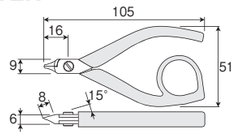
From_ASSEMBLY To_SERVICING

HOZAN

# catalog of tools for electronics 2018

## Precision diagonal cutters & Pliers

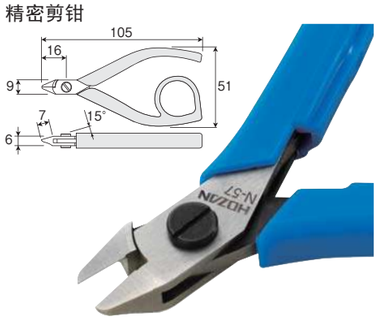
## N-55
**PRECISION DIAGONAL CUTTER**
精密剪钳



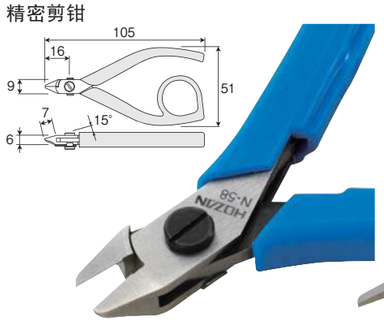

| Part no. 型号 | Cutting capacity 切断能力 | | Hardness HRC 硬度 | | Weight g 重量 |
|---|---|---|---|---|---|
| | Copper wire mmφ 铜线 | Copper stranded wire mm² 铜绞线 | Body 主体 | Blade 刃部 | |
| N-55 | 1.0 | 0.9 | 46 | 58 | 40 |
| N-57 | 1.0 | 0.9 | 46 | 60 | 40 |
| N-58 | 0.18 to 0.8※1 | 0.9 | 46 | 60 | 40 |
| P-51 | – | – | 46 | | 42 |

※1 effective nose stop range 有效范围为导线制动器

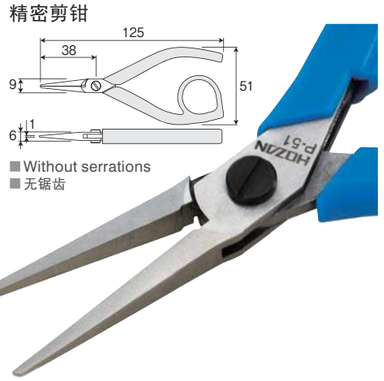
## N-57
**PRECISION DIAGONAL CUTTER**
精密剪钳




## N-58
**PRECISION DIAGONAL CUTTER**
精密剪钳



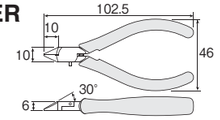

## P-51
**PRECISION PLIERS**
精密剪钳




■ Without serrations
■ 无锯齿

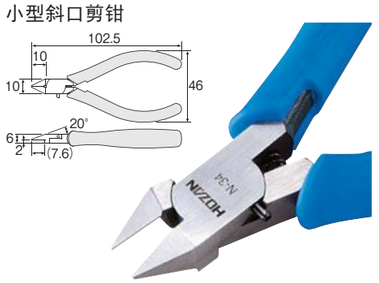
## Miniature diagonal cutter

## N-31
**MINIATURE DIAGONAL CUTTER**
小型斜口剪钳



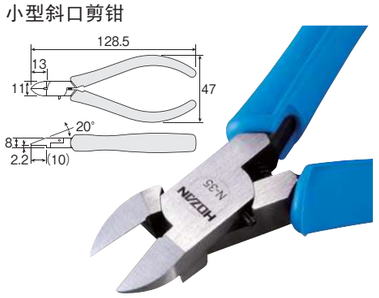

| Part no. 型号 | Cutting capacity 切断能力 | | Hardness HRC 硬度 | Weight g 重量 |
|---|---|---|---|---|
| | Copper wire mmφ 铜线 | Copper stranded wire mm² 铜绞线 | Blade 刃部 | |
| N-31 | 1.6 | 1.25 | 57 | 40 |
| N-34 | 1.0 | 1.25 | 57 | 40 |
| N-32 | 2.0 | 2 | 57 | 65 |
| N-35 | 1.6 | 2 | 57 | 65 |

## N-34
**MINIATURE DIAGONAL CUTTER**
小型斜口剪钳




## N-32
**MINIATURE DIAGONAL CUTTER**
小型斜口剪钳

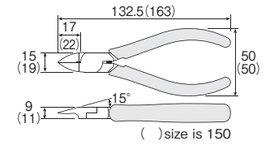
## N-35
**MINIATURE DIAGONAL CUTTER**
小型斜口剪钳




This product is free of the hazardous substances specified in the RoHS Regulations.
有此标记产品可提供ROHS 证

Products which safely prevent electrostatic damage, and which conform to the RCJS-5-1 standard.
符合 RCJS-5-1 标准的防静电产品

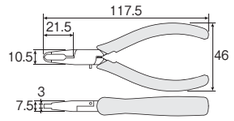
## N-25-125/150
**PLASTIC CUTTER**
细塑料剪钳



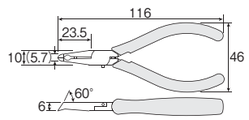

( )size is 150

| Part no. 型号 | Cutting capacity 切断能力 | | | Hardness HRC (blade) 硬度HRC（刃部） | Weight g 重量 |
|---|---|---|---|---|---|
| | Copper wire mmφ 铜线 | Copper stranded wire mm² 铜绞线 | Plastic mmφ 塑料 | | |
| N-25-125 | – | – | 5.0 | 52 | 90 |
| N-25-150 | – | – | 5.0 | 52 | 150 |
| N-36 | 1.0 | 0.9 | 1.5 | 56 | 58 |
| N-33 | 1.0 | 0.9 | – | 57 | 45 |

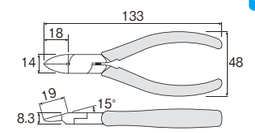
## N-36
**MINIATURE END CUTTER**
弯头剪钳



## N-33
**MINIATURE END CUTTER**
弯头剪钳

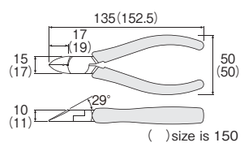


## N-23
**DIAGONAL CUTTER**
剪钳



| Part no. 型号 | Cutting capacity 切断能力 | | | Stripping hole mmφ 带剥线孔 | Hardness HRC (blade) 硬度HRC（刃部） | Weight g 重量 |
|---|---|---|---|---|---|---|
| | Steel wire mmφ 铁线 | Copper wire mmφ 铜线 | Copper stranded wire mm² 铜绞线 | | | |
| N-23 | – | 1.6 | 2 | – | 56 | 85 |
| N-9-125 | 1.6 | 2.6 | 2 | 1.2 | 59 | 105 |
| N-9-150 | 1.9 | 3.2 | 3.5 | 1.2/1.6 | 59 | 140 |
| N-12 | 1.9 | 3.2 | 3.5 | – | 60 | 160 |
| N-4-125 | 1.2 | 2.0 | 2 | – | 58 | 95 |
| N-4-150 | 1.4 | 2.6 | 2 | – | 58 | 140 |
| N-5-125 | 1.2 | 2.0 | 2 | 1.2 | 58 | 95 |
| N-5-150 | 1.4 | 2.6 | 3.5 | 1.2/1.6 | 58 | 140 |

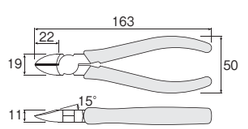
## N-9-125/150
**DIAGONAL CUTTER WITH STRIPPER**
剪钳（带剥线孔）



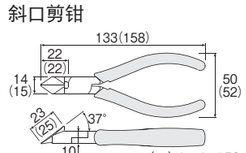

( )size is 150

N-9-150

## N-12
**DIAGONAL CUTTER**
剪钳



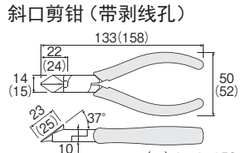
## N-4-125/150
**DIAGONAL CUTTER**
斜口剪钳




( )size is 150

N-4-150

## N-5-125/150
**DIAGONAL CUTTER WITH STRIPPER**
斜口剪钳（带剥线孔）

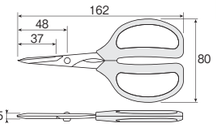



( )size is 150

N-5-150

## Snips

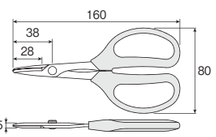
### N-838
**SNIPS**
强力型剪刀



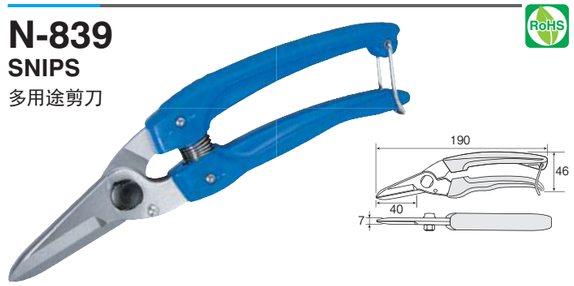

| Part no. 型号 | Cutting capacity 切断能力 Copper stranded wire mm² 电线 | Aluminum plate mm 铝合金板 | Coaxial cable 同轴电缆 | Steel wire mmφ 铁线 | VVR wire mm² VVR线 | VCT wire mm² VCT线 | Hardness HRC (blade) 硬度HRC（刃部） | Weight g 重量 |
|---|---|---|---|---|---|---|---|---|
| N-838 | 2 | 0.5 | — | — | — | — | 59 | 58 |
| N-841 | 2 | 0.7 | 5C-2V | 0.3 (Non heat treatment) (无热处理) | — | — | 59 | 60 |
| N-839 | 8 | 1.2 | — | — | 3.5 × 3 conductors 芯 | 3.5 × 4 conductors 芯 | 58 | 150 |

### N-841
**SNIPS**
强力型剪刀

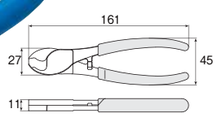
With serrated blade
带锯齿的剪刃可防止被剪切物滑掉。




### N-839
**SNIPS**
多用途剪刀

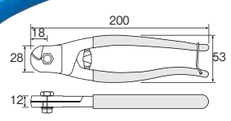



### N-18
**CABLE CUTTER**
电缆钳




| Cutting capacity 切断能力 VVF wire mmφ VVF线 | IV wire mm² IV线 | Hardness HRC (blade) 硬度HRC（刃部） | Weight g 重量 |
|---|---|---|---|
| 2.0 × 2 conductors 芯 | 22 | 53 | 167 |

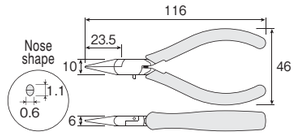
### N-16
**WIRE CUTTER**
钢丝钳




| Cutting capacity 切断能力 Wire mmφ 电缆 | Hardness HRC (blade) 硬度HRC（刃部） | Weight g 重量 |
|---|---|---|
| 5.0 (steel, stainless) （铁・不锈钢） | 62 | 335 |

## Miniature long nose pliers

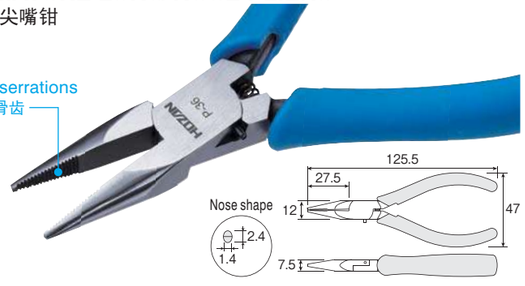
### P-35
**MINIATURE LONG NOSE PLIERS**
小型尖嘴钳



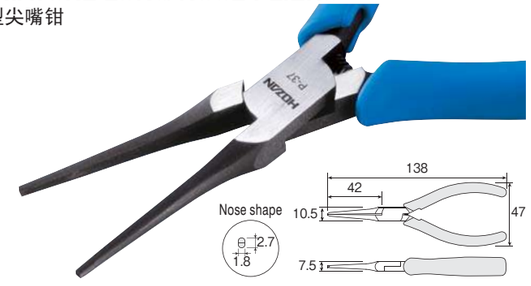

| Part no. 型号 | Hardness HRC 硬度 | Weight g 重量 |
|---|---|---|
| P-35 | 42 | 45 |
| P-36 | 46 | 65 |
| P-37 | 46 | 60 |

### P-36
**MINIATURE LONG NOSE PLIERS**
小型尖嘴钳

With serrations
带防滑齿

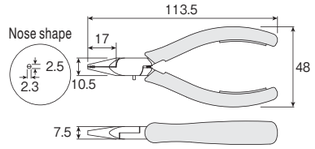



### P-37
**MINIATURE LONG NOSE PLIERS**
小型尖嘴钳

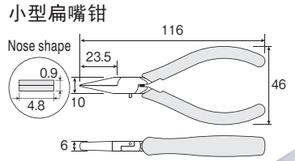


### P-33
**MINIATURE PLIERS**
小型钳子

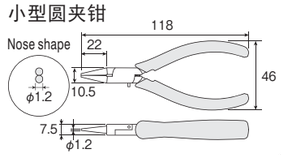
| Part no. 型号 | Hardness HRC 硬度HRC | Weight g 重量 |
|---|---|---|
| P-33 | 42 | 56 |
| P-34 | 42 | 40 |
| P-39 | 46 | 58 |




### P-34
**MINIATURE FLAT NOSE PLIERS**
小型扁嘴钳

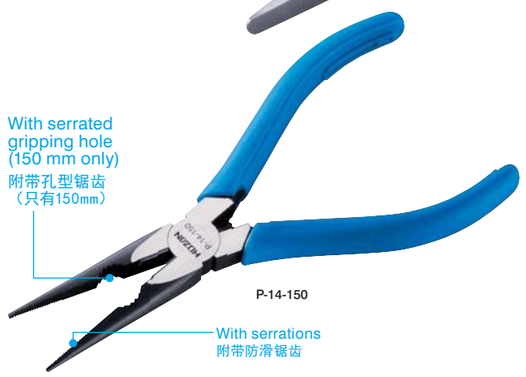


### P-39
**MINIATURE ROUND NOSE PLIERS**
小型圆夹钳

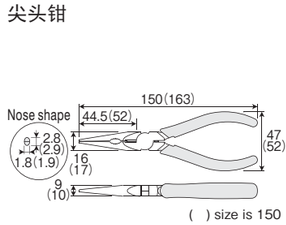



■ Nose size :
1.2mmφ (Tip diameter)
5mmφ (Base diameter)
■ 夹取部尺寸：1.2mmφ（尖端）
5mmφ（根部）

With serrated gripping hole (150 mm only)
附带孔型锯齿（只有150mm）



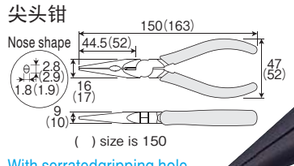

### P-14-125/150
**LONG NOSE PLIERS WITH SIDE CUTTER**
尖头钳




( ) size is 150

| Part no. 商品号 | Cutting capacity 切断能力 Copper wire mmφ 铜线 | Copper stranded wire mm² 铜绞线 | Hardness HRC (blade) 硬度HRC（刃部） | Weight g 重量 |
|---|---|---|---|---|
| P-14-125 | 2.6 | 2 | 58 | 100 |
| P-14-150 | | | | 125 |
| P-15-125 | | | | 100 |
| P-15-150 | | | | 125 |
| P-22 | | | | |

### P-15-125/150
**LONG NOSE PLIERS WITH SIDE CUTTER**
尖头钳



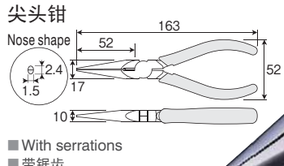

( ) size is 150

With serratedgripping hole (150 mm only)
附带孔型锯齿（只有150mm）

With serrations
附带防滑锯齿



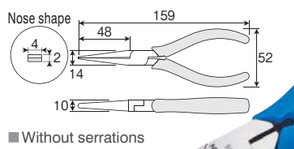
### P-22
**LONG NOSE PLIERS WITH SIDE CUTTER**
尖头钳




■ With serrations
■ 带锯齿

With serrations
附带防滑锯齿

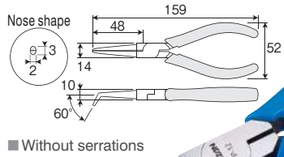
### P-16
**MINIATURE ROUND NOSE PLIERS**
平嘴尖头钳



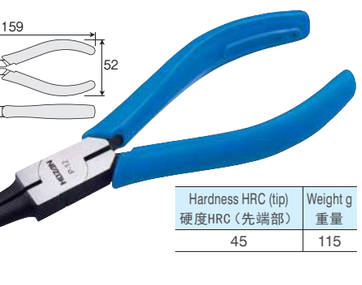

■ Without serrations
■ 不带锯齿

| Hardness HRC (tip) 硬度HRC（先端部） | Weight g 重量 |
|---|---|
| 45 | 115 |

### P-12
**MINIATURE ROUND NOSE PLIERS**
弯嘴尖头钳



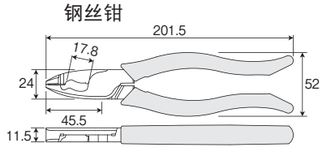

■ Without serrations
■ 不带锯齿



| Hardness HRC (tip) 硬度HRC（先端部） | Weight g 重量 |
|---|---|
| 45 | 115 |

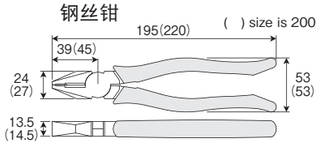
## Lineman's Pliers

### P-59-175
**LINEMAN'S PLIERS**
钢丝钳



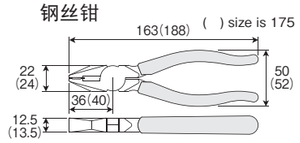
P-57-200

### P-57-175/200
**LINEMAN'S PLIERS**
钢丝钳



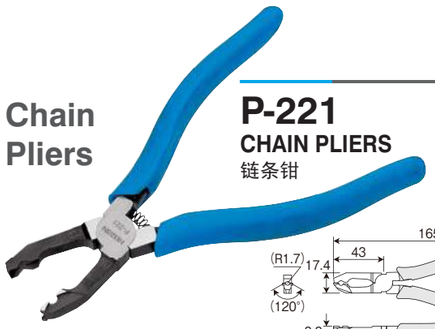
P-43-175

### P-43-150/175
**LINEMAN'S PLIERS**
钢丝钳

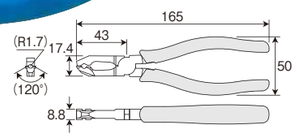



| Part no. 商品号 | Cutting capacity 切断能力 | | | Hardness HRC 硬度 | | Weight g 重量 |
|---|---|---|---|---|---|---|
| | Copper wire mmφ 铜线 | Copper stranded wire mm² 铜绞线 | VVF mmφ VVF线 | Tip 先端部 | Blade 刃部 | |
| P-59-175 | 2.6 | 5 | 2.0 × 3 wires 芯 | 58 | — | 245 |
| P-57-175 | 3.5 | 5.5 | 1.6 × 3 wires 芯 | — | 61 | 270 |
| P-57-200 | 4.0 | 5.5 | 2.0 × 3 wires 芯 | — | 61 | 370 |
| P-43-150 | 3.3 | 3.5 | 1.6 × 2 wires 芯 | — | 60 | 210 |
| P-43-175 | 3.5 | 5.5 | 1.6 × 2 wires 芯 | — | 60 | 288 |

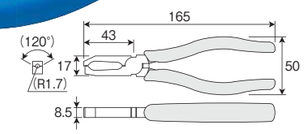
## Chain Pliers



### P-221
**CHAIN PLIERS**
链条钳



### P-220
**CHAIN PLIERS**
链条钳

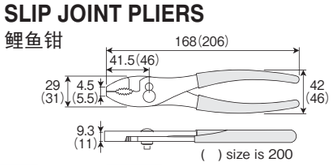



| Part no. 商品号 | Compatible chains 适用链条 | Working chain size 适用范围 | | | Weight g 重量 |
|---|---|---|---|---|---|
| | | For industrial machinery 主要用于工业机械 | For bicycles 自行车用 | For motorcycles 自主要用于摩托车 | |
| P-221 | Roller chains (clip types) 滚子链（弹簧夹子形） | 35 to 60 | 1/2 × 1/8 | 410 to 630 | 150 |
| P-220 | | 35 to 50 | | 410 to 530 | |

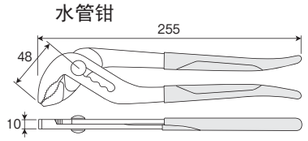
## Pliers

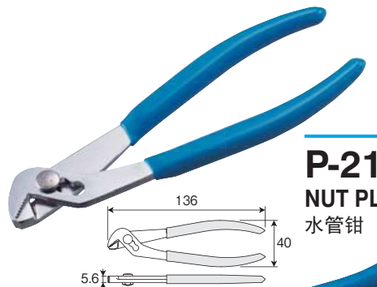
P-211Z-150

### P-211Z-150/200
**SLIP JOINT PLIERS**
鲤鱼钳



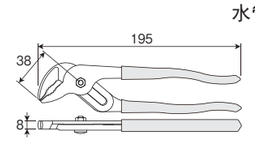
### P-245
**WATER PUMP PLIERS**
水管钳



### P-214
**NUT PLIERS**
水管钳

### P-244
**WATER PUMP PLIERS**
水管钳



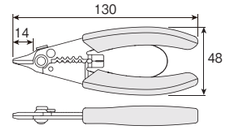

| Part no. 商品号 | Weight g 重量 |
|---|---|
| P-211Z-150 | 170 |
| P-211Z-200 | 270 |
| P-214 | 70 |
| P-244 | 200 |
| P-245 | 350 |





## WIRE STRIPPERS
## 剥线钳

| Part no. 商品号 | Weight g 重量 |
|---|---|
| P-970 | 58 |
| P-977 | |
| P-978 | |
| P-960 | 80 |
| P-963 | |
| P-967 | |
| P-968 | |




Common for P-970/977/978

### For metric sizes

**P-970**
For metric-sizes

**P-960**
For metric-sizes

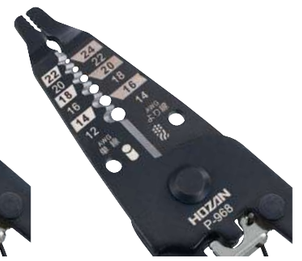
### For AWG sizes

**P-977**
For fine wires
细线用

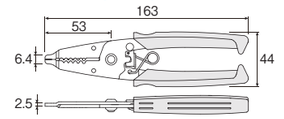
**P-978**
For medium-to-thick wires
中太線用

**P-963**
For very fine wires
Suitable for optical fibers
极细线用适用于光纤

**P-967**
For fine wires
细线用



**P-968**
For medium-to-thick wires
中太線用




Common for P-960/963/967/968

### Strippers compatibility table 剥线钳适用表

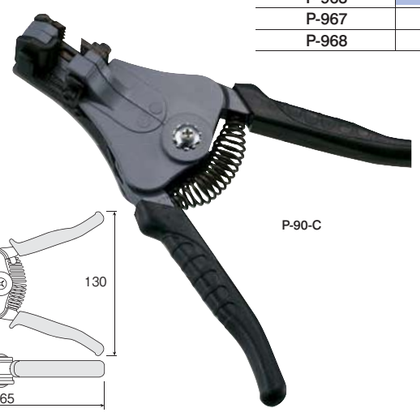
●For metric-sizes 适用于超细线

| Single wire (mmφ) 单线 | 0.65 | 0.8 | 1.0 | 1.6 | 2.0 |
|---|---|---|---|---|---|
| Stranded wire (mm²) 绞线 | 0.3 | 0.5 | 0.75 | 1.25 | 2.0 |
| P-970 | | | | | |
| P-960 | | | | | |

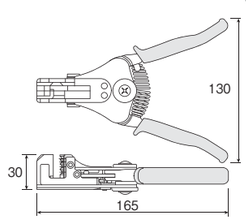
※1 P-963 is also equipped with 0.25 mmφ and 0.45 mmφ sizes.
※1 P-963有其他的0.25mmφ、0.45mmφ尺寸的的带孔型号。

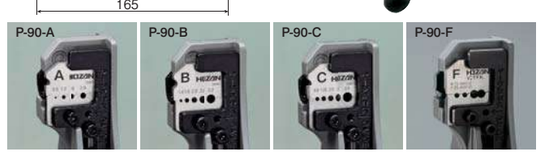
●For AWG sizes AWG线径电线用

| AWG | Single wire 单线 | 34 | 32 | 30 | 28 | 26 | 24 | 22 | 20 | 18 | 16 | 14 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Stranded wire 绞线 | – | 34 | 32 | 30 | 28 | 26 | 24 | 22 | 20 | 18 | 16 | 14 |
| Single wire (mmφ) 单线 | | 0.14 | 0.20 | 0.25 | 0.32 | 0.40 | 0.51 | 0.64 | 0.81 | 1.02 | 1.29 | 1.63 | 2.05 |
| Stranded wire (mm²) 绞线 | | 0.014 | 0.023 | 0.035 | 0.055 | 0.089 | 0.14 | 0.22 | 0.34 | 0.53 | 0.87 | 1.38 | 2.18 |
| P-977 | | | | | | | | | | | | | |
| P-978 | | | | | | | | | | | | | |
| P-963 | | | | ※1 | | | | | | | | | |
| P-967 | | | | | | | | | | | | | |
| P-968 | | | | | | | | | | | | | |



P-90-C




### P-90-A/B/C/F
**WIRE STRIPPERS**

With adjustable stop.
Stripping length can be set within a 4 to 25 mm range.

