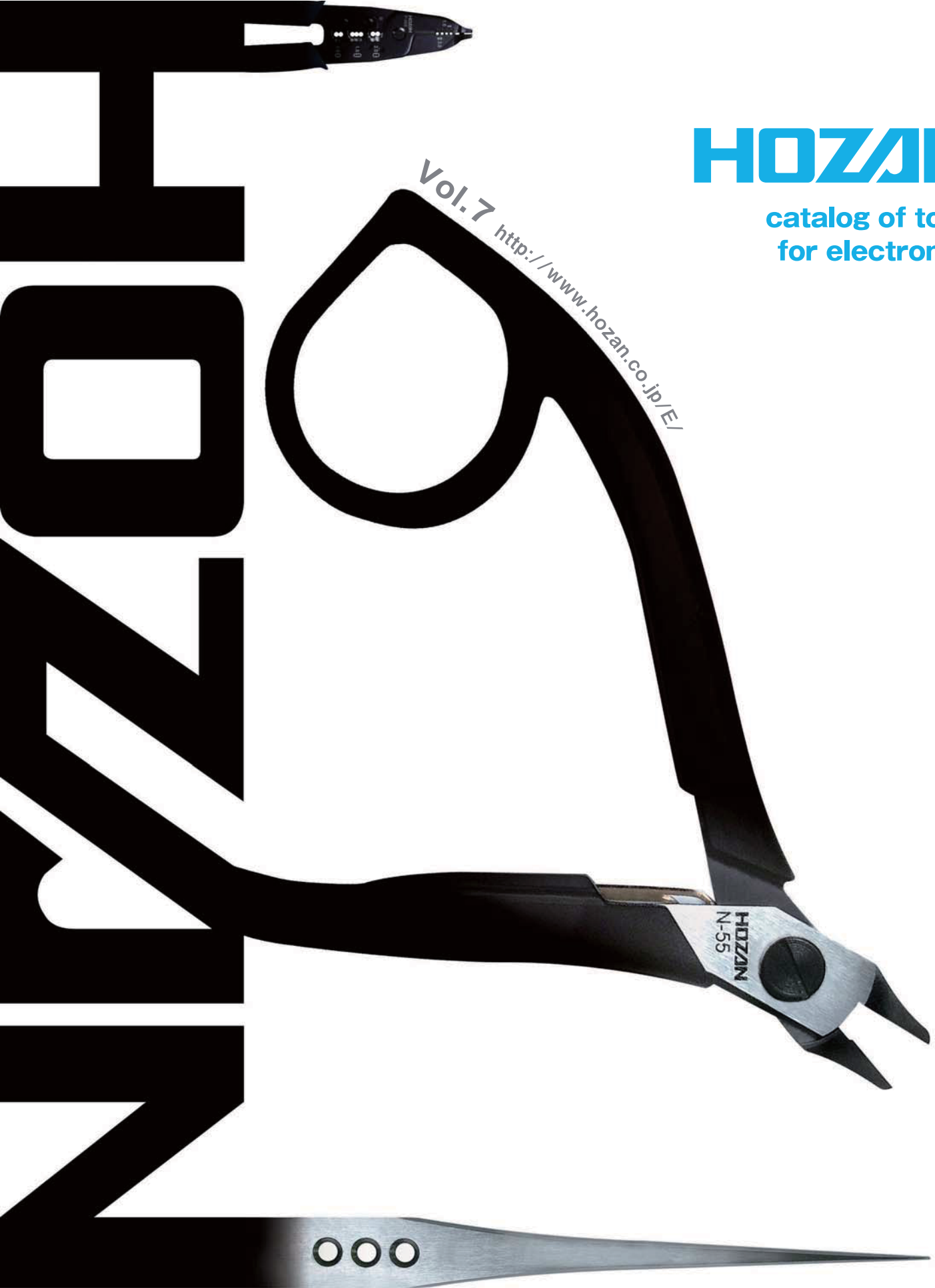


HOZAN

catalog of tools
for electronics

Vol. 7 <http://www.hozan.co.jp/E/>





Features of the
replaceable tip tweezers

Plastic tips don't damage
picked-up objects

Economical replaceable tip

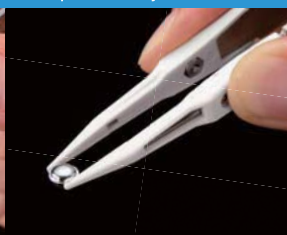
Improved functionality--making
the good better.

Replaceable tip tweezers

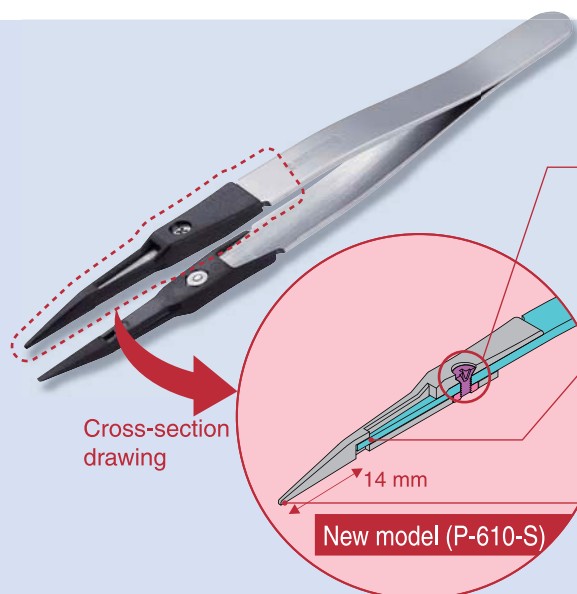
Remodel

- Easy tip replacement
- New curved tip type
- Higher heat resistant
- Reduced bending
- Price reduction

For picking up lenses and plastic objects



For peeling off LCD screen film



Feels like stainless tweezers.

Easy tip replacement

Easily replaced by simply loosening 1 screw.

Designed to transfer the grasping force to the tips (1)

The metal handle (core metal) now extends almost to the tips, permitting more force to the tips.

Designed to transfer the grasping force to the tips (2)

Designed to keep tips closed even when squeeze the handle strongly. Easily holds even ultra-small parts and thin sheets.

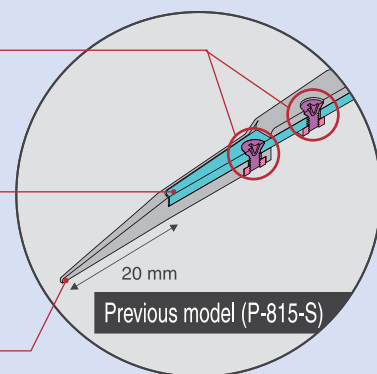


New products



Previous models

(tip condition when squeezed strongly)



Features the economical replaceable tip as the previous model.

All models have metal handles. Tips are interchangeable. (Not compatible with previous models.)

To changing only the worn tips save both expense and resources.

ESD TIP TWEEZERS



* Tip only

- Tip color: Black
- Heat resistant (tip): 315°C
- ESD standard: Ground resistance
 $R_g < 1 \times 10^{12} \Omega$

New shape: curved tip



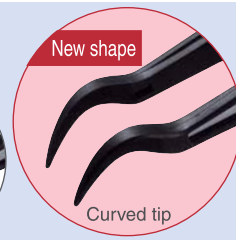
Standard
P-610-S / P-620-S



Fine tip
P-611-S



Flat tip
P-613-S



Curved tip
P-612-S

Improved physical properties & price reduction

Heat resistant: **315°C** (previous model 160°C)
Flexural modulus: 50% stronger than previous types--less bending of the **handles**

Improved functionality over previous models Price reduction

Stainless

- Stainless body
- Material: PEEK *1 (tip)
Stainless (body)
- Weight: 17 g



P-610-S

- Replacement tip:
P-610S-1



P-611-S

- Replacement tip:
P-611S-1



P-612-S

- Replacement tip:
P-612S-1



P-613-S

- Replacement tip:
P-613S-1



Aluminum

- Aluminum body
- Material: PEEK *1 (tip)
Aluminum (body)
- Weight: 8 g



P-620-S

- Replacement tip:
P-610S-1



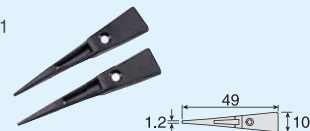
Replacement parts

TWEEZER TIPS

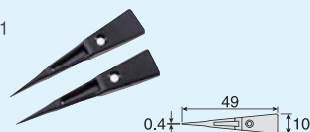


- Material: PEEK *1
- Color: Black
- Heat resistant: 315°C
- Quantity: 2-piece set

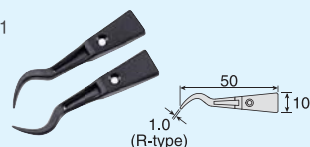
P-610S-1



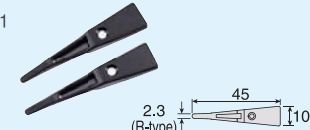
P-611S-1



P-612S-1



P-613S-1



PLASTIC TIP TWEEZERS



* Tip only

- Material: PBT *2 (contains glass) (tip),
Stainless (body)
- Tip Color: White
- Heat resistant (tip): 220°C
- Weight: 17 g

P-610-P

- Replacement tip:
P-610P-1

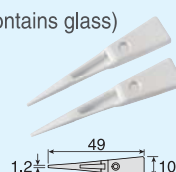


Replacement part

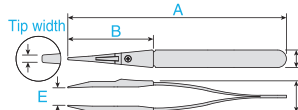
P-610P-1 TWEEZER TIPS



- Material: PBT *2 (contains glass)
- Color: White
- Heat resistant: 220°C
- Quantity: 2-piece set



Part No.	A	B	C	D	E	Tip width
P-610-S	125	49				1.2
P-611-S						0.4
P-612-S	126	50	10	20	10	1.0 (R-type)
P-613-S	121	45				2.3 (R-type)
P-620-S	125	49				1.2
P-610-P						



Replacement part P-815-0 SET SCREW



- Tweezers with ESD tip/ with standard plastic tip for all models
- Quantity: 50 sets (50 screws, 50 nuts)



*1 PEEK... (polyether ether ketone) is a super engineering plastic that offers superior mechanical strength, heat resistance, wear resistance, and chemical resistance.
*2 PBT... (polybutylene terephthalate) is a general-purpose engineering plastic that offers superior mechanical strength, and heat resistance.

