韩国京都
KYUGDO ENTERPRISE CO.LTD. 简称：KDE

Magnetic Particle Testing

探伤-磁粉检测

方法：经磁化后的材料，光滑表面上的磁粉颗粒物质，会连续的聚集在缺陷的周围。

优势:表面和近表面内部的缺陷，可以很容易地检测到。

使用:该方法可用于任何铁磁性材料。它对钢、镍、钴及其合金的作用更好。

应用领域：磁粉探伤用于最终检验，验收检验，过程检验和质量控制，运输行业的维护与检修，大型对象的设备维护与测试和部件。

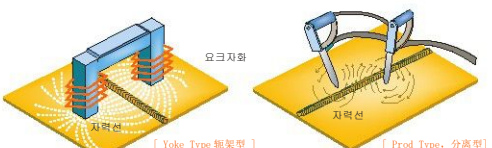
Magnetic Particle Testing

Method
After magnetizing the material under test, apply finely divided magnetic particle over the surface. Then some of these particles will be gathered around the discontinuity.

Advantage
Surface and subsurface discontinuities can be easily detected.

Usage
The method con be used on any ferromagnetic material.
It works quite well on steel, nickel, cobalt and their alloys.

Application
Magnetic particle testing is used for final inspection, receiving inspection, in process test and quality control, maintenance and overhaul in the transportation industries, plant and machinery maintenance and testing of large objects and components.



[Yoke Type 轭架型]　　[Prod Type，分离型]

磁粉检测原理

原理：当材料或零件在测试时被磁化，由于缺陷的存在，会造成磁场磁力线的不连续性，也叫磁场断裂现象。（即整个磁场面上存在一个小的缺陷磁泄漏场）；一般在横向磁场的方向会导致泄漏场形成于零件表面的上方。由于缺陷伤形成的漏磁场，磁粉探伤仪在磁轭施加磁力过程中，置于工件表面的磁粉或磁悬液里的磁性粉末粒子被磁力传动发生位移，磁粉里磁性粉末粒子移动、集合、聚集形成一个不连续性的轮廓，并表示其缺陷的位置，大小，形状和程度。

产品分类：

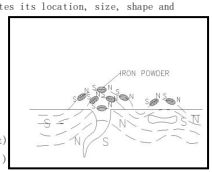
手持式磁粉探伤仪/磁轭；分离式磁轭；移动式磁粉探伤仪；线圈式磁粉探伤仪，床式大型磁粉探伤机；紫外线灯（黑灯）；配件（试样等）；磁粉（干、湿、荧光）

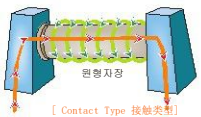
Principles of Magnetic Particle Testing

When the material or part under test is magnetized, discontinuities which lie in a direction generally transverse to the direction of the magnetic field will cause a leakage field to be formed at and above the surface of the part. The presence of this leakage field and therefore the presence of the discontinuity is detected by the use of finely divided ferromagnetic particles applied over the surface, some of these particles being geared and held by the leakage field. The magnetically held collection of particles forms an outline of the discontinuity and indicates its location, size, shape and extent.

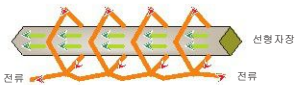
Lines of Business

Yoke type instrument
Prod type instrument
Mobile type instrument
Horizontal system
Ultra violet lamp(Black light)
MT Accessories(specimen, etc.)
Magnetic particles(Dry, Wet, Fluorescence)





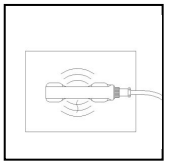
[Contact Type 接触类型]

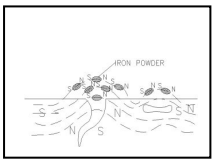


[Coil Type 环绕线圈类型]

MT

Magnetic Particle Testing
磁粉探伤





Non Destructive Testing
无损检测

01

手持式磁粉探伤仪（磁轭）Handy Magna YOKE KIT

04

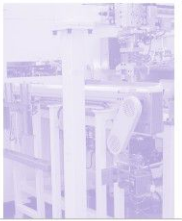
Black Light 黑光灯

03

MT SYSTEM 磁粉探伤系统

移动式磁粉探伤机
Mobile Prod

02



05

磁悬液 TEST Piece
Magnetic particle
MT Acc.