剥线钳
付带剥线量尺。
可设定4～25mm的剥线长度。

### Compatible wire size table 适用电线尺寸表

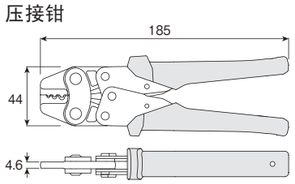
| AWG No. | | | | 24 | | | | 18 | | | 16 | | 14 | 12 | 10 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Min. single wire outer dia. (mm) 单股线最小外径 | | | | 0.51 | | | | 1.02 | | | 1.28 | | 1.61 | 2.03 | 2.56 | 3.28 |
| Stranded wire min. cross-sectional area mm² 绞线最小截面积 | | | | 0.20 | (JIS) 0.3 | (JIS) 0.5 | (JIS) 0.75 | 0.81 | (JIS) 0.9 | (JIS) 1.25 | 1.28 | (JIS) 2.0 | 2.04 | 3.24 | 5.16 | 8.20 |
| Stranded wire outer dia. mm ※1 绞线外径 | | | | 0.6 0.7 | 0.69 0.75 | 0.9 0.98 | 1.07 1.15 | 1.2 1.4 | 1.2～1.26 | 1.35 1.47 | 1.6 1.8 | 1.8 1.86 | 1.95 2.0 | 2.4 2.5 | 2.6 3.1 | 3.9 4.4 |
| P-90-A | Hole indications 对应表格 | Single wire mm 单线 | Single wire 单线 Stranded wire 绞线 | 0.5 | | | 1.2 1.6 | | | 2.0 | 1.2 | | 1.6 | 2.0 | | |
| P-90-B | | | Single wire 单线 Stranded wire 绞线 | | | 1.0 | 1.6 | 1.0 | | 2.0 | | 2.6 | 1.6 | 2.0 | 2.6 | 3.2 |
| P-90-C | | Stranded wire mm² 绞线 | Ⅳ Ⅳ线 Stranded wire 绞线 | | | | 0.9 (※2) | 0.9 | 1.25 | 1.25 | 2.0 | 2.0 | 3.5 | 5.5 | | |
| P-90-F | VCTFK wire (also usable for jacket) VCTFK线(对应内外被覆包装) | | | | | | 0.75/1.25 | | 0.75/1.25 | | | | | | | |

※1: The stranded wire outer dia. 绞线由软皮线构成的外径由厂商决定、多少会有差异。
※2: The plain wire structure vary somewhat according to the manufacturer. 由厂商而决定、不适用的场合也会出现。

## For uninsulated terminals and connectors (B / P)
## 裸压接端子·裸压接套筒(B·P)用

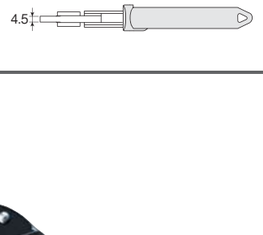
Leaves a crimp mark on the terminal.
压接完成后、在压接端子上会被印上压接口尺寸。

### P-726
**CRIMPING TOOL**
压接钳

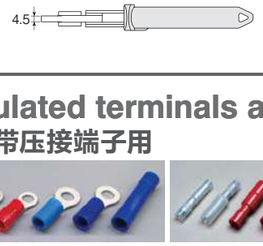



| Part no. 商品号 | Sizes 适用尺寸 | Crimp marking 压接后的标记 | Weight g 重量 |
|---|---|---|---|
| P-726 | 0.3 / 0.5 / 1.25 / 2 | 0 / 1 / 2 | 290 |
| P-732 | 1.25 / 2 | 0 / 1 | 270 |
| P-722 | 1.25 / 2 | 0 / 1 | 275 |
| P-75 | 1.25 / 2 / 5.5 / 8 | 1 / 2 / 5 / 8 | 390 |

### P-732
**CRIMPING TOOL**
压接钳



### P-722
**CRIMPING TOOL**
压接钳

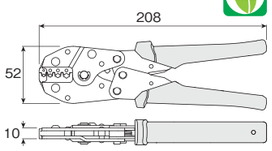


### P-75
**CRIMPING TOOL**
压接钳

## For insulated terminals and connectors
## 绝缘被覆带压接端子用

Leaves a crimp mark on the terminal.
压接完成后、在压接端子上会被印上压接口尺寸。

### P-743
**CRIMPING TOOL**
The handle opening width is adjustable to be used in small width.
压接钳
依据调整手柄张开度的机构即使张开幅度很小也能作业。



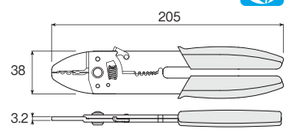

| Nominal sizes 名称 | Connector manufacturer 适用端子厂商 | Compatible wire sizes (reference) 适用电线尺寸（参考） AWG# | mm² | Crimp marking 压接后的标记 | Weight g 重量 |
|---|---|---|---|---|---|
| 0.5※ | JST Fuji Terminal Industry 日本压接端子製造 富士端子工業 | 24 to 22 | 0.2 to 0.3 | ● | 365 |
| 0.3/0.5※ | Common to all manufacturers 各社通用 | 24 to 20 | 0.2 to 0.5 | ●● | |
| 1.25 | | 20 to 16 | 0.5 to 1.65 | 1 | |
| 2 | | 16 to 14 | 1.04 to 2.63 | 2 | |

※ For JST and Fuji Terminal Industry brand "noted terminals" with a nominal size of 0.5, and a wire size of 0.2 to 0.3 mm², the appropriate die must be selected according to the wire type.
※ 日本压接端子制造制、富士端子工业制的场合的注意点端子的称呼为0.5、电线尺寸为0.2～0.3mm²的情况下请跟据电线的种类选择尺寸。

## For uninsulated terminals and connectors & insulated terminals and connectors
## 裸压接端子·绝缘压接端子用(简易型)

### P-704
**CRIMPING TOOL**
压接钳

| Screw cutter mm 螺钉剪切 | Wire stripper mm² 剥线器 | Sizes 适用尺寸 | Weight g 重量 |
|---|---|---|---|
| 3 / 3.5 / 4 | 0.3 / 0.5 / 0.75 / 1.25 / 2 | 1.25 / 2 / CE1 / CE2 | 210 |

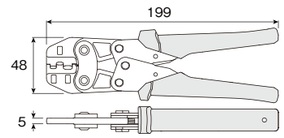


## For insulated closed end terminals 绝缘闭端子用

Leaves a crimp mark on the terminal.
压接完成后、在压接端子上会被印上压接口尺寸。

### P-736
**CRIMPING TOOL**

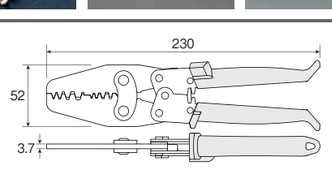
| Sizes 适用尺寸 | Crimp marking 压接后的标记 | Weight g 重量 |
|---|---|---|
| CE1 / CE2 / CE5 | 1 / 2 / 5 | 315 |

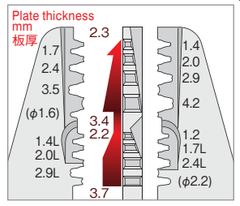


## For open barrel terminals/contacts 开放型接线用

### P-707
**CRIMPING TOOL**
压接钳

| Wire sizes 适用电线尺寸 | Weight g 重量 |
|---|---|
| AWG#30 to #14 | 320 |



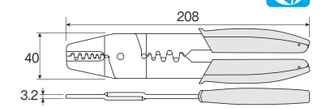



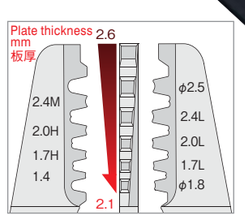

| | Nominal sizes 名称 | Die width mm 宽度 | Crimp height mm 卷曲 | Compatible wire sizes 适用芯线（参考） AWG# | mm² | Insulation OD mmϕ 适用绝缘外径（参考） |
|---|---|---|---|---|---|---|
| For conductor 芯線用 | 1.2 | 1.2 | 0.4 | 30 to 24 | 0.05 to 0.2 | |
| | 1.4L | 1.4 | 0.55 | 30 to 20 | 0.05 to 0.5 | |
| | 1.7L | 1.7 | 0.65 | 28 to 18 | 0.08 to 0.8 | |
| | 2.0L | 2.0 | 0.8 | 26 to 16 | 0.13 to 1.25 | |
| | 2.4L | 2.4 | 1.1 | 20 to 14 | 0.5 to 2.0 | |
| | 2.9L | 2.9 | 1.5 | 18 to 14 | 0.8 to 2.0 | |
| For insulation 被覆用 | 1.4 | 1.4 | 1.1 | | | 0.7 to 1.2 |
| | 1.7 | 1.7 | 1.3 | | | 0.9 to 1.5 |
| | 2.0 | 2.0 | 1.35 | | | 1.1 to 1.8 |
| | 2.4 | 2.4 | 1.75 | | | 1.3 to 2.2 |
| | 2.9 | 2.9 | 2 | | | 1.6 to 2.6 |
| | 3.5 | 3.5 | 2.4 | | | 1.9 to 3.2 |
| | 4.2 | 4.2 | 2.6 | | | 2.3 to 3.8 |
| For insulation (for round crimps) 被覆用（圆形压接用） | ϕ1.6 | 1.6 | 1.5 | | | 1.0 to 1.6 |
| | ϕ2.2 | 2.2 | 1.8 | | | 1.6 to 2.2 |



### P-706
**CRIMPING TOOL**
压接钳

| Wire sizes 适用电线尺寸 | Weight g 重量 |
|---|---|
| AWG#28 to #14 | 200 |



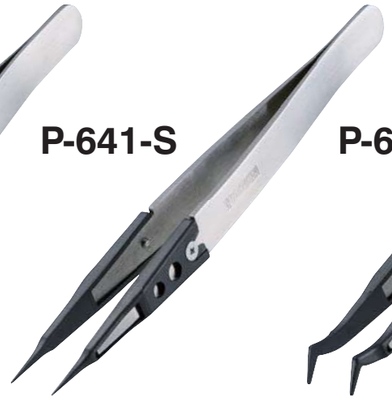

| | Nominal sizes 名称 | Die width mm 宽度 | Crimp height mm 卷曲 | Compatible wire sizes 适用芯线（参考） AWG# | mm² | Insulation OD mmϕ 适用绝缘外径（参考） |
|---|---|---|---|---|---|---|
| For conductor 芯线用 | 1.4 | 1.4 | 0.7 | 28～24 | 0.08～0.2 | 0.7～1.2 |
| | 1.7L | 1.7 | | 28～22 | 0.08～0.3 | 0.9～1.5 |
| | 1.7H | | 1.1 | 24～18 | 0.2～0.8 | |
| | 2.0L | 2.0 | 0.9 | 28～18 | 0.08～0.8 | 1.1～1.8 |
| | 2.0H | | 1.3 | 24～18 | 0.2～0.8 | |
| | 2.4L | 2.4 | 1.2 | 20～16 | 0.5～1.25 | 1.3～2.2 |
| | 2.4M | | 1.5 | 16～14 | 1.25～2.0 | |
| For insulation 被覆用 | 2.4H | 2.4 | 2.4 | | | 1.3～2.2 |
| | 2.8 | 2.8 | 2.8 | | | 1.6～2.6 |
| | 3.2 | 3.2 | 3.2 | | | 1.8～3.0 |
| | 3.7 | 3.7 | 3.7 | | | 2.1～3.5 |
| For insulation (for round crimps) 被覆用（圆形压接用） | ϕ1.8 | 1.8 | 1.4 | | | 1.2～1.8 |
| | ϕ2.5 | 2.5 | 2.1 | | | 1.8～2.5 |
| | ϕ4.0 | 4.0 | 3.5 | | | 2.3～3.8 |

## Tip is replaceable Tweezers
## 尖端可交换镊子

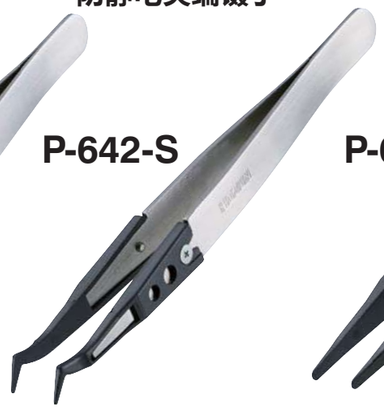
### ESD TIP TWEEZERS
### 防静电尖端镊子

**P-640-S**

**P-641-S**



**P-642-S**



**P-643-S**

**P-644-S**

**P-645-S**

**P-650-S**

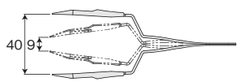
**P-640-P**

**P-644-P**

### PLASTIC TIP TWEEZERS
### 塑料镊子

**P-610-G**
ELASTOMER TIP TWEEZERS
尖端柔软镊子

**P-848**
ESD TIP TWEEZERS
防静电尖端镊子



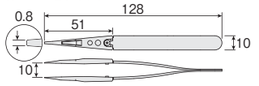

| Part no. 型号 | Tip width 尖端宽 A | B | C | D | Tip width 尖端宽 | Material 材質 tip 镊子头 | handle 本体 | Tip color 镊子头颜色 | Heat resistant temp. (tip) °C 耐热温度（镊子头） | ESD standard Ω ESD管理值 | Weight g 重量 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P-640-S | 125 | 48 | 10 | 10 | 1.2 | PEEK | Stainless 不锈钢 | Black 黑 | 315 | Rg<1×10¹² | 17 |
| P-641-S | | | | | 0.4 | | | | | | |
| P-642-S | | | | | 1.0(R-type/R型) | | | | | | |
| P-643-S | 124 | 47 | | | 2.4(R-type/R型) | | | | | | |
| P-644-S | 125 | 48 | | | 0.6 | | | | | | |
| P-645-S | | | | | 6.0 | | | | | | |
| P-650-S | | | | | 1.2 | | Aluminum 铝 | | | | 8 |
| P-640-P | | | | | | PBT | Stainless 不锈钢 | White 白 | 220 | – | 17 |
| P-644-P | | | | | 0.6 | | | | | | |
| P-610-G | 125 | 49 | | | 2.0 | POLYPROPYLENE + ELASTOMER 聚丙烯+弹簧材质 | | White + gray 白+灰 | 100 | | |
| P-848 | | | | 9～40 | 1.2 | PEEK | | Black 黑 | | Rg<1×10¹² | 19 |

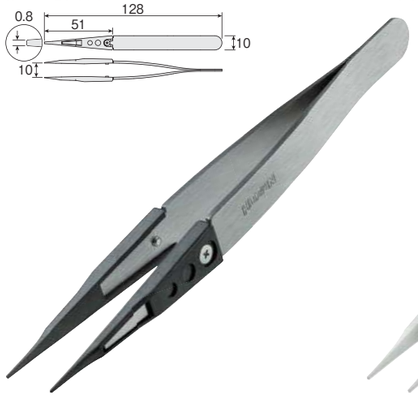




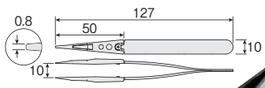
## CERAMIC TWEEZERS
## 陶瓷镊子

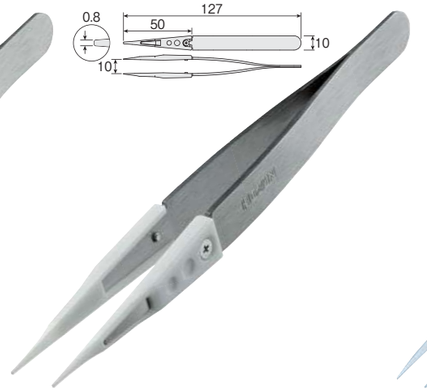
**P-646-D**
ESD CERAMIC TIP TWEEZERS
防静电陶瓷镊子



**P-646-C**
CERAMIC TIP TWEEZERS
陶瓷镊子



**P-890**
CERAMIC TWEEZERS
陶瓷镊子

| Part no. 型号 | Tip width mm 先端幅 | Material 材質 tip 镊子头 | handle 本体 | ESD standard Ω ESD管理值 | Weight g 重量 | Heat resistant temp. (tip) °C 耐热温度（镊子头） |
|---|---|---|---|---|---|---|
| P-646-D | 0.8 | Zirconia ceramic 陶瓷 | Stainless 不锈钢 | Rg<1×10¹² | 22 | 1200 |
| P-646-C | | | | | | |
| P-890 | 0.5 | | Polyacetal 塑料 | – | 8 | 700 |

## Heavy-duty tweezers
## 強力型镊子

**P-891**
TWEEZERS
镊子

**P-892**
TWEEZERS
镊子

**P-894**
TWEEZERS
镊子

### TWEEZERS
### 镊子

**P-898**
TWEEZERS
镊子

**P-895**
TWEEZERS
镊子

**P-887**
CURVED TWEEZERS
弯尖嘴镊子

**P-899**
TWEEZERS
镊子

| Part no. 型号 | Tip width 尖端宽 A | B | C | Tip width 尖端宽 | Sheet thickness mm 板厚 | Material 材质 | Weight g 重量 |
|---|---|---|---|---|---|---|---|
| P-891 | 125 | 9.5 | 8 | 0.6 | 2.3 | Stainless 不锈钢 (SUS420J2) | 23 |
| P-892 | | | 9 | 1.2 | | | |
| P-894 | | | 8 | 0.25 | 2.0 | | 17 |
| P-898 | 110 | 10 | 7 | | | | |
| P-887 | 130 | | 8 | 0.6 | | | 26 |
| P-895 | 150 | 9.5 | 10 | 0.5 | 2.5 | | 28 |
| P-899 | 110 | | 8 | | | | 25 |

PP-110 PP-111 PP-112 PP-114

## TWEEZERS 镊子

| Part no. 型号 | Tip width 尖端宽 A | | | | Material 材質 | Weight g 重量 |
|---|---|---|---|---|---|---|
| | A | B | C | Tip width 尖端宽 | | |
| PP-110 | 125 | 10 | 8 | 0.3 | Stainless 不锈钢 (SUS316L) | 19 |
| PP-111 | 115 | | | | | |
| PP-112 | | | | | | 17 |
| PP-114 | 140 | 9 | | | | |

Short type with a total length less than 100 mm
短型，总长度小于100毫米

P-653 P-654

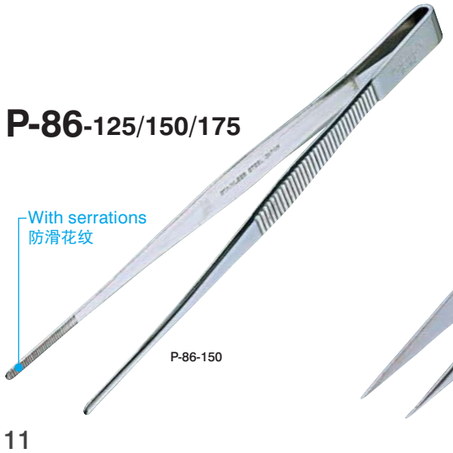
## TWEEZERS 镊子

| Part no. 型号 | Tip width 尖端宽 A | | | | Material 材質 | Weight g 重量 |
|---|---|---|---|---|---|---|
| | A | B | C | Tip width 尖端宽 | | |
| P-653 | 70 | 7 | 6 | 0.2 | Stainless 不锈钢(SUS316L) | 7 |
| P-654 | 90 | 7.5 | | | | 10 |

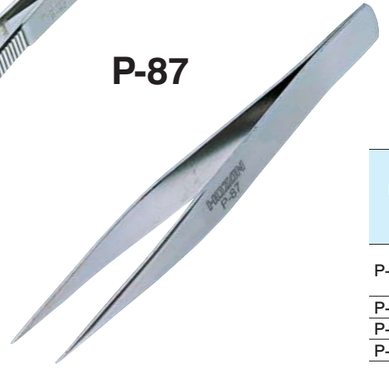
P-880 TWEEZERS 镊子
P-881 TWEEZERS 镊子
P-882 CURVED TWEEZERS 弯尖嘴镊子
P-886 TWEEZERS 镊子

## TWEEZERS 镊子

| Part no. 型号 | A | B | C | Material 材質 | Weight g 重量 |
|---|---|---|---|---|---|
| P-880 | 120 | 10 | 7 | Stainless 不锈钢 (SUS304) | 19 |
| P-881 | 110 | | | | 17 |
| P-882 | 115 | | | | 18 |
| P-886 | 125 | 12 | 10 | | 27 |




P-86-125/150/175



P-87

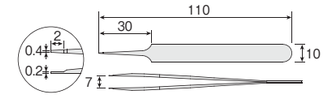
## TWEEZERS 镊子

| Part no. 型号 | A | B | C | Material 材質 | Weight g 重量 |
|---|---|---|---|---|---|
| P-87 | 125 | 11 | 13 | Stainless 不锈钢 (SUS410) | 16 |
| P-86-125 | 130 | 10 | 18 | Stainless 不锈钢 (SUS430) | 14 |
| P-86-150 | 150 | | 25 | | 26 |
| P-86-175 | 175 | | 30 | | 32 |

Ultra-thin tip
极细型

## P-873 TWEEZERS 镊子

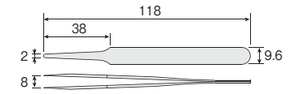
| Tip size mm 尖端宽 | | Material 材質 | Weight g 重量 |
|---|---|---|---|
| Width 宽 | Thickness 厚度 | | |
| 0.4 | 0.2 | Stainless (SUS316L) 不锈钢 | 13 |



Spatula-shaped tips
平头

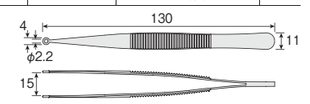
## P-888 TWEEZERS 镊子

| Tip size mm 尖端宽 | Material 材質 | Weight g 重量 |
|---|---|---|
| 2 (R-type) (R型) | Stainless (SSUS420J2) 不锈钢 | 15 |



## P-878 TWEEZERS 镊子

| Tip size mmϕ 尖端宽 | | Material 材質 | Weight g 重量 |
|---|---|---|---|
| Width 宽 | Thickness 厚度 | | |
| 4 | 2.2 | Stainless (SUS304) 不锈钢 | 18 |





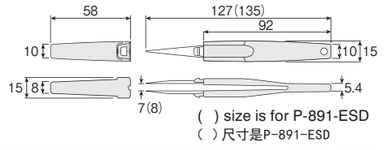

P-881-ESD

P-891-ESD

Use this ESD soft grip on your standard tweezers to make them ESD safe.
防静电，手柄柔软的镊子

## ESD CUSHION GRIP TWEEZERS 防静电带套镊子

| Part no. 型号 | Material 材質 | | Weight g 重量 | ESD standard Ω ESD管理值 |
|---|---|---|---|---|
| | Grip / Cap 橡胶 | Tweezers 镊子 | | |
| P-881-ESD | Elastomer 橡胶 | Stainless 不锈钢 (SUS304) | 26 | Rg<1×10¹² |
| P-891-ESD | | Stainless 不锈钢 (SUS420J2) | 32 | |

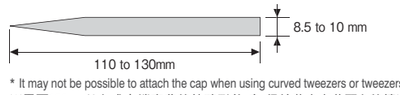



( ) size is for P-891-ESD
( ) 尺寸是P-891-ESD

## P-845 ESD CUSHION GRIP 带套镊子

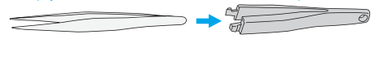
| Material 材質 | Weight g 重量 | ESD standard Ω ESD管理值 |
|---|---|---|
| Elastomer 橡胶 | 9 | Rg<1×10¹² |

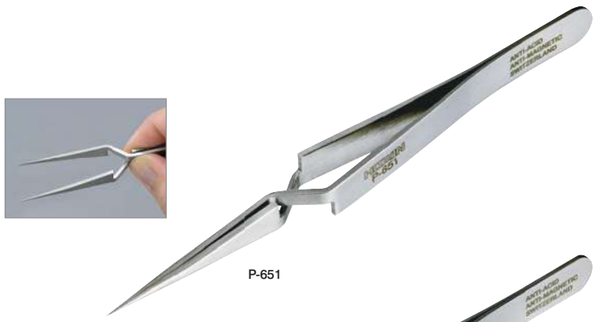
Usable tweezers size 可使用的镊子尺寸




* It may not be possible to attach the cap when using curved tweezers or tweezers longer than 130 mm, etc.
※需要130mm以上或尖端弯曲的特殊形状时，保护盖会有盖不上的情况。

Simply insert and secure with adhesive tape! 插入后仅用胶布固定！





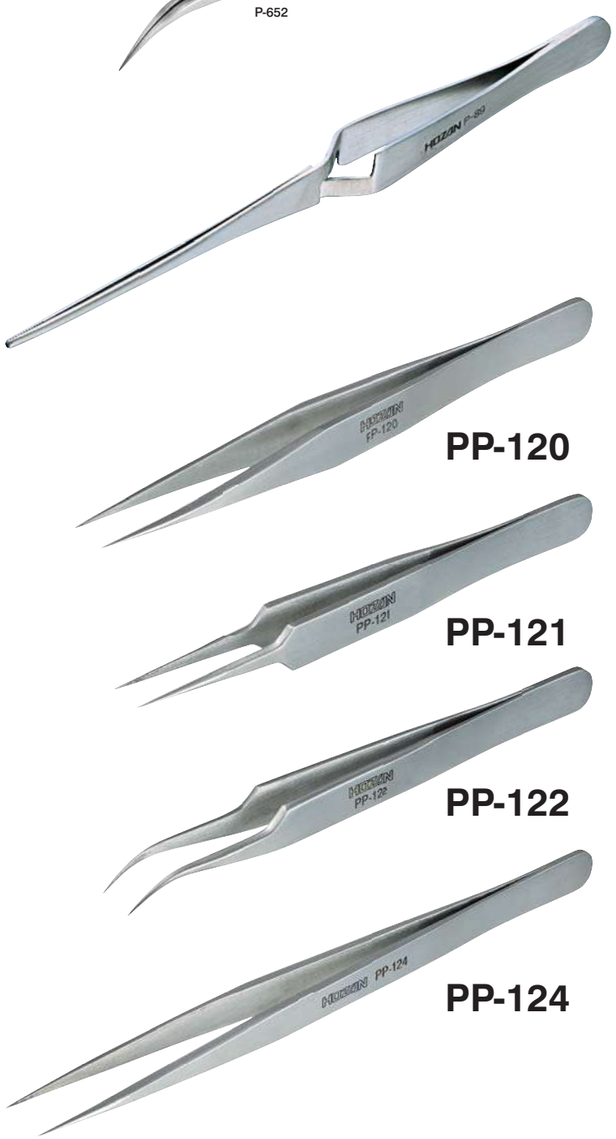

## P-651/P-652
### REVERSE ACTION TWEEZERS
反作用镊子

| Part no. 型号 | A | B | Tip width 尖端宽 | Max. open width 最大开口宽 | Material 材质 | Weight g 重量 |
|---|---|---|---|---|---|---|
| P-651 | 118 | 9.8 | 0.2 | 15 | Stainless (SUS316L) 不锈钢 | 13 |
| P-652 | 115 | 9.5 | | | | |

## P-89
### REVERSE ACTION TWEEZERS
反作用镊子

| OAL mm 全长 | Tip width mm 前端宽 | Max. open width mm 最大开口宽 | Material 材质 | Weight g 重量 |
|---|---|---|---|---|
| 165 | 2 | approx. 20 約 | Stainless (SUS304) 不锈钢 | 28 |

With slip-prevention serrations
防滑花纹



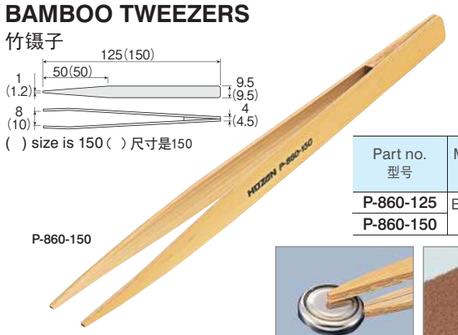

## TITANIUM TWEEZERS
### 钛镊子

| Part no. 型号 | A | B | C | Tip width 前端宽 | Material 材質 | Weight g 重量 |
|---|---|---|---|---|---|---|
| PP-120 | 125 | 10 | 8 | 0.3 | 64 Titanium alloy 64钛合金 | 13 |
| PP-121 | 115 | | | | | 11 |
| PP-122 | | | | | | |
| PP-124 | 140 | 9 | | | | 12 |





## P-860-125/150
### BAMBOO TWEEZERS
竹镊子

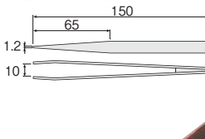


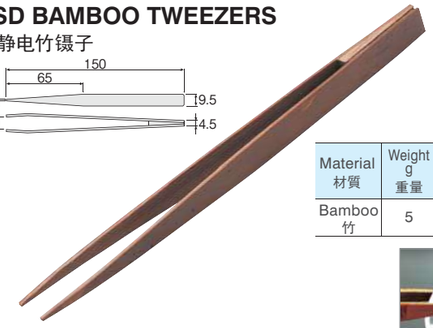

| Part no. 型号 | Material 材质 | Weight g 重量 |
|---|---|---|
| P-860-125 | Bamboo 竹 | 4 |
| P-860-150 | | 5 |

No short even if a battery is grasped.
夹取电池不会短路。

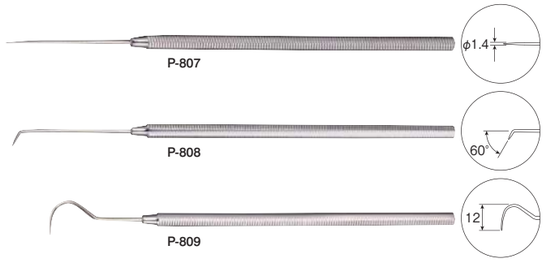
Can be sanded with sandpaper.
可用砂纸进行研磨

## P-863-150
### ESD BAMBOO TWEEZERS
防静电竹镊子



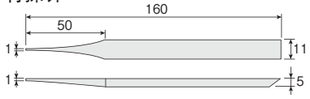
| Material 材質 | Weight g 重量 | ESD standard Ω ESD管理值 |
|---|---|---|
| Bamboo 竹 | 5 | Rg<1×10¹² |



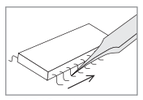

## P-807~P-809
### STAINLESS PROBE
不锈钢探针

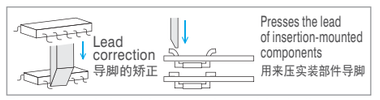
| Part no. 型号 | Amm | Bmm | Cmm | Tip width mm 尖端宽 | Material 材質 | Weight g 重量 |
|---|---|---|---|---|---|---|
| P-807 | 150 | 40 | 4.5 | 0.1 | Stainless 不锈钢 | 14 |
| P-808 | | 38 | | | | |
| P-809 | 140 | 31 | | | | |