Comparison with previous item

Previous item

* For details, see page 34.

ESD TIP TWEEZERS 			Heat resistance 160°C Tip PEEK Stainless body
P-815-S Standard	P-814-S Fine tip	P-816-S Flat tip	
HEAT-RESISTANT TIP TWEEZERS			Heat resistance 315°C Tip PEEK Stainless body
P-815-H Standard	P-814-H Fine tip		
TIP TWEEZERS			Heat resistance 80°C Tip PLA Aluminum body Lightweight Low price
P-815-R Standard	P-816-R Flat tip		

New products

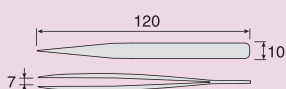
ESD TIP TWEEZERS 				Heat resistance 315°C Tip PEEK Stainless body
P-610-S Standard	P-611-S Fine tip	P-612-S Curved tip	P-613-S Flat tip	
ESD TIP TWEEZERS 				Heat resistance 315°C Tip PEEK Aluminum body Lightweight
P-620-S Standard				
PLASTIC TIP TWEEZERS				Heat resistance 220°C Tip PBT Stainless body Low price
P-610-P Standard				

Fully non magnetic tweezers



P-880 TWEEZERS

- Material: Stainless
- Weight: 19 g



The Hozan Stainless Tweezers Series – A Wealth of Choices

* For details, see page 30

Select a tip shape and price in accordance with the application. Ideal for environments where chemicals and magnetic-field-vulnerable electronic parts are being handled.

	Tip shape		
	Standard	Fine tip	Curved tip
Precision type Fully nonmagnetic, and high quality 	P-850 FULLY NON MAGNETIC TWEEZERS 	P-851 FULLY NON MAGNETIC TWEEZERS 	P-852 FULLY NON MAGNETIC TWEEZERS
Standard type Nonmagnetic & low price 	P-880 TWEEZERS 	P-881 TWEEZERS 	P-882 CURVED TWEEZERS

A zoom type stereo microscope with a zoom ratio 6.4, and max. magnification of 45×

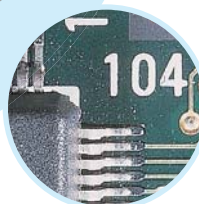
L-46 STEREO MICROSCOPE (zoom type)

P-128

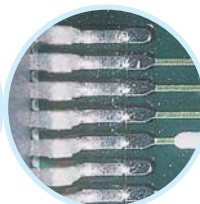


The L-830 USB camera can also be used to perform inspections using a personal computer.

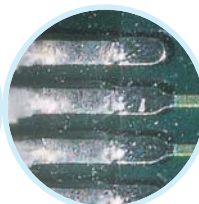
L-46 STEREO MICROSCOPE
L-830 USB CAMERA
L-527 XY-STAGE
L-710 LED LIGHT



×7



×18

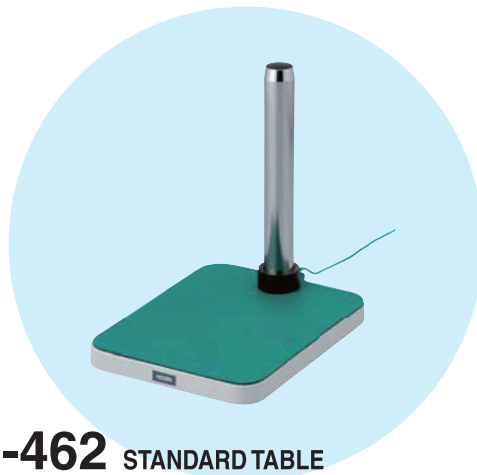


×45



L-461 STEREO HEAD SCOPE

P-129



L-462 STANDARD TABLE

P-129



L-546-10 EYEPIECE (10x)

P-129



L-546-20 EYEPIECE (20x)

P-129

Crimping tool for
open barrel terminals
/ contacts

P-707 CRIMPING TOOL

P-26



Crimping tool for F
connectors

P-715 CRIMPING TOOL

P-25



Crimping tool for
insulated terminals

P-743 CRIMPING TOOL

P-24



P-14 LONG NOSE PLIERS WITH SIDE CUTTER

P-14-125
P-14-150

P-16

● With coil spring



N-23 DIAGONAL CUTTER

P-12

● With coil spring



P-220 CHAIN PLIERS

P-17



P-244 WATER PUMP PLIERS

P-17



Features a white POWER LED

Z-301 LED FLASHLIGHT

P-167



The shielding booth size can be easily moved, expanded, or reduced to match the application.

Z-902 SHIELDING BOOTH

P-168



With 6 bright LEDs

Z-306 CLIP LIGHT

P-167



Use in cell production

F-735 / 736 ESD CUSHION MAT

F-735 (5-piece pack)
F-736 (1-piece pack)

P-143

- Eases fatigue from standing



S-19 TOOL KIT

P-96

Contents



Explanation of icons used in this catalog

-  **DISCON.** Limited stock product
-  **CUSTOM** Product for which customized colors & sizes, etc. are possible.
-  **EPA ESD-SAFE** Products which safely prevent electrostatic damage, and which conform to the RCJS-5-1 standard.
-  **NOT FOR EXPORT** Products not suitable for export
-  **CALIBRATION CERTIFICATE** Product for which calibration certificate can be provided.
-  **CHECK RESULT** Product for which an inspection results table can be provided.
-  **TEST DATA** Product for which testing results can be provided.
-  **MSDS** Products for which a material safety data sheet can be prepared
-  **RoHS** This product is free of the hazardous substances specified in the RoHS Regulations.

- Specifications, etc., may be changed without prior notice due to product improvements.
- Due to the printed nature of product photographs, the actual colors may differ somewhat from those depicted here.

New products

Contents 002

Hozan's environment friendly initiatives 004

- Commitment to reduce packaging material
- Reducing waste matter
- Adoption of RoHS compliant products
- Environmental management initiatives
- Reducing the environmental impact

Antistatic products 005

Clean environment products 005

See Hozan's website (PC or mobile) 006

- Inventory check
- Videos
- Mail order
- Parts search

Support & Service 007

- Agency system
- Repair & Replacement
- Replacement Parts

Cutters & Pliers

008



Precision series.....9	Standard pliers.....16
Miniature cutters.....10	Lineman's pliers.....17
Plastic cutters.....11	Slip joint pliers.....17
Standard cutters..... 12	
Scissors..... 13	
Wire cutters 13	
Miniature pliers..... 14	

Wire strippers

018



Wire strippers..... 19
Motor drive wire strippers 20
Wire strippers (VVF)..... 21
Electrician's knife..... 21

Crimpers

022



For uninsulated terminals and connectors... 23
For insulated terminals and connectors..... 24
For insulated closed end terminals..... 24
For open end connectors..... 25
For F connectors 25
For open barrel terminals/contacts 26
For BNC / TNC connectors..... 26
For modular plugs..... 27

Hozan initiatives



Environment friendly Initiative to reduce packaging material -Simplified packaging-



Hozan is working to reduce the amount of trash produced by our product packaging, and to make it easy to recycle.



Adoption of RoHS compliant products



Hozan endeavors to use only products which are free of the hazardous substances specified in the RoHS Regulations.

RoHS compliant products (products which contain no hazardous substances specified by the RoHS Regulations) in this catalog are indicated by an "RoHS" mark. (Further information as of September 1, 2010 can be viewed on our website.)



**N-55 PRECISION
DIAGONAL CUTTER**

B-640 TOOL CASE

Reducing environmental impact



Hozan endeavors to reduce the environmental impact of our products by using natural materials. Natural plant-derived materials absorb carbon dioxide during growth, and do not increase the amount of carbon dioxide in the atmosphere when burned.



P-815-R TWEEZERS

Example

P-815-R	TWEEZERS (CORN)
H-108	TIP CLEANER (PLANT FIBER)
P-860	BAMBOO TWEEZERS
P-863-150	ESD BAMBOO TWEEZERS
P-806	BAMBOO PROBE

Trash reduction



Hozan products promote a "reuse & reduce" philosophy.

The ability to change only worn parts enables continued use of a tool, thus reducing trash and contributing to long-term use which saves both expense and resources.



P-855-C CERAMIC TWEEZERS



P-815-S ESD TWEEZERS

Environment management initiatives



As one of our environmental protection initiatives, Hozan has obtained ISO14001 certification, and are doing our part to prevent global warming.



Antistatic products

Electrostatic control is essential when working with ESD susceptible item. Hozan offers a full lineup of such products, ranging from screwdrivers and tweezers, to parts cabinets.

[For details regarding Antistatic products, see page 141.](#)



N-31 MINIATURE DIAGONAL CUTTER [P-10](#)



P-815-S ESD TWEEZERS [P-35](#)



Z-201 STATIC LOCATOR [P-158](#)



B-133 ESD PARTS CABINET [P-150](#)



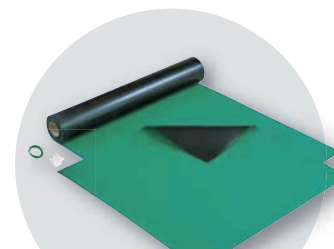
F-155 WRIST STRAP [P-152](#)



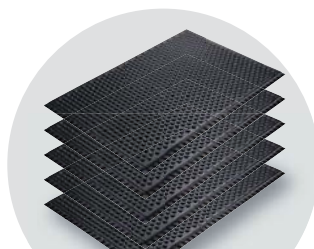
HS-301 LEAD-FREE SOLDER [P-110](#)



F-21 ESD KITTING TRAY [P-147](#)



F-78/79 ESD RUBBER MATS [P-145](#)



F-735 ESD CUSHION MAT [P-143](#)



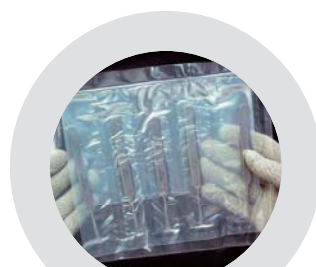
F-86 IONIZER W / FLEXIBLE ARM [P-157](#)

Clean environment products

Hozan offers the kind of clean environment products which are indispensable in operations involving precision instruments and high-precision electronic equipment. Beginning with our CL-901 CLEAN BOOTH, we offer a host of products designed for work in clean environments.



