新达精密

中 国 制 造 、 工 匠 精 神

深圳市新达精密科技有限公司

SHENZHEN XINDA PRECISION TECHNOLOGY CO., LTD

—— 专 业 、 务 实 、 高 效 、 创 新 ——

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新达精密

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新达精密

公司介绍

COMPANY PROFILE

深圳市新达精密科技有限公司成立于2016年，位于广东省深圳市，是一家专注于磁性传感测量技术的高新技术企业。公司致力于研发、生产和销售**磁传感器、磁栅尺、圆磁栅**等精密测量产品。

凭借多年在磁性传感测量领域的研究和制造经验，产品稳定性达到了进出口品质，新达精密已成为该领域内著名的应用解决方案的提供商。

凭借卓越的产品性能和稳定的质量控制，已与众多国内外知名企业建立了长期合作关系，机器人、工业自动化、医疗、半导体、电力与能源、航天航空等多个行业，使用新达产品的客户包括：

中国航天、铁路集团、华为、比亚迪、中科飞测、宁德时代、自变量机器人、大寰机器人、普渡机器人等。

Shenzhen Xinda Precision Technology Co., Ltd. was established in 2016 and is located in Shenzhen, Guangdong Province.Is a focus on magnetic sensor measurement technology of high-tech enterprises.The company is committed to research and development, production and sales of Magnetic sensor, Linear magnetic scale , Rotary magnetic scale and other precision measurement products.

With many years of research and manufacturing experience in the field of magnetic sensor measurement, product stability has reached the import and export quality, XD-PRECISION has become a well-known in this field.The provider of the solution.

With excellent product performance and stable quality control, we have established long-term cooperative relations with many well-known enterprises at home and abroad, such as robotics, industrial automation, medical treatment,Semiconductor, power and energy, aerospace and other industries.

核心业务

CORE BUSINESS

01 新达精密以磁栅测量技术为核心，提供高精度、高稳定性的测量方案，包括：

- **磁栅尺（增量式/绝对式）**

用于精确的直线位移测量

- **圆磁栅（增量式/绝对式）**

应用于旋转角度测量和位置检测

- **定制化磁栅测量方案**

根据客户需求提供个性化解决方案

XD-PRECISION takes magnetic grid measurement technology as the core and provides high-precision and high-stability measurement solutions,includes:

- **Linear magnetic scale （Incremental /Absolute)**
For accurate linear displacement measurement

- **Rotary magnetic scale（Incremental /Absolute)**
or rotation angle measurement and position detection

- **Customized magnetic grid measurement scheme**
Provide personalized solutions according to customer needs

02 技术优势

- 采用高精度磁感应技术，具备出色的抗干扰能力和环境适应性；
- 具备RS422差分信号输出（ABZ）、BISS、SSI、Modbus、多摩川等多种工业通讯协议；
- 自主研发团队，掌握核心算法与生产工艺，提供高精度、高稳定性的测量方案。