## P-806
### BAMBOO PROBE
竹探针



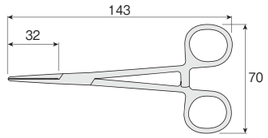

| Quantity 入数 | Material 材質 | Weight g 重量 |
|---|---|---|
| 2 pieces 2本 | Bamboo 竹 | 5 |


FLAT IC solder check
FICの未焊接确认



The scraper is ideal for removing solder balls.
刮刀形状适用于除锡渣

## P-843
### FORCEPS
零部件固定夹

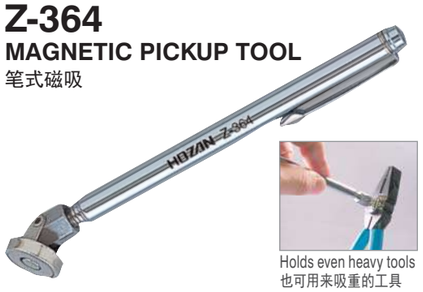


With lock (3-step)
锁紧设计（3段式）

With serrations
防滑设计

| Material 材質 | Weight g 重量 |
|---|---|
| Stainless 不锈钢 | 30 |

## Z-364
### MAGNETIC PICKUP TOOL
笔式磁吸



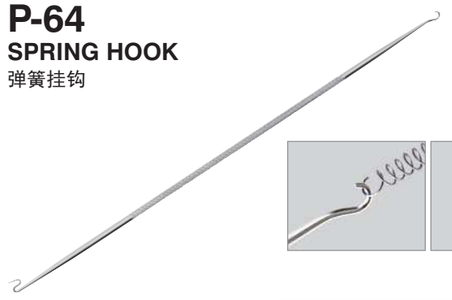


Holds even heavy tools
也可用来吸重的工具

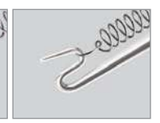
For access to narrow places
狭小缝隙

| OAL mm 全长 | Magnet power mT 磁力 | Magnet dia. mm 磁石径 | Weight g 重量 |
|---|---|---|---|
| 140 (max. 最大 630) | 120 (1200 Gauss) | 19 | 45 |

## P-64
### SPRING HOOK
弹簧挂钩







| OAL mm 全长 | Handle diameter mmϕ 手柄直径 | Material 材質 | Weight g 重量 |
|---|---|---|---|
| 200 | 3 | Stainless 不锈钢 | 9 |

## D-530~D-555 ⊕

**PHILLIPS SCREWDRIVER**

十字螺丝刀

| Part no. 型号 | Tip size 前端尺寸 | OAL mm 全长 | Blade length mm 轴长 | Blade diameter mmφ 軸径 | Handle diameter mmφ 手柄直径 | Weight g 重量 |
|---|---|---|---|---|---|---|
| D-530-75 | ⊕No.00 | 124 | 75 | 3.0 | 15.4 | 9 |
| D-540-100 | ⊕No.0 | 178 | 100 | 4.0 | 19.8 | 25 |
| D-550-100 | ⊕No.1 | 200 | | 5.0 | 30.0 | 57 |
| D-555-100 | ⊕No.2 | | | | | |
| D-555-300 | | 410 | 300 | 6.0 | 33.5 | 124 |

## D-630~D-655 ⊖

**SLOTTED SCREWDRIVER**

一字螺丝刀

| Part no. 型号 | Tip size mm 前端尺寸 | OAL mm 全长 | Blade length mm 轴长 | Blade diameter mmφ 軸径 | Handle diameter mmφ 手柄直径 | Weight g 重量 |
|---|---|---|---|---|---|---|
| D-630-75 | ⊖2.5×0.35 | 124 | 75 | 3.0 | 15.4 | 9 |
| D-630-100 | | 149 | 100 | | | 10 |
| D-640-100 | ⊖4.0×0.45 | 178 | | 4.0 | 19.8 | 25 |
| D-650-100 | ⊖5.0×0.7 | 200 | | 5.0 | 30.0 | 57 |
| D-655-100 | ⊖5.5×0.8 | | | | | |

## D-331/D-332 ⊕⊖

**ELECTRICIAN'S SLOTTED SCREWDRIVER**
**ELECTRICIAN'S PHILLIPS SCREWDRIVER**

电工螺丝刀

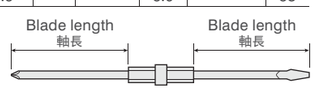
| Part no. 型号 | Tip size mm 前端尺寸 | OAL mm 全长 | Blade length mm 轴长 | Blade diameter mmφ 軸径 | Handle diameter mmφ 手柄直径 | Weight g 重量 |
|---|---|---|---|---|---|---|
| D-331-100 | ⊖6.0×1.0 | 200 | 100 | 6.4 | 40 | 120 |
| D-331-150 | | 250 | 150 | | | 130 |
| D-332-100 | ⊕No.2 | 200 | 100 | | | 120 |
| D-332-150 | | 250 | 150 | | | 130 |

## D-52~D-58 ⊕⊖

**REVERSIBLE SCREWDRIVER**

可替换螺丝刀

| Part no. 型号 | Tip size mm 前端尺寸 | OAL mm 全长 | Blade length mm 轴长 | Blade diameter mmφ 軸径 | Handle diameter mmφ 手柄直径 | Weight g 重量 |
|---|---|---|---|---|---|---|
| D-52 | ⊕No.00/ ⊖2.5×0.4 | 181 | 57+57 | 3.0 | 29.5 | 40 |
| D-54 | ⊕No.1/ ⊖4.0×0.55 | | | 5.0 | | 53 |
| D-58 | ⊕No.2/ ⊖5.5×0.9 | | | 6.0 | | 63 |




The "total length" includes the handle.
全长是指组装上批头的总长

## D-44 ⊕⊖

**REVERSIBLE SCREWDRIVER SET**

可替换螺丝刀

| Set contents 配置明细 | D-52/D-54/D-58 |
|---|---|
| Weight 重量 | 161g |

## D-59 ⊕⊖

**REVERSIBLE STUBBY SCREWDRIVER**

可替换螺丝刀

| Tip size mm 前端尺寸 | OAL mm 全长 | Blade length mm 轴长 | Blade diameter mmφ 軸径 | Handle diameter mmφ 手柄直径 | Weight g 重量 |
|---|---|---|---|---|---|
| ⊕No.2/⊖6.0×0.8 | 89 | 17+17 | 6.0 | 35.5 | 45 |

## D-68/D-69 ⊕⊖

**STUBBY SCREWDRIVER**

螺丝刀

| Part no. 型号 | Tip size mm 前端尺寸 | OAL mm 全长 | Blade length mm 轴长 | Blade diameter mmφ 軸径 | Handle diameter mmφ 手柄直径 | Weight g 重量 |
|---|---|---|---|---|---|---|
| D-68 | ⊖6.0×0.9 | 83 | 35 | 6.0 | 35.5 | 45 |
| D-69 | ⊕No.2 | | | | | |

Socket size 12.7 mm
差込角12.7mm

## D-963 ⊕⊖

**IMPACT SCREWDRIVER**

A 12.7 mm square (1/2" sq) socket can be attached by removing the tip holder.
Left/right selectable rotation.

冲击螺丝刀

取出螺丝刀头的话，可以安装12.7mm角(1/2sp）的插口。
左右转动转换式。

| Accessory bits 标配批头 | ⊕No.2/⊕No.3/⊕No.4/⊖10mm (total length: 36 mm)（全长36mm） ⊕No.2/⊕No.3 (total length: 80 mm)（全长80mm） |
|---|---|
| Bit width-across-flats 批头对连连 | 8mm |
| Handle diameter 手柄直径 | 37.5mmφ |
| Weight 重量 | 880g |

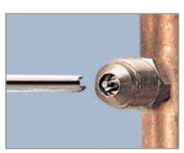
■ With case
■ 带工具盒

## D-745 LR41

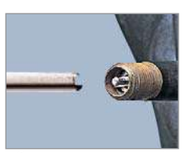
**LED VOLTAGE CHECKER**

LED测电笔

| Voltage range V 适应范围 | Tip size mm 先端尺寸 | OAL mm 全长 | Blade length mm 轴长 | Blade diameter mm 軸径 | Handle diameter mm 手柄直径 | Weight g 重量 |
|---|---|---|---|---|---|---|
| AC100～240 | ⊖2.5×0.6 | 139 | 17 | 2.5 | 16 | 23 |



Device valve for piping
配管用機器阀



USA type tamper-proof
美式气管阀

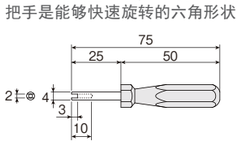
## D-13

**VALVE CORE SCREWDRIVER**

A dedicated valve core screwdriver for Schrader valves (for tire tubes).

真空用螺丝刀

用于美式真空（内胎用）的里面装拆的便利的螺丝刀
把手是能够快速旋转的六角形状




| Handle diameter 手柄直径 | 10.0mmφ |
|---|---|
| Weight 重量 | 8g |

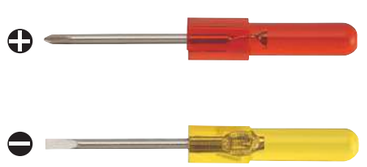
## D-20 ⊕⊖

### PRECISION SCREWDRIVER SET
精密螺丝刀组

| Set contents 配置明细 | Pouch dimensions mm 工具包尺寸 | Weight g 重量 |
|---|---|---|
| D-20-11/D-20-12/D-20-14/ D-20-15/D-20-16/D-20-17 | 100 (W) × 117 (H) × 10(D) mm | 90 |

### PRECISION SCREWDRIVER ⊕⊖
精密螺丝刀

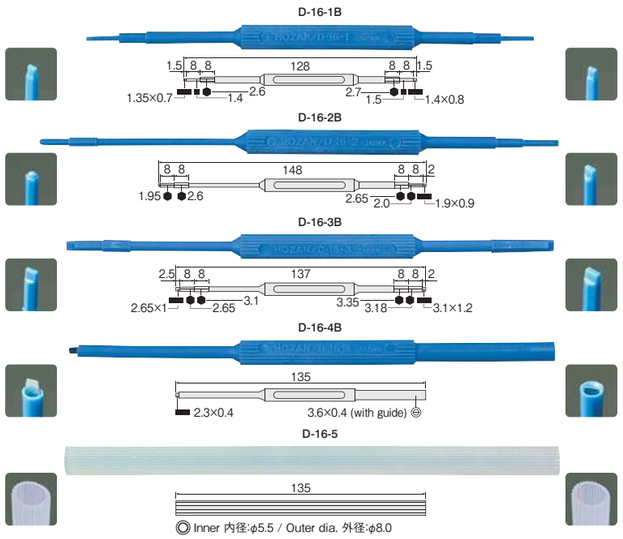
| Part no. 型号 | Tip size mm 前端尺寸 | OAL mm 全长 | Blade diameter mmφ 轴径 | Handle diameter mmφ 手柄直径 |
|---|---|---|---|---|
| D-20-11 | ⊕No.0 | 102 | 2.3 | 5.5 |
| D-20-12 | ⊕No.1 | 110 | 3.0 | 6.0 |
| D-20-14 | ⊖1.2×0.32 | 83 | 1.2 | 3.9 |
| D-20-15 | ⊖1.8×0.32 | 95 | 1.8 | 4.5 |
| D-20-16 | ⊖2.3×0.35 | 102 | 2.3 | 5.5 |
| D-20-17 | ⊖3.0×0.45 | 110 | 3.0 | 6.0 |




## D-66/D-67 ⊕⊖

### MICRO SCREWDRIVER
微型螺丝刀

| Part no. 型号 | Tip size mm 前端尺寸 | OAL mm 全长 | Blade length mm 轴长 | Blade diameter mmφ 轴径 | Handle diameter mmφ 手柄直径 | Weight g 重量 |
|---|---|---|---|---|---|---|
| D-66 | ⊕No.00 | 51 | 23 | 1.8 | 7.0 | 1.5 |
| D-67 | ⊖1.8×0.3 | | | | | |




## D-16

### ALIGNMENT TOOL KIT
核心螺丝刀组

| | |
|---|---|
| Set contents 配置明细 | D-16-1B/D-16-2B/D-16-3B/ D-16-4B/D-16-5 |
| Color 色 | D-16-1B to 4B Blue / D-16-5 White D-16-1B～4B 青色/D-16-5 白色 |
| Weight 重量 | 45g |

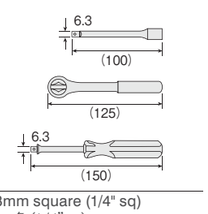
### ALIGNMENT TOOL
核心螺丝刀

| Part no. 型号 | Tip size mm 前端尺寸 | Weight g 重量 |
|---|---|---|
| D-16-1B | ▬ 1.35×0.7・1.4×0.8 ■ 1.4・1.5 ⬢2.6・2.7 | 3 |
| D-16-2B | ▬ 1.9×0.9 ⬢ 1.95・2.0・2.6・2.65 | |
| D-16-3B | ▬ 2.65×1・3.1×1.2 ⬢ 2.65・3.1・3.18・3.35 | |
| D-16-4B | ▬ 2.3×0.4 ◎ 3.6×0.4 (with guide) | 4 |
| D-16-5 | ◎ Inner 内径：φ5.5 Outer dia. 外径：φ8.0 | 3 |

*Unnecessary sizes can be cut, and then used.
※不要的尺寸可以切掉。

## W-510 ○

### SOCKET WRENCH SET
套筒扳手



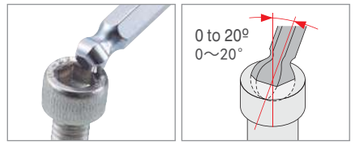

| Socket size 套筒形状 | 6.3mm square (1/4" sq) 6.3mm角 (1/4" sq) |
|---|---|
| Pouch dimensions 工具包尺寸 | 160×75×35mm |
| Weight 重量 | 430g |

**Set contents 明细内容**

| | | |
|---|---|---|
| Ratchet handle | 棘轮手柄 | 6.3 mm square 角 |
| Screwdriver type handle | 扳手手柄 | 6.3 mm square 角 |
| Extension bar | 接杆 | 100 mm |
| Socket (6.3mm square) | 套筒 (6.3mm角) | 4 mm |
| ditto | 〃 | 4.5 mm |
| ditto | 〃 | 5 mm |
| ditto | 〃 | 5.5 mm |
| ditto | 〃 | 6 mm |
| ditto | 〃 | 7 mm |
| ditto | 〃 | 8 mm |
| ditto | 〃 | 9 mm |
| ditto | 〃 | 10 mm |
| ditto | 〃 | 12 mm |

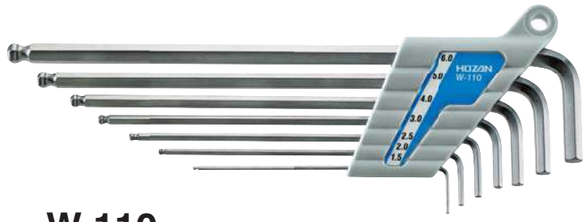




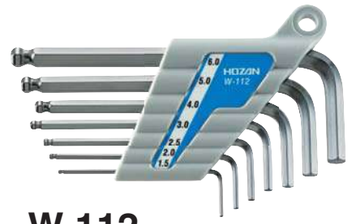



## BALLPOINT L-WRENCH SET
L型长柄球扳手组

| Part no. 型号 | Weight g 重量 |
|---|---|
| W-110 | 130 |
| W-111 | 117 |
| W-112 | 83 |
| W-113 | 74 |




W-110




W-112

W-111

W-113

## BALLPOINT L-WRENCH
L型长柄球扳手

| | Part no. 型号 | Width-across-flats size mm 对边尺寸 | B A Amm | B A Bmm | Hex recessed head bolt 六角螺栓 | Hex recessed set screw 六角螺丝 | Inclination angle 倾斜角 | Weight g 重量 |
|---|---|---|---|---|---|---|---|---|
| W-110 single item W-110单个项目 | W-110-1.5 | 1.5 | 14 | 80 | M1.6/M2 | M3 | 20° | 2 |
| | W-110-2 | 2.0 | 16 | 96 | M2.5 | M4 | | 3 |
| | W-110-2.5 | 2.5 | 18 | 111 | M3 | M5 | | 6 |
| | W-110-3 | 3.0 | 20 | 127 | M4 | M6 | | 9 |
| | W-110-4 | 4.0 | 25 | 142 | M5 | M8 | 16° | 18 |
| | W-110-5 | 5.0 | 28 | 160 | M6 | M10 | | 31 |
| | W-110-6 | 6.0 | 32 | 180 | M8 | M12 | | 51 |
| W-111 single item W-111单个项目 | W-111-1.5 | 1.5 | 4 | 81 | M1.6/M2 | M3 | 20° | 2 |
| | W-111-2 | 2.0 | 5 | 96 | M2.5 | M4 | | 3 |
| | W-111-2.5 | 2.5 | 6 | 111 | M3 | M5 | | 5 |
| | W-111-3 | 3.0 | 8 | 127 | M4 | M6 | | 8 |
| | W-111-4 | 4.0 | 9 | 142 | M5 | M8 | 16° | 16 |
| | W-111-5 | 5.0 | 11 | 160 | M6 | M10 | | 28 |
| | W-111-6 | 6.0 | 13 | 180 | M8 | M12 | | 46 |
| W-112 single item W-112单个项目 | W-112-1.5 | 1.5 | 14 | 51 | M1.6/M2 | M3 | 20° | 1 |
| | W-112-2 | 2.0 | 16 | 58 | M2.5 | M4 | | 2 |
| | W-112-2.5 | 2.5 | 18 | 65 | M3 | M5 | | 3 |
| | W-112-3 | 3.0 | 20 | 74 | M4 | M6 | | 6 |
| | W-112-4 | 4.0 | 25 | 78 | M5 | M8 | 16° | 11 |
| | W-112-5 | 5.0 | 28 | 89 | M6 | M10 | | 19 |
| | W-112-6 | 6.0 | 32 | 101 | M8 | M12 | | 31 |
| W-113 single item W-113单个项目 | W-113-1.5 | 1.5 | 4 | 51 | M1.6/M2 | M3 | 20° | 1 |
| | W-113-2 | 2.0 | 5 | 58 | M2.5 | M4 | | 2 |
| | W-113-2.5 | 2.5 | 6 | 65 | M3 | M5 | | 3 |
| | W-113-3 | 3.0 | 8 | 74 | M4 | M6 | | 5 |
| | W-113-4 | 4.0 | 9 | 78 | M5 | M8 | 16° | 9 |
| | W-113-5 | 5.0 | 11 | 89 | M6 | M10 | | 17 |
| | W-113-6 | 6.0 | 13 | 101 | M8 | M12 | | 27 |

W-91

W-96

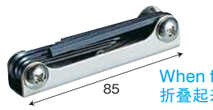
W-99

## W-91/W-96/W-98/W-99 ⬢

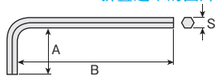
**HEX WRENCH SET**
折叠式六角扳手组

| Part no. 型号 | Quantity 本数 | Weight g 重量 |
|---|---|---|
| W-91 | 7 | 23 |
| W-96 | 9 | 240 |
| W-98 | 10 | 115 |
| W-99 | 9 | 32 |

W-98



When folded
折叠起来的图片




**Hex wrench set contents / dimensions（W-91/96/98/99）**
六角扳手套装明细 / 尺寸 （W-91/96/98/99）

| Part no. 型号 | | | W-91 | W-96 | W-98 | W-99 |
|---|---|---|---|---|---|---|
| Bend dimensions (Excluding W-98) 尺寸（不包括W-98） | A | 8 | 10 | 14 | 12 | 13 | 12 | 17 | 15 | 20 | 20 | 25 | — | 28 | 32 | 36 | 40 | ● | ● | ● | ● |
| | B | 34 | 34 | 46 | 52 | 47 | 58 | 56 | 60 | 65 | 60 | 72 | — | 80 | 90 | 100 | 112 | | | | |
| Width-across-flats size mm 对边尺寸 | S | 0.71 | 0.89 | 1.27 (1/20") | 1.5 | 1.6 (1/16") | 2.0 | 2.4 (3/32") | 2.5 | 3.0 | 3.2 (1/8") | 4.0 | 4.8 (3/16") | 5.0 | 6.0 | 8.0 | 10.0 | | ● | ● | ● |
| Hex recessed head bolt 六角螺栓 | | — | — | M1.4 | M1.6/2 | No.1 | M2.5 | No.4/5 | M3 | M4 | — | M5 | 1/4" | M6 | M8 | M10 | M12 | | | ● | ● |
| Hex recessed set screw 六角螺丝 | | M1.4/ 1.6/1.8 | M2 | M2.5 | M3 | No.5/6 | M4 | No.10 | M5 | M6 | 1/4" | M8 | 3/8" | M10 | M12/14 | M16 | M18/20 | ● | ● | ● | ● |

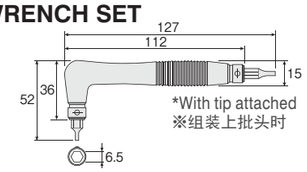
* Use care to avoid applying excessive torque.
※注意拧紧时不要用力过度。

Bits can be attached at either end, permitting both vertical and horizontal use.
两端可安批头，纵向横横向均可使用

## W-81 ★☼

**HEX LOBULAR WRENCH SET**
星型螺丝刀

| Weight g 重量 |
|---|
| 150 |



*With tip attached
※组装上批头时

**Size** 尺寸

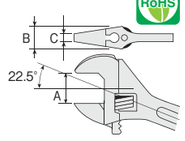
| ★ | ☼ | ☼ | ☼ | ☼ | ☼ | ☼ | ☼ | ⊕No.2×⊖6.0 mm | ⊕No.1×⊖4.5 mm |
|---|---|---|---|---|---|---|---|---|---|
| T6 | T8 | T10 | T15 | T20 | T25 | T27 | T30 | | |

* Use care to avoid applying excessive torque.
※注意不要用力过度

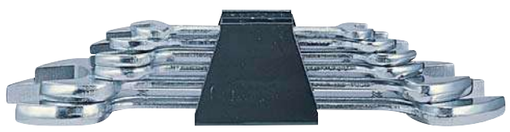
Bit width-across-flats: 6.35 mm
批头对边：6.35mm

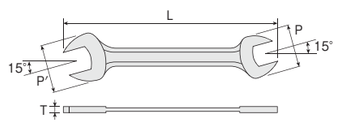
## W-230 ⏻

**ADJUSTABLE WRENCH**
呆扳手




| Part No. 品 番 | Max. torque (N·m) 最大扭力 | Compatible Bolts & nuts 适用螺栓螺母 | Max. opening width Amm 最大开口宽 | Head thickness 头部厚度 Bmm | Head thickness 头部厚度 Cmm | OAL mm 全长 | Weight g 重量 |
|---|---|---|---|---|---|---|---|
| W-230-100 | 60 | M8 or smaller 以下 | 13 | 10 | 5 | 110 | 50 |
| W-230-150 | 142 | M12 or smaller 以下 | 20 | 11 | 6 | 160 | 120 |
| W-230-200 | 274 | M16 or smaller 以下 | 25 | 14 | 7.5 | 210 | 230 |
| W-230-250 | 460 | M18 or smaller 以下 | 30 | 16 | 8 | 260 | 410 |


With holder
付收纳套




## W-521 ⏻

**OPEN END WRENCH SET**
6支装双头扳手套装

(mm)

| Sizes 尺寸 | 5.5 × 7 / 8 × 10 / 11 × 13 / 12 × 14 / 17 × 19 / 22 × 24 mm |
|---|---|
| Set contents 入数 | 6-piece set 6支一套 |
| Weight 重量 | 580g |

| Size mm 尺寸 | Weight g 重量 | P | P' | T | L |
|---|---|---|---|---|---|
| 5.5×7 | 19 | 15.5 | 18 | 3.5 | 100 |
| 8×10 | 37 | 20 | 23 | 4.5 | 120 |
| 11×13 | 64 | 26 | 30 | 5.5 | 137 |
| 12×14 | 67 | 27 | 31 | | 141 |
| 17×19 | 140 | 36 | 40 | 8 | 183 |
| 22×24 | 230 | 45 | 49 | 9 | 210 |

## S-51
**TOOL KIT**
工具套装

| External dimensions mm 外形尺寸 | Weight kg 重量 |
|---|---|
| 413 (W) ×242 (H) ×206 (D) | 8.5 |

**Details table (kit contents: 48 pieces)**
明细表（套装内容 48件）

| | | | |
|---|---|---|---|
| Reversible Screwdriver 可更换螺丝刀 | ⊕No.00/⊖2.5 | D-52 | W-96 |
| Ditto | ⊕No.1/⊖4.0 | D-54 | |
| Ditto | ⊕No.2/⊖5.5 | D-58 | |
| Reversible Stubby Screwdriver 可更换双头螺丝刀 | ⊕No.2/⊖6.0 | D-59 | |
| Electrician's Slotted Screwdriver 電工螺丝刀 | ⊖6.0 | D-331-150 | |
| Electrician's Phillips Screwdriver 电工螺丝刀 | ⊕No.2 | D-332-150 | |
| Hacksaw 金切锯 | | K-128 | |
| File Round 锉刀组 丸 | | K-170 | |
| File Hand 〃 平 | | K-172 | |
| Diagonal Cutter with Stripper 剪钳 | | N-9-150 | |
| Snips 强力斜口剪钳 | | N-838 | |
| Long Nose Pliers with Side Cutter 尖嘴钳 | | P-15-150 | |
| Lineman's Pliers 钢丝钳 | | P-43-175 | |
| Tweezers 镊子 | | P-86-125 | |
| Hex Wrench 六角扳手 | 1.5mm | | W-96 |
| Ditto 〃 | 2.0mm | | |
| Ditto 〃 | 2.5mm | | |
| Ditto 〃 | 3.0mm | | |
| Ditto 〃 | 4.0mm | | |
| Ditto 〃 | 5.0mm | | |
| Ditto 〃 | 6.0mm | | |
| Ditto 〃 | 8.0mm | | |
| Ditto 〃 | 10.0mm | | |
| Adjustable Wrench 活动扳手 | | W-230-150 | |
| Ditto 〃 | | W-230-250 | |
| Open End Wrench 扳手 | 5.5x7mm | | W-521 |
| Ditto 〃 | 8x10mm | | |
| Ditto 〃 | 11x13mm | | |
| Ditto 〃 | 12x14mm | | |
| Ditto 〃 | 17x19mm | | |
| Ditto 〃 | 22x24mm | | |
| Precision Oiler 油照射 | | Z-64 | |
| Measure Tape 卷尺 | | Z-341 | |
| LED Pocket Light LED掌上灯 | | | |
| Screw Pliers 螺丝钳子 | | | |
| Hammer 单手锤 | | | |
| Plastic Hammer 塑料榔头 | | | |
| Utility Knife (Large) 裁纸刀（大） | | | |
| Electrical Tape 塑料胶带 | | | |
| Shielding Tape 密封带 | | | |
| Type Brush 刷子 | | | |
| Side Brush 横刷子 | | | |
| Brass Brush 黄铜刷子 | | | |
| Work Gloves 工作手套 | | | |
| Voltage Checker 验电螺丝刀 | | | |

■ Accessory: Tool Box
■ 附工具箱

## S-351
**TOOL KIT**
工具套装

| External dimensions mm 外形尺寸 | Weight kg 重量 |
|---|---|
| 413 (W) ×242 (H) ×206 (D) | 7 |