CL-901 CLEAN BOOTH [P-160](#)



P-881P TWEEZERS [P-159](#)



B-180 TOOL CASE [P-159](#)



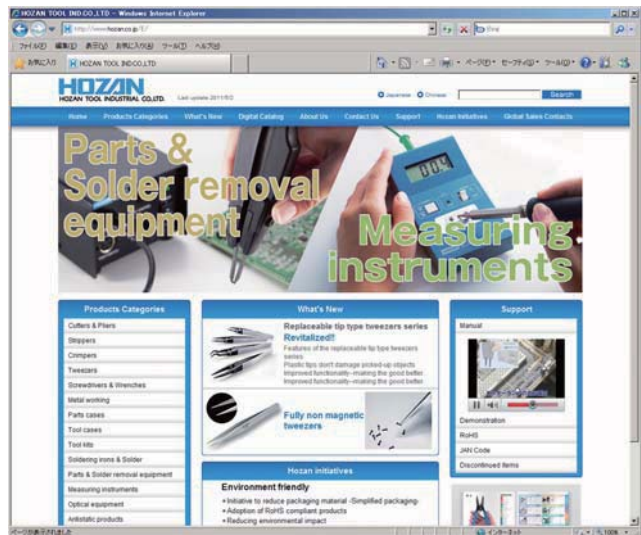
F-61-M/L ESD GLOVES (MEDIUM/LARGE) [P-153](#)



Z-288 DME + CO₂ DUSTER [P-163](#)

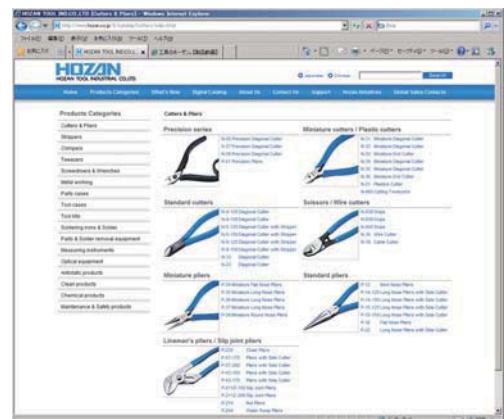
HOZAN Tool Web Site

<http://www.hozan.co.jp/E/>



Products

<http://www.hozan.co.jp/E/catalog/>



Digital catalog

<http://www.hozan.co.jp/E/>

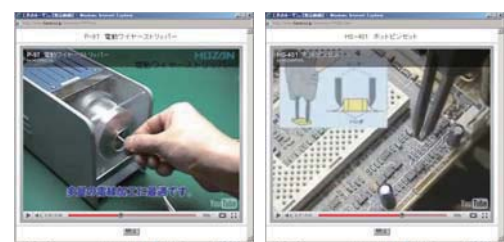


Demonstration

<http://www.hozan.co.jp/animation/>

You can find product information as well as "How to use" with animated picture.
Please find URL as below at the each product if available.

An instruction video is available on our website for your reference.
<http://www.hozan.co.jp/animation/>



電工試験の虎

<http://www.hozan.co.jp/denko/>

電気工事士試験受験応援サイト

工具の使い方や技能試験候補問題を動画でわかりやすく解説しています。
電工試験関連製品取扱店や電気工事士技能試験関連の情報が満載です。



通信販売

<https://www.hozan.co.jp/HTML/cgi/webshop/webshop.cgi>

既にお買い求めいただいた製品のアフターサービス、消耗品・部品を急ぎで必要とされる方、ISOの定期的な校正をお急ぎの方、または近くに買える店がない、代理店では入手できない等でお困りの方への対応として通信販売を行っております。
ただし、標準価格での販売となりますので予めご了承ください。
※詳しくはwebページでご確認ください。



サポート&サービス



代理店制度

当社では代理店制度を採用しております。

貴社の資材・購買部門にご確認の上、代理店へご用命ください。
ご購入先がわからない場合は当社までお問い合わせください。代理店をご紹介しますことができます。
カタログ掲載品は原則として即納体制を整えておりますが物流時間を考慮願います。

修理・校正

機器類につきましては有償にて修理を承っております。

計測器につきましては有償にて修理・校正および校正証明書、試験成績表、トレーサビリティチャートの発行にも対応いたします。
圧着工具（JIS認定品）につきましては試験成績表を発行しています。お見積りのみも可能です。
お急ぎの場合には通信販売にて直接承ることも可能です。
※詳しくはwebページでご確認ください。

部品の供給

ヒーターやビット等の補修部品につきましても供給が可能です。

品番を確認の上ご注文をお願いいたします。生産完了後5年を目安に保有しています。
部品の有無についてはwebページでご確認ください。
お急ぎの場合には通信販売にて直接承ることも可能です。

お申し込み用紙(181ページ)
FAX 06-6562-0024

webページからお申し込み
<http://www.hozan.co.jp/>

電話でお問い合わせ
TEL 06-6567-3111

Precision diagonal cutters & Pliers



FULL
FLUSH
CUT

SEMI
FLUSH
CUT

Full flush cut



N-55 type



N-57 type



N-32 type



Precision screw joint



Box joint structure



Superior durability



High precision
(tolerance: 1 / 100 mm)



ELASTOMER
GRIPS

Antistatic products

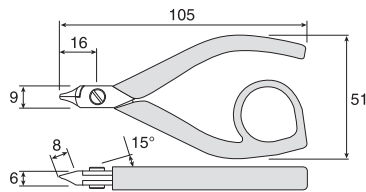
● Ground resistance $R_g < 1 \times 10^{12} \Omega$
(See page 141.)

Full-scale size

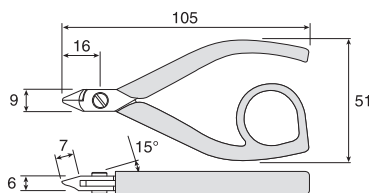


N-55 PRECISION DIAGONAL CUTTER

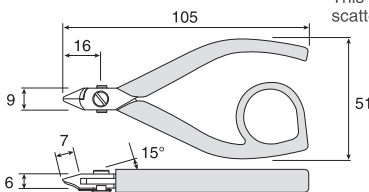
- Cutting capacity: Copper wire 1.0mm ϕ
Copper stranded wire 0.9 mm²
- Hardness HRC: Body / 46
Blade / 58
- Weight: 40 g

**FULL
FLUSH
CUT****ELASTOMER
GRIPS****SPRING****FULL
FLUSH
CUT****ELASTOMER
GRIPS****SPRING****N-57** PRECISION DIAGONAL CUTTER

- Cutting capacity: Copper wire 1.0mm ϕ
Copper stranded wire 0.9 mm²
- Hardness HRC: Body / 46
Blade / 60
- Weight: 40 g

**SEMI
FLUSH
CUT****ELASTOMER
GRIPS****SPRING****N-58** PRECISION DIAGONAL CUTTER

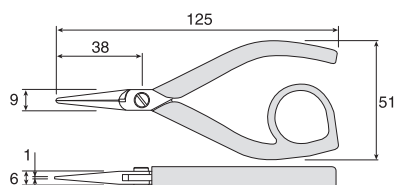
- Cutting capacity: Copper wire 0.18 to 0.8 mm ϕ
(effective nose stop range)
- Hardness HRC: Body / 46
Blade / 60
- Weight: 40 g



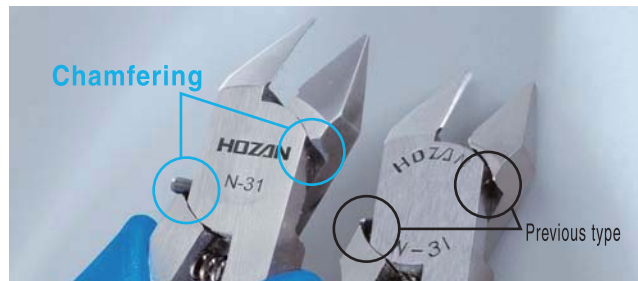
The N-57 cutter is equipped with a lead stopper that catches the cuttings. This prevents accidents caused by scattered cuttings.

**SEMI
FLUSH
CUT****ELASTOMER
GRIPS****SPRING****P-51** PRECISION PLIERS

- Hardness HRC: 46
- Weight: 42 g
- Without serrations

**ELASTOMER
GRIPS****SPRING**

Cutters



Chamfering ensures working safety

Most of Hozan cutters and pliers feature chamfering of sharp edge at the joint area to minimize injuries and enhance work safety.
(Applicable products: N-31, 32, 33, 34, 35; and P-34, 35)

N-31 MINIATURE DIAGONAL CUTTER

- Cutting capacity: Copper wire 1.6mm ϕ
Copper stranded wire 1.25 mm²
- Hardness HRC(blade): 57
- Weight: 40 g



ELASTOMER GRIPS

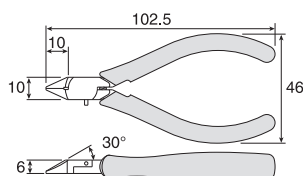
SPRING



ELASTOMER GRIPS

Non carbon elastomer grip conforms to RCJS-5-1 (see page 141).
Ground resistance $R_g < 1 \times 10^{12} \Omega$

Antistatic products have an "ESD SAFE" label.



SPRING

Offers excellent durability and restorability, and enables continuous use with comfort.

Chamfering



N-34 MINIATURE DIAGONAL CUTTER

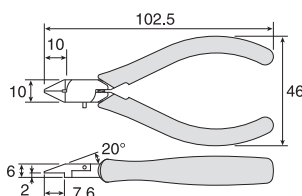
- A thin blade type of N-31.