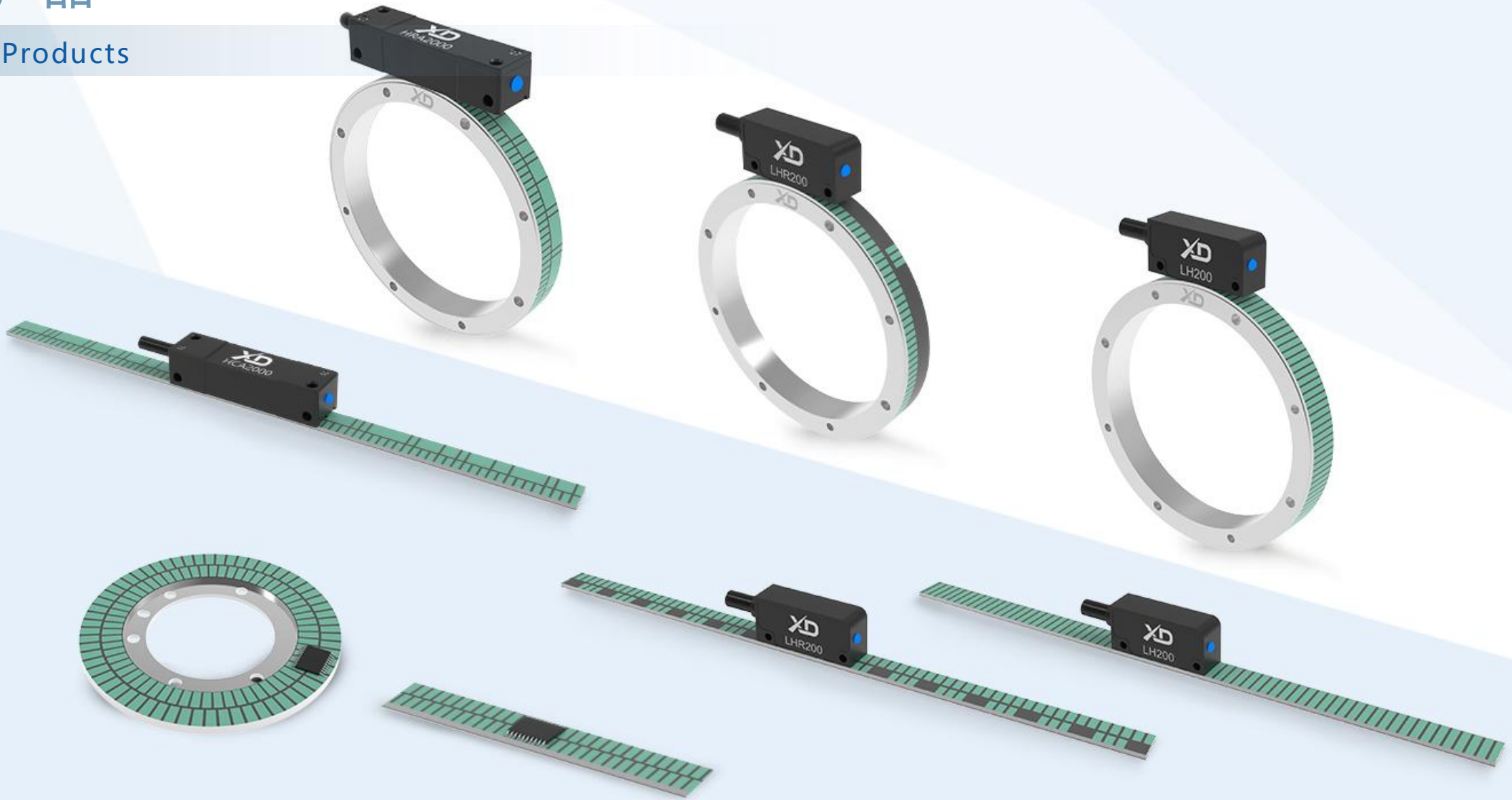
Technical advantages

- Using high-precision magnetic induction technology, with excellent anti-interference ability and environmental adaptability
- With RS422 differential signal output (ABZ), BISS, SSI, Modbus, Tamagawa industrial communication protocols
- Independent research and development team, master the core algorithm and production process, to provide high-precision, high-stability measurement solutions.

新达精密

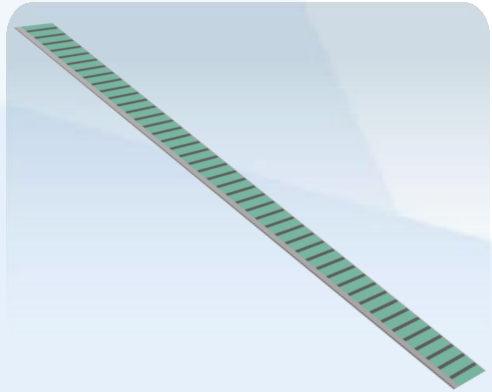
产品

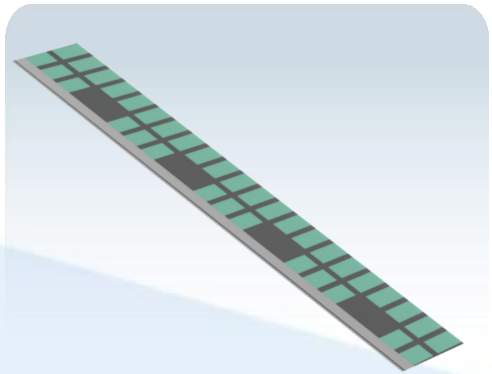
Products



增量式磁栅尺 ◎ XD-U-01/02/05

Incremental magnetic scale





- **提供不同的磁极宽度**
  Provide different pole pitch
- **带或不带原点**
  With or without reference points
- **高精度编码极对**
  Highly accurate encoded pole pairs
- **非接触式测量**
  non-contact measurement
- **抗污染、抗振动、抗温度、抗波动、耐湿度**
  Resistant against contamination, vibrations, temperature, fluctuations, humidity
- **可根据要求提供特殊定制**
  Special executions on request

◎ 技术参数 (Technical parameters)

增量式磁栅尺 (Incremental magnetic scale)			
型号参数 (Type parameter)	XD-U-01/02/05		
精度等级 (accuracy class)	±10μm、±20μm、±30μm		
材料 (material)	磁带: 弹性体填充铁氧体 载带: 不锈钢 magnetic tape: elastomer filled with ferrite carrier tape: stainless steel		
宽度mm (width)	5、10、20 ±0.2		
厚度mm (thickness)	1.5 ±0.2		
磁极宽度mm (pole pitch)	1、2、2.54、3.2、5、10 可以定制（others on request） （2mm原点10、30、60、120极距）其他可定制 (NSN)和（SNS） (2mm reference point 10/30/60120 wide pole pitch) others on request(NSN)and（SNS）		
磁通密度 (magnetic flux density)	极距 (pole pitch)	磁通 (magnetic flux)	距离 (distance)
	1 mm 2 mm 2.54 mm 5 mm	20mT +10/-7 mT 30mT +10/-10 mT 30mT +10/-12 mT 30mT +10/-15 mT	0.4 mm 0.7 mm 0.8 mm 1.4 mm
运行温度(operating temperature)	-20 °C — 85 °C		
膨胀度(xpansion coefficient)	α≈ 17× 10^{-6} / K		
卷轴长度(ength on reel)	50m		
单条长度(length in pieces)	根据要求定制(on request)		
特殊定制 (end processing for pieces)	根据要求定制(on request)		