**Details table (kit contents: 40 pieces)**
明细表（套装内容 40件）

| | | | |
|---|---|---|---|
| Precision Screwdriver 精密螺丝刀 | ⊕No.0 | D-20-11 | W-96 |
| Ditto 〃 | ⊕No.1 | D-20-12 | |
| Ditto 〃 | ⊖1.2 | D-20-14 | |
| Ditto 〃 | ⊖1.8 | D-20-15 | |
| Ditto 〃 | ⊖2.3 | D-20-16 | |
| Ditto 〃 | ⊖3.0 | D-20-17 | |
| Reversible Screwdriver 可更换螺丝刀 | ⊕No.00/⊖2.5 | D-52 | |
| Ditto 〃 | ⊕No.1/⊖4.0 | D-54 | |
| Reversible Stubby Screwdriver 可更换双头螺丝刀 | ⊕No.2/⊖6.0 | D-59 | |
| Electrician's Slotted Screwdriver 電工螺丝刀 | ⊖6.0 | D-331-100 | |
| Electrician's Phillips Screwdriver 电工螺丝刀 | ⊕No.2 | D-332-100 | |
| Slotted Screwdriver 扁口螺丝刀 | ⊖5.5 | D-655-100 | |
| Nut Driver 螺母螺丝刀 | 5.5mm | D-840-5.5 | |
| Ditto 螺母螺丝刀 | 7mm | D-840-7 | |
| File Round 精密锉刀 丸 | | K-170 | |
| Ditto Hand 〃 平 | | K-172 | |
| Diagonal Cutter with Stripper 剪钳 | | N-9-150 | |
| Snips 强力斜口剪钳 | | N-838 | |
| Long Nose Pliers with Side Cutter 尖嘴钳 | | P-15-150 | |
| Lineman's Pliers 钢丝钳 | | P-43-175 | |
| Tweezers 镊子 | | P-86-125 | |
| Water Pump Pliers 水泵鲤鱼钳 | | P-245 | W-96 |
| Wire Stripper VVF剥线钳 | | P-958 | |
| Hex Wrench 六角扳手 | 1.5mm | | |
| Ditto 〃 | 2.0mm | | |
| Ditto 〃 | 2.5mm | | |
| Ditto 〃 | 3.0mm | | |
| Ditto 〃 | 4.0mm | | |
| Ditto 〃 | 5.0mm | | |
| Ditto 〃 | 6.0mm | | |
| Ditto 〃 | 8.0mm | | |
| Ditto 〃 | 10.0mm | | |
| Adjustable Wrench 单头扳手 | | W-230-250 | |
| Measure Tape 卷尺 | | Z-341 | |
| Screw Pliers 螺丝钳 | | | |
| LED Pocket Light LED掌上灯 | | | |
| Utility Knife (Large) 裁纸刀（大） | | | |
| Hammer 单手锤 | | | |
| Work Gloves 工作手套 | | | |
| Voltage Checker 验电螺丝刀 | | | |

■ Accessory: Tool Box
■ 附工具箱

## S-53
**TOOL KIT**
工具套装

| External dimensions mm 外形尺寸 | Weight kg 重量 |
|---|---|
| 386 (W) ×161 (H) ×179 (D) | 4.3 |

**Details table (kit contents: 31 pieces)**
明细表（套装内容 31件）

| | | | |
|---|---|---|---|
| Reversible Stubby Screwdriver 可更换双头螺丝刀 | ⊕No.2/⊖6.0 | D-59 | W-521 |
| Phillips Screwdriver 十字螺丝刀 | ⊕No.0 | D-540-100 | |
| Ditto 〃 | ⊕No.1 | D-550-100 | |
| Ditto 〃 | ⊕No.2 | D-555-100 | |
| Slotted Screwdriver 扁口螺丝刀 | ⊖4.0 | D-640-100 | |
| Ditto 〃 | ⊖5.0 | D-650-100 | |
| Ditto 〃 | ⊖5.5 | D-655-100 | |
| File Half-round 精密锉刀 半圆 | | K-161 | |
| Diagonal Cutter with Stripper 剪钳 | | N-9-150 | |
| Snips 强力斜口剪钳 | | N-838 | |
| Long Nose Pliers with Side Cutter 尖嘴钳 | | P-15-150 | |
| Tweezers 镊子 | | P-86-150 | |
| Water Pump Pliers 水泵鲤鱼钳 | | P-245 | |
| Hex Wrench Set (1.27/1.5/1.6/2.0/ 2.4/2.5/3.0/3.2/4.0/4.8mm) 六角扳手组 | | W-98 | |
| Adjustable Wrench 单头扳手 | | W-230-200 | W-521 |
| Open End Wrench 扳手 | 5.5x7mm | | |
| Ditto 〃 | 8x10mm | | |
| Ditto 〃 | 11x13mm | | |
| Ditto 〃 | 12x14mm | | |
| Ditto 〃 | 17x19mm | | |
| Ditto 〃 | 22x24mm | | |
| Contact Spray 接点用喷雾罐 | | Z-295 | |
| Measure Tape 卷尺 | | Z-341 | |
| LED Pocket Light LED掌上灯 | | | |
| Screw Pliers 螺丝钳子 | | | |
| Hammer 单手锤 | | | |
| Utility Knife (Large) 裁纸刀（大） | | | |
| Electrical Tape 塑料胶带 | | | |
| Side Brush 横刷 | | | |
| Brass Brush 黄铜刷子 | | | |
| Work Gloves 工作手套 | | | |

■ Accessory: Tool Box
■ 附工具箱

## S-80/S-80-230 100V 230V

**TOOL KIT**
工具套装

| External dimensions mm 外形尺寸 | Weight kg 重量 |
|---|---|
| 460 (W) ×340 (H) ×145 (D) | 7 |

With dial lock
带密码锁

With shoulder belt
带肩背带

Tool pallet (top) rear face
工具插板（箱盖侧）的背面

**Details table (kit contents: 78 pieces)**
明細表（套装内容 78件）

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Precision Screwdriver | 精密螺丝刀 | ⊕No.0 | D-20-11 | Solder Aid Tool Kit | (Hook and Reamer) | 锡焊辅助工具组（钩・铰刀） | H-740-1 | Lineman's Pliers | 钢丝钳 | P-43-175 | Socket Wrench Set (4/4.5/5/5.5/6/7/8/9/10/12mm) | 套筒扳手 | W-510 |
| Ditto | 〃 | ⊕No.1 | D-20-12 | Ditto | (Knife and Scraper) | 〃 (小刀・刮板) | H-740-2 | Spring Hook | 弹簧挂钩 | P-64 | | | |
| Ditto | 〃 | ⊖1.2 | D-20-14 | Ditto | (Brush and Fork) | 〃 (毛刷叉子) | H-740-3 | Reverse Action Tweezers | 自闭锁镊子 | P-89 | Precision Oiler | 注油器 | Z-64 |
| Ditto | 〃 | ⊖1.8 | D-20-15 | Lead-free Solder | | 无铅焊料 | HS-363 | Crimping Tool | 压着钳 | P-704 | Rubber Blower with Extension Nozzle | 伸缩式吹气球 | Z-261 |
| Ditto | 〃 | ⊖2.3 | D-20-16 | Desolder Braid | | 焊锡吸取线 | HS-380-2.5 | Stainless Probe (Key) | 不锈钢探头（钥匙） | P-808 | Level Gauge | 水平器 | Z-340 |
| Ditto | 〃 | ⊖3.0 | D-20-17 | File | Round | 锉刀 圆 | K-215 | Curved Tweezers | 弯头镊子 | P-882 | Measure Tape | 丙烯水平仪 | Z-341 |
| Reversible Stubby Screwdriver | 高周波螺丝刀 | ⊕No.2/⊖6.0 | D-29-100 | Ditto | Half-round | 〃 半圆 | | Tweezers | 强力型镊子 | P-891 | Inspection Mirror | 检查镜 | Z-350 |
| | 高周波螺丝刀 | | D-59 | Ditto | Crochet | 〃 两个半圆 | | Flat Wrench | 5.5x7mm 角度扳手组 | | LED Pocket Light | LED掌上灯 | |
| Electrician's Slotted Screwdriver | 电工螺丝刀 | ⊖6.0 | D-331-100 | Ditto | Oval | 〃 椭圆 | | Ditto | 8x10mm 〃 | W-76 | Utility Knife | 裁纸刀 | |
| Electrician's Phillips Screwdriver | 〃 | ⊕No.2 | D-332-100 | Ditto | Hand | 〃 平 | | Ditto | 12x14mm 〃 | | Shielding Tape | 密封带 | |
| Phillips Screwdriver | 螺丝螺丝刀 | ⊕No.00 | D-530-75 | Ditto | Hand (Flat) | 〃 平（枪型） | | Hex Lobular Wrench Set (T6/T8/T10/T15/T20/T25/T27/T30/ ⊕No.2×⊖6.0/⊕No.1×⊖4.5) | | 星型螺丝刀组 | W-81 | Table Tap | 排插 |
| Ditto | 〃 | ⊕No.0 | D-540-100 | Ditto | Knife | 〃 刀刃 | | | | | | Digital Multimeter | 数字万用表 |
| Ditto | 〃 | ⊕No.1 | D-550-100 | Ditto | Triangular | 〃 三角 | | Ballpoint L-wrench | L型长柄球扳手 | 1.5mm | | Screw Pliers | 螺丝钳 |
| Ditto | 〃 | ⊕No.2 | D-555-100 | Ditto | Triangular (Flat Leaf) | 〃 三角（单刃） | | Ditto | 〃 | 2.0mm | | Heat Sink | 散热器 |
| Slotted Screwdriver | 一字螺丝刀 | ⊖2.5 | D-630-75 | Ditto | Square | 〃 角 | | Ditto | 〃 | 2.5mm | | Electrical Tape | 塑料胶带 |
| Ditto | 〃 | ⊖4.0 | D-640-100 | Slide-Out Magnifier | | 放大镜 | L-98 | Ditto | 〃 | 3.0mm | W-110 | Steel Rule 150 mm | 钢直尺 150mm |
| Ditto | 〃 | ⊖5.0 | D-650-100 | Diagonal Cutter with Stripper | | 镊子 | N-9-150 | Ditto | 〃 | 4.0mm | | Hex Wrench | 内六角扳手 0.71mm |
| Ditto | 〃 | ⊖5.5 | D-655-100 | Miniature Diagonal Cutter | | 小型钳子 | N-31 | Ditto | 〃 | 5.0mm | | Ditto | 〃 0.89mm |
| Soldering Iron Stand | | 烙铁搁架 | H-11 | Snips | | 蛇口剪 | N-838 | Ditto | 〃 | 6.0mm | | Ditto | 〃 1.27mm |
| Soldering Iron with Booster | | 可调压式电烙铁 | H-600 | Long Nose Pliers with Side Cutter | | 尖头钳 | P-15-150 | Adjustable Wrench | | 活动扳手 | W-230-150 | | |
| | | | | Miniature Long Nose Pliers | | 小型尖头钳 | P-35 | | | | | | |

■ Accessory: Tool Case, Tool pallet, Shoulder belt
■ 附工具箱、工具插板、带肩背带

With dial lock
带密码锁

With shoulder belt
带肩背带

## S-81/S-81-230 100V 230V

**TOOL KIT**
工具套装

| External dimensions mm 外形尺寸 | Weight kg 重量 |
|---|---|
| 365(W)×275 (H)×110 (D) | 3.5 |

**Details table (kit contents: 32 pieces)**
明細表（套装内容 32件）

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Precision Screwdriver | 精密螺丝刀 | ⊕No.0 | D-20-11 | Long Nose Pliers with Side Cutter | 尖头钳 | P-15-150 | |
| Ditto | 〃 | ⊕No.1 | D-20-12 | Slip Joint Pliers | 鲤鱼钳 | P-211Z-150 | |
| Ditto | 〃 | ⊖1.2 | D-20-14 | Crimping Tool | 压着钳 | P-704 | |
| Ditto | 〃 | ⊖1.8 | D-20-15 | Tweezers | 强力型镊子 | P-891 | |
| Ditto | 〃 | ⊖2.3 | D-20-16 | Ballpoint L-wrench | 圆珠笔扳手 1.5mm | | |
| Ditto | 〃 | ⊖3.0 | D-20-17 | Ditto | 〃 2.0mm | | |
| Reversible Screwdriver | 可替换螺丝刀 | ⊕No.00/⊖2.5 | D-52 | Ditto | 〃 2.5mm | | |
| Ditto | 〃 | ⊕No.1/⊖4.0 | D-54 | Ditto | 〃 3.0mm | W-110 | |
| Ditto | 〃 | ⊕No.2/⊖5.5 | D-58 | Ditto | 〃 4.0mm | | |
| Soldering Iron Stand | | 电烙铁台座 | H-11 | Ditto | 〃 5.0mm | | |
| Soldering Iron with Booster | | 可调压式电烙铁 | H-600 | Ditto | 〃 6.0mm | | |
| Lead-free Solder | | 无铅焊料 | HS-363 | Adjustable Wrench | 活动扳手 | W-230-150 | |
| Desolder Braid | | 吸锡线 | HS-380-2.5 | Measure Tape | 卷尺 | Z-341 | |
| Slide-Out Magnifier | | 放大镜 | L-98 | LED Pocket Light | LED掌上灯 | | |
| Diagonal Cutter with Stripper | | 镊子 | N-9-150 | Utility Knife | 裁纸刀 | | |
| Snips | | 蛇口剪 | N-838 | Digital Multimeter | 数字万用表 | | |

■ Accessory: Tool Case, Tool pallet, Shoulder belt
■ 附工具箱、工具插板、带肩背带

Tool pallet rear face
工具插板的背面

## S-201/S-201-230 100V 230V

**TOOL KIT**
工具套装

| External dimensions mm 外形尺寸 | Weight kg 重量 |
|---|---|
| 445 (W) ×335 (H) ×200 (D) | 5.8 |

**Details table (kit contents: 37 pieces)**
明細表（套装内容 37件）

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Precision Screwdriver | 精密螺丝刀 | ⊕No.0 | D-20-11 | Long Nose Pliers with Side Cutter | 尖嘴钳 | P-15-150 | |
| Ditto | 〃 | ⊕No.1 | D-20-12 | Lineman's Pliers | 钢丝钳 | P-43-175 | |
| Ditto | 〃 | ⊖1.2 | D-20-14 | Tweezers | 镊子 | P-880 | |
| Ditto | 〃 | ⊖1.8 | D-20-15 | Hex Wrench | 六角扳手 0.71mm | | |
| Ditto | 〃 | ⊖2.3 | D-20-16 | Ditto | 〃 0.89mm | | |
| Ditto | 〃 | ⊖3.0 | D-20-17 | Ditto | 〃 1.27mm | | |
| Reversible Screwdriver | 可替换螺丝刀 | ⊕No.00/⊖2.5 | D-52 | Ditto | 〃 1.5mm | | |
| Ditto | 〃 | ⊕No.1/⊖4.0 | D-54 | Ditto | 〃 1.6mm | W-99 | |
| Phillips Screwdriver | 十字螺丝刀 | ⊕No.0 | D-540-100 | Ditto | 〃 2.0mm | | |
| Ditto | 〃 | ⊕No.2 | D-555-100 | Ditto | 〃 2.5mm | | |
| Slotted Screwdriver | 扁口螺丝刀 | ⊖5.5 | D-655-100 | Ditto | 〃 3.0mm | | |
| Nut Driver | 螺母螺丝刀 | 5.5mm | D-840-5.5 | Ditto | 〃 4.0mm | | |
| Ditto | 〃 | 7mm | D-840-7 | Adjustable Wrench | 单头扳手 | W-230-150 | |
| Soldering Iron Stand | | 置烙铁台 | H-11 | Measure Tape | 卷尺 | Z-341 | |
| Soldering Iron with Cap | | 带帽锡线把手 | H-250 | Screw Pliers | 螺丝钳 | | |
| Solder | | 锡线 | H-700 | Utility Knife | 裁纸刀 | | |
| Diagonal Cutter with Stripper | | 剪钳 | N-9-150 | Work Gloves | 工作手套 | | |
| Snips | | 强力斜口剪钳 | N-838 | Caster Wheels (2 pieces) | 铸工（2件） | | |
| Desolder Braid | | 焊接吸取器 | No.3738 | | | | |

■ Accessory: Tool Bag, Tool pallet, Shoulder belt, Rain cover
■ 附脚轮袋、工具插板、带肩背带、雨罩

## S-372

**TOOL KIT**
工具套装

| External dimensions mm 外形尺寸 | Weight kg 重量 |
|---|---|
| 390 (W)×350(H)×180 (D) | 2.6 |

**Details table (kit contents: 24 pieces)**
明細表（套装内容 24件）

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Reversible Screwdriver | 可替换螺丝刀 | ⊕No.00/⊖2.5 | D-52 | Hex Wrench | 六角扳手 1.27mm | | |
| Ditto | 〃 | ⊕No.1/⊖4.0 | D-54 | Ditto | 〃 1.5mm | | |
| Ditto | 〃 | ⊕No.2/⊖5.5 | D-58 | Ditto | 〃 1.6mm | | |
| Diagonal Cutter with Stripper | 剪钳 | | N-9-150 | Ditto | 〃 2.0mm | W-91 | |
| Snips | 强力斜口剪钳 | | N-838 | Ditto | 〃 2.4mm | | |
| Long Nose Pliers with Side Cutter | 尖嘴钳 | | P-15-150 | Ditto | 〃 3.0mm | | |
| Tweezers | 镊子 | | P-87 | Ditto | 〃 3.2mm | | |
| Slip Joint Pliers | 鲤鱼钳 | | P-211Z-150 | Adjustable Wrench | 单头扳手 | W-230-150 | |
| Flat Wrench | 角度扳手 5.5×7mm | | | Measure Tape | 卷尺 | Z-341 | |
| Ditto | 〃 8×10mm | | W-76 | Screw Pliers | 螺丝钳 | | |
| Ditto | 〃 12×14mm | | | LED Pocket Light | LED掌上灯 | | |
| | | | | Utility Knife | 裁纸刀 | | |
| | | | | Work Gloves | 工作手套 | | |

■ Accessory: Tool Bag, Tool pallet
■ 附手提包、工具插板

## S-7/S-7-230 100V 230V

**TOOL KIT**
工具套装

| External dimensions mm 外形尺寸 | Weight kg 重量 |
|---|---|
| 300 (W) ×200 (H) ×80 (D) | 2.2 |

**Details table (kit contents: 17 pieces)**
明細表（套装内容 17件）

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Alignment Tool | 调整用螺丝刀 | | D-29-100 | Diagonal Cutter | 斜口钳 | | N-4-125 |
| Phillips Screwdriver | 十字螺丝刀 | ⊕No.0 | D-540-100 | Long Nose Pliers with Side Cutter | 尖嘴钳 | | P-15-150 |
| Ditto | 〃 | ⊕No.2 | D-555-100 | Lineman's Pliers | 钢丝钳 | | P-43-150 |
| Slotted Screwdriver | 扁口螺丝刀 | ⊖2.5 | D-630-100 | Tweezers | 镊子 | | P-87 |
| Ditto | 〃 | ⊖4.0 | D-640-100 | Adjustable Wrench | 单头扳手 | | W-230-150 |
| Nut Driver | 螺母螺丝刀 | | D-840-5.5 | Measure Tape | 卷尺 | | Z-341 |
| Soldering Iron | 耐腐蚀烙铁手柄 | | H-869 | Solder | 焊锡 | | |
| File Hand | 锉刀 平 | | K-172 | Utility Knife | 裁纸刀 | | |
| | | | | Electrical Tape | 塑料胶带 | | |

■ Accessory: Tool Case
■ 附工具箱

## S-76/S-76-230 100V 230V

**TOOL KIT**
工具套装

| External dimensions mm 外形尺寸 | Weight kg 重量 |
|---|---|
| 450 (W) ×330 (H) ×140 (D) | 4 |

**Details table (kit contents: 49 pieces)**
明細表（套装内容 49件）

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Roll-Up Pouch | 工具包 | B-712 | | Long Nose Pliers with Side Cutter | 尖嘴钳 | P-15-150 | |
| Precision Screwdriver | 精密螺丝刀 | ⊕No.0 | D-20-11 | Lineman's Pliers | 钢丝钳 | P-43-175 | |
| Ditto | 〃 | ⊕No.1 | D-20-12 | Spring Hook | 弹簧钩 | P-64 | |
| Ditto | 〃 | ⊖1.2 | D-20-14 | Slip Joint Pliers | 鲤鱼钳 | P-211Z-150 | |
| Ditto | 〃 | ⊖1.8 | D-20-15 | Crimping Tool | 压接钳 | P-704 | |
| Ditto | 〃 | ⊖2.3 | D-20-16 | Stainless Probe | 不锈钢探针 | P-808 | |
| Ditto | 〃 | ⊖3.0 | D-20-17 | Tweezers | 镊子 | P-880 | |
| Reversible Stubby Screwdriver | 可替换螺丝刀 ⊕No.2/⊖6.0 | D-59 | | Hex Wrench | 六角扳手 | 0.71mm | W-99 |
| Philips Screwdriver | 十字螺丝刀 | ⊕No.00 | D-530-75 | Ditto | 〃 | 0.89mm | |
| Ditto | 〃 | ⊕No.0 | D-540-100 | Ditto | 〃 | 1.27mm | |
| Ditto | 〃 | ⊕No.1 | D-550-100 | Ditto | 〃 | 1.5mm | |
| Ditto | 〃 | ⊕No.2 | D-555-100 | Ditto | 〃 | 1.6mm | |
| Slotted Screwdriver | 扁口螺丝刀 | ⊖2.5 | D-630-75 | Ditto | 〃 | 2.0mm | |
| Ditto | 〃 | ⊖4.0 | D-640-100 | Ditto | 〃 | 2.5mm | |
| Ditto | 〃 | ⊖5.0 | D-650-100 | Ditto | 〃 | 3.0mm | |
| Ditto | 〃 | ⊖5.5 | D-655-100 | Ditto | 〃 | 4.0mm | |
| Nut Driver | 螺母螺丝刀 | 5.5mm | D-840-5.5 | Adjustable Wrench | 单头扳手 | | W-230-150 |
| Ditto | 〃 | 7mm | D-840-7 | Rubber Blower with Extension Nozzle | 加长细嘴型吹气球 | | Z-261 |
| Soldering Iron Stand | 置烙铁台 | | H-11 | Measure Tape | 卷尺 | | Z-341 |
| Soldering Iron with Booster | 即热式烙铁把手 | | H-600 | Inspection Mirror | 检查镜 | | Z-350 |
| Lead-free Solder | 锡线 | | HS-363 | LED Pocket Light | LED掌上灯 | | |
| Desolder Braid | 吸锡线 | | HS-380-2.5 | File Round | 锉刀 圆 | | |
| Diagonal Cutter with Stripper | 剪钳 | | N-9-150 | Ditto Hand | 〃 平 | | |
| Snips | 强力斜口剪钳 | | N-838 | Utility Knife | 裁纸刀 | | |
| | | | | Voltage Checker | 检电螺丝刀 | | |

■ Accessory: Tool Case, Tool pallet,
■ 附工具箱、工具插板

## S-75/S-75-230 100V 230V

**TOOL KIT**
工具套装

| External dimensions mm 外形尺寸 | Weight kg 重量 |
|---|---|
| 450 (W) ×330 (H) ×140 (D) | 5.7 |

Tool Pallet, B (bottom side) rear face
工具插板B（本体侧）背面

**Details table (kit contents: 74 pieces)**
明細表（套装内容 74件）

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Roll-Up Pouch | 工具包 | B-712 | | Precision Screwdriver | 精密螺丝刀 | ⊖1.2 | D-20-14 |
| Alignment Tool | 核心螺丝刀 | D-16-1B | | Ditto | 〃 | ⊖1.8 | D-20-15 |
| Ditto | 〃 | D-16-2B | | Ditto | 〃 | ⊖2.3 | D-20-16 |
| Ditto | 〃 | D-16-3B | | Ditto | 〃 | ⊖3.0 | D-20-17 |
| Ditto | 〃 | D-16-4B | | Stubby Screwdriver | 螺丝刀 | ⊖6.0 | D-68 |
| Ditto | 〃 | D-16-5 | | Ditto | 〃 | ⊕No.2 | D-69 |
| Precision Screwdriver | 精密螺丝刀 | ⊕No.0 | D-20-11 | Ditto | 〃 | ⊖3.0 | D-20-17 |
| Ditto | 〃 | ⊕No.1 | D-20-12 | Stubby Screwdriver | 螺丝刀 | ⊖6.0 | D-68 |
| | | | | Ditto | 〃 | ⊕No.2 | D-69 |

■ Accessory: Tool Case, Tool pallet
■ 附工具箱、工具插板

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Electrician's Slotted Screwdriver | 電工螺丝刀 | ⊖6.0 | D-331-100 | Diagonal Cutter with Stripper | 剪钳 | | N-9-125 |
| Ditto | 〃 | ⊕No.2 | D-332-100 | Miniature Diagonal Cutter | 小型斜口剪钳 | | N-32 |
| Phillips Screwdriver | 十字螺丝刀 | ⊕No.00 | D-530-75 | Snips | 强力斜口剪钳 | | N-838 |
| Ditto | 〃 | ⊕No.0 | D-540-100 | Long Nose Pliers with Side Cutter | 尖嘴钳 | | P-15-150 |
| Ditto | 〃 | ⊕No.1 | D-550-100 | Miniature Long Nose Pliers | 小型尖头钳 | | P-36 |
| Ditto | 〃 | ⊕No.2 | D-555-100 | Lineman's Pliers | 钢丝钳 | | P-43-150 |
| Slotted Screwdriver | 扁口螺丝刀 | ⊖2.5 | D-630-75 | Spring Hook | 弹簧钩 | | P-64 |
| Ditto | 〃 | ⊖2.5 | D-630-100 | Reverse Action Tweezers | 反作用钳子 | | P-89 |
| Ditto | 〃 | ⊖4.0 | D-640-100 | Slip Joint Pliers | 鲤鱼钳 | | P-211Z-150 |
| Ditto | 〃 | ⊖5.0 | D-650-100 | Crimping Tool | 压接钳 | | P-704 |
| Ditto | 〃 | ⊖5.5 | D-655-100 | Tweezers | 镊子 | | P-880 |
| Nut Driver | 螺母螺丝刀 | 5.5mm | D-840-5.5 | Wire Stripper | 剥线钳 | | P-968 |
| Ditto | 〃 | 7mm | D-840-7 | Flat Wrench | 角度扳手套 | 5.5×7mm | W-76 |
| Soldering Iron Stand | 置烙铁台 | | H-11 | Ditto | 〃 | 8×10mm | |
| Soldering Iron with Booster | 即热式烙铁把手 | | H-600 | Ditto | 〃 | 12×14mm | |
| Solder Aid Tool Kit (Hook and Reamer) | 锡焊辅助工具组（勾·钻刀） | | H-740-1 | Hex Wrench | 六角扳手 | 1.27mm | |
| Ditto (Knife and Scraper) | 〃 | （小刀·刮板） | H-740-2 | Ditto | 〃 | 1.5mm | |
| Ditto (Brush and Fork) | 〃 | （毛刷叉子） | H-740-3 | Ditto | 〃 | 1.6mm | |
| Lead-free Solder | 锡线 | | HS-363 | Ditto | 〃 | 2.0mm | W-91 |
| Desolder Braid | 吸锡线 | | HS-380-2.5 | Ditto | 〃 | 2.4mm | |
| File Round | 精密锉 圆 | | | Ditto | 〃 | 3.0mm | |
| Ditto Half-round | 〃 | 半圆 | | Ditto | 〃 | 3.2mm | |
| Ditto Crochet | 〃 | 两半丸 | | Adjustable Wrench | 活动扳手 | | W-230-150 |
| Ditto Oval | 〃 | 椭円 | | Measure Tape | 卷尺 | | Z-341 |
| Ditto Hand | 〃 | 平 | K-215 | LED Pocket Light | LED掌上灯 | | |
| Ditto Hand (Flat) | 〃 | 平（枪型） | | Steel Rule | 钢尺 150 mm | | |
| Ditto Knife | 〃 | 刀刃 | | Utility Knife | 裁纸刀 | | |
| Ditto Triangular | 〃 | 三角 | | Screw Case | 螺丝盒 | | |
| Ditto Frat Leaf | 〃 | 三角（片刃） | | Heat Sink | 散热器 | | |
| Ditto Square | 〃 | 角 | | Voltage Checker | 检电螺丝刀 | | |

## S-60-B/S-60-B230 100V 230V

**TOOL KIT**
工具套装

| External dimensions mm 外形尺寸 | Weight kg 重量 |
|---|---|
| 450 (W) ×330 (H) ×140 (D) | 4.3 |