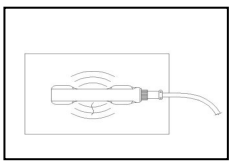
HANDY MAGNA / YOKE KIT

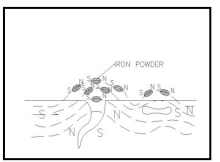
手持式磁粉探伤仪 / 磁轭

휴대용 자분탐상기는 피검사체의 종류, 크기, 형태 및 검출 결함에 따라 다양한 종류의 자분탐상기를 개발하였습니다. 자분탐
상기의 지속적인 연구개발로 초소형, 초경량화로 작업성의 효율성을 극대화하여 국내 뿐아니라 세계 여러나라 고객으로부터 우
수한 성능을 인정받고 있습니다.

Various types of portable magnetic particle detectors were developed depending on type, size and pattern of the object to be tested and detected flaw.
By maximizing efficiency of workability with the ultra compact and ultra light-weight type through continuous R&D of the magnetic particle detector, excellent performance of our products is recognized from customers all over the world as well as in Korea.

韩国京都公司开发的各种类型的便携式磁粉探伤仪，通过对各种大小不同，形状各异的检测对象测试，都精确的检测到各种缺陷。
通过连续的超紧凑和超轻的工作性能测试，最大化效率的工作性测试，
公司研发的磁粉探伤仪，依靠优良的产品性能和客户公认的卓越外观，
产品远销到世界各地以及韩国。





超小型磁轭 型号：MP-A1
Yoke Kit Model : MP-A1

磁轭型号：MP-A2
Yoke Kit Model MP-A2

电池包型磁轭型号：MP-A2D
Yoke Kit Model MP-A2D

带 LED 灯式磁轭 型号：MP-A2L
Yoke Kit Model MP-A2L

交直流磁化式磁轭 型号：MP-100
Yoke Kit Model MP-100

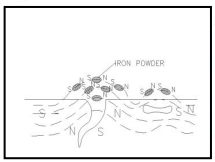
微型手持式磁粉探伤仪
HANDY MAGNA MP-A1

MP-A1 产品使用的测试方法：是利用磁轭法，将一些或所有测试缺陷之间放置磁电极和检测对象的缺陷被引入部分线性磁场内对试件进行测试。该方法可以方便地快速检测锻件、焊接、零件等表面缺陷。

MP-A1 products use testing method by utilizing the Yoke Method, to magnetize with some or all of test flaws placed between magnet electrodes and detect flaw of the object to be tested by inducting partial linear magnetic field to the test piece. This method enables to easily and rapidly detect surface flaw of forged products or welding, part, etc.

标准配置/ Standard Configuration

主机 Handy Magna ---------- 1set	通用磁头 Universal pole ---- 1 pair (option 选购)
电缆线 Power Cable ---------- 1ea	Manual 说明书
便携箱 Carrying Case ---------- 1ea	Certification 原厂证书
45。磁头 Pole ---------- 1pair (option 选购)	



超小型手持式磁轭 MP-A1

概述：对 2.1 kg本体重量，本产品可以号称世界上最小型和超轻型磁粉探伤设备；当工人长时间使用该产品时，该产品会收到客户良好的响应。

特点：
实现最佳的检验效率，
世界最轻型的设备；
用交流式形成强磁场；
适用于干磁粉，水性油性磁粉和荧光磁悬液；
外壳使用一种橡胶成型具有优异的耐久性，具有很强的防水性，抗冲击性。可以执行任何地方的检测，如实验室检查，生产厂，装配件和焊接件等检测。

HANDY MAGNA MP-A1

As an ultra compact type and ultra light-weight equipment with weight of the main body of 2.1 kg, this product can obtain maximum of efficiency when a worker uses this product for a long time, and this product is receiving good response from customers.

To achieve the best inspection efficiency with small, light equipment
To form a strong magnetic field with a AC type
To apply dry, wet and fluorescent magnetic particles
Excellent durability by using a molding type of rubber material with strong water-proof, shock resistance
To perform perfect inspection any place such as laboratory, production plant, assembly parts and welding part.