◎ 技术图纸（Technical Drawings ）

磁栅尺
（ Magnetic Scale ）

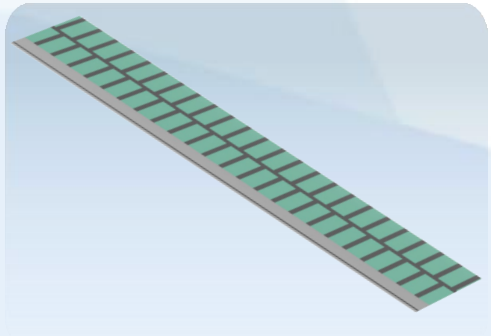
盖条（可选配件）
Cover Tape （optional accessory）

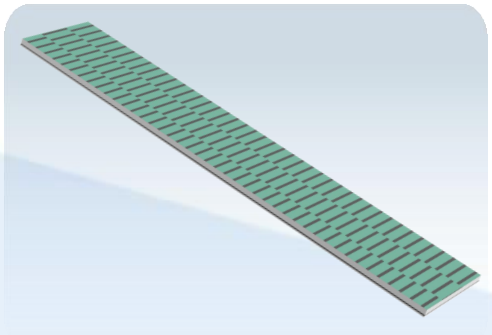
粘合剂胶带 (Adhesive Tape)	
材料 (material)	双面丙烯酸胶带 (double-sided acrylic adhesive tape)
宽mm (width)	4.6、9.2、19.2 ±0.2
厚度mm (thickness)	0.13 ±0.2

盖条（可选配件） Cover Tape (optional accessory)	
材料 (material)	封带：不锈钢，非磁性 cover tape: stainless steel, non magnetic 胶带：丙烯酸胶带 adhesive tape: acrylic adhesive tape
宽mm (width)	5、10、20 ±0.2
厚度mm (thickness)	0.21/0.28总厚度（0.08/0.15mm不锈钢带 + 0.13mm胶带) ±0.2 0.21/0.28 total thickness (0.08/0.15mm stainless steel tape + 0.13 mm adhesive tape) ±0.2

游标磁栅尺 ◎ XD-U-YB

Nonius magnetic scale





- **双码道或三码道磁化**
  Two or three track magnetization
- **高精度编码极对**
  Highly accurate encoded pole pairs
- **多种磁极宽度选择**
  Multiple pole pitch options
- **非接触式测量**
  non-contact measurement
- **耐灰尘、冷却润滑乳化液油等**
  Esistant to dust,cooling lubricant emulsion. oil.etc
- **提供IC-MU的128、150、200的标准**
  Provide IC-MU standards of 128, 150 and 200
- **可根据要求提供特殊定制**
  Special executions on request

◎ 技术参数 (Technical parameters)

新达精密

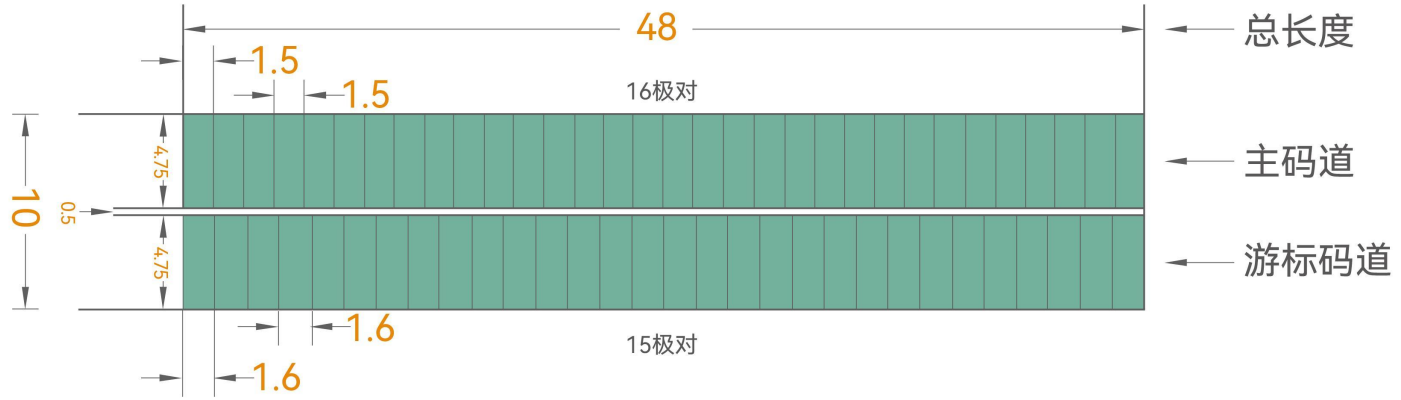
游标磁栅尺 (Nonius magnetic scale)	
型号参数 (Type parameter)	XD-U-YB
精度等级 (accuracy class)	±10μm、±15μm
材料 (material)	磁带: 弹性体填充铁氧体 载带: 不锈钢 magnetic tape: elastomer filled with ferrite carrier tape: stainless steel
宽度mm (width)	标准: 10 ±0.2 (standard: 10 ±0.2) 其他可根据要求定制 (others on request)
厚度mm (thickness)	1.5 ±0.2
极距mm (pole pitch)	IC-MU的标准 (standard for IC-MU): 128、150、200
振幅磁通量 (magnetic flux of amplitude)	取决于极距 (dependant on pole pitch)
运行温度(operating temperature)	-20 °C — 85 °C
膨胀度(xpansion coefficient)	$\alpha \approx 17 \times 10^{-6}$ / K
特殊定制 (end processing for pieces)	根据要求定制(on request)

