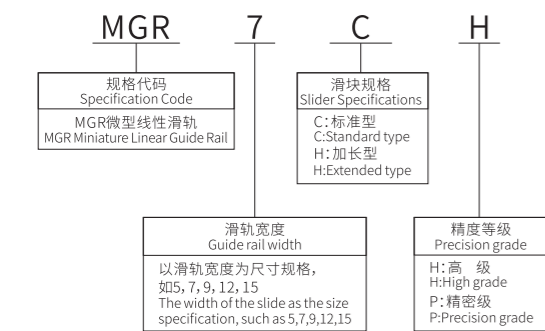
Two slide splicing must pay attention to the installation direction, so that the letter direction and arrow symbols are aligned next to each other.



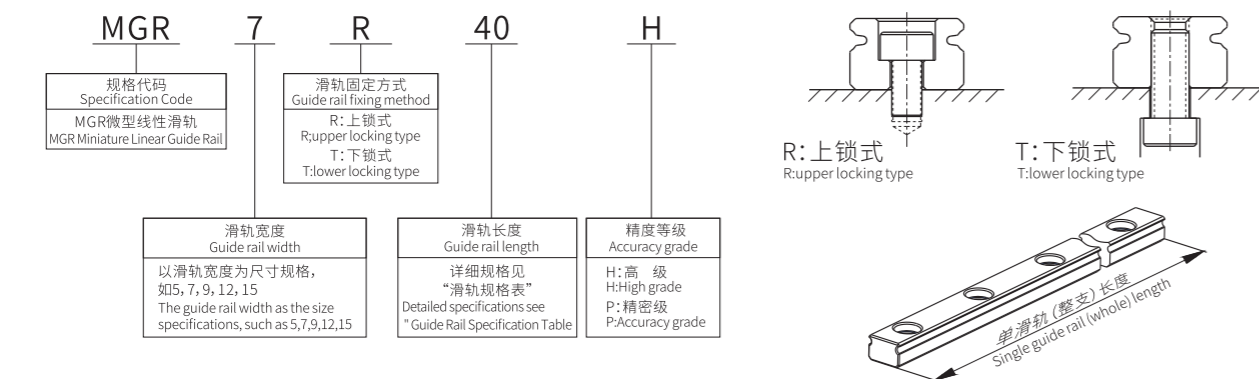
5、公称型号的构成例 Composition of nominal model



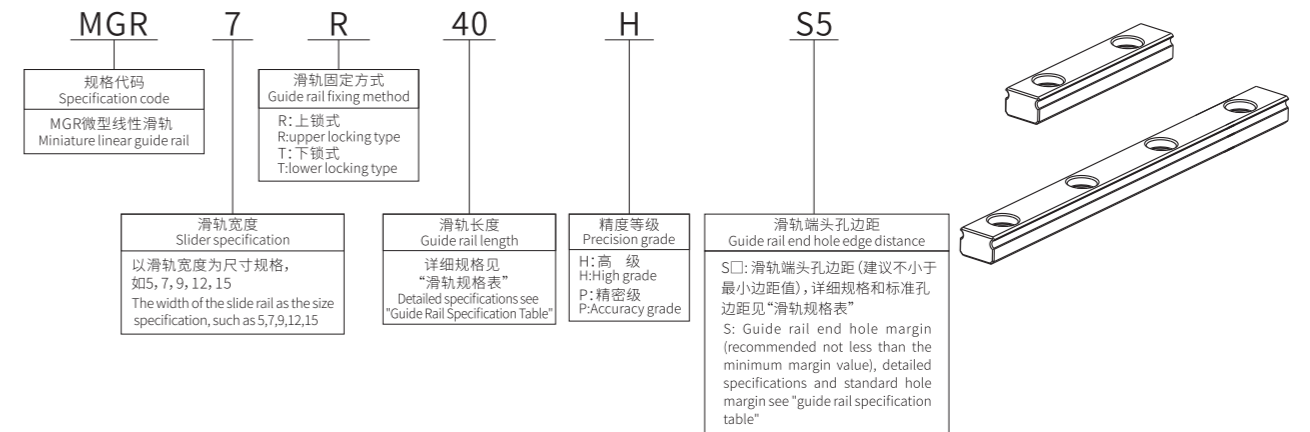
■ 部件订购码 Part Ordering Code



■ 单滑轨 (整支) 订购码 Single guide rail (whole) Order Code



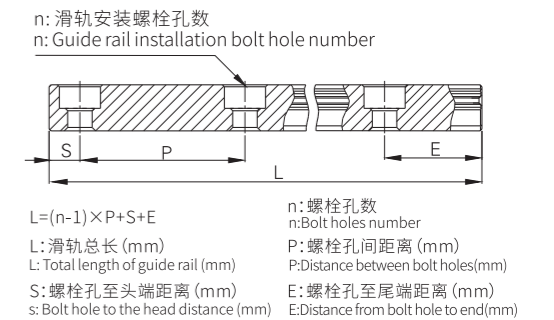
■ 单滑轨订购码 Single guide rail Order Code



6、滑轨规格 Guide rail specification

客户选用滑轨长度时，头尾端孔边距S、E的尺寸最好不要大于1/2P，头尾端孔边距S、E的尺寸过大可能导致滑轨装配后端部的不稳定，甚至会影响滑轨的精度。

Customers choose the length of the guide rail, the head and tail end hole edge distance S, E size is best not larger than 1/2P, the head and tail end hole edge distance S, E size is too large may lead to instability of the guide rail assembly after the end, and even affect the accuracy of the guide rail.