**Details table (kit contents: 28 pieces)**
明細表（套装内容 28件）

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Parts Box | 储藏盒 | | B-10-AB | Tweezers | 镊子 | | P-880 |
| Reversible Screwdriver | 可更换螺丝刀 | ⊕No.00/⊖2.5 | D-52 | Hex Wrench | 六角扳手 | 1.27mm | W-91 |
| Ditto | 〃 | ⊕No.1/⊖4.0 | D-54 | Ditto | 〃 | 1.5mm | |
| Ditto | 〃 | ⊕No.2/⊖5.5 | D-58 | Ditto | 〃 | 1.6mm | |
| Reversible Stubby Screwdriver ⊕No.2/⊖6.0 | 可更换双头螺丝刀 | | D-59 | Ditto | 〃 | 2.0mm | |
| Soldering Iron Stand | 置烙铁台 | | H-11 | Ditto | 〃 | 2.4mm | |
| Soldering Iron with Cap | 带帽锡线把手 | | H-250 | Ditto | 〃 | 3.0mm | |
| Solder | 锡线 | | H-700 | Ditto | 〃 | 3.2mm | |
| Diagonal Cutter with Stripper | 斜口钳 | | N-5-150 | Adjustable Wrench | 单头扳手 | | W-230-150 |
| Desolder Braid | 焊接吸取器 | | No.3738 | LED Pocket Light | LED掌上灯 | | |
| Long Nose Pliers with Side Cutter | 尖嘴钳 | | P-15-150 | Utility Knife | 裁纸刀 | | |
| Spring Hook | 弹簧钩 | | P-64 | Service Mat | 服务垫 | | |
| Slip Joint Pliers | 鲤鱼钳 | | P-211Z-150 | File Hand | 精密锉刀 平 | | |
| | | | | Ditto Round | 〃 丸圆 | | |
| | | | | Electrical Tape | 塑料胶带 | | |

■ Accessory: Tool Case, Tool pallet
■ 附工具箱、工具插板

## S-22/S-22-230 100V 230V

**TOOL KIT**
工具套装

| External dimensions mm 外形尺寸 | Weight kg 重量 |
|---|---|
| 330 (W) ×240 (H) ×68 (D) | 2.0 |

**Details table (kit contents: 20 pieces)**
明細表（套装内容 20件）

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Alignment Tool | 調整用螺丝刀 | | D-29-100 | Nut Driver | 螺母螺丝刀 | 5.5mm | D-840-5.5 |
| Phillips Screwdriver | 十字螺丝刀 | ⊕No.0 | D-540-100 | Tip Cleaning Tray | 烙铁头清洁器 | | H-8 |
| Phillips Screwdriver | 〃 | ⊕No.2 | D-555-100 | Solder | 锡线 | | H-700 |
| Slotted Screwdriver | 扁口螺丝刀 | ⊖2.5 | D-630-100 | Solder Aid Tool Kit (Knife and Scraper) | 锡焊辅助工具组（小刀·刮板） | | H-740-2 |
| Slotted Screwdriver | 〃 | ⊖4.0 | D-640-100 | Ditto (Brush and Fork) | 〃 | （毛刷叉子） | H-740-3 |
| | | | | Soldering Iron | 耐腐蚀烙铁手柄 | | H-869 |
| | | | | Diagonal Cutter with Stripper | 剪钳 | | N-9-150 |
| | | | | Long Nose Pliers with Side Cutter | 尖嘴钳 | | P-15-150 |
| | | | | Lineman's Pliers | 钢丝钳 | | P-43-150 |
| | | | | Tweezers | 镊子 | | P-86-125 |
| | | | | Adjustable Wrench | 单头扳手 | | W-230-150 |
| | | | | Measure Tape | 卷尺 | | Z-341 |
| | | | | Heat Sink | 散热器 | | |
| | | | | File Hand | 锉刀 平 | | |
| | | | | Ditto Round | 〃 丸 | | |

■ Accessory: Tool Case
■ 附工具箱



## S-10/S-10-230 100V 230V

**TOOL KIT**
工具套装

| External dimensions mm 外形尺寸 | Weight kg 重量 |
|---|---|
| 320 (W) ×200 (H) ×40 (D) | 2.1 |

**Details table (kit contents: 20 pieces)**
明細表（套装内容 20件）

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Alignment Tool | 調整用螺丝刀 | | D-29-100 | Slotted Screwdriver | 扁口螺丝刀 | ⊖4.0 | D-640-100 |
| Phillips Screwdriver | 十字螺丝刀 | ⊕No.0 | D-540-100 | Ditto | 〃 | ⊖5.0 | D-650-100 |
| Ditto | 〃 | ⊕No.2 | D-555-100 | Nut Driver | 螺母螺丝刀 | 5.5mm | D-840-5.5 |
| Slotted Screwdriver | 扁口螺丝刀 | ⊖2.5 | D-630-100 | Ditto | 〃 | 7mm | D-840-7 |
| | | | | Solder | 锡线 | | H-700 |
| | | | | Soldering Iron | 耐腐蚀烙铁手柄 | | H-869 |
| | | | | Diagonal Cutter with Stripper | 剪钳 | | N-9-150 |
| | | | | Desolder Braid | 焊接吸取器 | | No.3738 |
| | | | | Long Nose Pliers with Side Cutter | 尖嘴钳 | | P-15-150 |
| | | | | Tweezers | 镊子 | | P-87 |
| | | | | Slip Joint Pliers | 鲤鱼钳 | | P-211Z-150 |
| | | | | Adjustable Wrench | 单头扳手 | | W-230-150 |
| | | | | Utility Knife | 裁纸刀 | | |
| | | | | Electrical Tape | 塑料胶带 | | |
| | | | | File Hand | 锉刀组 平 | | |
| | | | | Ditto Round | 〃 丸 | | |

■ Accessory: Tool Case
■ 附工具箱

## S-35/S-35-230 100V 230V

**TOOL KIT**
工具套装

| External dimensions mm 外形尺寸 | Weight kg 重量 |
|---|---|
| 260 (W) ×145 (H) ×35 (D) | 1.4 |

**Details table (kit contents: 13 pieces)**
明细表（套装内容 13件）

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Phillips Screwdriver | 十字螺丝刀 | ⊕No.0 | D-540-100 | Desolder Braid | 焊接吸取器 | | No.3738 |
| Ditto | 〃 | ⊕No.1 | D-550-100 | Long Nose Pliers with Side Cutter | 尖嘴钳 | | P-15-150 |
| Ditto | 〃 | ⊕No.2 | D-555-100 | Lineman's Pliers | 钢丝钳 | | P-43-150 |
| Slotted Screwdriver | 扁口螺丝刀 | ⊖2.5 | D-630-100 | Tweezers | 镊子 | | P-87 |
| Ditto | 〃 | ⊖4.0 | D-640-100 | Adjustable Wrench | 单头扳手 | | W-230-150 |
| Soldering Iron with Cap | 带帽锡线把手 | | H-250 | Solder | 锡线 | | |
| Diagonal Cutter with Stripper | 剪钳 | | N-9-125 | | | | |

■ Accessory: Tool Case
■ 附工具箱

## S-34/S-34-230 100V 230V

**TOOL KIT**
工具套装

| External dimensions mm 外形尺寸 | Weight kg 重量 |
|---|---|
| 260 (W) ×145 (H) ×35 (D) | 1.0 |

**Details table (kit contents: 10 pieces)**
明细表（套装内容 10件）

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Phillips Screwdriver | 十字螺丝刀 | ⊕No.0 | D-540-100 | Diagonal Cutter | 斜口剪钳 | 125 mm | |
| Ditto | 〃 | ⊕No.2 | D-555-100 | Long Nose Pliers | 尖头钳 | 150 mm | |
| Slotted Screwdriver | 扁口螺丝刀 | ⊖2.5 | D-630-75 | Solder | 锡线 | | |
| Ditto | 〃 | ⊖4.0 | D-640-100 | File Hand | 锉刀 平 | | |
| Soldering Iron with Cap | 带帽锡线把手 | | H-250 | ■ Accessory: Tool Case | | | |
| Tweezers | 镊子 | | P-87 | ■ 附工具箱 | | | |

## S-3

**TOOL KIT**
工具套装

| External dimensions mm 外形尺寸 | Weight kg 重量 |
|---|---|
| 260 (W) ×145 (H) ×35 (D) | 1.0 |

**Details table (kit contents: 21 pieces)**
明细表（套装内容 21件）

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Phillips Screwdriver | 十字螺丝刀 | ⊕No.00 | D-530-75 | Hex Wrench | 六角扳手 | 1.27mm | |
| Ditto | 〃 | ⊕No.0 | D-540-100 | Ditto | 〃 | 1.5mm | |
| Ditto | 〃 | ⊕No.2 | D-555-100 | Ditto | 〃 | 1.6mm | |
| Slotted Screwdriver | 扁口螺丝刀 | ⊖2.5 | D-630-75 | Ditto | 〃 | 2.0mm | W-91 |
| Ditto | 〃 | ⊖4.0 | D-640-100 | Ditto | 〃 | 2.4mm | |
| Miniature Diagonal Cutter | 小型斜口剪钳 | | N-32 | Ditto | 〃 | 3.0mm | |
| Miniature Long Nose Pliers | 小型尖头钳 | | P-36 | Ditto | 〃 | 3.2mm | |
| Tweezers | 镊子 | | P-880 | Utility Knife | 裁纸刀 | | |
| Flat Wrench | 角度扳手 | 5.5x7mm | | File Hand | 锉刀组 平 | | |
| Ditto | 〃 | 8x10mm | W-76 | File Round | 〃 丸 | | |
| Ditto | 〃 | 12x14mm | | ■ Accessory: Tool Case | | | |

■ 附工具箱

## S-1

**TOOL KIT**
工具套装

| External dimensions mm 外形尺寸 | Weight kg 重量 |
|---|---|
| 153 (W) ×82 (H) ×25 (D) | 0.3 |

**Details table (kit contents: 7 pieces)**
明细表（套装内容 7件）

| | | | |
|---|---|---|---|
| Phillips Screwdriver | 十字螺丝刀 | ⊕No.00 | D-530-75 |
| Ditto | 〃 | ⊕No.2 | |
| Slotted Screwdriver | 扁口螺丝刀 | ⊖2.5 | D-630-75 |
| Ditto | 〃 | ⊖4.0 | |
| Miniature Diagonal Cutter | 小型斜口钳 | | N-31 |
| Miniature Long Nose Pliers | 小型尖头钳 | | P-36 |
| Tweezers | 镊子 | | P-87 |

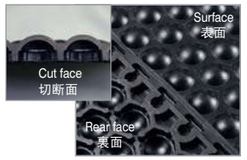
■ Accessory: Tool Case
■ 附工具箱

## F-735/F-736

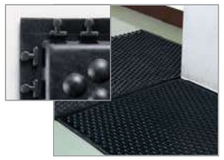
**ESD CUSHION MATS**
抗疲劳地垫

| Part no. 型号 | External dimensions mm 外形尺寸 | Thickness mm 厚度 | ESD standard Ω 防静电管理值 | Weight kg 重量 | Quantity 数量 |
|---|---|---|---|---|---|
| F-735 | 900 (W) × 600 (D) | 12.7 | Rg ≦ 1×10⁷ | 18 | 5 |
| F-736 | | | | 3.5 | 1 |

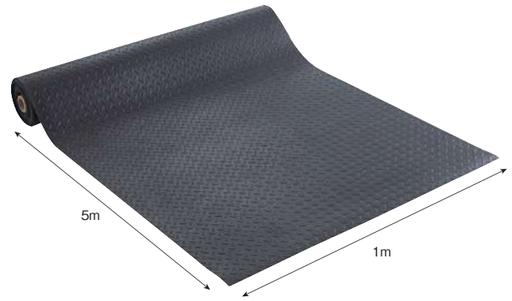
■ The ground cord is not provided as an accessory. It can be ordered separately.
■ 标配没有地线，如客户有需求请选购F-127




Eases fatigue from standing
减轻腿部的疲劳



A jointed construction allows expansion to the desired size
可自由组合尺寸



## F-730

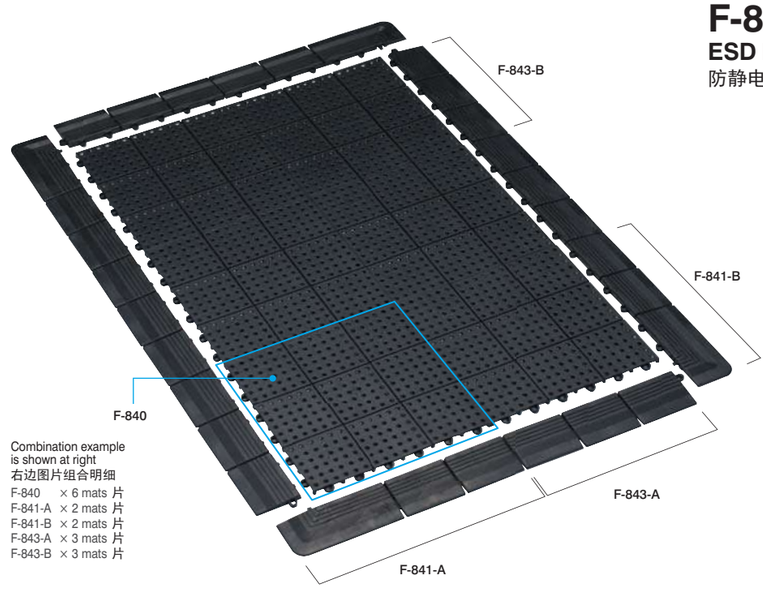
**ESD FLOOR MAT**
防静电地垫

| External dimensions mm 外形尺寸 | Thickness mm 厚度 | ESD standard Ω 防静电管理值 | Weight kg 重量 |
|---|---|---|---|
| 1 (W) × 5 (L) | 4 | Rg ≦ 1×10⁸ | 27 |

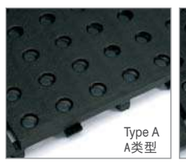
■ The ground cord is not provided as an accessory. It can be ordered separately.
■ 标配没有地线，如客户有需求请选购F-127

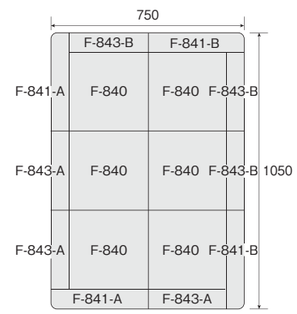
## F-840~F-843

**ESD FLOOR MATS**
防静电地垫



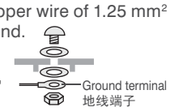

Combination example is shown at right
右边图片组合明细
F-840 × 6 mats 片
F-841-A × 2 mats 片
F-841-B × 2 mats 片
F-843-A × 3 mats 片
F-843-B × 3 mats 片



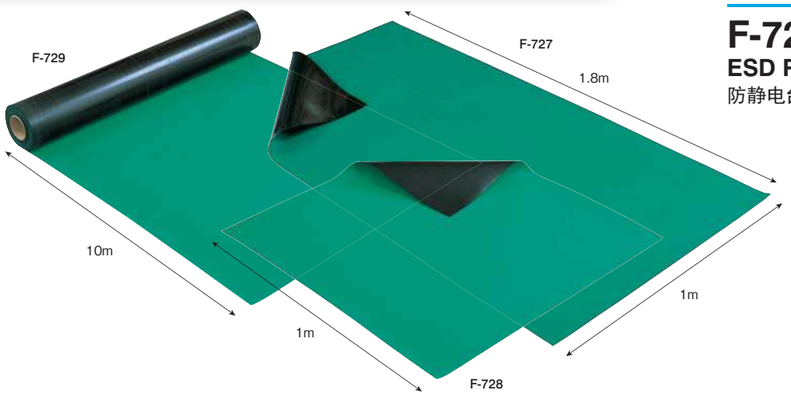



Ground by running an available M5 x 8 screw (with nut & washer) through the F-840 hole, and connecting it to a stranded copper wire of 1.25 mm² or larger, the other end to ground.

关于接地
F-840的地线孔可对应市面上卖的，M5×8的接地线，请放心使用




| Part No. 型号 | Part Name 品 名 | External dimensions mm 外形尺寸 | Thickness mm 厚度 | ESD standard Ω 防静电管理值 | Weight g 重量 |
|---|---|---|---|---|---|
| F-840 | ESD Floor Mat | 300 (W) × 300 (D) | 10 | Rg ≦ 1×10⁷ | 310 |
| F-841-A | ESD Floor Mat (Type A) | 75 (W) ×375 (D) | | | 150 |
| F-841-B | ESD Floor Mat (Type B) | | | | |
| F-843-A | ESD Floor Mat (Type A) | 75 (W) ×300 (D) | | | 120 |
| F-843-B | ESD Floor Mat (Type B) | | | | |



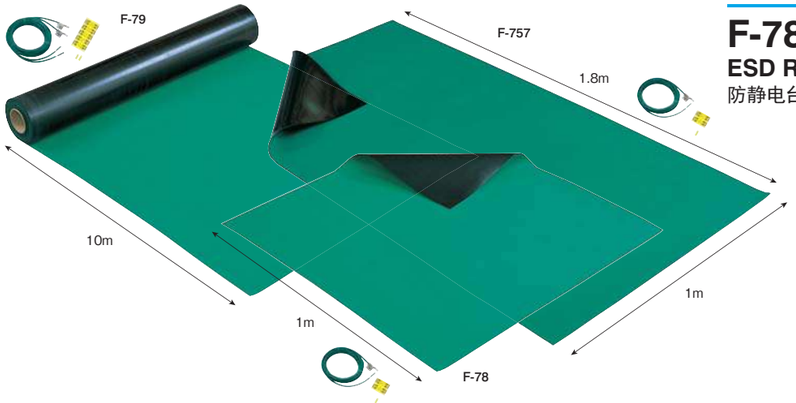

## F-727/F-728/F-729

**ESD RUBBER MATS (Green)**

防静电台垫（绿色）

| Part no. 型号 | External dimensions m 外形尺寸 | Weight kg 重量 | Thickness mm 厚度 | ESD standard Ω 防静电管理值 |
|---|---|---|---|---|
| F-728 | 1 (W) ×1 (L) | 3.4 | 2 | Rp≦1×10⁹ |
| F-727 | 1 (W) ×1.8 (L) | 6.2 | | |
| F-729 | 1 (W) ×10 (L) | 34.4 | | |

■ Reinforcement fibers layer inside.
■ The ground cord is not provided as an accessory. It can be ordered separately.
■ 材质含强化纤维。
■ 不配接地线。请其它途径购买F-127或F-27。



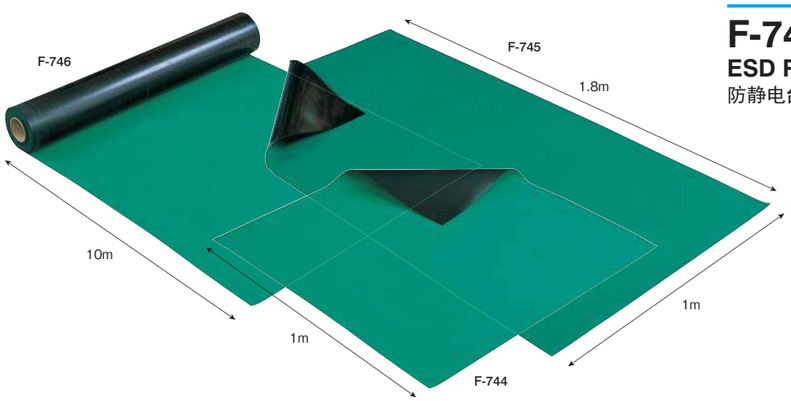

## F-78/F-79/F-757

**ESD RUBBER MATS (Green)**

防静电台垫（绿色）

| Part no. 型号 | External dimensions m 外形尺寸 | Weight kg 重量 | Thickness mm 厚度 | ESD standard Ω 防静电管理值 |
|---|---|---|---|---|
| F-78 | 1 (W) ×1 (L) | 3 | 2 | Rp≦1×10⁹ |
| F-757 | 1 (W) ×1.8 (L) | 5.5 | | |
| F-79 | 1 (W) ×10 (L) | 30.5 | | |

■ Reinforcement fibers layer inside.
■ F-78 / F-757 ground cord × 1, F-79 ground cord × 2
■ 材质含强化纤维。
■ F-78/F-757 配地线1根，F-79 标配地线二根



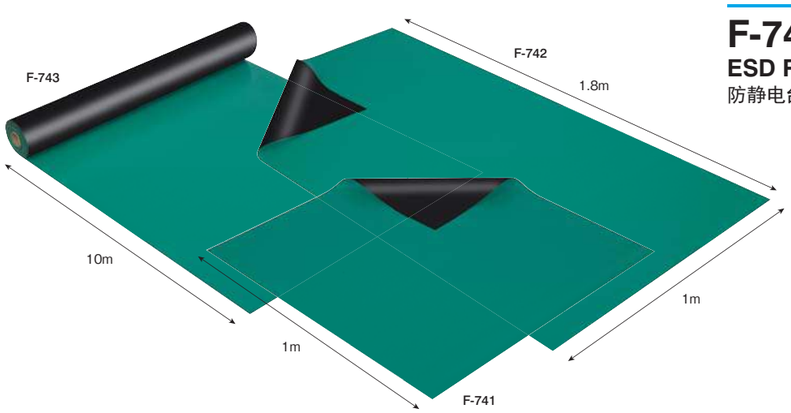

## F-744/F-745/F-746

**ESD RUBBER MATS (Green)**

防静电台垫（绿色）

| Part no. 型号 | External dimensions m 外形尺寸 | Weight kg 重量 | Thickness mm 厚度 | ESD standard Ω 防静电管理值 |
|---|---|---|---|---|
| F-744 | 1 (W) ×1 (L) | 3 | 2 | Rp≦1×10⁸ |
| F-745 | 1 (W) ×1.8 (L) | 5.3 | | |
| F-746 | 1 (W) ×10 (L) | 29.6 | | |

■ The ground cord is not provided as an accessory. It can be ordered separately.
■ 不配接地线。请其它途径购买F-127或F-27。



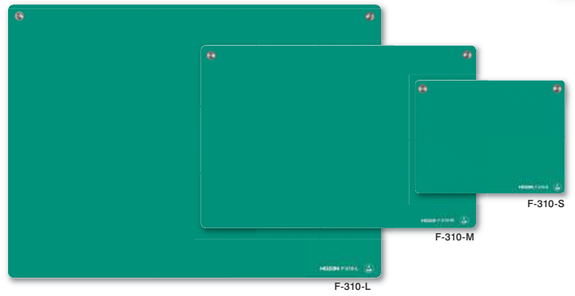

## F-741/F-742/F-743

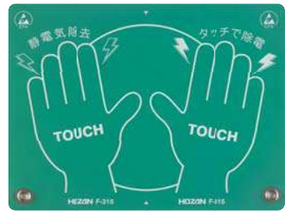
**ESD RUBBER MATS (Green)**

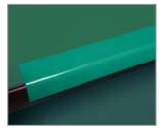
防静电台垫（绿色）

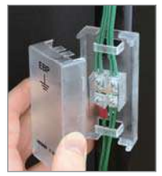
| Part no. 型号 | External dimensions m 外形尺寸 | Weight kg 重量 | Thickness mm 厚度 | ESD standard Ω 防静电管理值 |
|---|---|---|---|---|
| F-741 | 1 (W) ×1 (L) | 2.2 | 1.5 | Rp≦1×10⁸ |
| F-742 | 1 (W) ×1.8 (L) | 4.0 | | |
| F-743 | 1 (W) ×10 (L) | 22.2 | | |

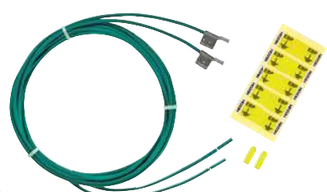
■ The ground cord is not provided as an accessory. It can be ordered separately.
■ 不配接地线。请其它途径购买F-127或F-27。



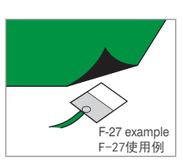


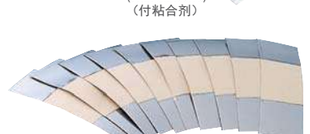





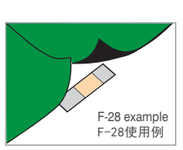


(With adhesive)
（付粘合剂）



(With adhesive)
（付粘合剂）




## F-310-S/M/L

**ESD DESK MAT**

防静电桌垫

| Part no. 型号 | ESD standard Ω 防静电管理值 | External dimensions m 外形尺寸 | Hook diameter mmϕ 钩直径 | Thickness mm 厚度 | Weight g 重量 |
|---|---|---|---|---|---|
| F-310-S | Rp≦1×10⁸ | 180 (W) ×135 (L) | 7 | 1.5 | 60 |
| F-310-M | | 330 (W) ×220 (L) | | 2 | 230 |
| F-310-L | | 450 (W) ×330 (L) | | | 460 |

■ The ground cord is not provided as an accessory. It can be ordered separately.
■ 不配接地线。请其它途径购买F-24。

## F-315

**ESD PAD**

防静电小尺寸垫

| ESD standard Ω 防静电管理值 | External dimensions m 外形尺寸 | Hook diameter mmϕ 钩直径 | Thickness mm 厚度 | Weight g 重量 |
|---|---|---|---|---|
| Rp≦1×10⁸ | 180 (W) ×135 (L) | 7 | 1.5 | 60 |

■ The ground cord is not provided as an accessory. It can be ordered separately.
■ 不配接地线。请其它途径购买F-24。

## F-750

**ESD RUBBER TAPE**

防静电胶带

| Width m 宽度 | Length m 长度 | Thickness mm 厚度 | Weight g 重量 | ESD standard Ω 防静电管理值 | Material 材質 |
|---|---|---|---|---|---|
| 50 | 10 | 0.5 | 500 | Rg≦1×10⁹ | NBR |

## F-166

**COMMON POINT BENCH GROUND**

接地端子

| | |
|---|---|
| 外形寸法 | 42(W)×20(H)×88(D)mm |
| 接続端子 | 4口(ネジ径M4) |
| 重量 | 40g |

## F-127

**GROUND CORD**

接地线

| Wire dia. × length 线径×长度 | Quantity 内装 |
|---|---|
| 1.25 mm² × 2 m | 2-piece pack 2本 |

## F-27

**GROUND CORD**

接地线

| Wire dia. × length 线径×长度 | Quantity 内装 |
|---|---|
| 2 mm² × 2 m | 2-piece pack 2组 |

■ For conductive (ESD) rubber mat
■ 用于彩色防静电胶垫

## F-28

**GROUND PLATE**

接地板

| Quantity 内装 |
|---|
| 10-piece pack 10片 |

■ For conductive rubber mat
■ 用于彩色防静电胶垫

Equipment for visualizing electrostatic discharge
For several years with no power supply, Record traces of electrostatic discharge

可视化静电放电设备几年没有电力供应，记录静电放电痕迹

Industry first !! Patented
行业第一！专利

# F-240/F-241

## ESD VISIBLE CHECKER

By installing it in the ground wiring, it shows that static electricity has passed through the earth wire.
You can check the work and process where static electricity is likely to occur with "visual inspection".
If a defect due to static electricity occurs, it becomes a clue to locate the cause.
The display does not require any power supply, and the display is maintained for several years.
※ F-245 is required to return the display.

### ESD可见检查器

通过将其安装在接地线上，表明静电已通过接地线。
“视觉检查”可以检查可能发生静电的工作和过程。
如果出现由静电引起的缺陷，它将成为找出原因的线索。
显示器不需要任何电源，并且显示器保持数年。
※F-245需要返回显示。

| Part no. 型号 | External dimensions m 外形尺寸 | Electrostatic reaction voltage V 静电反应电压 | Internal resistance Ω 内阻 | Lead 导线 | Weight g 重量 | Quantity 数量 |
|---|---|---|---|---|---|---|
| F-240 | 53（W）×105（H）×9（D） | HBM 1000 or more HBM 1000以上 | Less than 1 M 少于1 M | Size 1.25 mm² x Length 100 mm 尺寸1.25mm²×长度100mm | 20 | 1 |
| F-241 | | | | | 200 | 10 |

Reaction change due to passage of ⊖1000 V
由于通过⊖1000V而导致反应改变

1-pass 一次通过　3-pass 三次通过　7-pass 七次通过

Reaction change due to passage of ⊖2000 V
由于通过⊖2000V而导致反应改变

1-pass 一次通过　2 passes 二次通过

When static electricity flows to the ground wire, display begins to appear.
The larger the static electric charge is, the clearer the display becomes.
The picture shows the state where the charge of [-] has passed.
当静电流到地线时，检查器开始显示。
静电电荷越大，显示器就越清晰。
图片显示[ － ]的电荷已经过去的状态。

# F-245

## RESET KEY

Reset the screen display of F - 240.