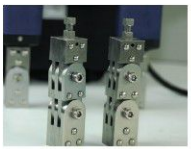
参数规格 / Specifications

电源/ Power Supply	AC 220V / 50 /60Hz
电流/ Related Current	2.0 A (安培)
磁间距/ Distance Between Magnetic Core Center	130.0 mm
提升力 / Lifting power	5.44 kg over
磁化电流/ Magnetizing Current	AC only
电源线长度 / Power Cable Length	4m
重量/ Weight	2.1 kg (Including pole) 본체 1.8 kg (Pole 0.15x2=0.3)=2.1 kg
尺寸/ Dimensions	187 (L) x 165 (H) x 40 (W) mm

手持式磁粉探伤仪
HANDY MAGNA MP-A2

MP-A2 产品使用的测试方法：是利用磁轭法，将一些或所有测试缺陷之间放置磁电极和检测对象的缺陷被引入部分线性磁场内对试件进行测试。该方法可以方便地快速检测锻件、焊接、零件等表面缺陷。

MP-A2 products use testing method by utilizing the Yoke Method, to magnetize with some or all of test flaws placed between magnet electrodes and detect flaw of the object to be tested by inducting partial linear magnetic field to the test piece. This method enables to easily and rapidly detect surface flaw of forged products or welding, part, etc.



MP-A2 产品的设计，通过控制用两个磁头的不同的角度和距离连接，以最大限度地提高检测效率。

This product is designed to maximize inspection efficiency by controlling various angles and distance between poles by using a middle pole for connection.






标准配置 / Standard Configuration

主机 Handy Magna 1set
电缆线 Power Cable 1ea
便携箱 Carrying Case 1ea
45。磁头 Pole ..... 1pair(option 选购)
通用磁头 Universal pole ..... 1 pair(option 选购)
说明书 Manual
原厂证书 Certification

手持式磁粉探伤仪 MP-A2

MP-A2 是产品与用户通过高可靠性连续的研发和互补等交流最终产生代表 KDE 公司的结晶产品。装上 LED 感应灯就变成 MP-A2L。

特点：
达到最佳的检验效率
用交流式形成强磁场
适用于干磁粉，水性油性磁粉和荧光磁悬液；
外壳使用一种橡胶成型具有优异的耐久性，具有很强的防水性，抗冲击性。
用连接加长磁头来测试各种物体；
可以执行任何地方的检测，如实验室检查，生产现场，装配件和焊接件等检测。

HANDY MAGNA MP-A2

MP-A2 is a product with high reliability from customers through continuous R&D and complementation, etc.

To achieve the best inspection efficiency
To form a strong magnetic field with a AC type
To apply dry, wet and fluorescent magnetic particles
Excellent durability by using a molding type of rubber material with strong water-proof, shock resistance
To test various objects to be tested by connecting middle poles
To perform perfect inspection any place such as laboratory, production plant, assembly parts and welding part.

参数规格/ Specifications

电源/ Power Supply	AC 220V / 50 /60Hz	AC 110V / 50 /60Hz
电流/ Related Current	2.8 安培	4.0 安培
磁间距/ Distance Between Magnetic Core Center	130.0 mm	
提升力/ Lifting power	5.44 kg 以上	
磁化电流 / Magnetizing Current	AC only	
电源线长/ Power Cable Length	4m	
重量/ Weight	2.8 kg(Including pole) 三对 2.2 kg(Pole 0.3x2=0.6)=2.8 kg	
外观尺寸/ Dimensions	195(L) x 182(H) x 48(W)mm	

电池包直流型手持式磁粉探伤仪
HANDY MAGNA MP-A2D

MP-A2D 直流型磁粉探伤仪使用的测试方法：是利用磁轭法，将一些或所有测试缺陷之间放置磁电极和检测对象的缺陷被引入部分线性磁场内对试件进行测试。该方法可以使用直流磁铁检测表面之下的缺陷，并具有足够的穿透深度，检测缺陷。

MP-A2D products use testing method by utilizing the Yoke Method, to magnetize with some or all of test flaws placed between magnet electrodes and detect flaw of the object to be tested by inducting partial linear magnetic field to the test piece. This method enables to detect flaws or under the surface by using a DC magnet, and has sufficient penetration depth to detect flaw.

This product is designed to maximize inspection efficiency by controlling various angles and distance between poles by using a middle pole for connection.