- Cutting capacity: Copper wire 1.0mm ϕ
Copper stranded wire 1.25 mm²
- Hardness HRC(blade): 57
- Weight: 40 g



ELASTOMER GRIPS

SPRING



■ Replacement parts

COIL SPRING



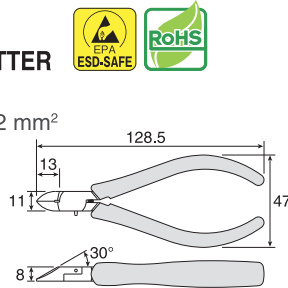
Part no.	Compatible items
N-21-1	N-21 / P-14-125
N-31-1	N-31 / 33 / 34 / 36 P-34 / 35 / 38 / 39
N-32-1	N-32 / 35

- Quantity: 10 pieces



N-32 MINIATURE DIAGONAL CUTTER

- Cutting capacity: Copper wire 2.0mm ϕ
Copper stranded wire 2 mm²
- Hardness HRC(blade): 57
- Weight: 65 g

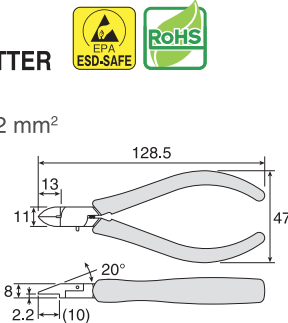


ELASTOMER GRIPS

SPRING

N-35 MINIATURE DIAGONAL CUTTER

- Cutting capacity: Copper wire 1.6mm ϕ
Copper stranded wire 2 mm²
- Hardness HRC(blade): 57
- Weight: 65 g

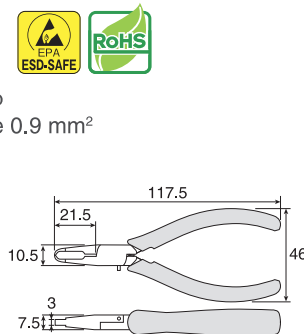


ELASTOMER GRIPS

SPRING

N-36 MINIATURE END CUTTER

- Cutting capacity: Copper wire 1.0mm ϕ
Copper stranded wire 0.9 mm²
Plastic 1.5 mm ϕ
- Hardness HRC(blade): 56
- Weight: 58 g

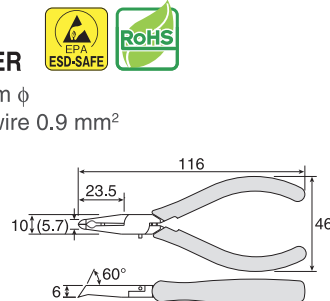


ELASTOMER GRIPS

SPRING

N-33 MINIATURE END CUTTER

- Cutting capacity: Copper wire 1.0mm ϕ
Copper stranded wire 0.9 mm²
- Hardness HRC(blade): 57
- Weight: 45 g

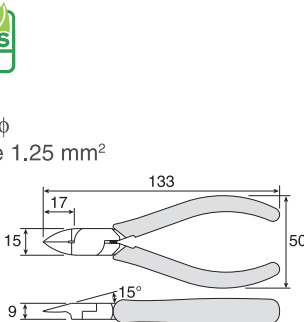


ELASTOMER GRIPS

SPRING

N-21 PLASTIC CUTTER

- Cutting capacity: Plastic 5.0 mm ϕ
Copper wire 1.0 mm ϕ
Copper stranded wire 1.25 mm²
- Hardness HRC(blade): 56
- Weight: 90 g

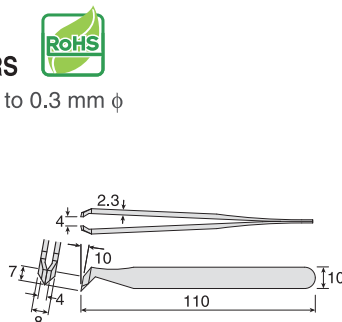


ELASTOMER GRIPS

SPRING

N-993 CUTTING TWEEZERS

- Cutting capacity: Copper wire 0.08 to 0.3 mm ϕ
- Hardness HRC(blade): 58
- Material: Stainless
- Weight: 25 g



For jumper wire cutting



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Precision series

Miniature cutters

Plastic cutters

Standard cutters

Scissors

Wire cutters

Miniature pliers

Standard pliers

Lineman's pliers

Slip joint pliers

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Precision series

Miniature cutters

Plastic cutters

Standard cutters

Scissors

Wire cutters

Miniature pliers

Standard pliers

Lineman's pliers

Slip joint pliers

Cutters & Pliers ▶ STANDARD CUTTERS

N-23 DIAGONAL CUTTER

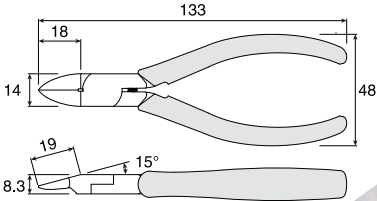


- Cutting capacity: Copper wire 1.6mm φ
Copper stranded wire 2 mm²
- Hardness HRC(blade): 60
- Weight: 85 g

The blade span enables 4 wires out from the modular jack to be cut at once.



ELASTOMER GRIPS SPRING



ELASTOMER GRIPS



■ Replacement part N-23-1 COIL SPRING



- Compatible item: N-23
- Quantity: 10 pieces



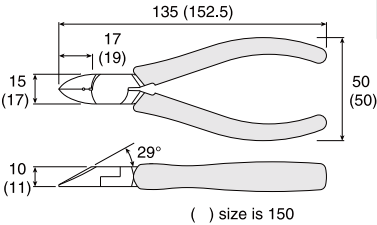
N-9 DIAGONAL CUTTER WITH STRIPPER



Thick-wire type with stripping hole

Part no.	Cutting capacity	Stripping hole mmφ	Weight g
N-9-125	Copper wire 2.6 mm φ Copper stranded wire 2 mm ² Steel wire 1.6mm φ	1.2	105
N-9-150	Copper wire 3.2 mm φ Copper stranded wire 3.5 mm ² Steel wire 1.9 mm φ	1.2/1.6	140

- Hardness HRC(blade): 59



() size is 150



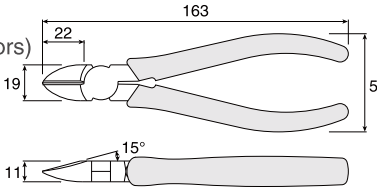
ELASTOMER GRIPS



N-12 DIAGONAL CUTTER



- Cutting capacity: Copper wire 3.2mm φ
Copper stranded wire 3.5 mm²
Steel wire 1.9 mm φ
VVF 1.6 mm φ (2 conductors)
- Hardness HRC(blade): 60
- Weight: 160 g



ELASTOMER GRIPS

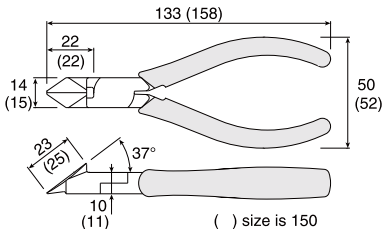


N-4 DIAGONAL CUTTER



Part no.	Cutting capacity	Weight g
N-4-125	Copper wire 2.0 mm φ Copper stranded wire 2 mm ² Steel wire 1.2mm φ	95
N-4-150	Copper wire 2.6 mm φ Copper stranded wire 2 mm ² Steel wire 1.4mm φ	140

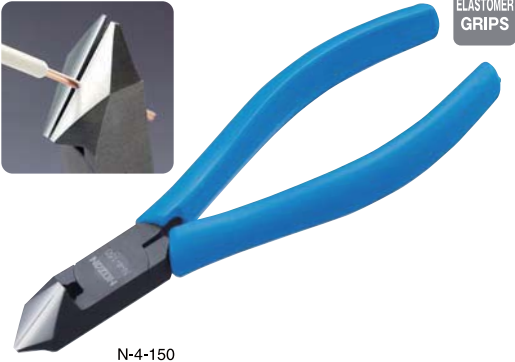
- Hardness HRC(blade): 58



() size is 150



ELASTOMER GRIPS

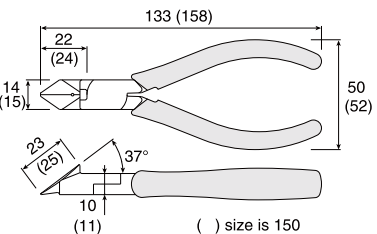


N-5 DIAGONAL CUTTER WITH STRIPPER



Part no.	Cutting capacity	Stripping hole mmφ	Weight g
N-5-125	Copper wire 2.0 mm φ Copper stranded wire 2 mm ² Steel wire 1.2mm φ	1.2	95
N-5-150	Copper wire 2.6 mm φ Copper stranded wire 2 mm ² Steel wire 1.4mm φ	1.2/1.6	140

- Hardness HRC(blade): 58



() size is 150



ELASTOMER GRIPS

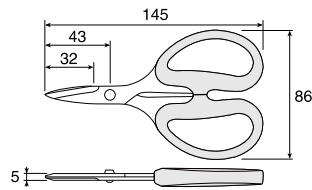


⚠ Warning ●The handle cover is not insulated. Do not use where electrical currents exist.

N-840 SNIPS (with serrated blade)



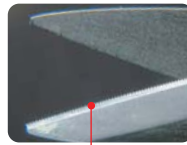
- Cutting capacity: Copper stranded wire 2 mm²
Aluminum plate 0.5mm
Coaxial cable 5C-2V
- Hardness HRC(blade): 59
- Weight: 60 g


2 mm² stranded wire


Coaxial cable



Aramid fiber



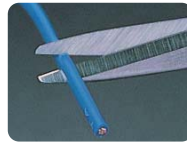
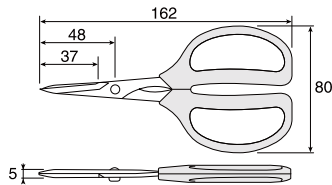
With serrated blade



N-838 SNIPS



- Cutting capacity: Copper stranded wire 2 mm²
Aluminum plate 0.5mm
- Hardness HRC(blade): 59
- Weight: 58 g



Stranded wire



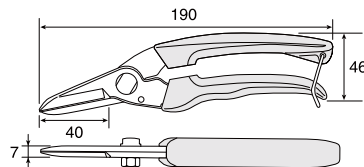
Aluminum plate



N-839 SNIPS



- Cutting capacity: VCT wire 3.5 mm² (4 conductors)
VVR wire 3.5 mm² (3 conductors)
Aluminum plate 1.2mm
Copper stranded wire 8 mm²
- Hardness HRC(blade): 58
- Weight: 150 g