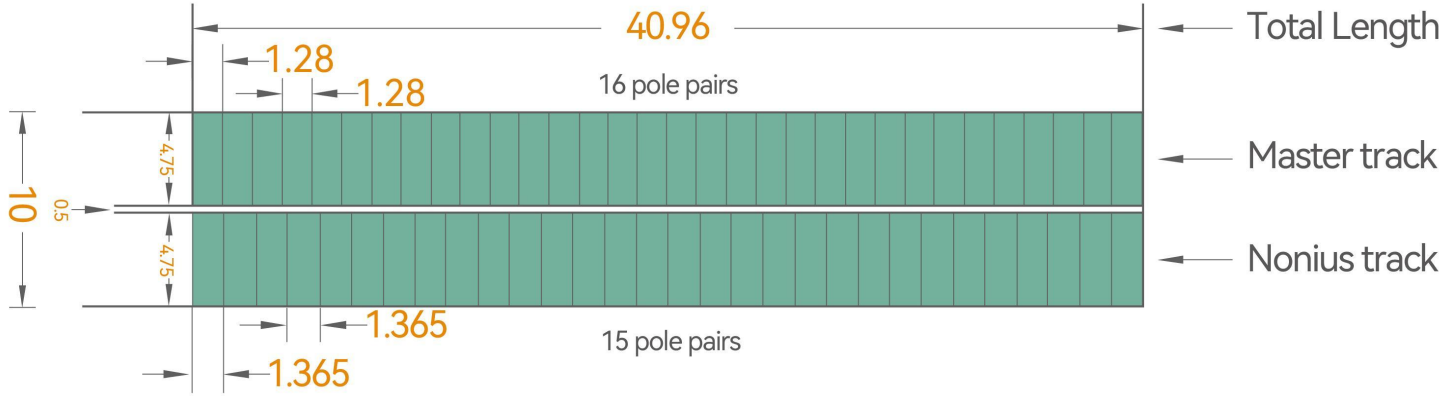
码道 Tracks	磁极对数 Pole Pairs	绝对值测量长度(mm) Absolute Measurement Length in mm		
		MU128	MU150	MU200
双码道 2-tracks	主码道16，游标码道15	40.96	48	64
	主码道32，游标码道31	81.92	96	128
	Master 64 Nonius 63	163.84	192	256
三码道 3-tracks	256、255、240	655.36	768	1024
	1024、1023、992	2621.44	3072	4096