本产品的设计目的是最大限度地提高检测效率；磁头上的中间连接杆控制磁杆间的角度和距离。

标准配置 / Standard Configuration

主机 Handy Magna ---------1set
电缆线 Power Cable---------1ea
电池包 Battery(DC 12V)------1ea
充电器 Batterychargor------1ea
便携箱 Carrying Case-------1ea

45。磁头 Pole---------1pair(option 选购)
通用磁头 Universal pole---1pair(option 选购)
说明书 Manual
原厂证书 Certification

直流型磁粉探伤仪 MP-A2D

MP-A2D 具有良好的便携流动性，使用直流 12V 的电池，在没有电源环境的野外现场也能轻松工作。

特点：
用在没有交流电源的地方使用直流 12V 的电池也很容易工作，即使在一个很高、很困难的地方也一样工作；
适用于干燥、湿、荧光磁粉；
外壳使用一种橡胶成型的耐久性优异材料具有较强的抗冲击，优异的防水抗湿模型，抗锈蚀性；
通过连接各种磁头可以测试各种工件。

※ 磁头工作空间：不小于 9 mm

HANDY MAGNA MP-A2D

MP-A2D has excellent mobility using a DC 12V battery and is easy to work at a place without power supply.

Used at a place where there is no AC power supply using DC 12V battery
Easy to work even at a high place or a place difficult to access
To apply dry, wet and fluorescent magnetic particle
A molding type with excellent water-proof, anti-humidity and anti-rust
Excellent durability by using a molding type of rubber material with strong shock-resist
To test various objects to be tested by connecting middle poles

※ work piece : Less than 9 mm

사 양 / Specifications

电池电压/电流 / Power Supply		DC12V / 3~6 A 安培
电池充电电压 频率 / Battery Charger Power		220V / 50/60Hz
提升力 /Lifting power		18.2 kg 以上
磁场强度 / Magnetomotive force		3,158(A/T)
磁间距 / Distance Between Magnetic Core Center		130.0 mm
重量 / Weight	主机 / Main body	2.8 kg(含磁头) 不含磁头 2.2 kg(磁头 0.3x2=0.6)=2.8 kg
	电池包 / Power Supply	2.5 kg
	充电器 / Charger	0.825 kg
	充电线缆 / Charger Cable	0.255 kg
尺寸 / Dimensions	主机 / Main body	195(L) X 182(H) X 48(W)mm
	电池包 / Power Supply	140(L) X 127(H) X 85(W)mm
	充电器 / Charger	110(L) X 60(H) X 68(W)mm
电池连接主机电缆长度 / Power Cable Length		2m
加磁循环 Duty cycle		10 秒钟开 / 10 秒钟关
电源工作时间		4 小时充电，4 小时连续使用。

LED 照明型手持式磁粉探伤仪
HANDY MAGNA MP-A2L

MP-A2L 照明灯型磁粉探伤仪使用的测试方法：是利用磁轭法，将一些或所有测试缺陷之间放置磁电极和检测对象的缺陷被引入部分线性磁场内对试件进行测试。在 LED 灯光照射下，观察磁粉汇聚的缺陷更为明显。(升级后的新品采用 LED 磁感应灯)

MP-A2L products use testing method by utilizing the Yoke Method, to magnetize with some or all of test flaws placed between magnet electrodes and detect flaw of the object to be tested by inducting partial linear magnetic field to the test piece.

射灯型磁粉探伤仪 MP-A2L

概述：一体化带灯的磁粉探伤仪是非常方便使用的，因为设备本身的供电可以同时加磁，磁感应又驱使LED灯发光照亮在黑暗处使用的非荧光磁粉颗粒，让缺陷明显曝露。
通过形成强磁场该方法能方便快速地检测出锻制品或焊接件等表面缺陷。

特点：
较小的轻型设备实现最佳的检验效率，
用交流式形成强磁场；
适用于干燥，湿，荧光磁粉；
优良的防水，防潮防锈和优秀的耐久性，具有较强的抗冲击性；
连接多变的测头可以测试各种工件；
执行任何地方，如实验室检查，生产车间，装配件和焊接件。

本产品的设计目的是最大限度地提高检测效率：用一个灵活的中间连接杆控制两个磁杆间磁头的角度和距离，从而磁间距任意调整，可以测量各种复杂工件。

HANDY MAGNA MP-A2L

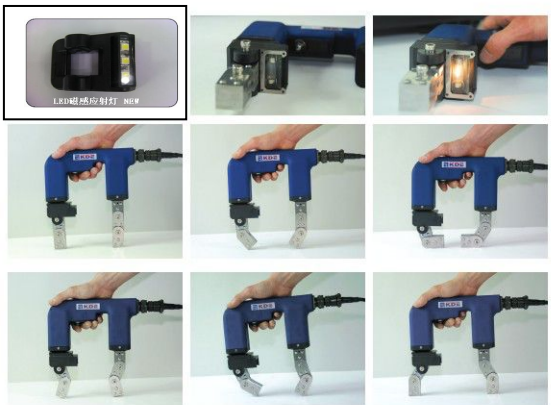
This test method is very convenient to use because it is possible to detect flaws without a separate lighting tools when testing non-fluorescent magnetic particles at a dark place by using only power supply of equipment itself by adhering a lamp to the product.
This method enables to easily and rapidly detect surface flaw of forged products or welding part, etc through formation of a strong magnetic field.