型号 Model	标准滑轨长度 (L) (mm) Standard guide rail length											最大定制长度 (L max) (mm) Maximum customized length	
	40	55	70	85	100	115	130	145	160	175	190		205
MGR5													490
MGR7	40	55	70	85	100	115	130	145	160	175	190	205	985
	220	235	250										
MGR9	55	75	95	115	135	155	175	195	215	235	255	275	995
	295	315	335	355	375	395							
MGR12	70	95	120	145	170	195	220	245	270	295	320	345	995
	370	395	420	445	470	495							
MGR15	70	110	150	190	230	270	310	350	390	430	470	510	990

型号 Model	孔距 Hole distance	标准孔边距 Standard hole margin	建议最小定制产品边距 Minimum customized product margin suggested	
			建议最大定制产品边距 Maximum customized product margin suggested	建议最大定制产品边距 Maximum customized product margin suggested
MGR5	15	5	3	
MGR7	15	5	3	
MGR9	20	7.5	4	
MGR12	25	10	4	
MGR15	40	15	4	

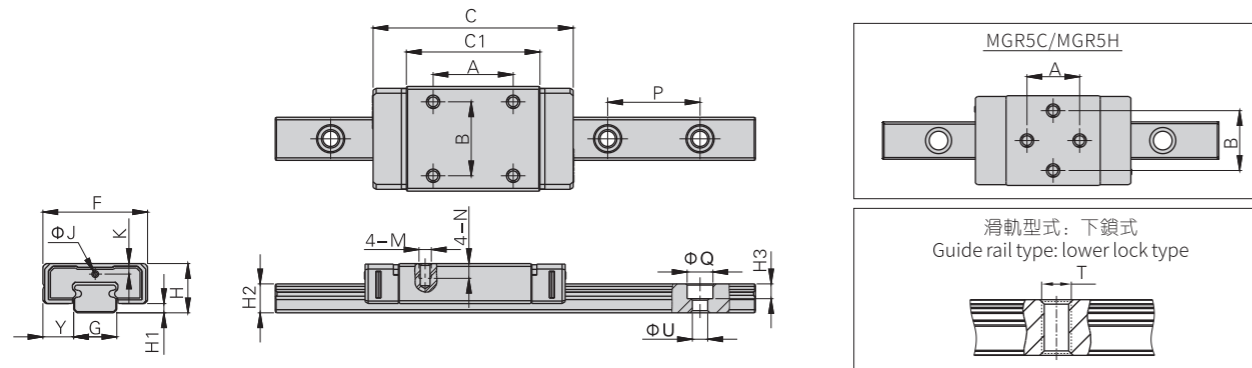
注意:

超过滑轨最大长度时，必须采用拼接方式使用

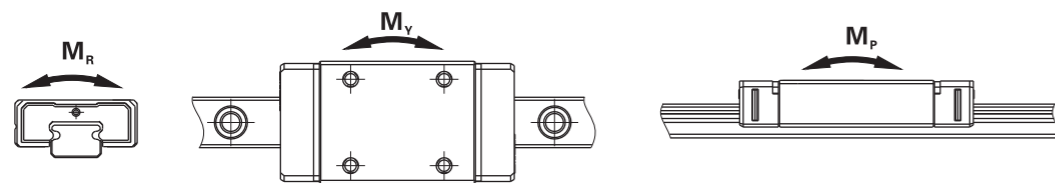
建议依上表边距限制进行定制产品边距选型，如超出范围会有安装孔破之风险。

Notes: More than the maximum length of the guide rail, must be used in a splicing way recommended in accordance with the above table margin restrictions for the selection of customized products margin, such as beyond the range will have the risk of installation holes broken

7、尺寸规格表 Size specification table



型号\符号 Model\Symbol	外部尺寸 (mm) External Dimension (mm)					滑块尺寸 (mm) Slider size (mm)							滑轨尺寸 (mm) Guide rail size (mm)						
	H	H1	F	Y	C	C1	A	B	M	N	K	ΦJ	G	H2	P	ΦQ	ΦU	H3	T
MGR5C	6	1.5	12	3.5	18.2	10	7	8	M2×0.4	1.5	1.3	0.7	5	3.5	15	3.5	2.2	1.1	M2×0.5
MGR5H	6	1.5	12	3.5	21.2	13	7	8	M2×0.4	1.5	1.3	0.7	5	3.5	15	3.5	2.2	1.1	M2×0.5
MGR7C	8	1.5	17	5	24.3	13.5	8	12	M2×0.4	2.3	1.7	0.7	7	4.7	15	4.2	2.4	2.4	M2×0.5
MGR7H	8	1.5	17	5	32.5	21.7	13	12	M2×0.4	2.3	1.7	0.7	7	4.7	15	4.2	2.4	2.4	M2×0.5
MGR9C	10	2	20	5.5	31	18.9	10	15	M3×0.5	2.8	2.2	1	9	5.6	20	6	3.5	3.4	M2×0.7
MGR9H	10	2	20	5.5	42.1	30	16	15	M3×0.5	2.8	2.2	1	9	5.6	20	6	3.5	3.4	M2×0.7
MGR12C	13	3	27	7.5	37.6	21.7	15	20	M3×0.5	4	3	1.5	12	7.5	25	6	3.5	4.4	M2×0.7
MGR12H	13	3	27	7.5	48.4	32.5	20	20	M3×0.5	4	3	1.5	12	7.5	25	6	3.5	4.4	M2×0.7
MGR15C	16	3.5	32	8.5	48	28	20	25	M3×0.5	4	3.7	M3	15	9.5	40	6	3.5	4.4	M2×0.7
MGR15H	16	3.5	32	8.5	65	45	25	25	M3×0.5	4	3.7	M3	15	9.5	40	6	3.5	4.4	M2×0.7