游标磁栅尺 ◎ XD-U-YB

Nonius magnetic scale

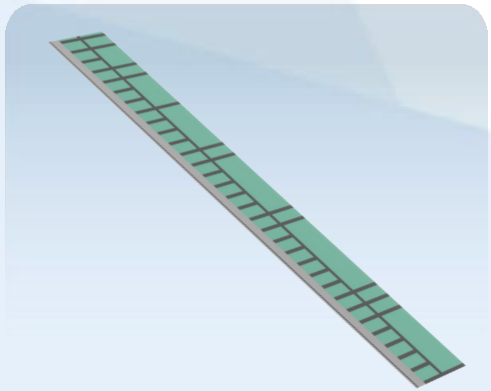
◎ 技术图纸（Technical Drawings ）

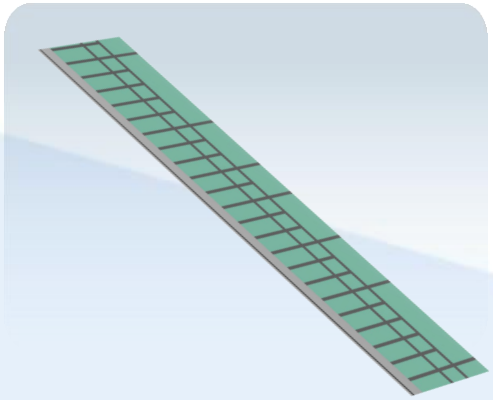




定制绝对值磁栅尺 ◎ XD-U-JDZ

Customized absolute magnetic scale



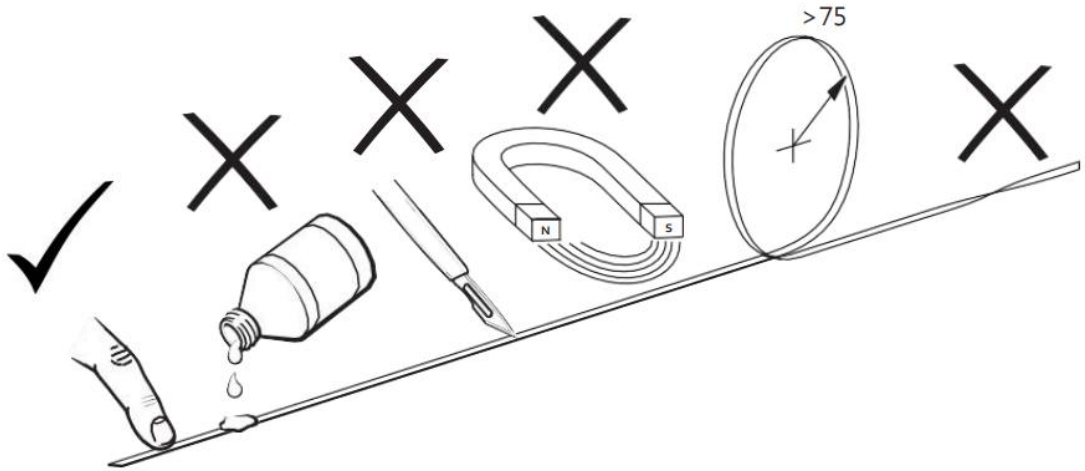


- **双码道或三码道磁化**
  Two or three track magnetization
- **高精度编码极对**
  Highly accurate encoded pole pairs
- **伪随机码**
  Pseudo random code
- **可自定义编码模式**
  Custom code pattern
- **非接触式测量**
  non-contact measurement
- **可根据要求提供特殊定制**
  Special executions on request

◎ 技术参数 (Technical parameters)

定制绝对值磁栅尺 (Customized absolute magnetic scale)	
型号参数 (Type parameter)	XD-U-JDZ
精度等级 (accuracy class)	±10μm、±20μm、±30μm
材料 (material)	磁带: 弹性体填充铁氧体 载带: 不锈钢 magnetic tape: elastomer filled with ferrite carrier tape: stainless steel
宽度mm (width)	10、20 ±0.2
厚度mm (thickness)	1.5 ±0.2
极距mm (pole pitch)	自定义代码模式 (custom code pattern)
运行温度 (operating temperature)	-20 °C — 85 °C
单条长度 (length in pieces)	根据要求定制(on request)
特殊定制 (end processing for pieces)	根据要求定制(on request)

◎ 储存与处理（Storage and handling）



警 告：磁栅尺表面不应暴露在高于50 mT的磁场下，会导致磁栅尺的高精度磁场被磁化。

Warning: The surface of the magnet scale should not be exposed to a magnetic field higher than 50 mT.
It will cause the high- precision magne tic field of the magnetic scale to be magnetized.

磁栅尺选购类型

Linear magnetic scale ordering selection

新达精密

可根据要求定制
(others on request)

1 增量式(Incremental)

X D — U — 0 2

- X D：新达
- U：宽度 (width)
  - U: 10mm
  - 5: 5mm
  - 20: 20mm
- 0 2：极距 (pole pitch)
  - 01: 1mm
  - 02: 2mm
  - 05: 5mm
  - 10: 10mm

2 带原点 (With Reference points)

XD — U — CKD — 02 — 10 — SNS

- XD：新达
- U：宽度 (width)
  - U: 10mm
- CKD：原点 (Reference points)
- 02：增量极距 (Incremental pole pitch)
  - 02: 2mm
- 10：参考点极距 (Reference points pole pitch)
  - 10: 10mm
  - 30: 30mm
  - 60: 60mm
  - 120: 120mm
- SNS：参考点信号 (Reference point signal)
  - SNS
  - NSN

磁栅尺选购类型

Linear magnetic scale ordering selection

新达精密

可根据要求定制
(others on request)

3 游标（Nonius）

XD — U — YB — 1.28 — 1.3653 — 40.96

新达	宽度 (width)	游标 (Nonius)	主码道 (main signal channel)	游标码道 (Nonius channel)	有效行程 (Measuring length)
	U：10mm		1.28 1.5	1.3653 1.6	40.96/48 81.92/96 163.84/192 327.68/384