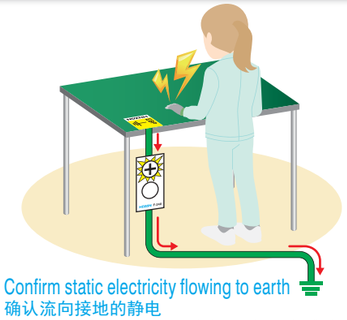
### 复位键

重置F-240的屏幕显示。

| Power supply 电源 | External dimensions m 外形尺寸 | Weight g 重量 |
|---|---|---|
| With lamination (6F22) battery × 1 使用层压（6F22）电池×1 | 67（W）×92（H）×28（D） | 150 |

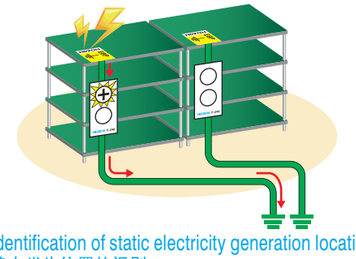
The administrator resets the display with the dedicated reset key.
管理员使用专用重置键重置显示器。

## If you set up a ground line marker　如果你设置了一个地线标记



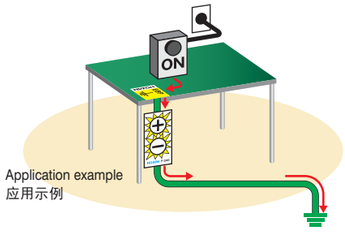
### Confirm static electricity flowing to earth
### 确认流向接地的静电

Static electricity flowing to the ground wire remains on the display. You can check the actual condition of static electricity at a glance.
流向地线的静电仍保留在显示屏上。
您可以一目了然地查看静电的实际情况。



### Identification of static electricity generation location
### 静电发生位置的识别

Static electricity flowing from the workbench, storage shelf, etc. will remain as indication. When a defect occurs, you can lead to actions such as exploring the cause centering around the display location.
从工作台，储存架等流出的静电仍将作为表示。
发生缺陷时，您可以执行诸如在显示位置周围探索原因的操作。




Application example
应用示例

### Detect electric leakage in electrical equipment
### 检测电气设备的漏电

Electric leakage occurs due to defective ground connection of the electrical equipment and it appears on the display even when it flows to the ground for ESD protection.
由于电气设备的接地故障而导致漏电，
即使流入地面以进行静电地面，它也会出现在显示屏上。





Standard type
标准类型

Allergic to metal allergy
对金属过敏敏感

High endurance metal type
高耐力金属类型

To those concerned about the wrist strap code
给那些关心腕带代码的人

# F-153

## WRIST STRAP
防静电手腕带

# F-152

## WRIST STRAP
防静电手腕带

# F-155

## WRIST STRAP
防静电手腕带

# F-142

## ANKLE STRAP
防静电脚腕带

| Part no. 型号 | Code total length m 代码总长度 | Effective cord length m 线长 | Plug diameter mmφ 插头直径 | Hook diameter mmφ 夹子直径 | ESD standard Ω 防静电管理值 | Weight g 重量 |
|---|---|---|---|---|---|---|
| F-153 | 3.1 | 1.6 | 4 | 7 | $7.5\times10^5 \leqq Rg < 3.5\times10^7$ * Being worn. ※配戴状态 | 40 |
| F-152 | | | | | | 40 |
| F-155 | | | | | | 65 |
| F-142 | 1.6 | — | | — | | 50 |

■ With 1 MW resistor
■ 1MΩ电阻值

# F-206

## WRIST STRAP CHECKER
腕带监测器

# F-206-TA

## WRIST STRAP CHECKER (with calibration certificate)
腕带监测器（附校正证明书）

* Because the certificate will bear the purchaser's name (company name, etc.), your name is required when ordering.
※因为购买者的名字要入证明书、所以下单时注明公司名是很有必要的。

| Indications 显示 | | | Accuracy 精度 | Power supply 电源 | Battery life 电池寿命 | External dimensions mm 外形尺寸 | Weight g 重量 |
|---|---|---|---|---|---|---|---|
| LOW | GOOD | HIGH | | | | | |
| Wrist strap ≦ 750 kΩ 防静电手腕带 ≦ 750kΩ | 750 kΩ < wrist strap < 9 MΩ 750kΩ < 防静电手腕带 < 9MΩ | 9 MΩ ≦ wrist strap 9MΩ ≦ 防静电手腕带 | 750 KΩ ... -0%, + 6% 9 MΩ ... -6%, + 0% | With lamination (6F22) battery × 1 使用层压（6F22）电池×1 | 15,000 times or more 1万5千回以上 | 76（W）×35（H）×135（D） | 285 |

Anti-static clothing that can cover from sleeves to fuselage and thigh only with outerwear

防静电服装可以覆盖从袖到躯干和大腿

F-190-M　F-190-L

## F-190-M/L

### ESD PROTECTING GOWN

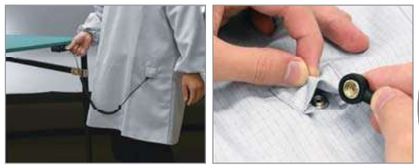
Apron type which is easy to remove and detach only in coat.
Regardless of gender, it corresponds to a wide range of sizes with one sheet.
A hook is attached to the abdomen, and it can be used as a garment with a groundable connection point.

### 防静电连袖围裙

只能在外套上容易穿脱的围裙类型。
无论性别如何，它也可以对应各种尺寸。
因为在腹部有按扣，所以它可以作为有可接地连接点的服装。

| Part no. 型号 | Width cm 服装的宽度 | Length cm 长 | ESD standard Ω 防静电管理值 | Hook diameter mmϕ 夹子直径 | Material 材料 | Weight g 重量 |
|---|---|---|---|---|---|---|
| F-190-M | 56 | 80 | $1\times10^5 \leqq Rp < 1\times10^{11}$ | 7 | Polyester 聚酯纤维 | 250 |
| F-190-L | 62 | 88 | | | | 300 |

■ Earth wire is not included. Please purchase F - 24 separately.
■ 不包括地线。 请单独购买F-24。




Escape static electricity from the human body to the floor from shoes, strap suitable for standing work

从鞋子上将人体防静电传到地板上，适合站立工作的表带

## F-145

### HEEL STRAP

A type strap that wears from the top of the shoe and releases static electricity from the heel to the floor.
Just by mounting it on work shoes you get the same effect as electrostatic shoes.
(It can also be used for safety shoes)
※ It assumes wearing with both feet.

### 防静电脚筋带

从鞋的顶部穿着并从脚后跟释放防静电到地板的类型表带。
只需将它安装在工作鞋上即可获得与防静电鞋相同的效果。（它也可以用于安全鞋）
※穿双脚是先决条件。

I will dissipate static electricity from the heel to the floor.
我会将脚跟的防静电耗散到地面。

Put the ground ribbon on the sole and put on your shoes.
把地带放在鞋底上，然后穿上鞋子。

| Size 尺寸 | ESD standard Ω 防静电管理值 | Weight g 重量 |
|---|---|---|
| Free 自由 | $7.5\times10^5 \leqq Rg < 3.5\times10^7$ (Wearing state)（佩戴状态） | 35 |

■ Resistance of 1 MΩ
■ 1MΩ的电阻

Terminal for safely and reliably connecting the wrist strap to the ground
Corresponds to electrostatic discharge protection standard (RCJS)

终端安全可靠地将腕带连接到地面
符合防静电放电保护标准（RCJS）

## F-126

### COMMON POINT BENCH GROUND

Up to two wrist straps can be used simultaneously.
Common diameter about 4 mm φ Banana plug, you can connect regardless of type.
Because it is a type installed under the workbench, it does not affect work space.
It conforms to the specification of EBP (ground connection point) for the wrist strap required by each standard.

### 接地端子

最多可以同时使用两个手腕带。
常见的直径约4毫米φ香蕉插头，可以连接，无论类型。
因为它是安装在工作台下的类型，所以不会影响工作空间。
它符合每个标准所要求的腕带的EBP（接地点）规格。

| External dimensions mm 外形尺寸 | Connection terminal 连接终端 |
|---|---|
| 64 (W) ×39 (H) ×38 (D) | 2 mouth for wrist strap (4 mmϕ) 2个手腕带（4 mm） |

■ Cord length: 2 m
■ 2 mounting screws included
※ 1 MΩ resistance is not included.
■ 电线长度：2米
■ 包括2个安装螺丝
※不包括1MΩ电阻。

F-66-M

## F-66-S/M/L

### ESD GLOVES

Excellent grip power is realized with fingertip PU coat.
You can operate tablets and smartphones.
■ 10 pair provided

### 防静电手套

用指尖PU涂层实现出色的握力。
您可以操作平板电脑和智能手机。
■10双入

F-61-M

## F-61-M/L

### ESD GLOVES

No coat.
We are knitted with only the entire conductive fiber.
Seamless stereoscopic finish, excellent in elasticity, there is no fatigue feeling even for long hours work.
It is excellent in breathability, and it is difficult to muffle even when used for a long time.
You can also operate tablets and smartphones smoothly.
Equivalent to class 1000.
■ 1 pair provided

### 防静电手套

没有涂层。
全部只用防静电纤维编而成。
无缝立体饰面，弹性极佳，即使长时间工作也没有疲劳感。
透气性优异，即使长时间使用也难以闷热。
您还可以顺利操作平板电脑和智能手机。
相当于1000级。
■1双入

F-64-M

## F-64-S/M/L

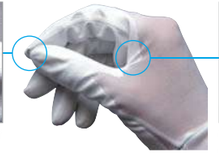
### ESD GLOVES

Palm full face coat.
Ultra thin backpacking structure ensures breathability.
While thin, highly durable specification that can be used repeatedly washing more than 30 times.
Excellent surface smoothness, touch tablets and smartphones can be operated smoothly.
Equivalent to class 1000.
■ 1 pair provided

### 防静电手套

掌上的全掌有PU涂层。
手背的結构确保透气性。
虽然超薄耐用的规格可反复使用30次以上。
您还可以顺利操作平板电脑和智能手机。
相当于1000级。
■1双入

Fitting to pinch a washer of several millimeters in size
适合捏几毫米大小的垫圈



Outstanding breathability of the striking structure
由于手背的结构

| Part no. 型号 | Size 尺寸 | OAL mm 全長 | ESD standard Ω 防静电管理值 | Weight g 重量 | Color (Wrist portion) 颜色（手腕部分） |
|---|---|---|---|---|---|
| F-66-S | S | 190 | Charge decay from 1000 V to 100 V in less than 2 secs. 電荷从1000V至100V衰减时间不到2秒 | 15 | White 白 |
| F-66-M | M | 205 | | 16 | Green 緑 |
| F-66-L | L | 220 | | | Gray 灰 |
| F-61-M | M | 195 | | 15 | White 白 |
| F-61-L | L | 205 | | 16 | Black 黒 |
| F-64-S | S | | | 12 | Orange 橙 |
| F-64-M | M | 225 | | 14 | Green 緑 |
| F-64-L | L | | | 15 | White 白 |

※Dimensions may fluctuate somewhat for cloth products.
※由于是纤维产品尺寸存在少许误差。

Performance evaluation of anti-static products can be easily done
Corresponds to ESD protection standards (RCJS, JIS, IEC, ANSI)

防静电产品的性能评估可以轻易完成
符合防静电保护标准（RCJS，JIS，IEC，ANSI）

Set content
设置内容

With carrying case convenient
for storage and transportation
便携箱便于存放和运输

# F-109

## SURFACE RESISTANCE CHECKER

It is a measuring instrument for measuring the resistance value of anti-static products.
Special electrode corresponding to the standard, light weight soft case with convenience for carrying and storage.
It has two kinds of mode switching function.
(20 seconds, 35 seconds off mode switching type)
In the 20 second off mode, hold the measured value at measurement time (after 15 seconds) specified by the standard.

### 表面电阻计

它是测量抗防静电产品电阻值的测量仪器。
特殊电极对应标准，重量轻的软盒，便于携带和存放。
两种模式切换功能。 （20秒，35秒关闭模式切换类型）
在20秒关闭模式下，在标准规定的测量时间（15秒后）保持测量值。

| | |
|---|---|
| Measurement range 测定范围 | 9.00 × $10^2$ Ω or more 2.00 × $10^{12}$ Ω or less<br>9.00×$10^2$Ω以上 2.00×$10^{12}$Ω以下 |
| Applied voltage 施加电压 | When the object is less than 1.00 × $10^6$ Ω ... 10 V<br>When the object is 1.00 x $10^6$ Ω or more ... 100 V<br>当物体小于1.00×$10^6$Ω...10V时<br>当物体小于1.00×$10^6$Ω或更大...100V时 |
| Accuracy 精度 | ± 10% (However, for 1.00 × $10^{11}$ Ω or more, ± 20%)<br>±10%（但是，对于1.00×$10^{11}$Ω或更多，±20%） |
| Power supply 電源 | With lamination (6LR61 / 6LF22) battery × 1<br>使用层压（6LR61 / 6LF22）电池×1 |
| Battery life 电池寿命 | 1000 times or more (35 seconds off mode)<br>1000次或更多（35秒关闭模式） |
| Dimensions 外形尺寸 | Body 本体 85 (W) x 40 (H) x 170 (D) mm<br>(not including protrusions)（不包括突起）<br>Electrode 电极 79 mm φ ×110mm<br>Case 便携箱 290 (W) x 170 (H) x 130 (D) mm |
| Gross weight 重量 | 5.1 kg<br>Body: 300 g (battery not included)（不包括电池），<br>Electrode 电极: 2.3 kg (1 piece)（1个） |

- With auto power off function
- Two electrodes, two connecting cords (1.5 m), a ground wire, two alligator clips, a cloth scale (40 cm), with a carrying case
- 带自动断电功能
- 标配鳄鱼夹2個、连接线2本、便携箱

# F-109-TA

## SURFACE RESISTANCE CHECKER (with calibration certificate)

表面电阻计（附校正证明书）

* Because the certificate will bear the purchaser's name (company name, etc.), your name is required when ordering.
※因为购买者的名字要入证明书、所以下单时注明公司名是很有必要的。

Tool (resistance to groundable connection point)
工具（耐受可接地连接点）

Conductive color mat (Point to point resistance / Surface resistance measurement)
防静电色垫（点对点电阻/表面电阻测量）

Conductive color mat (Resistance to the groundable connection point)
防静电色垫（抵抗可接地连接点）

# F-109-1

## SURFACE RESISTANCE CHECKER (Without electrode)

The body of F-109.
Depending on the object to be measured, an optional electrode is required.

### 表面电阻计（不含电极）

F-109的本体。
根据要测量的物体，需要一个可选电极。



| | |
|---|---|
| Dimensions 外形尺寸 | 85 (W) x 40 (H) x 170 (D) mm<br>(not including protrusions)<br>（不包括突起） |
| Weight 重量 | 300 g (battery not included)<br>（不含电池） |

- With auto power off function
- Two connection cords (1.5 m), with a grounding wire, two alligator clips
- 带自动断电功能
- 两根连接线（1.5m），带有接地线，两个鳄鱼夹

# F-109-1-TA

## SURFACE RESISTANCE CHECKER (Without electrode / with calibration certificate)

表面电阻计（不含电极・附校正证明书）

* Because the certificate will bear the purchaser's name (company name, etc.), your name is required when ordering.
※因为购买者的名字要入证明书、所以下单时注明公司名是很有必要的。





## ■ Replacement parts 更换部件

### F-101
**ELECTRODES (2.3 kg)**

- Quantity : 2
- Dimensions : 79 mmφ × 110 mm
- Weight : 2.3 kg ( 1 piece )

电极（2. 3kg）

- 装入数 ： 2
- 外形尺寸 ： 79mmφ×110mm
- 重量 ： 2.3kg（1个）

### F-101-TA
**ELECTRODES (2.3kg with calibration certificate)**

电极（2. 3kg 附校正证明书）

* Because the certificate will bear the purchaser's name (company name, etc.), your name is required when ordering.
※因为购买者的名字要入证明书、所以下单时注明公司名是很有必要的。

## ■ Optional parts 选购配件

### F-102
**ELECTRODES (For footwear)**

By combining with F-109, it is possible to measure the resistance of ESD footwear.

- Dimensions : Footwear electrode 300 (W) ×19 (H) ×300 (D) mm
  Finger electrode 35 mmφ × 30 mm
- Weight : 1.3 kg
- With extension code

电极（对于鞋类）

通过与F-109相结合，可以测量防静电鞋的阻力。

- 外形尺寸 ： 鞋类电极 300（W）×19（H）×300（D）mm
  指状电极 35mmφ×30mm
- 重量 ： 1.3kg
- 使用扩展代码

### F-103
**ELECTRODES (For clothing)**

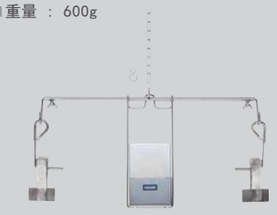
By combining with F-109, it is possible to measure the resistance value of anti-static clothing.
Simply hold the clothing with the electrode and you can easily measure it.

- Dimensions : Electrodes 450 (W) ×50 (H) ×230 (D) mm
  (Excluding protrusions)
  Chain 1 m
- Weight : 600 g

电极（对于服装）

通过与F-109相结合，可以测量防静电服装的阻力值。
只需用电极握住衣服，即可轻易测量。

- 外形尺寸 ： 电极 450（W）×50（H）×230（D）mm（排除突起）
  链 1m
- 重量 ： 600g



### F-109-4
**ELECTRODES**

By combining with F - 109, it is an electrode that can measure resistivity simply.
Ideal for daily inspections done during periodic inspections.
※ Please be sure to use the electrode attached to F-109 for measurement according to the standard.

- Dimensions : 62 (W)×68 (H)×15 (D)mm
- Weight : 80 g
- Cord length : 15 cm
- With rubber band

电极

通过与F-109相结合，它可以简单地测量阻力值。
非常适合在定期检查中进行日常检查。
※按照标准进行测量时，
请务必使用连接到F-109的电极。

- 外形尺寸 ： 62（W）×68（H）×15（D）mm
- 重量 ： 80g
- 线长 ： 15cm
- 用橡皮带

Simple measurement can be easily done with one hand
简单的测量可以用一只手轻易完成

Attached to F-109 with attached band
连接带F-109

### F-104
**INSULATION SHEET**

Insulation sheet that shuts off electrical connection.
By laying under the object to be measured, more accurate measurement can be performed.
With a compact storage case.

- Insulation performance : Point resistance 2 × $10^{12}$Ω ≦ Rp
- Dimensions : 1000 (W)×800 (H)mm
- Weight : 400 g

绝缘片

关闭电气连接的绝缘片。
通过铺设在待测物体下方，可以进行更精确的测量。
带紧凑的存储箱。

- 绝缘性能 ： 点电阻2×$10^{12}$Ω≦Rp
- 外形尺寸 ： 1000（W）×800（H）mm
- 重量 ： 400g

For measuring static electricity countermeasures
用于测量防静电对策

| | Connection environment 连接环境 | Number of effective pixels 有效像素数 | Maximum frame rate 最大帧速率 | Save 保存 | Other functions 其他功能 | Microscope lineup 显微镜阵容 |
|---|---|---|---|---|---|---|
| **L-851** P.37<br>**FULL HD CAMERA**<br>HDMI工业相机<br>No personal computer required Camera that can observe with full HD image quality, s ave images and movies<br>不需要个人电脑 可以观看全高清图像质量的相机，保存图像和视频 | Monitor 显示器 HDMI | CMOS 2 million 200万 | 60 fps | Image / Movie 图像/视频 Save 保存 | Digital zoom 数字变焦; Monochrome 单色; Line marker 线标记; Image reversal 图像反转; Interval video 间隔录影; Self-timer shooting 自拍拍摄; 3 Sequential shooting 三连拍 | 32 items 32型号<br>L-KIT580 L-KIT585 L-KIT603 |
| **L-850-1** P.39<br>**FULL HD CAMERA**<br>(No lens · HDMI connection)<br>HDMI工业相机<br>（无镜头·HDMI连接）<br>Can inspect and work with full HD picture quality without PC<br>无需PC即可检查和使用全高清图像质量 | Monitor 显示器 HDMI | CMOS 2 million 200万 | 60 fps | | MINI Smallest and lightest 最小，最轻; Shadow mask 障板 (Only when using L-850-2 只有在使用L-850-2); Line marker 线标记 (Only when using L-850-2 只有在使用L-850-2); Image reversal 图像反转 (Only when using L-850-2 只有在使用L-850-2) | 19 items 19型号<br>L-KIT518 L-KIT523 L-KIT534 |
| **L-835** P.41<br>**USB CAMERA**<br>USB工业相机<br>5 megapixel high quality USB camera with excellent cost performance<br>500万像素高品质USB相机，具有出色的性价比 | PC | CMOS 5 million 500万 | 30 fps | Image / Movie 图像/视频 Save 保存 | Digital zoom 数字变焦; Measurement 测量; Multiple windows 多窗口; Image reversal 图像反转<br>Please use multiple windows by downloading compatible software from the web. 请从网上下载多窗口软件并使用它 | 27 items 27型号<br>L-KIT500 L-KIT505 L-KIT516 |
| **L-860** P.43<br>**MICROSCOPE CAMERA WITH DISPLAY**<br>一体机<br>Full HD monitor and camera integrated All-in-one camera unnecessary for personal computers<br>全高清显示器和相机集成 个人电脑不需要一体式相机 | Built in 内置 | CMOS 2 million 200万 | 30 fps | Image / Movie 图像/视频 Save 保存 | Digital zoom 数字变焦; Monochrome 单色; Line marker 线标记; Image reversal 图像反转 | 23 items 23型号<br>L-KIT548 L-KIT563 L-KIT565 |

## Stereoscopic microscope lineup 体视显微镜阵容

### Fixed magnification formula 固定放大类型

**L-50 base L-50基本** P.49

10 items 10型号

L-50 L-KIT537 L-KIT540

**L-51 base L-51基本** P.50

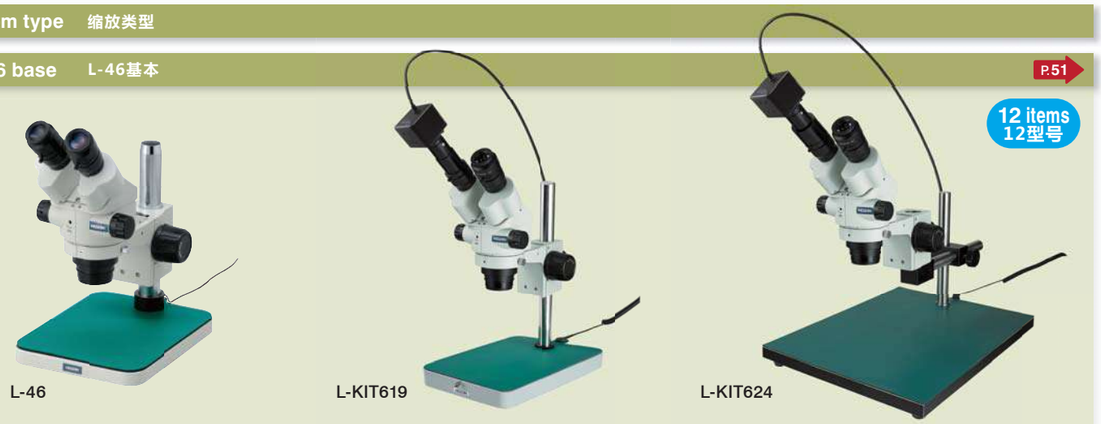
11 items 11型号

L-51 L-KIT543

### Zoom type 缩放类型

**L-46 base L-46基本** P.51

12 items 12型号



L-46 L-KIT619 L-KIT624

## No personal computer required
## Camera that can observe with full HD image quality, save images and movies
## 不需要个人电脑，可以观看全高清图像质量的相机，保存图像和视频

32 items 型号

# FULL HD CAMERA SYSTEM (for monitor)
# HDMI工业相机

HDMI / Monitor 显示器 / CMOS 2 million 200万 / 60 fps / Image / Movie 图像/视频 Save 保存

Digital zoom 数字变焦 / Monochrome 单色 / Line marker 线标记 / Image reversal 图像反转 / Interval video 间隔录影 / Self-timer shooting 自拍拍摄 / 3 Sequential shooting 三连拍

| | | |
|---|---|---|
| Image pickup device | 传感器尺寸 | 1 / 2.8 "CMOS image sensor　CMOS图像传感器 |
| Output connector | 支持接口 | HDMI |
| Number of effective pixels (maximum) | 有效像素（最大） | 1920 × 1080 (2 million pixels)　（200万像素） |
| Number of stored pixels (maximum) | 保存分辨率（最大） | Still image 1920 × 1080 (2 million pixels)　静止图像 1920×1080（200万像素）<br>Video 1920 × 1080 (2 million pixels) / 1280 x 720 (900,000 pixels)　视频 1920×1080（200万像素）/ 1280×720（90万像素） |
| Recording file format | 记录格式 | Still image JPG　静止图像 JPG<br>Video MOV　视频 MOV |
| Recoding media | 存储媒体 | microSD / SDHC / SDXC memory card (maximum 128GB)　存储卡（最大128GB） |
| Frame rate | 帧速率 | Maximum 60 fps　最大60 fps |
| Lens mount | 镜头接口 | C mount |
| Display language | 语言设置 | Japanese, English, Chinese (simplified, traditional)　日语，英语，中文（简体，繁体） |
| Power supply | 电源 | DC 5 V (with AC Adapter) * Power supply via USB connection is also possible.<br>（带交流适配器）*也可以通过USB连接供电。 |
| Power consumption | 耗散功率 | 2.5W |
| Dimensions | 外观尺寸 | 50 (W) x 50 (H) x 48 (D) mm (excluding projections)　（不包括投影） |
| Weight | 单机重量 | Body 163 g (excluding accessories)　本体 163g（不含配件）<br>Remote controller 60 g　遥控器 60g |

L-859
DISPLAY MONITOR
■Size: 11.6 inches
显示器
■尺寸：11.6英寸

P.45

## Camera operation　相机操作

You can operate with the operation button on the back of the camera body.
您可以使用相机机身背面的操作按钮进行操作。

If you use the supplied remote control you can operate from a remote place, you can use it stably even at high magnification.
如果您使用附带的遥控器，您可以在偏远的地方进行操作，即使在高倍率下也可以稳定地使用它。

## HOZAN Image Editor　http://www.hozan.co.jp/

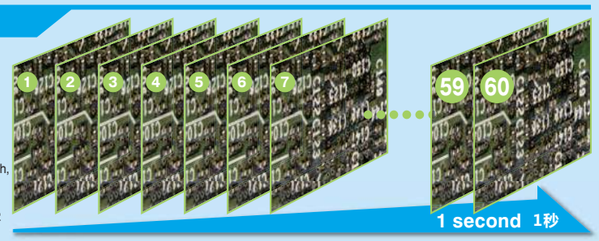
We prepare software that can edit saved images with PC. Dimension measurement is also possible.
我们准备可以用PC编辑保存的图像的软件。尺寸测量也是可能的。

**Free download available**
**可免费下载**

## Function　功能

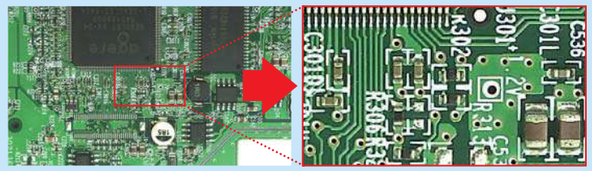
60 fps

It consists of 60 still images per second, and it is a smooth, no afterimage image.
它每秒包含60个静止图像，并且是一个平滑的，无残像的图像。