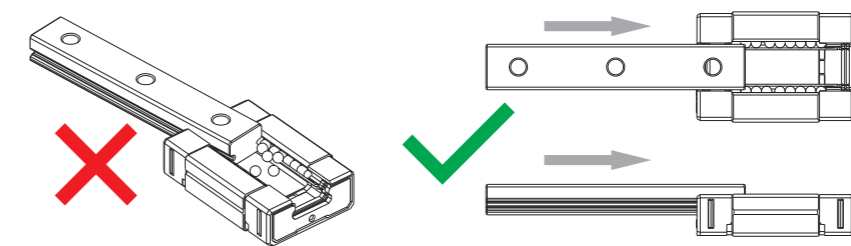
型号\符号 Model\Symbol	滑轨安装 螺栓规格 Guide rail mountin bolt specifications	基本动负荷 (kN) Basic dynamic load (kN)		基本静负荷 (kN) Basic static load (kN)		容许静扭矩 (N.m) (N.m) Allowable static torque (N.m)			质量 Mass	
		C100B	C0	MR	MP	MY	滑块 (kg) Slider	滑轨 (kg/m) Guide rail		
MGR5C	M2	0.33	0.55	168	0.99	0.99	0.0035	0.114		
MGR5H	M2	0.48	0.9	2.4	2.08	2.08	0.004	0.114		
MGR7C	M2	1.02	1.53	5.42	3.17	3.17	0.009	0.22		
MGR7H	M2	1.43	2.45	9.27	7.96	7.96	0.014	0.22		
MGR9C	M3	1.97	2.6	11.84	8.19	8.19	0.018	0.315		
MGR9H	M3	2.61	4.11	19.73	18.94	18.94	0.027	0.315		
MGR12C	M3	3.04	3.86	23.63	12.57	12.57	0.037	0.602		
MGR12H	M3	3.96	5.9	40.96	32.57	32.57	0.053	0.602		
MGR15C	M3	4.27	5.7	45.05	23.05	23.05	0.054	0.981		
MGR15H	M3	6.53	9.53	70.08	63.69	63.69	0.088	0.981		

8、使用注意事项 Precaution for use

滑块拆装 Slider disassembly and installation

正常情况下, MGR滑块因为有装设保持器, 所以在脱离轨道后可以防止钢珠脱落, 但若斜向将滑轨插入滑块, 或是急速拆装滑块, 则钢珠仍有掉落的风险。请谨慎操作或使用假轨辅助安装。

Under normal circumstances, MGR slider is equipped with a retainer, so it can prevent the ball from falling off after it is disconnected from the rail, but if the rail is inserted into the slider diagonally, or if the slider is disassembled and installed rapidly, there is still a risk of the ball falling off. Please operate carefully or use dummy rail to assist installation.



取放 Pick and place

线性滑轨在倾倒后滑块可能因自身重量滑落, 请小心注意。

Linear guide rail may fall by their own weight when tilted, so please pay attention to it.

敲击或掉落滑轨, 滑块即使外观看不出损坏, 但可能对其精度及寿命造成较大影响, 请务必小心。

If the slider is knocked or dropped, the slider may not appear to be damaged, but it may have a large impact on its accuracy and life, so please be careful.

请勿自行拆解滑块, 因可能导致异物进入或装配精度达不到要求, 对滑块性能精度造成影响。

Please do not disassemble the slider by yourself, because it may lead to the foreign body into or assembly Accuracy can not meet the requirements, the slider performance accuracy caused by the impact.

润滑 Lubricant

滑轨出厂时已进行防锈处理, 使用前请擦拭滑轨表面防锈油, 涂抹润滑油后再进行使用。

请勿将不同性质的润滑油 (脂) 混合使用。

Guide rail in the factory has been anti-rust treatment, before use, please wipe the slide rail surface anti-rust oil, apply lubricant before use. Please do not mix the different nature of the lubricant (grease) use.

加注润滑剂时, 滑块需以一边前后来回运行, 一边注油的方式进行, 并确认滑轨表面是否有油膜均匀覆盖。

When filling the lubricant, the slider should run back and forth while filling the way of oil, and confirm whether the surface of the slider is evenly covered with oil film.

使用 Usage

使用环境温度请勿超过80°C, 瞬时温度不得超过100°C。

The ambient temperature should not exceed 80°C and the instantaneous temperature should not exceed 100°C.

非必要时请勿将滑块拆离滑轨, 如需拆离, 请利用假轨协助拆装防止钢珠掉落。

Do not disassemble the slider from the rail unless necessary, if you need to disassemble, please use the dummy rail to help disassemble and prevent the ball from falling.

存放 Storage

存放线性滑轨成品、单滑轨、单滑块时请确认是否均匀涂抹防锈油并封入指定的封套中, 采用水平放置, 并避免高温潮湿的环境。

When storing the finished linear guide rail, single guide rail and single sliders, please make sure that they are evenly coated with anti-rust oil and sealed into the designated envelope, placed horizontally, and avoid high temperature and humid environment.