VVR wire



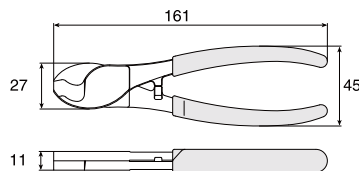
Aluminum plate



N-18 CABLE CUTTER



- Cutting capacity: VVF wire 2.0 mm ϕ (2 conductors)
IV wire 22 mm²
- Hardness HRC(blade): 53
- Weight: 167 g



VVF wire

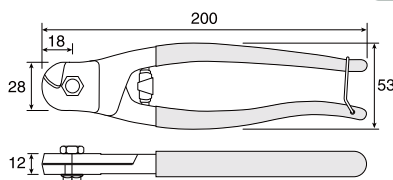


IV wire



N-16 WIRE CUTTER

- Cutting capacity: Wire 5 mm ϕ (steel, stainless)
- Hardness HRC(blade): 62
- Weight: 335 g



Stainless wire



Pliers

Chamfering ensures working safety

Most of Hozan cutters and pliers feature chamfering of sharp edge at the joint area to minimize injuries and enhance work safety.
(Applicable products: N-31, 32, 33, 34, 35; and P-34, 35)



P-35 MINIATURE LONG NOSE PLIERS

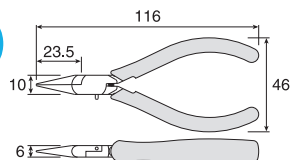
- Hardness HRC: 42
- Weight: 45 g
- Without serrations



ELASTOMER GRIPS

SPRING

Nose shape



ELASTOMER GRIPS

Non carbon elastomer grip conforms to RCJS-5-1 (see page 141).
Ground resistance $R_g < 1 \times 10^{12} \Omega$



Antistatic products have an "ESD SAFE" label.

SPRING

Chamfering



P-36 MINIATURE LONG NOSE PLIERS

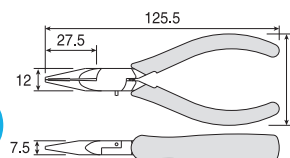
- Hardness HRC: 46
- Weight: 65 g



ELASTOMER GRIPS

SPRING

Nose shape



With serrations

■ Replacement parts

COIL SPRING



Part no.	Compatible items
N-31-1	P-34 / 35 / 38 / 39 N-31 / 33 / 34 / 36
P-36-1	P-36
P-37-1	P-37

■ Quantity: 10 pieces



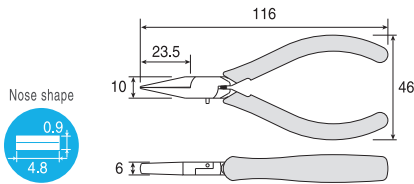
P-34 MINIATURE FLAT NOSE PLIERS

- Hardness HRC: 42
- Weight: 40 g
- Without serrations



ELASTOMER GRIPS

SPRING



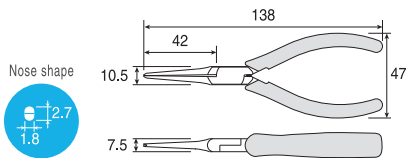
P-37 MINIATURE LONG NOSE PLIERS

- Hardness HRC: 46
- Weight: 60 g
- Without serrations



ELASTOMER GRIPS

SPRING



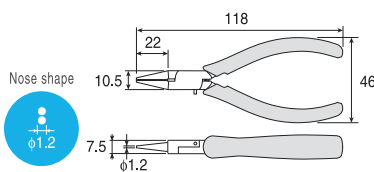
P-39 MINIATURE ROUND NOSE PLIERS

- Nose size: Tip diameter 1.2 mm ϕ
Base diameter 5 mm ϕ
- Hardness HRC: 46
- Weight: 58 g



ELASTOMER GRIPS

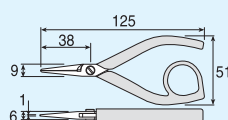
SPRING



■ Related products

P-51 PRECISION PLIERS

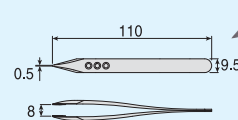
- Hardness HRC: 46
- Weight: 42 g
- Without serrations



*For details, see page 9

P-899 TWEEZERS

- Thickness: 2.5 mm



Has file-like teeth

*For details, see page 29

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Precision series

Miniature cutters

Plastic cutters

Standard cutters

Scissors

Wire cutters

Miniature pliers

Standard pliers

Lineman's pliers

Slip joint pliers

P-15 LONG NOSE PLIERS WITH SIDE CUTTER

P-15-125

P-15-150

■ Cutting capacity: Copper wire 2.6mm φ

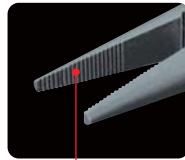
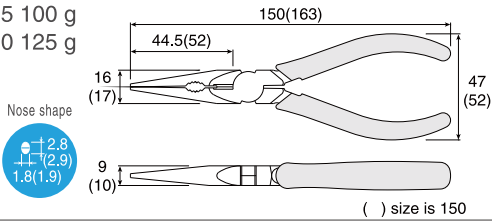
Copper stranded wire 2 mm²

■ Hardness HRC(blade): 58

■ Weight: P-15-125 100 g

P-15-150 125 g

■ With serrations



ELASTOMER GRIPS



P-15-150

ELASTOMER GRIPS

P-14 LONG NOSE PLIERS WITH SIDE CUTTER

P-14-125

P-14-150

■ Cutting capacity: Copper wire 2.6mm φ

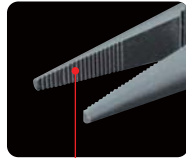
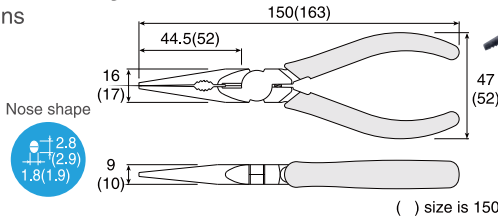
Copper stranded wire 2 mm²

■ Hardness HRC(blade): 58

■ Weight: P-14-125 100 g

P-14-150 125 g

■ With serrations



ELASTOMER GRIPS

SPRING



P-14-150

■ Replacement parts

COIL SPRING

Part no.	Compatible items
N-21-1	P-14-125 / N-21
P-14-1	P-14-150

■ Quantity: 10 pieces



P-22 LONG NOSE PLIERS WITH SIDE CUTTER

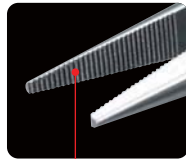
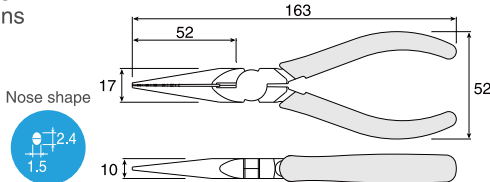
■ Cutting capacity: Copper wire 2.6mm φ

Copper stranded wire 2 mm²

■ Hardness HRC(blade): 58

■ Weight: 125 g

■ With serrations



ELASTOMER GRIPS

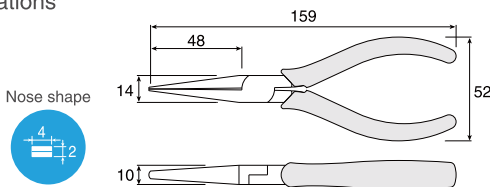


P-16 FLAT NOSE PLIERS

■ Hardness HRC(tip): 45

■ Weight: 115 g

■ Without serrations



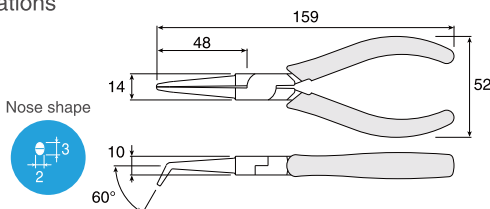
ELASTOMER GRIPS

P-12 BENT NOSE PLIERS

■ Hardness HRC(tip): 45

■ Weight: 115 g

■ Without serrations



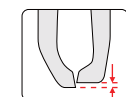
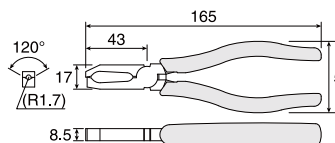
ELASTOMER GRIPS

P-220 CHAIN PLIERS



- Attaches/detaches the retainer clip of chains used in industrial machinery and bicycles, etc.
- Magnetized to prevent the retainer clip from being dropped during the work.

- Compatible chains: Roller chains (clip types)
- Working chain size: 35 to 50 (for industrial machinery)
1/2 × 1/8 (for bicycles)
410 to 530 (for motorcycles)
- Weight: 150 g



Tip is uneven (stepped) and grooved to ensure a firm grasp on the clip.



ELASTOMER GRIPS



MAGNETIZED

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Precision series

Miniature cutters

Plastic cutters

Standard cutters

Scissors

Wire cutters

Miniature pliers

Standard pliers

Lineman's pliers

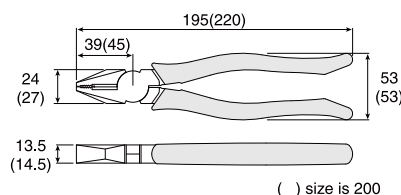
Slip joint pliers

P-57 LINEMAN'S PLIERS



Part no.	Cutting capacity	Weight g
P-57-175	Copper wire 3.5 mm ϕ Copper stranded wire 5.5 mm ² VVF 1.6 × 3 wires	270
P-57-200	Copper wire 4.0 mm ϕ Copper stranded wire 5.5 mm ² VVF 2.0 × 3 wires	370

- Hardness HRC(blade): 61



() size is 200



P-57-200

ELASTOMER GRIPS

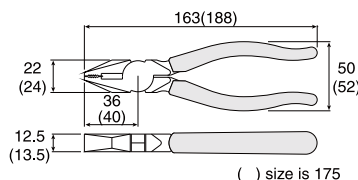


CUTTER

P-43 LINEMAN'S PLIERS

Part no.	Cutting capacity	Weight g
P-43-150	Copper wire 3.3 mm ϕ Copper stranded wire 3.5 mm ²	210
P-43-175	Copper wire 3.5 mm ϕ Copper stranded wire 5.5 mm ²	288

- Hardness HRC(blade): 60



() size is 175



P-43-175



CUTTER

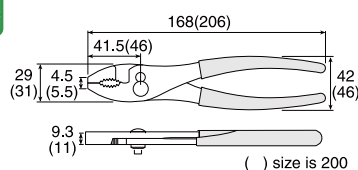
P-211Z SLIP JOINT PLIERS



P-211Z-150

P-211Z-200

- Weight: P-211Z-150 170 g
P-211Z-200 270 g



() size is 200



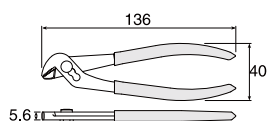
P-211Z-150

P-214 NUT PLIERS



- 3-step jaw opening.