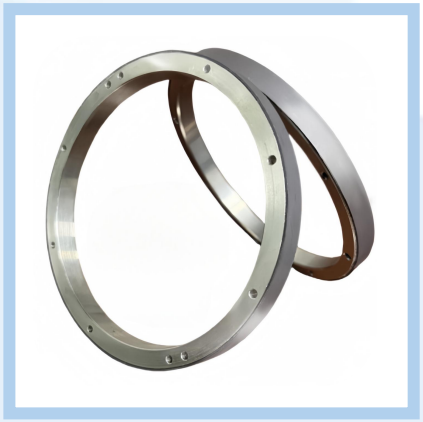
4 绝对值（Absolute）

XD — U — JYZ — 02 — 02 — 16384

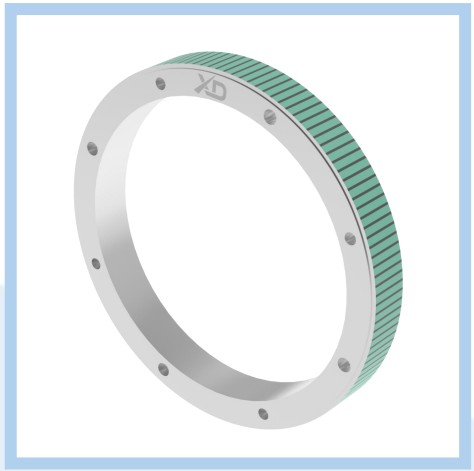
新达	宽度 (width)	绝对值 (Absolute)	增量极距 (Incremental pole pitch)	绝对值极距 (Absolute pole pitch)	磁条长度 (Ruler length)
	U：10mm 5：5mm 20：20mm		02：2mm 05：5mm	02：2mm 05：5mm	16384 8192 4096 2048 1024

圆磁栅 ◎ XD-CYH

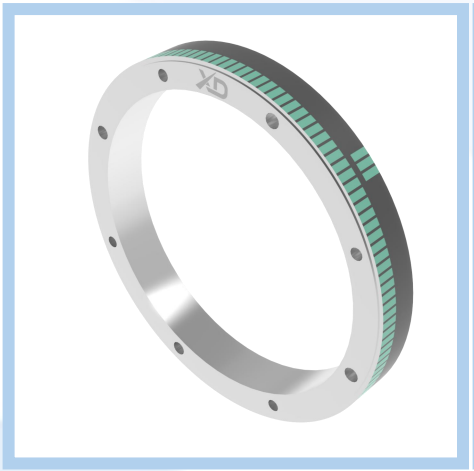
Rotary Magnetic scale



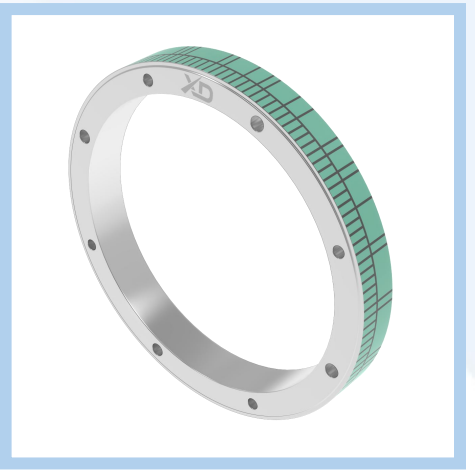
- **增量式圆磁栅**
  Incremental rotary magnetic scale
- **带原点圆磁栅**
  With reference point rotary magnetic scale
- **绝对值圆磁栅**
  Absolute rotary magnetic scale
- **单码道或双码道磁化**
  One or two track magnetization
- **高精度编码极对**
  Highly accurate encoded pole pairs
- **非接触式测量**
  non-contact measurement
- **高品质材料和精密加工的轮毂**
  high quality materials and precisely machined hubs
- **高防尘、抗冷却润滑剂、耐油等性能（防护等级IP67）**
  high resistance to dust, cooling lubricants, oil, etc. (Protection grade)
- **通过胶合或压装轻松安装**
  easy installation by gluing or press-fitting
- **根据要求提供特殊定制**
  Special executions on request



增量式
incremental



带原点
with reference point



绝对值
absolute

圆磁栅 ◎ XD-CYH

Rotary Magnetic scale

参数型号和线数选型（可输出任意线数）

Parameter model and line number selection (Can output any number)

型号 (model)	XD 5180	XD 5890	XD 6196	XD 72114	XD 82128	XD 122192	XD 150236	XD 163256	XD 204320	XD 229360	XD 326512	XD 361568	XD 450708
外径 inner diameter [mm]	50.96	57.52	61.15	72.61	81.53	122.29	150	162.97	203.82	229.18	325.94	361	450
内径(公差H7) outer diameter (TOL H7) [mm]	30	53	45	54	68	106	130	140	174 187	190 209	285	330	395
高度 (Height) [mm]	7.5	10	10	10	10	10	10	10	10/12	10/12	12	15	15
磁极数 (Number of magnetic poles)	80	90	96	114	128	192	236	256	320	360	512	568	708
磁极宽度 (Pole width) [mm]	2	2	2	2	2	2	2	2	2	2	2	2	2
最大线数 (Maximum number of lines)	80000	90000	96000	114000	128000	192000	236000	256000	320000	360000	512000	568000	708000
最小线数 (Minimum number of lines)	80	90	96	114	128	192	236	256	320	360	512	568	708
重复精度 (Repeat accuracy)	8.1″	7.2″	6.75″	5.68″	5.06″	3.37″	2.75″	2.53″	2.02″	1.8″	1.26″	1.14″	0.915″
材料 (material)	不锈钢和软胶磁 （Stainless steel and soft glue magnetic）												