Digital zoom 数字变焦

The image can be scaled up to 1 to 4 times in a stepless manner.
图像可以以无级方式放大1到4倍。



Monochrome 单色

You can erase the color information and observe with only light and dark.
您可以擦除颜色信息并只用明暗观察。

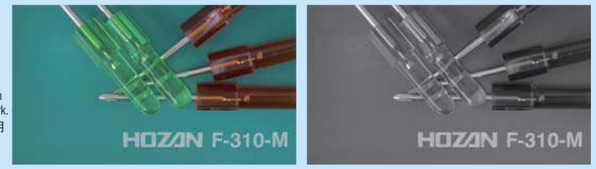



Image / Movie 图像/视频 Save 保存 — Save 保存

Line marker 线标记 — Cross line 交叉线

Self-timer shooting 自拍拍摄 — self timer 自拍

3 Sequential shooting 三连拍 — 3 pictures continuous 连续三连拍

Interval video 间隔录影 — Interval video 间隔录影



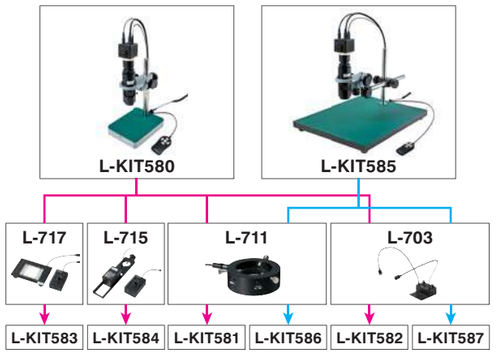
## 26× ⟷ 190×

L-KIT580

L-KIT585

※When using a 24-inch wide monitor, magnification at 1920 × 1080 resolution setting
※使用24英寸宽屏时，请在1920×1080分辨率下进行放大

**With lighting　随着照明**



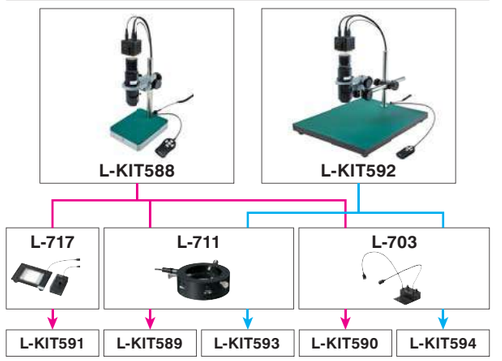

## 53× ⟷ 380×

L-KIT588

L-KIT592

※When using a 24-inch wide monitor, magnification at 1920 × 1080 resolution setting
※使用24英寸宽屏时，请在1920×1080分辨率下进行放大

**With lighting　随着照明**



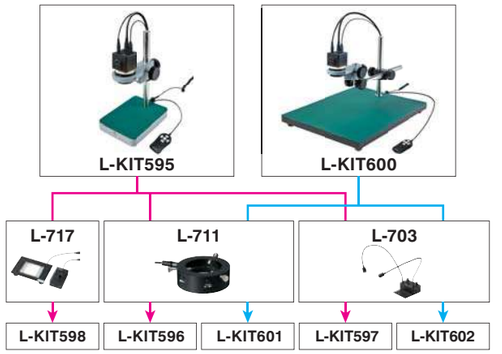

## 18 / 44 / 88 / 110×

L-KIT595

L-KIT600

※When using a 24-inch wide monitor, magnification at 1920 × 1080 resolution setting
※使用24英寸宽屏时，请在1920×1080分辨率下进行放大

**With lighting　随着照明**



L-KIT603

## 8.9 / 18×

※ When using a 24-inch wide monitor, magnification at 1920 × 1080 resolution setting
※ 使用24英寸宽屏时，请在1920×1080分辨率下进行放大

L-KIT604

## 2.8 ⟷ 11×

※ When using a 24-inch wide monitor, magnification at 1920 × 1080 resolution setting
※ 使用24英寸宽屏时，请在1920×1080分辨率下进行放大

L-KIT607

## 8 ⟷ 13×

※ When using a 24-inch wide monitor, magnification at 1920 × 1080 resolution setting
※ 使用24英寸宽屏时，请在1920×1080分辨率下进行放大

## Can inspect and work with full HD picture quality without PC

## 无需PC即可检查和使用全高清图像质量

19 items 型号

# FULL HD CAMERA SYSTEM (for monitor)
# HDMI工业相机

HDMI

Monitor 显示器

CMOS 2 million 200万

60 fps

MINI Smallest and lightest 最小，最轻

Shadow mask 障板
Only when using L-850-2 只有在使用L-850-2

Line marker 线标记
Only when using L-850-2 只有在使用L-850-2

Image reversal 图像反转
Only when using L-850-2 只有在使用L-850-2

| | | |
|---|---|---|
| Image pickup device | 传感器尺寸 | 1 / 2.8 "CMOS image sensor　"CMOS图像传感器 |
| Output connector | 支持接口 | HDMI |
| Number of effective pixels | 有效像素 | 1920 × 1080 (2 million pixels)（200万像素） |
| Video output | 视频输出 | Compliant with DVI 1.0　DVI 1.0<br>RGB, 1080P60　RGB, 1080 |
| frame rate | 帧速率 | Maximum 60 fps　最大60 fps |
| Lens mount | 镜头接口 | C mount |
| Power supply | 电源 | DC 12 V (with AC adapter)（带AC适配器） |
| power consumption | 耗散功率 | 4.4 W |
| Dimensions 外观尺寸 | L-850 | φ55 x 78 mm (excluding protrusions)（不包括突起）<br>φ55 × 86.5 mm (when L-818 is installed)（安装L-818时） |
| | L-850-1 | 40 (W) x 40 (H) x 51.1 (D) mm |
| Weight 单机重量 | L-850 | 228 g (excluding accessories)（不含配件） |
| | L-850-1 | 116 g |

■ AC adapter, with HDMI cable 2 m
■交流电适配器，带HDMI电缆2米

**L-859**
**DISPLAY MONITOR**
■Size: 11.6 inches
显示器
■尺寸: 11.6英寸

P.45

## L-850-2
## OSD CONTROLLER
相机控制器

**Detailed setting of the camera is possible on the monitor**
**显示器上可能有相机的详细设置**

### Maximum frame rate 60 fps　最大帧速率60 fps

60 fps

It consists of 60 still images per second, and it is a smooth, no afterimage image.
它每秒包含60个静止图像，并且是一个平滑的，无残像的图像。

## L-808-3
## M4 SCREW ADAPTER

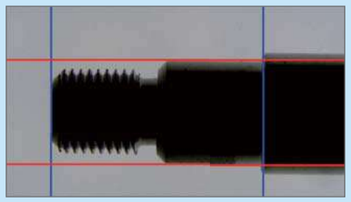
Adapter to convert camera mounting screw (1/4 "× 20 mountain) to M4 screw.

螺丝适配器
将相机安装螺丝（1/4 "×20山）转换为M4螺丝的适配器。

### Camera controller usage example　相机控制器使用示例

**Line marker　线标记**

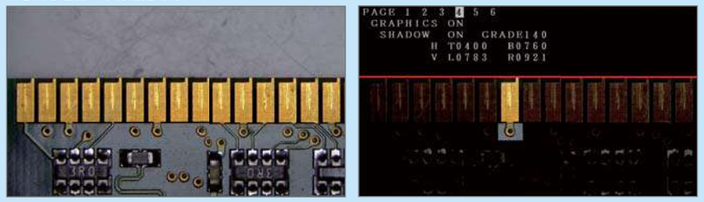
Vertical and horizontal lines can be displayed on the display screen.
垂直线和水平线可以显示在显示屏上。



**Shadow mask　阴影面具**

**When you want to inspect only a specific place**
**当您只想检查一个特定的地方**

You can limit the range of the display screen.
您可以限制显示屏的范围。

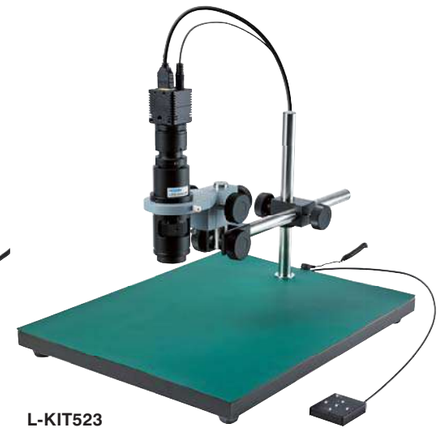





## 27 × ⟷ 195 ×

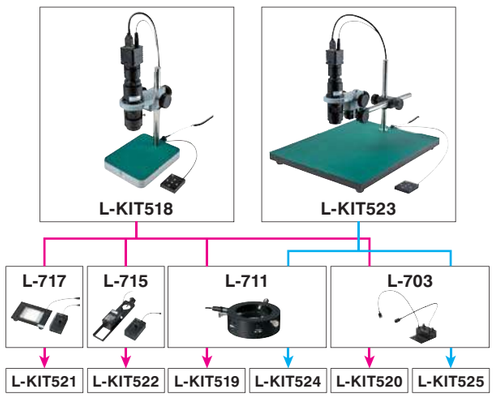
※When using a 24-inch wide monitor, magnification at 1920 × 1080 resolution setting
※使用24英寸宽屏时，请在1920×1080分辨率下进行放大

L-KIT518



L-KIT523

**With lighting　随着照明**



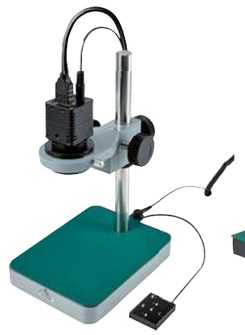

## 18 / 45 / 91 / 115 ×

L-KIT526 L-KIT527 L-KIT528 L-KIT529 L-KIT531 L-KIT532 L-KIT533

## 18 / 45 ×

L-KIT530

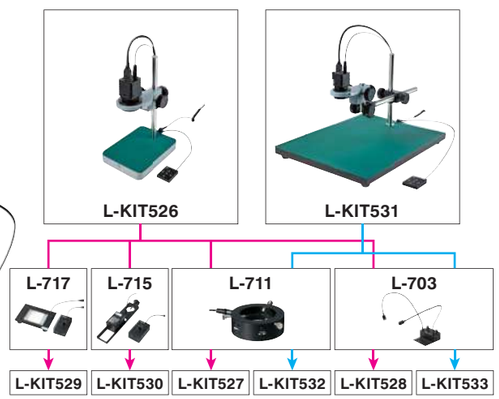
※When using a 24-inch wide monitor, magnification at 1920 × 1080 resolution setting
※使用24英寸宽屏时，请在1920×1080分辨率下进行放大



L-KIT526

L-KIT531

**With lighting　随着照明**




## 9.2 / 18 ×

L-KIT534

※ When using a 24-inch wide monitor, magnification at 1920 × 1080 resolution setting
※ 使用24英寸宽屏时，请在1920×1080分辨率下进行放大

## 2.9 ⟷ 11 ×

L-KIT535

※ When using a 24-inch wide monitor, magnification at 1920 × 1080 resolution setting
※ 使用24英寸宽屏时，请在1920×1080分辨率下进行放大

## 8.6 ⟷ 13 ×

L-KIT536

※ When using a 24-inch wide monitor, magnification at 1920 × 1080 resolution setting
※ 使用24英寸宽屏时，请在1920×1080分辨率下进行放大

# 5 megapixel high quality USB camera with excellent cost performance

## 500万像素高品质USB相机，具有出色的性价比

27 items 型号

# USB CAMERA SYSTEM (for PC)
## USB工业相机

PC | CMOS 5 million 500万 | 30 fps | Image / Movie 图像/视频 Save 保存

Digital zoom 数字变焦 | Measurement 测量 | Multiple windows 多窗口 | Image reversal 图像反转

Please use multiple windows by downloading compatible software from the web.
请从网上下载多窗口软件并使用它

| | | |
|---|---|---|
| Image pickup device 传感器尺寸 | 1 / 2.5 "CMOS image sensor | "CMOS图像传感器 |
| Output connector 支持接口 | USB 2.0 | |
| Number of effective pixels (maximum) 有效像素（最大） | 2592 × 1944 (5 million pixels) | （500万像素） |
| Number of stored pixels (maximum) 保存分辨率（最大） | Still image 2592 × 1944 (5 million pixels)<br>Movie 1280 × 960 (1.2 million pixels) | 静止图像2592×1944（500万像素）<br>视频1280×960（120万像素） |
| Frame rate 帧速率 | Maximum 30 fps, but only when using 5 million pixels 10 fps | 最大30 fps，但仅限于使用500万像素10 fps |
| Recording file format 记录格式 | Still image JPG / BMP / PNG / PDF<br>Video AVI | 静止图像JPG / BMP / PNG / PDF<br>视频AVI |
| Lens mount 镜头接口 | C mount | |
| Power supply 电源 | DC 5 V (USB) | |
| Power consumption 耗散功率 | 0.35 W | |
| Dimensions 外观尺寸 | 50 (W) x 50 (H) x 46.6 (D) mm (excluding projections) | （不包括投影） |
| Weight 单机重量 | 170 g | |

| | |
|---|---|
| Operating environment 电脑配置 | OS: Windows 10/8/7 / XP * 1 (32 bit and 64 bit) (32bit或64bit)<br>CPU: Intel Core 2 Duo 1.6 GHz or more 以上<br>Memory: 1 GB or more 内存：1GB以上<br>Hard disk: Free space of 20 GB or more 硬盘：20 GB或更多的可用空间<br>* 700 MB is required to install special software. ※700 MB用于软件安装<br>USB port USB端口 (USB 2.0) |
| Software 软件 | HOZAN USB cam software (Language: Japanese / English / medium correspondence)<br>Basic functions: preview, still / movie shooting<br>Display function: Digital zoom, image rotation, image reversal<br>Adjustment function: exposure, white balance, frequency, gamma, contrast,<br>Saturation, sharpness, brightness, hue, backlight correction<br>Editing functions: Paint, trimming, text insertion, line insertion<br>Measurement function: distance between two points, distance between plural points, distance between two points of circle, arc length, Angle, 4 point angle, rectangle, polygon, circle, parallel line distance<br>HOZAN USB cam software （语言:日/英/中）<br>基本 预览、拍照・视频录像<br>显示 数字变焦、图像回转、图像反转<br>调整 曝光补偿、白平衡、频率、亮度、对比、饱和度、锐度、明度、色调、逆光补正<br>编辑 画图、修整、插入字符、插入线<br>测量 直线测量、折线测量、同心圆测量、圆弧测量、角度测量、夹角测量、矩形测量、多边形测量、圆形测量、平行线距测量 |

## Shooting function 拍摄功能

**Observation 检测**

You can easily shoot still images and movies with just one button.
Image selection such as resolution selection, brightness and color tone can be done easily while watching the image.

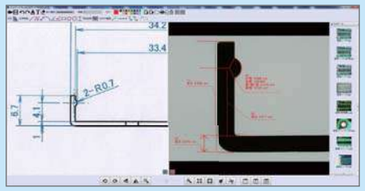
只需一个按钮即可轻易拍摄静态图像和动画。
可以在观看图像时轻易完成分辨率选择，亮度和色调等图像选择。

**Zoom 放大**

You can enlarge or reduce the image on the software with the zoom function.
You can also enlarge / reduce during movie shooting.
※It may be unusable depending on the setting of software.

您可以使用缩放功能放大或缩小软件中的图像。您也可以在短片拍摄期间放大/缩小。
※根据软件的设置它可能无法使用。

## Edit function 编辑功能



**Screen 2 · 4 split 屏幕2•4分割**

Multiple images can be displayed / edited.
It also supports PDF display, and it widens the range of utilization, such as measuring the inspection object while checking the drawing.

可以显示/编辑多个图像。
它还支持PDF显示，并扩大了使用范围，例如在检查绘图时测量检查对象。

## Measurement function 测量功能

**Dimension measurement 尺寸测量**

Various measurement functions are included.
The result of measurement can be extracted to Word, Excel with one button.
※Measurement function · measurement value · inspection image is displayed. It is also easy to create a report.

包括各种测量功能。测量结果可以通过一个按钮提取到Word，Excel。
※测量功能・测量值・显示检查图像。 写报告也很容易。

## Video call 视频通话

It can also be used as a camera for video call (Skype etc.) on the Web.
It is possible to share diagnostic images in remote areas and in real time.

它也可以用作Web上的视频通话（Skype等）的相机。
可以在偏远地区和实时共享诊断图像。

**Free download available 可免费下载**

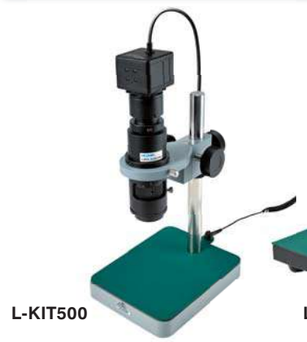
http://www.hozan.co.jp/

**Multi-window compatible software 多窗口兼容软件**

**Activate multiple cameras simultaneously 同时激活多台摄像机**

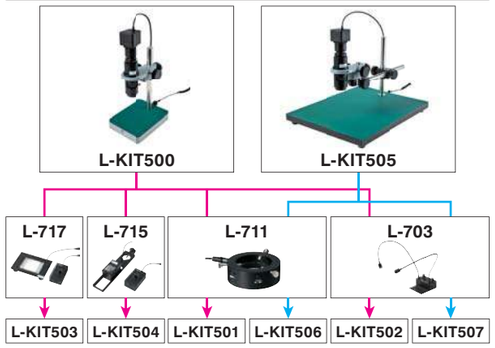
It is installed in an automatic crimping machine and the terminal crimping part is examined diversely
它被安装在一个自动压接机中，端子压接部分被检查不同

## 8.7× ⟷ 250×



※When using a 24-inch wide monitor, magnification at 1920 × 1080 resolution setting
※使用24英寸宽屏时，请在1920×1080分辨率下进行放大

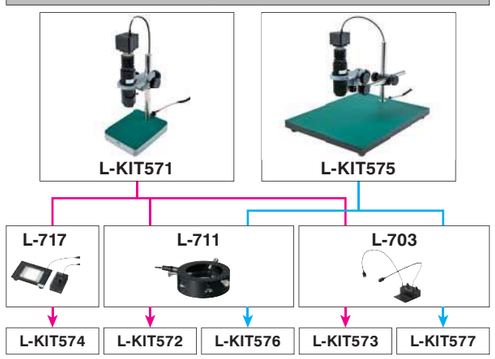
With lighting 随着照明




## 17× ⟷ 500×

※When using a 24-inch wide monitor, magnification at 1920 × 1080 resolution setting
※使用24英寸宽屏时，请在1920×1080分辨率下进行放大

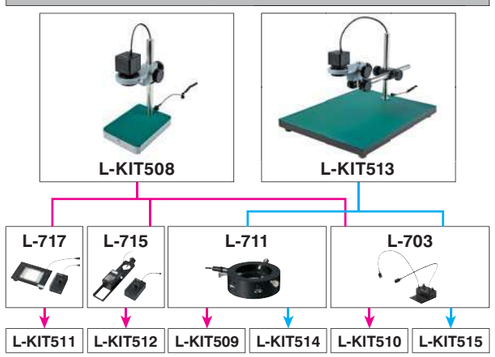
With lighting 随着照明




## 6.0× ⟷ 150×

※When using a 24-inch wide monitor, magnification at 1920 × 1080 resolution setting
※使用24英寸宽屏时，请在1920×1080分辨率下进行放大

With lighting 随着照明




## 0.9× ⟷ 15×

※ When using a 24-inch wide monitor, magnification at 1920 × 1080 resolution setting
※ 使用24英寸宽屏时，请在1920×1080分辨率下进行放大

## 2.7× ⟷ 17×

※ When using a 24-inch wide monitor, magnification at 1920 × 1080 resolution setting
※ 使用24英寸宽屏时，请在1920×1080分辨率下进行放大

# Full HD monitor and camera integrated
# All-in-one camera unnecessary for personal computers
## 全高清显示器和相机集成　　个人电脑不需要一体式相机

**23 items 型号**

## MICROSCOPE CAMERA WITH DISPLAY SYSTEM (for monitor) 一体机

| | | |
|---|---|---|
| Image pickup device | 传感器尺寸 | 1/3 "CMOS image sensor　CMOS图像传感器 |
| Number of effective pixels | 有效像素 | 1920 × 1080 (2 million pixels)　（200万像素） |
| Number of effective pixels | 保存分辨率 | Still image 1920 x 1080 (2 million pixels)　静止图像 1920×1080（200万像素）<br>Video 1920 x 1080 (2 million pixels) / 1280 x 720 (900,000 pixels)　视频 1920×1080（200万像素）/ 1280×720（90万像素） |
| Recording file format | 记录格式 | Still image JPG / Video AVI　静止图像 JPG / 视频 AVI |
| Recoding media | 存储媒体 | SD / SDHC memory card (maximum 32 GB)　SD / SDHC存储卡（最大32 GB） |
| frame rate | 帧速率 | Maximum 30 fps　最大30 fps |
| Lens mount | 镜头接口 | C mount |
| Monitor | 显示器 | Glare (gloss) liquid crystal IPS method　LCD IPS<br>Size 11.6 wide　尺寸 11.6寸<br>Resolution 1920 × 1080 (2 million pixels)　最高分辨率 1920×1080（200万像素） |
| Software | 软件 | With dedicated OS<br>Basic functions: preview, still / movie shooting<br>Display function: Digital zoom (1 to 10 times), image reversal, screen fixed, monochrome display, line display, HDR display<br>Adjustment Function: Exposure, White Balance, Frequency, Gamma, Contrast, Saturation, Lightness, Sharpness, Noise Reduction, RGBRGB<br>专用操作系统<br>基本功能：预览，静止/短片拍摄<br>显示功能：数码变焦（1至10次），图像反转，屏幕固定，单色显示，行显示，HDR显示<br>调整功能：曝光，白平衡，频率，伽玛，对比度，饱和度，亮度，清晰度，降噪，RGB |
| Power supply | 电源 | DC 12 V (with AC adapter)　DC 12 V（带AC适配器） |
| power consumption | 耗散功率 | 7.8W |
| Dimensions | 外观尺寸 | 282 (W) x 202 (H) x 62 (D) mm (not including protrusions)（不包括突起） |
| Weight | 单机重量 | 710g |

### HOZAN Image Editor　http://www.hozan.co.jp/

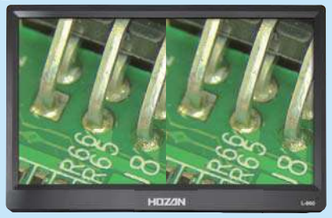
We prepare software that can edit saved images with PC.
Dimension measurement is also possible.
我们准备可以用PC编辑保存的图像的软件。
尺寸测量也是可能的。

**Free download available**
**可免费下载**



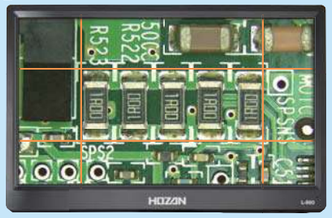
## Preview / shooting / image display is possible　预览·拍摄·图像显示可能

### Image comparison　图像比较



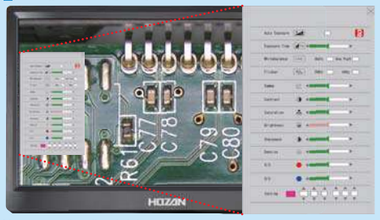
Saved images and images being shot are displayed on two screens.
You can take a good sample and use it for comparative inspection etc.
正在拍摄的保存图像和图像显示在两个屏幕上。
您可以拿一个好样品，并用它进行比较检查等。

### Line indication　线路指表示



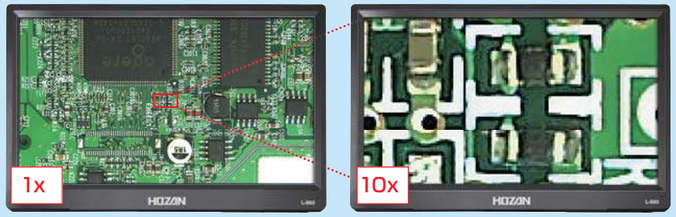
Up to 8 lines can be displayed in each of the vertical and horizontal directions.
It is useful for positioning of workpiece etc.
每个垂直和水平方向最多可显示8行。
对于工件等的定位很有用。

### Image quality adjustment　图像质量调整



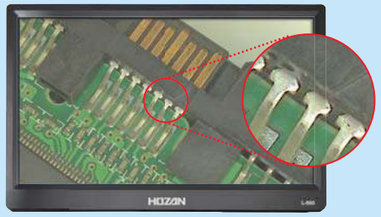
You can easily adjust brightness and color.
您可以轻易调整亮度和颜色。

### Digital zoom　数字变焦




The displayed image can be enlarged / reduced steplessly from 1 to 10 times.
※Valid only at observation. Digital zoom is not applied to still images / movies taken.
显示的图像可以从1到10倍无级放大/缩小。
※只在观察时有效。 数码变焦不适用于拍摄的静止图像/动画。

### HDR (High Dynamic Range) display　HDR（高动态范围）显示



By using the HDR function, you can automatically adjust the balance of bright and dark areas, keep glare and reduce glare.
通过使用HDR功能，您可以自动调节明暗区域的平衡，
保持眩光并减少眩光。

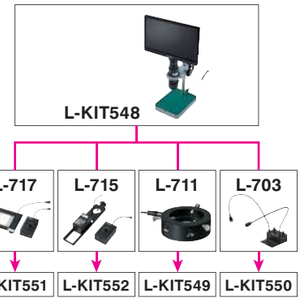


## 13× ⟷ 97×

L-KIT548

※Monitor size 11.6 inches
※显示器尺寸为11.6英寸

**With lighting　随着照明**

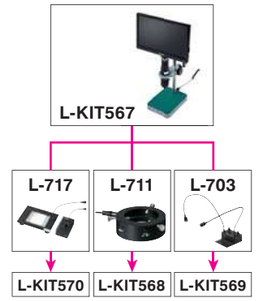



## 27× ⟷ 195×

L-KIT567

※Monitor size 11.6 inches
※显示器尺寸为11.6英寸

**With lighting　随着照明**




## 9.7 / 23 / 46 / 60×

L-KIT553 L-KIT554 L-KIT555 L-KIT556 L-KIT558 L-KIT559 L-KIT560

L-KIT553

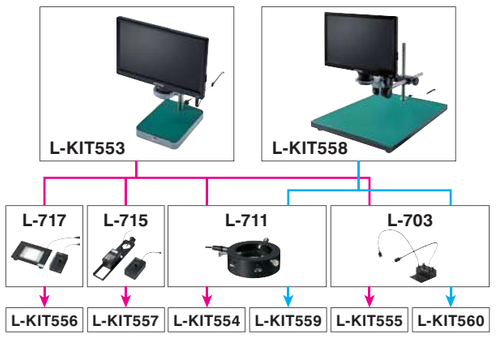
L-KIT558

## 9.7 / 23×

L-KIT557

※Monitor size 11.6 inches
※显示器尺寸为11.6英寸

**With lighting　随着照明**



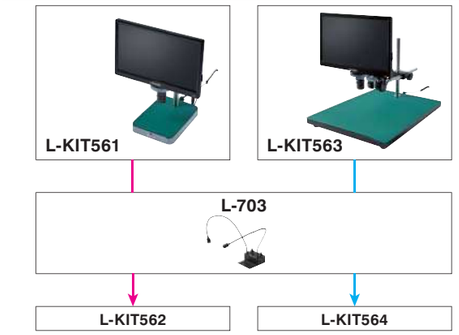

## 2.2× ⟷ 5.8×

L-KIT561

L-KIT563

※Monitor size 11.6 inches
※显示器尺寸为11.6英寸

**With lighting　随着照明**




## 1.0 ⟷ 5.8×

※Monitor size 11.6 inches
※显示器尺寸为11.6英寸

L-KIT565

## 3.0 ⟷ 6.8×

※Monitor size 11.6 inches
※显示器尺寸为11.6英寸

L-KIT566

## Small (11.6 inch) full HD monitor with HDMI connection type

## 带HDMI连接类型的小型（11.6英寸）全高清显示器

※This product does not have image quality adjustment function.
Adjustment on the camera side is necessary.
※本产品没有图像质量调节功能。 相机侧的调整是必要的。

# L-859

## DISPLAY MONITOR

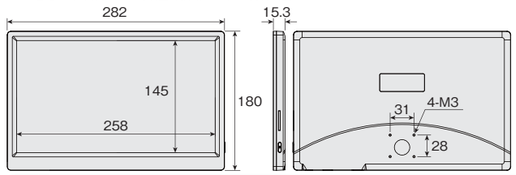
It is a dedicated LCD monitor which can be used for HDMI camera.
A small size of 11.6 inches that does not get in the way on the desk.
The liquid crystal adopts the IPS method with wide viewing angle, glare (gloss) which coloring is good and the image is displayed beautifully.
There is a mounting hole on the back of the main unit, and also a table stand and a camera screw conversion plate are attached, it corresponds to every use scene.