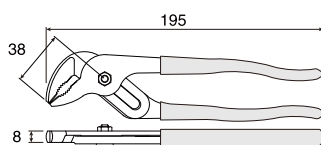
- Weight: 70 g



P-244 WATER PUMP PLIERS



- Weight: 200 g



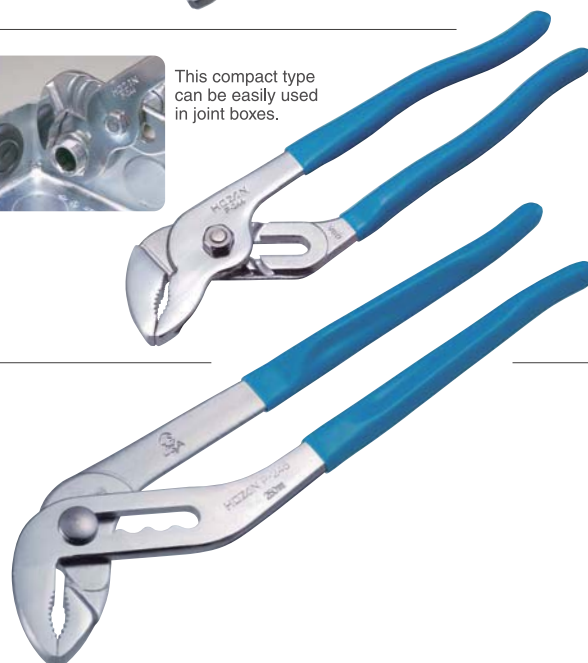
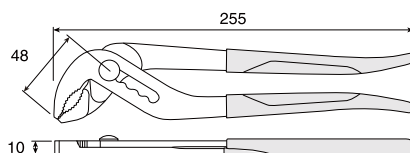
This compact type can be easily used in joint boxes.



P-245 WATER PUMP PLIERS

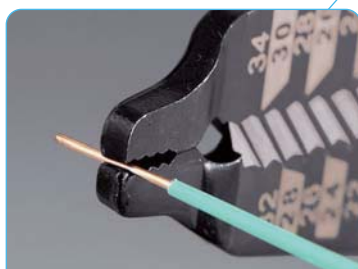


- Weight: 350 g



Wire strippers

Easily strips slippery
Teflon and soft PVC
insulated wires.



Pliers



Cutter



SPRING



ELASTOMER GRIPS

WIRE STRIPPERS


ELASTOMER
GRIPS

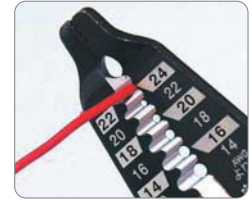
SPRING

CUTTER

PLIER

- The tip serves as pliers and can be used to bend and pull electrical wires, etc.

■ Weight: 80 g



Strippers compatibility table

● For AWG sizes

AWG	Single wire	34	32	30	28	26	24	22	20	18	16	14	12
Stranded wire	—	34	32	30	28	26	24	22	20	18	16	14	12
Single wire (mm φ)	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 (mm ²)	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-963			*1										
DISCON P-946													
P-967													
DISCON P-945													
P-968													

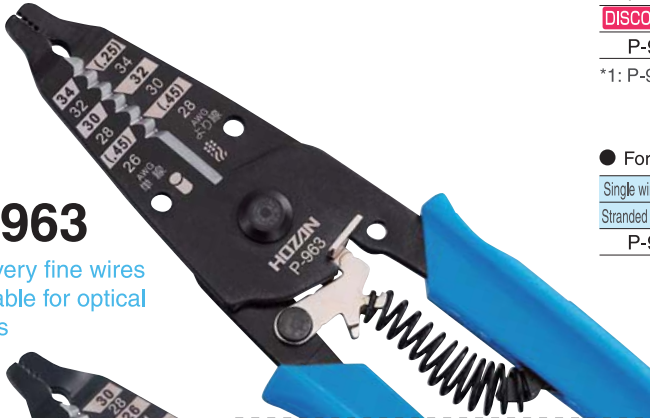
*1: P-963 is also equipped with 0.25 mm φ and 0.45 mm φ sizes.

● For metric-sizes

Single wire (mm φ)	—	0.8	1.0	1.6	2.0
Stranded wire (mm ²)	0.3	0.5	0.75	1.25	2.0
P-960					

For AWG sizes

P-963

For very fine wires
Suitable for optical
fibers


P-967

For fine wires



P-946

Wide range type

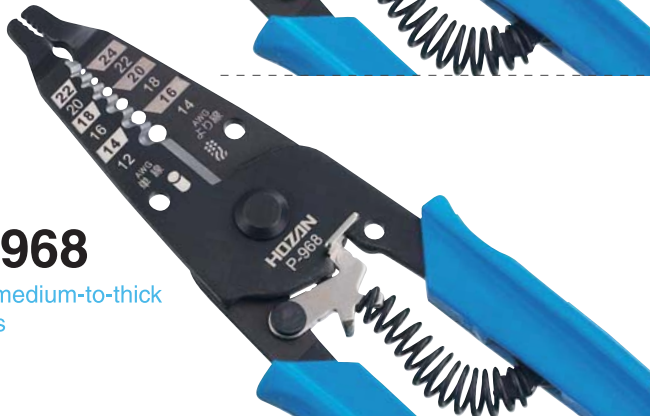
Discontinued item.

Substitute item: P-967.

(P-963 if min. hole is required)



P-968

For medium-to-thick
wires


P-945

Wide range type

Discontinued item.

Substitute item: P-968.

(P-963 / P-967 if min. hole is
required)


For metric sizes

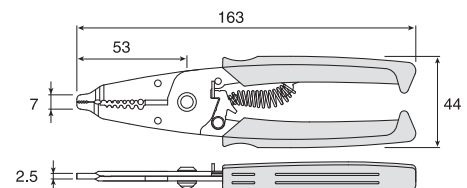
Compatible wires: 0.3 / 0.5 / 0.75 / 1.25 / 2.0 mm²
0.8 / 1.0 / 1.6 / 2.0 mm φ

P-960

For metric-sizes

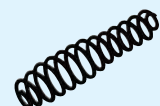


Common for P-945 / 946 / 960 / 963 / 967 / 968



■ Replacement part

P-960-1 SPRING


■ Compatible items: P-945 / 946 / 960 /
963 / 967 / 968

■ Quantity: 2 pieces

⚠ Warning ● The handle cover is not insulated. Do not use where electrical currents exist.

Technical inquiries can be made by E-mail to the following address: th@hazan.co.jp

Cutters &
Pliers

Wire
strippers

Crimpers

Tweezers

Screwdrivers &
Wrenches

Metal working

Parts
boxes

Tool
cases

Tool kits

Soldering
irons &
Solder

Parts & Solder
removal
equipment

Measuring
instruments

Optical
equipment

Antistatic
products

Clean
products

Chemical
products

Maintenance
& Safety
products

Wire
Strippers

Motor drive
wire
strippers

Wire
strippers
(VVF)

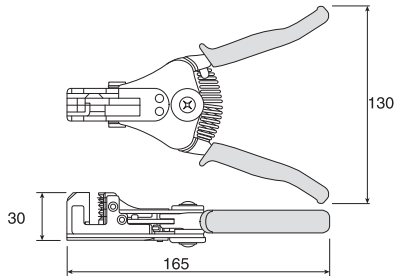
Electrician's
knife

P-90 WIRE STRIPPERS



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

Part no.	Weight g	handle color
P-90-A	350	Green
P-90-B		Red
P-90-C		Black
P-90-F		Blue



For VCTFK jacket stripping and conductor stripping (P-90-F).



P-90-C



Example of wire stop (P-918) attachment

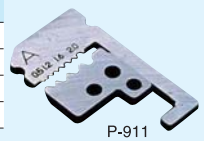
Compatible wire size table Note: The stranded wire outer dia. and the plain wire structure vary somewhat according to the manufacturer.

AWG No.		24				18			16		14	12	10	8
Min. single wire outer dia. (mm)		0.51				1.02			1.28		1.61	2.03	2.56	3.28
Stranded wire min. cross-sectional area mm ²		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		0.6	0.69	0.9	1.07	1.2	1.2 to 1.26	1.35	1.6	1.8	1.95	2.4	2.6	3.9
		0.7	0.75	0.98	1.15	1.4		1.47	1.8	1.86	2.0	2.5	3.1	4.4
P-90-A	Single wire	mm	Single wire		0.5				1.2		1.6	2.0		
P-90-B			Stranded wire			1.2	1.6		2.0					
P-90-B	Single wire	mm	Single wire				1.0				1.6	2.0	2.6	3.2
P-90-B			Stranded wire		1.0		1.6		2.0	2.6				
P-90-C	Stranded wire	mm ²	Stranded wire					0.9	1.25	1.25	2.0	2.0	3.5	5.5
P-90-F			VCTFK wire (also usable for jacket)				0.75 / 1.25		0.75 / 1.25					

Replacement parts REPLACEMENT BLADES



Part no.	Compatible items
P-910	P-90-C
P-911	P-90-A
P-912	P-90-B
P-915	P-90-F



P-911

P-918 WIRE STOP



P-97 MOTOR DRIVE WIRE STRIPPER



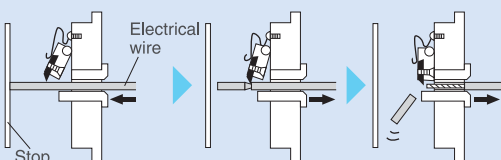
- Both stripping and "twisting" to be performed at once, simply by inserting the electrical wire and pulling it out.
- The "twisting" direction (left / right) is selectable, and the stripping length can be adjusted (5 to 25 mm)
- Compatible wires: PVC outer dia. size within a 0.6 to 5mm range.
- Stripping length: 5 to 25 mm
- Rated voltage / Frequency: 100VAC, 50/60 Hz
- Power consumption: 23 W
- Outer dimensions: 102 (W) × 136 (H) × 227 (D) mm
- Weight: 3.5 kg
- With 1 cutter plate (made to order)
- Power cable: 1.75 m

P-97 is made to order.