圆磁栅 ◎ XD-CYH

Rotary Magnetic scale

线数为4倍频前脉冲数，一圈总计数值(脉冲)为线数X4

$$\text{重复精度} < \frac{2592000}{\text{线数} \times 4}$$

定位精度与分辨率挂钩。高分辨率下<500 arcsee

当分辨率>250 arcsee，定位精度≈±1个分辨率

$$\text{定位精度（arcsee）} \approx \frac{1296000}{\text{磁极数} \times \text{磁极宽度} \div 0.04}$$

$$\text{弧长误差}(\mu m) = \frac{\text{磁极数} \times \text{磁极宽度} \times 1000}{\text{线数} \times 4}$$

$$\text{角度误差(arcsee)} = \frac{1296000}{\text{线数} \times 4}$$

The number of lines is the number of pulses before 4 frequency multiplication, and the total count (pulses) per revolution is equal to the number of lines × 4.

$$\text{Repeat accuracy} < \frac{2592000}{\text{Number of lines X 4}}$$

Positioning accuracy depends on resolution. High resolutions result in < 500 arcseconds. When the resolution > 250 arcseconds, the positioning accuracy is ≈ ±1 resolution.

$$\text{Positioning accuracy (arcsee)} \approx \frac{1296000}{\text{Number of magnetic poles X Pole width} \div 0.04}$$

$$\text{Arc length error (um)} = \frac{\text{Number of magnetic poles X Pole width X 1000}}{\text{Number of lines X 4}}$$

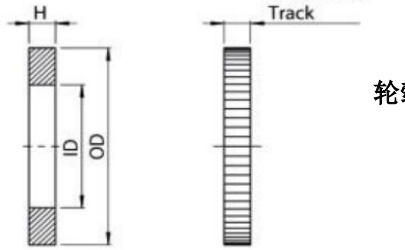
$$\text{Angle error (arcsee)} = \frac{1296000}{\text{Number of lines X 4}}$$

圆磁栅 ◎ XD-CYH

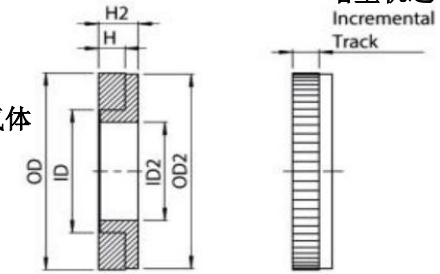
Rotary Magnetic scale

◎ 技 术 图 纸（Technical Drawings ）

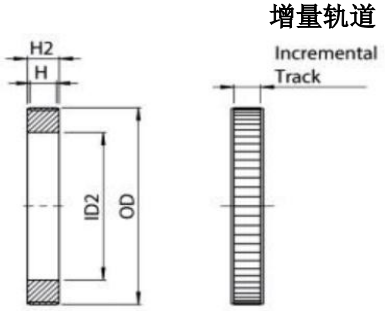
硬质铁氧体
hard ferrite



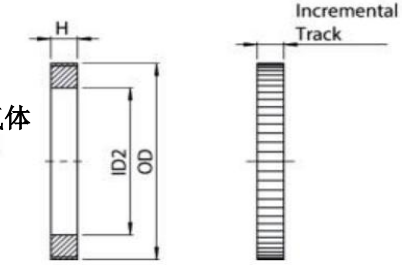
轮毂上的硬铁氧体
hard ferrite
on hub



轮毂上的弹性体
粘结铁氧体
elastomer
bonded ferrite
on hub



轮毂上的硫化铁氧体
vulcanized ferrite
on hub



圆磁栅由坚固铁合金制成
圆磁栅可固定于不同轴上，所有的磁环配备 2mm 磁距。有增量、带参考点、绝对值可以选择，必须选择适配于对应的测量芯片。

空心轴的圆磁栅
配备空心轴环和螺栓，安装简便，根据需求提供标装尺寸的圆磁栅。

圆磁栅材质
人造橡胶的材质，由于其材料，制模和编码过程，有着显著优势。橡胶圆磁栅的弹性，让它能经受膨胀变形，并且能经受温度、各类化学物质的考验。适用于恶劣环境及室外安装。

圆磁栅有多种尺寸可以选择，其它根据要求定制。

The Rotary Magnetic scale is made of strong iron alloy
The Rotary Magnetic scale can be fixed on different axes, and all Rotary Magnetic scale are equipped with a magnetic distance of 2mm. There are increments, with reference points, absolute values can be selected, must be selected to adapt to the corresponding measurement chip.