### 显示器

这是一款可用于HDMI相机的专用液晶显示器。
11.6英寸的小尺寸不会挡在桌子上。
液晶采用IPS方式，广视角，眩光（光泽），着色性好，图像显示美观。
主机背面有一个安装孔，并附有一个桌面支架和一个摄像机螺丝转换板，它对应于各种使用场景。

| | | |
|---|---|---|
| Liquid crystal method | 液晶法 | Glare (gloss) liquid crystal IPS method 眩光（光泽）液晶IPS方法 |
| Screen size | 屏幕尺寸 | 11.6 type wide 11.6型宽 |
| Number of effective pixels | 有效像素数 | 1920 × 1080 |
| Input connector | 输入连接器 | HDMI |
| Power supply | 电源 | DC 12 V (AC adapter included)（包括AC适配器） |
| power consumption | 功耗 | 4W |
| Dimensions | 外部尺寸 | 282 (W) x 180 (H) x 15.3 (D) mm (not including protrusions)（不包括突起） |
| Weight | 重量 | 400 g (excluding accessories) （不含配件） |

■ AC adapter, desktop stand, camera screw conversion plate, with 4 mounting screws
■AC适配器，桌面支架，相机螺丝转换板，带有4个安装螺丝



The table stand can be steplessly adjusted by 180 degrees
台架可以无级调整180度

With the camera screw fixing, the monitor can be installed at an arbitrary angle.
通过相机螺丝固定，显示器可以安装在任意角度。

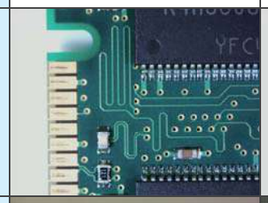
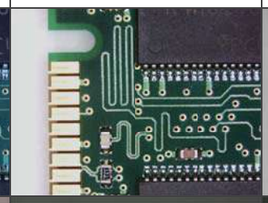
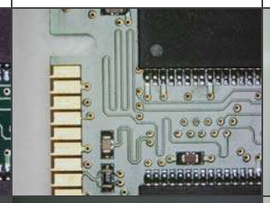
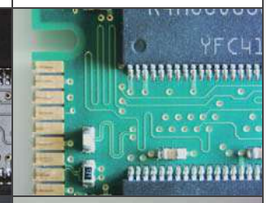
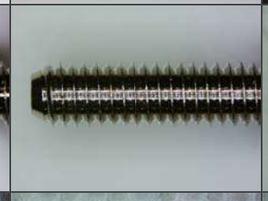
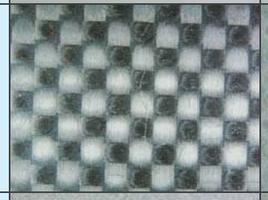
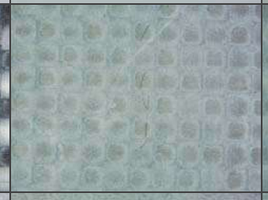
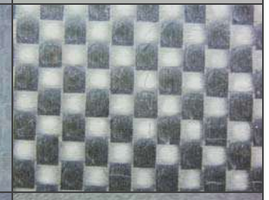
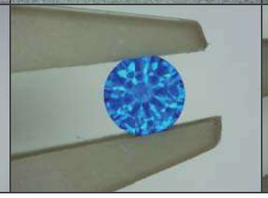
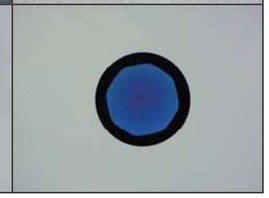
Wall mounting example
墙上安装示例

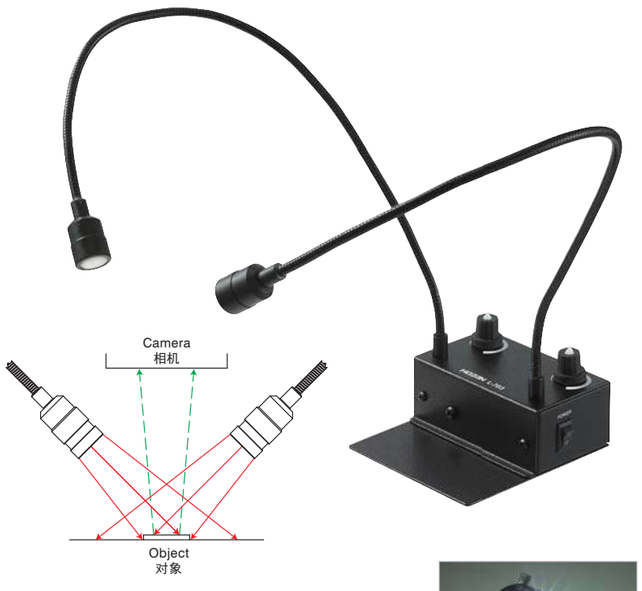
You can use the desk with a flexible arm large.
您可以使用灵活的手臂用法示例。



## Lineup of versatile lighting that broadens the scope of inspection

## 多功能照明系列扩大了检测范围

| | L-703 | L-711 | L-715（同軸落射） | L-717（面発光） |
|---|---|---|---|---|
| LED Light<br>LED照明灯 | | | | |
| Substrate<br>基板 |  |  |  |  |
| After metal milling<br>金属研磨后 | | | | |
| Glossy surface<br>(metal)<br>光泽表面<br>（金属） | | | | |
| Uneven part<br>(metal)<br>不均匀的部分<br>（金属） | |  | | |
| Uneven part<br>(dry carbon)<br>不均匀的部分<br>（干碳） |  |  | |  |
| Hole<br>(dent)<br>孔<br>（凹痕） | | | | |
| Translucent material<br>(jewelry)<br>半透明材料<br>（珠宝） | |  | |  |




# L-703

100-240V

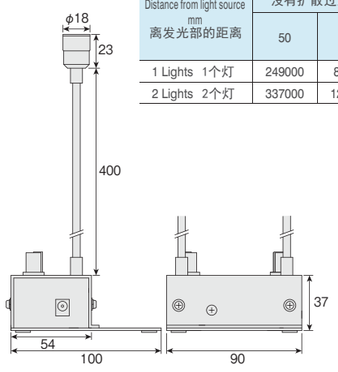
## LED FLEX NECK LIGHT

LED照明灯

| | | |
|---|---|---|
| LED | | 1 High-brightness white LEDs x 2 高辉度白色LED 1个×2 |
| LED life | LED寿命 | Approx. 10,000 HRS * Varies to the used environment. 约10000小时 *根据使用环境有所变化。 |
| Color temp. | 色温度 | 6500 K |
| Rated voltage | 定格電圧 | 12 VDC (with AC adapter)（标配AC 适配器） |
| Power consumption | 消費電力 | 6 W |
| External dimensions 外形尺寸 | Unit body 本体 | 90 (W) ×37 (H) ×100 (D) mm |
| | Arm length 支臂长 | 400mm |
| Weight | 重量 | 425g |

Brightness comparison data
亮度比较数据 (lx)

| Distance from light source mm 离发光部的距离 | No diffusion filter 没有扩散过滤器 | | With diffusion filter 带扩散滤波器 | |
|---|---|---|---|---|
| | 50 | 100 | 50 | 100 |
| 1 Lights 1个灯 | 249000 | 81000 | 35400 | 11500 |
| 2 Lights 2个灯 | 337000 | 126800 | 38300 | 14400 |



# L-711

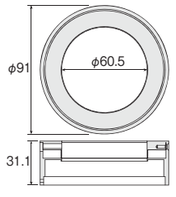
100-240V

RoHS

## LED RING LIGHT

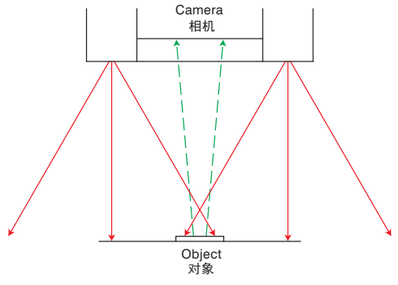
LED照明灯

| | | |
|---|---|---|
| LED | | White power LED × 12 白色PowerLED 12个 |
| LED life | LED寿命 | Approx. 10,000 HRS * Varies to the used environment. 约10000小时 *根据使用环境有所变化。 |
| Color temp. | 色温度 | 6600 K |
| Rated voltage | 定格電圧 | 12 VDC (with AC adapter)（标配AC 适配器） |
| Power consumption | 消費電力 | 8.5 W |
| External dimensions | 外形尺寸 | 91ϕ×31 mm（不含突起部） |
| Weight | 重量 | 150 g |




Brightness comparison data (at full power)
亮度比较数据（调光100%时） (lx)

| Distance from light source mm 离发光部的距离 | L-711 | L-711 + L-711-1 |
|---|---|---|
| 30 | 35000 | 21000 |
| 40 | 30900 | 17700 |
| 50 | 24500 | 15100 |
| 60 | 22200 | 13200 |
| 80 | 16400 | 9700 |
| 100 | 12100 | 7500 |

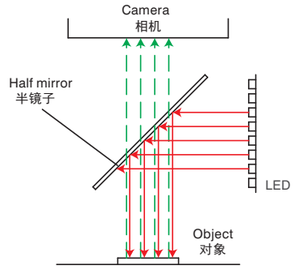


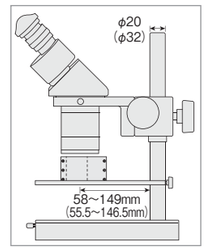

## ■Optional parts 另售部品

### L-711-1

FILTER

扩散过滤器




# L-715

100-240V

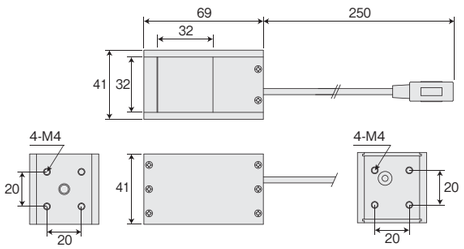
## LED COAXIAL EPISCOPIC LIGHT

LED照明灯

| | | |
|---|---|---|
| LED | | White LED x 64 白色LED × 64个 |
| LED life | LED寿命 | Approx. 30,000 HRS * Varies to the used environment. 约30000小时 *根据使用环境有所变化。 |
| Color temp. | 色温度 | 6500 K |
| Rated voltage | 定格電圧 | 12 VDC (with AC adapter)（标配AC 适配器） |
| Power consumption | 消費電力 | 2.7 W |
| Light emitting surface dimension | 发光表面尺寸 | 32 mm× 32 mm |

Light brightness (at full power)
照明灯的亮度（调光100%时）

| Distance from light source mm 离发光部的距离 | Brightness lx 亮度 |
|---|---|
| 30 | 10300 |
| 60 | 4800 |
| 100 | 2300 |



# L-717

100-240V

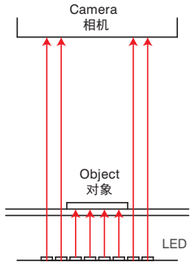
## LED PLANE EMISSION LIGHT

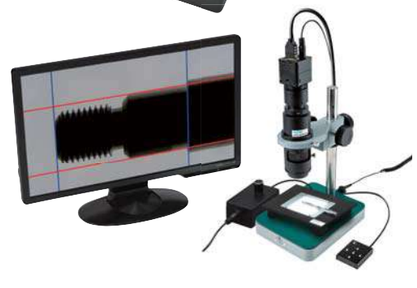
LED照明灯

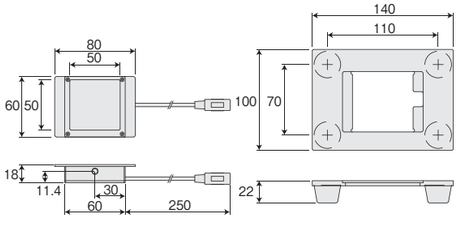
| | | |
|---|---|---|
| LED | | White LED x 64 白色LED × 64个 |
| LED life | LED寿命 | Approx. 30,000 HRS * Varies to the used environment. 约30000小时 *根据使用环境有所变化。 |
| Color temp. | 色温度 | 6500 K |
| Rated voltage | 定格電圧 | 12 VDC (with AC adapter)（标配AC 适配器） |
| Power consumption | 消費電力 | 2.7 W |
| Light emitting surface dimension | 发光表面尺寸 | 50mm×50mm |

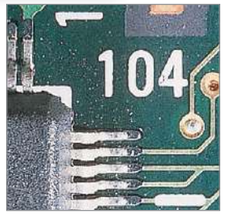
Light brightness (at full power)
照明灯的亮度（调光100%时）

| Distance from light source mm 离发光部的距离 | Brightness lx 亮度 |
|---|---|
| 10 | 61500 |
| 30 | 35400 |
| 60 | 16200 |

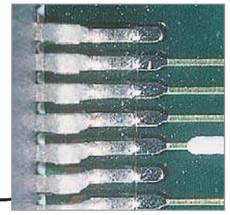







×10



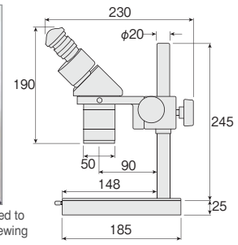
×20

# L-50
## STEREO MICROSCOPE
实体显微镜

10/20×

| | | |
|---|---|---|
| Total magnification (view) | 综合放大倍率 | 10× /20× |
| Objective lens | 物镜 | 1× / 2× selection format 旋转式 |
| Eyepiece | 目镜 | WF10× (L-511) |
| Sight adjustment | 视野调整 | Monocular adjustment type, ±5Dptr 单眼调整式 |
| Working distance | 工作距离 | 80 mm |
| Focus adjustment | 焦距调整 | Head scope up/down type 镜筒上下式 |
| Stereo head spec. | 镜筒形状 | Binocular 45° Tilted Head scope 倾斜角45° |
| Eye width adjustment range | 眼宽调整范围 | 55 to 74 mm, left/right independent type 左右独立式 |
| Table dimensions | 台座尺寸 | 145 (W) × 185 (D) mm |
| Support height | 支柱高度 | 245 mm |
| Distance from lens center to support | 从镜头中心到支柱 | 90 mm |
| Weight | 重量 | 2.4 kg |

The center plate (round) can be detached to accommodate such as cross-section viewing of long objects, as shown.
被检查物为长条形时，可拆下中央的圆形盖，将被检查物立起检查。

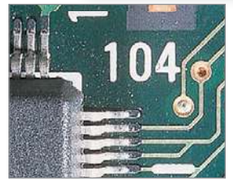



L-50 Magnification table 倍率表

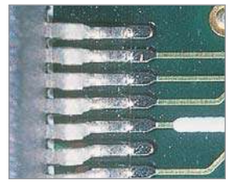
Standard item 标准品

* The "working distance" is the distance from the end of the filter to the subject.
※动作距离是滤光片端面至被观察物的距离

| Objective lens 物镜 | 1× | 2× | 1× | 2× | 1× | 2× | 1× | 2× |
|---|---|---|---|---|---|---|---|---|
| CONVERSION LENS 转换镜 | — | | L-57-0.5 | | L-57-1.5 | | L-57-2.0 | |
| EYEPIECE 目镜 | Magnification × 倍率 / Field of view mmϕ 视野 / Working distance mm 动作距离 | | | | | | | |
| L-511 (WF10×) | 10 / 18 / | 20 / 9 / | 5 / 36 / | 10 / 18 / | 15 / 12 / | 30 / 6 / | 20 / 9 / | 40 / 4.5 |
| L-513 (WF15×) | 15 / 12 / 80 | 30 / 6 / 80 | 7.5 / 24 / 150 | 15 / 12 / 150 | 22.5 / 8 / 40 | 45 / 4 / 40 | 30 / 6 / 27 | 60 / 3 / 27 |
| L-512 (WF20×) | 20 / 9 / | 40 / 4.5 / | 10 / 18 / | 20 / 9 / | 30 / 6 / | 60 / 3 / | 40 / 4.5 / | 80 / 2.2 |




×10



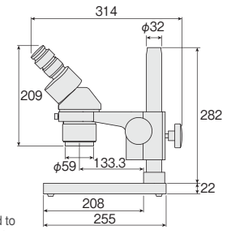
×20

# L-51
## STEREO MICROSCOPE
实体显微镜

10/20×

| | | |
|---|---|---|
| Total magnification (view) | 综合放大倍率 | 10× /20× |
| Objective lens | 物镜 | 1× / 2× selection format 旋转式 |
| Eyepiece | 目镜 | WF10× (L-546-10) |
| Sight adjustment | 视野调整 | Monocular adjustment type, ±5Dptr 单眼调整式 |
| Working distance | 工作距离 | 84 mm |
| Focus adjustment | 焦距调整 | Head scope up/down type 镜筒上下式 |
| Stereo head spec. | 镜筒形状 | Binocular 45° Tilted Head scope 倾斜角45° |
| Eye width adjustment range | 眼宽调整范围 | 54 to 75 mm, left/right independent type 左右独立式 |
| Table dimensions | 台座尺寸 | 200 (W) × 255 (D) mm |
| Support height | 支柱高度 | 282 mm |
| Distance from lens center to support | 从镜头中心到支柱 | 133 mm |
| Weight | 重量 | 3.8 kg |

The center plate (round) can be detached to accommodate such as cross-section viewing of long objects, as shown.
被检查物为长条形时，可拆下中央的圆形盖，将被检查物立起检查。




L-51 Magnification table 倍率表

Standard item 标准品

* The "working distance" is the distance from the end of the filter to the subject.
※动作距离是滤光片端面至被观察物的距离

| Objective lens 物镜 | 1× | 2× | 1× | 2× | 1× | 2× | 1× | 2× |
|---|---|---|---|---|---|---|---|---|
| CONVERSION LENS 转换镜 | — | | L-57-0.5 | | L-57-1.5 | | L-57-2.0 | |
| EYEPIECE 目镜 | Magnification × 倍率 / Field of view mmϕ 视野 / Working distance mm 动作距离 | | | | | | | |
| L-546-10 (WF10×) | 10 / 20 / 84 | 20 / 10 / 84 | 5 / 40 / 163 | 10 / 20 / 163 | 15 / 13.3 / 38 | 30 / 6.7 / 38 | 20 / 10 / 27 | 40 / 5 / 27 |
| L-546-20 (WF20×) | 20 / 10 / | 40 / 5 / | 10 / 20 / | 20 / 10 / | 30 / 6.7 / | 60 / 3.3 / | 40 / 5 / | 80 / 2.5 |

## 10 / 20 / 40×

L-KIT537

With lighting 随着照明

L-KIT538 L-KIT539

## 10 / 20 / 40× 11×⟷165×

L-KIT540

With lighting 随着照明

L-KIT541 L-KIT542

## 20 / 40× 6.5×⟷52×

L-KIT608

With lighting 随着照明

L-KIT609 L-KIT610

## 5 / 10 / 20× 9.9×⟷165×

L-KIT543

With lighting 随着照明

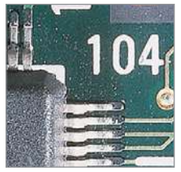
L-KIT544 L-KIT545 L-KIT546 L-KIT547

## 10 / 20× 6.5×⟷52×

L-KIT611

With lighting 随着照明

L-KIT612 L-KIT613 L-KIT614 L-KIT615




7×

18×

45×

# L-46

7~45 ×

RoHS

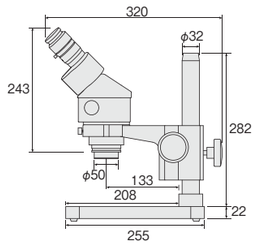
## STEREO MICROSCOPE (zoom type)

实体显微镜（推拉镜头型）

| | | | |
|---|---|---|---|
| Total magnification | 综合倍率 | 7 to 45× | 7~45× |
| Objective lens | 物镜 | 0.7 to 4.5 × (zoom ratio 6.4) | 0.7~4.5×（变焦比6.4） |
| Eyepiece | 目镜 | WF10 × (L-546-10) | |
| Sight adjustment | 视野调整 | Independent left / right adjustment type, ± 5Dptr | 左右独立式、±5Dptr |
| Working distance | 动作距离 | 84 mm (equipped with lens filter / ring) | （装有过滤镜/镜头环） |
| Focus adjustment | 焦点调整 | Head scope up / down type (adjustable range: 50 mm) | 镜筒上下式（可移动范围50mm） |
| Stereo head spec. | 镜筒仕样 | Binocular 45° Tilted Head scope | 双眼45° 倾斜镜筒 |
| Eye width adjustment range | 眼宽调整范围 | 54 to 75 mm left / right interlocking type | 54~75mm・左右连动式 |
| Table dimensions | 基本尺寸 | 200 (W) × 255 (D) mm | |
| Support height | 支柱高度 | 282 mm | |
| Distance from lens center to support | 镜头中心到支柱距离 | 133 mm | |
| Weight | 重量 | 4.2kg | |

The center plate (round) can be detached to accommodate such as cross-section viewing of long objects, as shown.

长物的侧面等从中间的圆孔取出，对象物体能够通过下面进行检视。




### L-46 Magnification table 倍率表

Standard item 标准品

* The "working distance" is the distance from the end of the filter to the subject.

※动作距离是滤光片端面至被观察物的距离

| Objective lens 物镜 | 0.7~4.5× | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONVERSION LENS 转换镜 | — | | | L-57-0.5 | | | L-57-1.5 | | | L-57-2.0 | | |
| EYEPIECE 目镜 | Magnification × 倍率 | Field of view mmϕ 视野 | Working distance mm 动作距离 | Magnification × 倍率 | Field of view mmϕ 视野 | Working distance mm 动作距离 | Magnification × 倍率 | Field of view mmϕ 视野 | Working distance mm 动作距离 | Magnification × 倍率 | Field of view mmϕ 视野 | Working distance mm 动作距离 |
| L-546-10(WF10×) | 7~45 | 28.5~4.4 | 84 | 3.5~22.5 | 57.1~8.9 | 160 | 10.5~67.5 | 19.0~2.9 | 43 | 14~90 | 14.3~2.2 | 26 |
| L-546-20(WF20×) | 14~90 | 14.3~2.2 | | 7~45 | 28.5~4.4 | | 21~135 | 9.5~1.5 | | 28~180 | 7.1~1.1 | |

7× 45× / 4.5× 120×

L-KIT619

With lighting 随着照明

L-711 → L-KIT620

L-703 → L-KIT621

L-717 → L-KIT622

L-715 → L-KIT623

7× 90×

L-KIT616

With lighting 随着照明

L-711 → L-KIT617

L-703 → L-KIT618

14× 90× / 4.5× 120×

L-KIT624

With lighting 随着照明

L-711 → L-KIT625

L-703 → L-KIT626





## A Multi-purpose magnifier with flexible arm and ring lamp that offers high-quality at a low price.

## 臂式放大镜带有环形荧光灯，具有多种用途。实现了基本性能的高品质与可以欣然接受的低价格。

### Large diameter white lens

The white lens provides brighter, more vivid images than the blue lens.

**大口径白色放大镜片**

白色放大镜片比蓝色放大镜片更能看清被检查物。



White lens 白色放大镜片

Standard blue lens 一般的蓝色放大镜片

# L-678

100-240V

RoHS

## LED ILLUMINATED MAGNIFIER

臂式放大镜

| | | | |
|---|---|---|---|
| Magnification | 倍率 | 1.75× | |
| Lens diameter | 透镜尺寸 | 170mmϕ | |
| LED | | White power LED × 56 | 白色PowerLED 56个 |
| LED life | LED寿命 | Approx. 35,000 HRS<br>* Varies to the used environment. | 约35000小时<br>※根据使用环境有所变化。 |
| Color temp. | 色温度 | 6500K | |
| Rated voltage | 定格電圧 | 12 VDC (with AC adapter) | （标配AC 适配器） |
| Arm length | 臂长 | 855mm | |
| Max. clamp opening width | 夹头最大开口 | 65mm | |
| Power consumption | 消費電力 | 5W | |
| Weight | 重量 | 2.6kg | |

Brightness comparison data

亮度比较数据

| Distance from light source mm 离发光部的距离 | Brightness lx 亮度 |
|---|---|
| 300 | 2300 |




3×

6×

L-95-9

10×

L-95-10

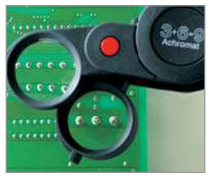
# L-95-9/10

RoHS

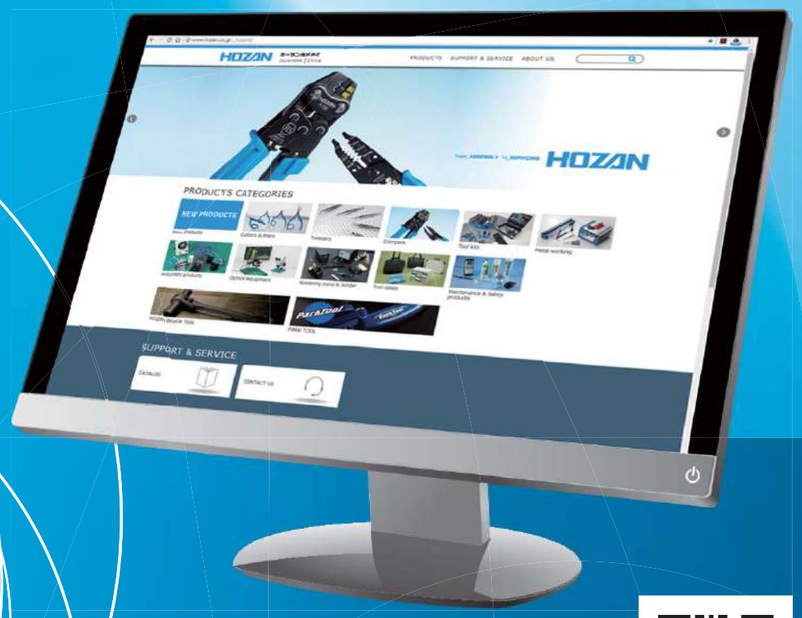
## FOLDING MAGNIFIER

手持式放大镜

| Part no. 型号 | Magnification x 倍率 | Lens dimensions mmϕ 透镜尺寸 | Material 材质 | OAL mm 全长 | Weight g 重量 |
|---|---|---|---|---|---|
| L-95-9 | 3/6/9 | 23 | Rigid plastic (lens) 硬质塑料（镜头） | 48 | 32 |
| L-95-10 | 10 | | | | 24 |



# HOZAN Web Site
# 网站




## English
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**D**

D-13 16
D-16 17
D-16-1B 17
D-16-2B 17
D-16-3B 17
D-16-4B 17
D-16-5 17
D-20 17
D-20-11 17
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D-44 15
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D-58 15
D-59 16
D-66 17
D-67 17
D-68 16
D-69 16
D-331-100 15
D-331-150 15
D-332-100 15
D-332-150 15
D-530-75 15
D-540-100 15
D-550-100 15
D-555-100 15
D-555-300 15
D-630-75 15
D-630-100 15
D-640-100 15
D-650-100 15
D-655-100 15
D-745 16
D-963 16

**F**

F-27 28
F-28 28
F-61-L 32
F-61-M 32
F-64-L 32
F-64-M 32
F-64-S 32
F-66-L 32
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F-66-S 32
F-78 27
F-79 27
F-101 34
F-101-TA 34
F-102 34
F-103 34
F-104 34
F-109 33
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F-109-1 33
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F-126 31
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**L**

L-46 51
L-50 49
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