To achieve the best inspection efficiency with small, light equipment
To form a strong magnetic field with a AC type
To apply dry, wet and fluorescent magnetic particle
Excellent water-proof, anti-humidity and anti-rust and excellent durability with strong shock-resist
To test various objects to be tested by connecting middle poles
To perform perfect inspection any place such as laboratory, production plant, assembly parts and welding part.

This product is designed to maximize inspection efficiency by controlling various angles and distance between poles by using a middle pole for connection.

标准配置 / Standard Configuration

主机 Handy Magna ---------- 1set	45。磁头 Pole ---------- 1pair(option 选购)
电缆线 Power Cable ---------- 1ea	说明书 Manual
便携箱 Carrying Case ---------- 1ea	原厂证书 Certification



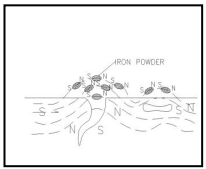
规格参数 / Specifications

电源 / Power Supply	AC 220V / 50 /60Hz	AC 110V / 50 /60Hz
电流 / Related Current	2.8 A 安培	4.0 A 安培
磁间距 / Available Pole Distances	中心杆距/Center pole distance----130 mm	
	最小磁间离/Minimum pole distance----80 mm	
	最大磁间距/Maximum pole distance--175 mm	
提升力 /Lifting power	大于 5.44 kg	
磁场强度/ Magnetomotive force	4,380 (A/T)	
磁化电流 / Magnetizing Current	仅限于 AC	
灯电压功率/Lamp	12V 10W	
灯照明度/ Lamp illumination	大于 2,000 Lux	
电缆长度 / Power Cable	4m (1.5Sq X 3p)	
重量 / Weight	3.2 kg(含磁头) 不含磁头 2.2 kg(磁头 0.5x2=1)=3.2 kg	
尺寸 / Dimensions	194(L) X 186(H) X 48(W)mm	
工作循环/ Duty Cycle	1 分钟开 , 1 分钟关	

交/直流磁化两用型磁粉探伤仪
HANDY MAGNA MP-100

MP-100 型磁粉探伤仪是具有交流/直流脉冲功能--可选择交流磁和直流磁功能的两用磁轭，通过转换为直流模式使用磁力水平控制，而交流方式形成了强交流磁场。
MP-100 交直流两用型便携式磁粉探伤仪可以很容易检测出工件表面和近表面区域，通常的强磁看不见的区域存在的顽固缺陷也能一览无余。**MP-100** 测试设备可方便地用于实验室，教育目的，工厂、装配零件、焊接件等领域。

This is equipment with the selective AC/DC pulse function by using the magnetic force level control capable of variously converting the DC mode, while the AC mode forms a strong AC magnetic field.
A portable MP-100 is equipment to easily detect flaws on the surface usually not seen by forming a firm and strong magnetic field. MP-100 is testing equipment capable of being conveniently used for the purpose of laboratory, education, assembly parts and welding part, etc.



标准配置 / Standard Configuration

主机 Handy Magna	1set	通用磁透 Universal Pole	1pair
电缆线 Power Cable	1ea	说明书 Manual	
便携箱 Carrying Case	1ea	原厂证书 Certification	

交直流两用磁轭 MP-100

特点：
由于制造的超小、超轻，故而使用方便；
选择交流/直流脉冲函数，表面近表面缺陷无处可藏；
适用于干燥，湿，荧光磁粉；
测试连接各种测头轻松检测各种复杂工件；
设备故障维修容易。

本产品的设计目的是最大限度地提高检测效率；用一个灵活的中间连接杆控制两个磁杆间磁头的角度和距离，从而磁间距任意调整，可以测量各种复杂工件。

HANDY MAGNA MP-100

Convenient to use due to manufacturing of super small or super light type
Selective AC/DC pulse function
To apply dry, wet and fluorescent magnetic particle
To test various objects to be tested by connecting middle poles
Easy to repair in failure of equipment

This product is designed to maximize inspection efficiency by controlling various angles and distance between poles by using a middle pole for connection.