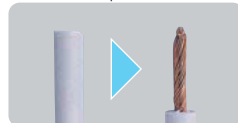
Because Hozan will adjust the cutter plate to match the wire in question, the customer is requested to provide a sample wire to be used (approx. 2m). The adjusted product will then be delivered to the customer together with the sample wire.

A sample wire is also required even if ordering only a cutter plate.

Customers who desire a trial product are requested to send a sample wire to Hozan.



Result example



An instruction video is available on our website for your reference.
<http://www.hozan.co.jp/animation/>



Replacement parts P-927 CUTTER PLATE



- The cutter plate must be changed when using for multiple wires.



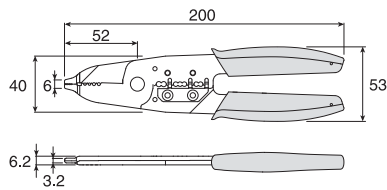
P-928 REPLACEMENT BLADE



- Double-edged type

P-956 WIRE STRIPPER

- Weight: 180 g
- Insulation stripping sizes: 1.6 / 2.0 mm ϕ
- Jacket stripping sizes: 1.6 $\times$ 2 conductors / 1.6 $\times$ 3 conductors / 2.0 $\times$ 2 conductors
- Cutter cutting sizes: 1.6 $\times$ 2 conductors / 1.6 $\times$ 3 conductors / 2.0 $\times$ 2 conductors / 2.0 $\times$ 3 conductors



Insulation stripping hole



Outer jacket stripping hole

**Z-682 ELECTRICIAN'S KNIFE**

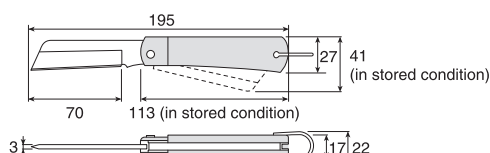
- Hardness HRC(blade): 60
- Handle: Natural wood
- Weight: 120 g



VVF wire's jacket stripping



Insulation stripping



* See page 97 for details concerning the Electrician Proficiency Test.

Technical inquiries can be made by E-mail to the following address: th@hazan.co.jp

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

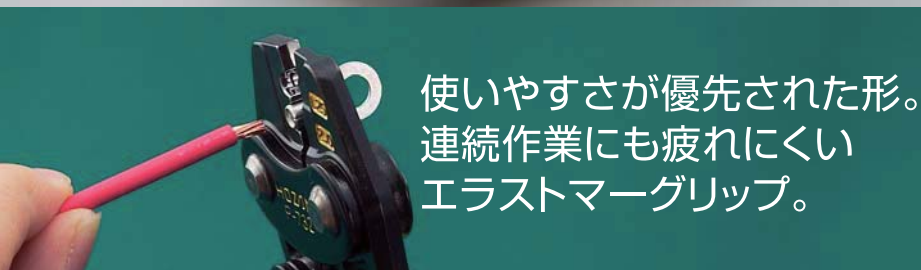
Wire Strippers

Motor drive wire strippers

Wire strippers (VVF)

Electrician's knife

Crimpers



使いやすさが優先された形。
連続作業にも疲れにくい
エラストマーグリップ。

成形確認 機構付

圧着作業が確実に完了しなければ
接続端子を工具から取り外すことが
できない機構。

JIS
C9711
適合品



エラストマー グリップ

弾力がありソフトタッチな
手にやさしいエラストマー
グリップ。
連続作業も疲れません。

片手操作でラクラク!

ハンドルが最大に開いても女性でも片手操作が
できるコンパクトな設計です。
従来品に比べ操作の疲労感が大幅に軽減され
作業スピードも向上されます。

トグル機構の威力!

トグル機構採用により軽い力で圧着操作が
可能になり、女性の方でも楽に作業できます。

軽い力でも

確かな圧着!

※ハンドルを最大に開いた状態

圧着工具のJIS (JIS C9711) について

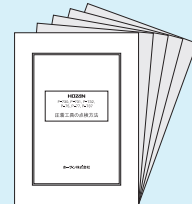
JISの屋内配線用電線接続工具の規格である「JIS C9711」
には、以下の事柄が規定されています。

- ・成形確認機構がついていること
(ダイス間が適正な圧着接続ができる距離に達しなければ
接続端子を工具から取り外すことができない機構)
- ・ダイス部にサイズの刻印がされていること
- ・ダイス部の硬さが基準以上であること
- ・ハンドルの最大荷重が基準値内であること
- ・圧着成形高さが圧着成形試験で定められた値を満足していること
- ・接続性能が接続性能試験で定められた値を満足していること

その他にも、耐久性・材料・構造についての規格が設けられており、
この規格を満たし、認証を取得した製品にのみ、JISマークを表示
することができます。

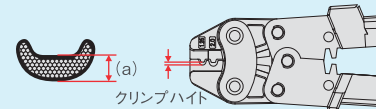
圧着工具点検マニュアル無料

当社の圧着工具のJIS認定品においては、JISに基づいた性能
試験を実施し、ご要望により試験成績表を発行(有料)しております。
(P-77・P-737は点検結果表のみ)
また、お客様において日常的に点検でき
る点検マニュアルを無料でご用意して
おります。
この点検はダイスの消耗具合をクリンプ
ハイトゲージで確認するもので、非常に簡
単かつ有効な方法です。ご利用ください。



圧着成形高さ(クリンプハイト)について

クリンプハイトとは、圧着工具を用いてコネクタを圧着接続したとき
の圧縮部の高さ(a)のことですが、工具の安全点検においては、
(a)を測定することは難しいため、工具の先端が完全に閉じた状
態での、ダイス凸部と凹部間の距離で点検を行います。



For uninsulated terminals and connectors (B / P)

Leaves a crimp mark on the terminal.

**P-732 CRIMPING TOOL**

- With a maximum opening width of only 110 mm, the handle is compact enough to use with one hand.

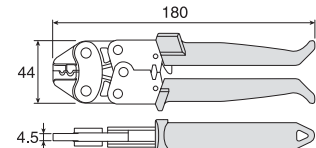
- Sizes: 1.25 / 2
- Weight: 270 g



JIS C9711 CONFORMITY

COMPLETE CRIMPING MECH.

ELASTOMER GRIPS


■ Replacement part
P-732-6 SPRING

- For P-715 / 732 / 733 / 736 / 737 / 740 / 741 / 743
- Quantity: 2 types, 1 set

**P-722 CRIMPING TOOL**

- Sizes: 1.25 / 2
- Weight: 275 g

- * Not equipped with a crimp completion mechanism. (The available crimp force is equivalent to the JIS standard.)



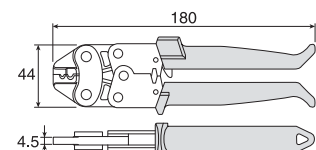
ELASTOMER GRIPS

CUTTER

STRIPPER



Cutter with stripper

**P-75 CRIMPING TOOL**

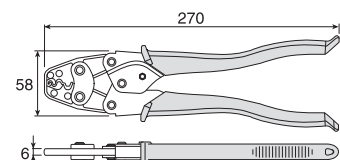
- Sizes: 1.25 / 2 / 5.5 / 8
- Weight: 390 g



JIS C9711 CONFORMITY

COMPLETE CRIMPING MECH.

ELASTOMER GRIPS


■ Replacement part
P-77-6 SPRING

- For P-75 / 77



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

For uninsulated terminals and connectors

For insulated terminals and connectors

For insulated closed end terminals

For open end connectors

For F connectors

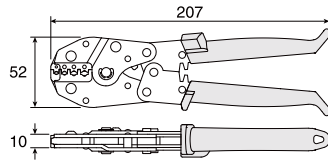
For open barrel terminals / contacts

For BNC / TNC connectors

For modular plugs

For insulated terminals and connectors

Leaves a crimp mark on the terminal.



P-743 CRIMPING TOOL



COMPLETE
CRIMPING
MECH.

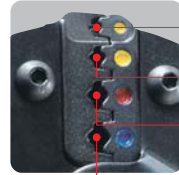
RELEASE LEVER

ELASTOMER
GRIPS

- The handle opening width is adjustable to be used in small width.

■ Sizes: 0.3 / 0.5 / 1.25 / 2

■ Weight: 350 g

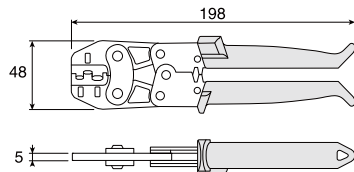
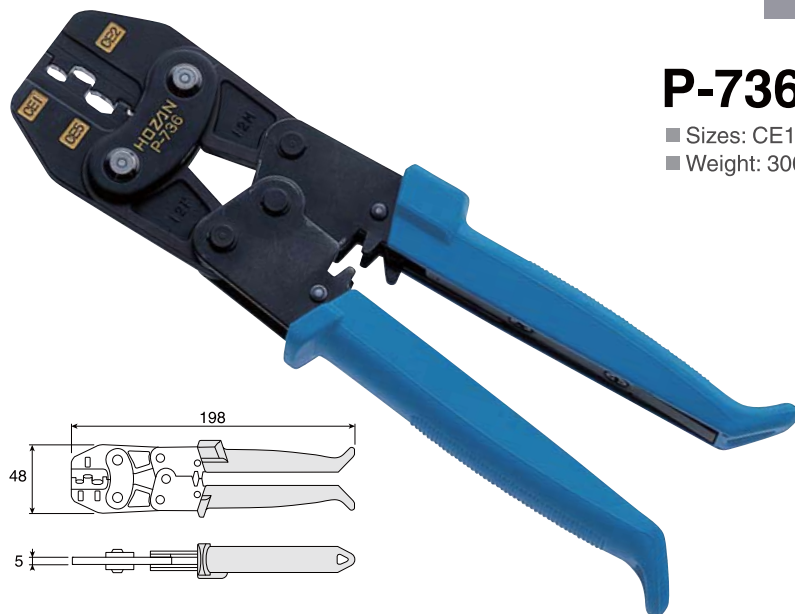


Nominal sizes	Connector manufacturer	Compatible wire sizes (reference)		Crimp marking
		AWG#	mm ²	
0.5*	JST Fuji Terminal Industry	24 to 22	0.2 to 0.3	●
0.3 / 0.5*		24 to 20	0.2 to 0.5	●●
1.25	Common to all manufacturers	20 to 16	0.5 to 1.65	1
2		16 to 14	1.04 to 2.63	2

* 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.