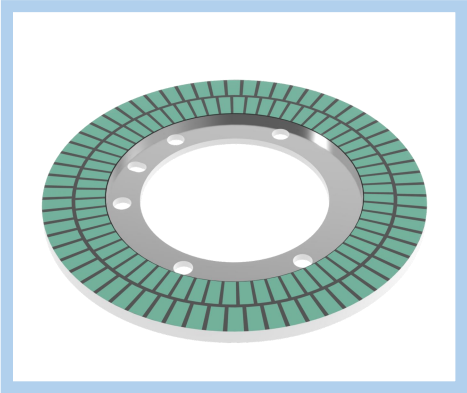
Rotary Magnetic scale of hollow shaft
Equipped with hollow shaft ring and bolts, easy to install, according to the requirements of the standard size of the Rotary magnetic scale.

Material of Rotary magnetic scale
The material of artificial rubber has significant advantages due to its material, molding and coding process. The elasticity of the rubber Rotary Magnetic scale allows it to withstand expansion and deformation, and can withstand the test of temperature and various chemical substances. Suitable for harsh environment and outdoor installation.

The Rotary magnetic scale has a variety of sizes to choose from, and others can bœcustomized according to requirements.

游标圆磁栅 ◎ XD-CYH

Rotary Nonius Magnetic scale



- **双码道磁化**
  Two track magnetization
- **多种磁极宽度选择**
  Multiple pole pitch options
- **提供IC-MU的128、150、200的标准**
  Provide IC-MU standards of 128, 150 and 200
- **高精度编码极对**
  Highly accurate encoded pole pairs
- **通过胶合或压装轻松安装**
  Easy installation by gluing or press-fitting
- **根据要求提供特殊定制**
  Special executions on request

尺寸选型

Size selection

MU128

磁极对数 Pole Pairs	内径 [mm] Outer Diameter	外径 [mm] Inner Diameter	高度 [mm] Height
32	15	29	1.1
	10	29	2
	15	29	2.1
	16.5	28.5	2
	11	30	3
64	38	56	1.1
	35	55	2.5
	37	56	12.6
	35	56	2
	40	53	3.5
	40	54.7	2

MU150

磁极对数 Pole Pairs	内径 [mm] Outer Diameter	外径 [mm] Inner Diameter	高度 [mm] Height
16	8	18	2
	7	20	2
32	18	34	1.1
	20	34	11
	18	34	5
	19.5	31.5	2
	23	35	2
	20	33	2
	20	39	2
64	47.4	64	1.1
	55	68	3.5
	45	64	2.5
	46	63	2

MU200

磁极对数 Pole Pairs	内径 [mm] Outer Diameter	外径 [mm] Inner Diameter	高度 [mm] Height
16	6	22	2
	8	22	2
	10	22	2
	11.5	25	2
32	25	44.5	1.4
	25	49	2
	25	49	2
	31.5	49	2
	35	48	2
	30.5	42.5	2
64	62	84	1.8
	65	84	2.5

新达精密

圆磁栅选购类型 ◎ XD-CYH

Rotary magnetic scale ordering selection

可根据要求定制
(others on request)

1 增量式(Incremental)

XD — CYH — 6196

- XD：新达
- CYH：圆磁栅 (Rotary Magnetic scale)
- 6196：外径和磁极数 (inner diameter and Number of magnetic poles)

6196
72114
82128
92144
122192
163256
204320
229360
450708

2 带原点（ With Reference points)

XD — CYH — CKD — 02 — 6196 — SNS

- XD：新达
- CYH：圆磁栅 (Rotary Magnetic scale)
- CKD：参考点 (Reference points)
- 02：增量极距 (Incremental pole pitch)
- 6196：外径和磁极数 (inner diameter and Number of magnetic poles)

6196
72114
82128
92144
122192
163256
204320
229360
450708

- SNS：参考点信号 (Reference point signal)

SNS
NSN

圆磁栅选购类型 ◎ XD-CYH

Rotary magnetic scale ordering selection

可根据要求定制

(others on request)

3 绝对值 （Absolute）

XD — CYH — JDZ — 02 — 6196

- XD：新达
- CYH：圆磁栅 (Rotary Magnetic scale)
- JDZ：绝对值 (Absolute)
- 02：增量极距 (Incremental pole pitch)
  - 02：2mm
- 6196：外径和磁极数 (inner diameter and Number of magnetic poles)
  - 6196
  - 72114
  - 82128
  - 92144
  - 122192
  - 163256
  - 204320
  - 229360
  - 450708

4 游标（Nonius）

XD — CYH — YB — 128 — 10 — 29 — 2

- XD：新达
- CYH：圆磁栅 (Rotary Magnetic scale)
- YB：游标 (Nonius)
- 128：IC-芯片 (IC-Chip)
  - 128：MU128
  - 150：MU150
  - 200：MU200
- 10：内径 (Outer Diameter)
- 29：外径 (Inner Diameter)
- 2：厚度 (Thickness)