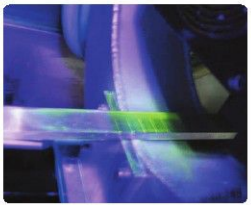
规格参数 / Specifications

电源 / Power Supply	AC 220V / 50 /60Hz	
磁化电流 / Related Current	AC : 2.12A （安培）	DC : 0.5A （安培）
磁间距 / Distance Between Magnetic Core Center	210㎜	
提升力 / Lifting power	AC : 5.44㎏ 以上	DC : 18.1㎏ 以上
磁化方法 / Magnetizing Current	AC / DC 手动转换	
电缆长度 / Power Cable Length	4.5m (VCTF 3P, 1.5)	
重量 / Weight	2.95㎏ (Including Power Cable)	
尺寸 / Dimensions	285(L) X 320(H) X 50(W)㎜	

COIL KIT Detector /
线圈式磁轭（O 型磁粉探伤仪）

MPC 系列磁粉探伤仪是非接触式磁化法（非接触穿过线圈磁化及退磁的方法）。交流线圈磁化，可用于棒材、复杂或小铸造和锻造产品的形状，即使对于初学者也很容易操作。

This detector is one of our Magnetic Particle Testing detector (MPC-Series) which is non contact Magnetization (Coil magnetization Method & Demagnetization by Distance along Method). AC Coil magnetizing, Can use it for complex or small shapes of casting and forging products, Very easy to operate even for beginners.



MPC-SM

特点：
紧凑，重量轻，
方便移动
线圈装置外壳材质：尼龙
线圈大小：内径ø120

Compact, light-weight and mobile coil device
Housing material: MC Nylon
Size ordered: Within ø120, inner diameter of coil

MPC-MS

特点：方便移动
线圈装置外壳材料：不锈钢
线圈尺寸：内径在ø200 ~ø250。

Heavy-weight and mobile coil device
Housing material: Stainless steel
Size ordered: Within ø200~ ø250, inner diameter of coil

MPC-LA

特点：
大型固定线圈装置
（可移动的制造工件）
外壳材质：铝合金
线圈大小：内径ø250

Large fixed coil device (mobile manufacturing available)
Housing material: Aluminum alloy
Size ordered: Overø250, inner diameter of coil

1. 规格型号 Specifications each model

规格型号/ Model	MPC-1216	MPC-1225	MPC-200-60	MPC-200-50	MPC-300
输入电源/ Input Power	1Φ 110	1Φ 220	1Φ 220	1Φ 220	1Φ 220
频率/ Frequency	60Hz	50Hz	60Hz	50Hz	60Hz
磁化电流/ Line Current	10A	12A	11A	15A	15A
磁力/ Magnetic Force	3,500T	4,500T	5,000T	5,000T	6,000T
控制方法/ Control Method	微开关 Micro Switch		脚踏开关 Foot Switch		
重量/ Weight	8 kg	8 kg	18 kg	18 kg	25 kg
线圈内径/ Coil Inside Diameter	Φ120	Φ120	Φ200	Φ200	Φ300
工作循环时间/ Duty Cycle Time	1:1 (50%)/ 1 分钟开，1 分钟关				

2. Basic Specification for MPC-1216 基本规范

1）尺寸外径：Φ220 x Φ120 x 88（内径长度，毫米），重 8kg
输入：1Φ AC 110V 60HZ 最大电流 9.8A 安培
2）输出功率磁力性能：交流 3500（A/T）
3）磁化时间：1：1 的占空比（50%）
4）控制方法：由手动微开关
5）退磁方法：距离的方法
6）输入电源线：1.25 ㎡电缆 x 3m l
7）检查方法：按说明书

永久磁铁——磁轭 Permanent Magnet PM-10

在一个难以供应电力地方，如结构的测试，能够方便快速地检测物体表面缺陷。

特点：
最大测试效率
无电源连接形成强磁场
适用于干燥，湿，荧光磁粉
优异的耐久性

Enable to easily and rapidly detect surface flaw of the object to be tested at a place difficult to supply power such as structures or welding part, etc or dangerous area such as electrical spark, etc.

Maximum testing efficiency
To form a strong magnetic field without power connection
To apply dry, wet and fluorescent magnetic particle
Excellent durability