For insulated closed end terminals

Leaves a crimp mark on the terminal.



P-736 CRIMPING TOOL



COMPLETE
CRIMPING
MECH.

RELEASE LEVER

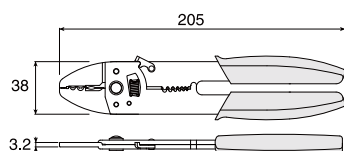
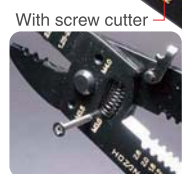
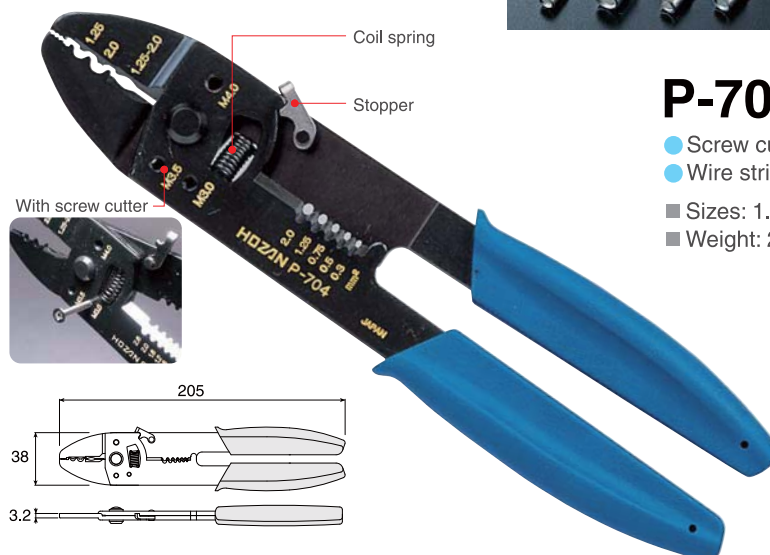
ELASTOMER
GRIPS

■ Sizes: CE1 / CE2 / CE5

■ Weight: 300 g



For uninsulated terminals and connectors & insulated terminals and connectors



P-704 CRIMPING TOOL



SPRING

ELASTOMER
GRIPS

CUTTER

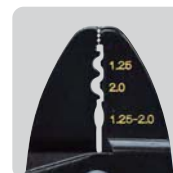
SCREW CUTTER

STRIPPER

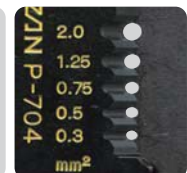
- Screw cutter: 3 / 3.5 / 4 mm
- Wire stripper: 0.3 / 0.5 / 0.75 / 1.25 / 2 mm²

■ Sizes: 1.25 / 2

■ Weight: 210 g



Dies



Stripper

For open end connectors

Leaves a crimp mark on the terminal.



P-737 CRIMPING TOOL

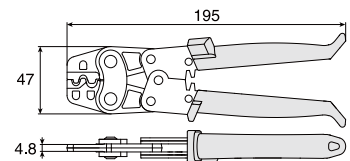
- Sizes: Small (1.6 × 2) / Small/Medium
- Weight: 300 g



JIS C9711 CONFORMITY

COMPLETE CRIMPING MECH.

ELASTOMER GRIPS



P-77 CRIMPING TOOL

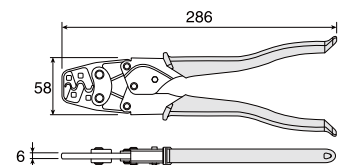
- Sizes: Small (1.6 × 2) / Small/Medium / Large
- Weight: 430 g



JIS C9711 CONFORMITY

COMPLETE CRIMPING MECH.

ELASTOMER GRIPS



■ Replacement part P-77-6 SPRING

- For P-75 / 77



For F connectors

Waterproof & non-waterproof types of center contact pin



Non-waterproof type

Waterproof type



Die for sleeve

Die for center contact pin

With pliers

With F connector securing screw

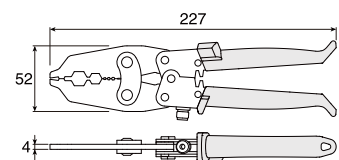
P-715 CRIMPING TOOL

- Sizes: For 5C/7C sleeves
For 5C / 7C center contacts (2.0 / 2.3 / 2.6 mm φ)
- Weight: 320 g



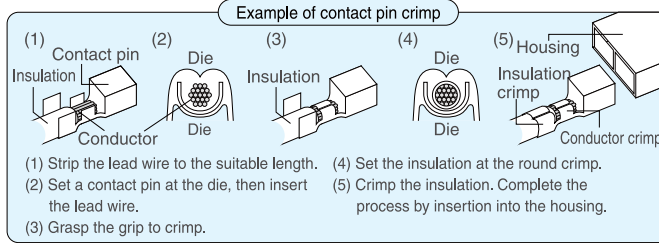
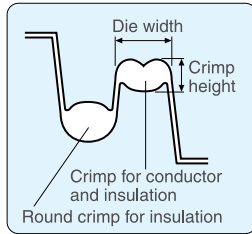
COMPLETE CRIMPING MECH.
RELEASE LEVER

ELASTOMER GRIPS



An instruction video is available on our website for your reference.
<http://www.hozan.co.jp/animation/>

For open barrel terminals/contacts



A list of P-706 / P-707 compatible terminals is posted on our website. Refer to that list for details.
http://www.hozan.co.jp/tanshi_list/



P-707 CRIMPING TOOL



ELASTOMER GRIPS

- 15 various-sized dies make this tool suitable for a wide range of terminal sizes.
- A toggle mechanism enables secure crimping by a light force.

- Wire sizes: AWG#30 to #14
- Weight: 320 g

	Nominal sizes	Die width mm	Crimp height mm	Compatible wire sizes	
				AWG#	mm ²
For conductor	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

	Nominal sizes	Die width mm	Crimp height mm	Insulation OD mm ϕ
For insulation	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
For insulation (for round crimps)	$\phi 1.6$	1.6	1.5	1.0 to 1.6
	$\phi 2.2$	2.2	1.8	1.6 to 2.2



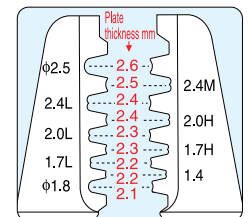
P-706 CRIMPING TOOL



ELASTOMER GRIPS

- Ideal for crimping small contact pin.

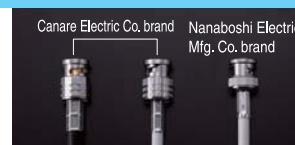
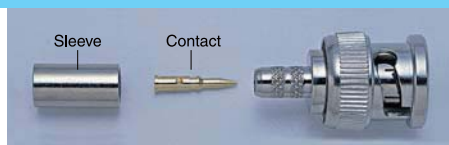
- Wire sizes: AWG#28 to #14
- Weight: 200 g



	Nominal sizes	Die width mm	Crimp height mm	Compatible wire sizes		Insulation OD mm ϕ
				AWG#	mm ²	
For conductor	1.4	1.4	0.7	28 to 24	0.08 to 0.2	0.7 to 1.2
	1.7L	1.7		28 to 22	0.08 to 0.3	0.9 to 1.5
	1.7H		1.1	24 to 18	0.2 to 0.8	0.9 to 1.5
	2.0L	2.0	0.9	28 to 18	0.08 to 0.8	1.1 to 1.8
	2.0H		1.3	24 to 18	0.2 to 0.8	1.1 to 1.8
	2.4L	2.4	1.2	20 to 16	0.5 to 1.25	1.3 to 2.2
	2.4M		1.5	16 to 14	1.25 to 2.0	1.3 to 2.2

	Nominal sizes	Die width mm	Crimp height mm	Insulation OD mm ϕ
For insulation	2.4H	2.4	2.4	1.3 to 2.2
	2.8	2.8	2.8	1.6 to 2.6
	3.2	3.2	3.2	1.8 to 3.0
	3.7	3.7	3.7	2.1 to 3.5
For insulation (for round crimps)	$\phi 1.8$	1.8	1.4	1.2 to 1.8
	$\phi 2.5$	2.5	2.1	1.8 to 2.5
	$\phi 4.0$	4.0	3.5	2.3 to 3.8

For BNC / TNC connectors



P-740 / 741 CRIMPING TOOLS

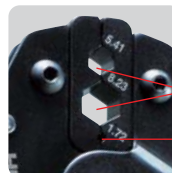
● Crimper for BNC/TNC/BNCC connectors.

■ Weight: P-740 350 g / P-741 360 g

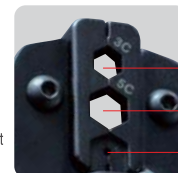


COMPLETE CRIMPING MECH.
RELEASE LEVER

ELASTOMER GRIPS



P-740



P-741

Connector and die correspondence table

	Part No.	Compatible connector outer dia. mm	Connector manufacturer
P-740	Center contact	2.1	Nanaboshi Electric Mfg. Co. Toyo Connector Co.
	Sleeve	6.5 / 9.2	
P-741	Center contact	1.75	Canare Electric Co.
	Sleeve	6.8 / 9.0	

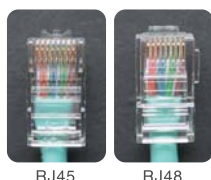
A list of P-740 / P-741 compatible terminals is posted on our website. Refer to that list for details.

http://www.hozan.co.jp/catalog/Crimpers/P740_list.htm
http://www.hozan.co.jp/catalog/Crimpers/P741_list.htm

For modular plugs



Crimped to LAN 8-wire modular plug

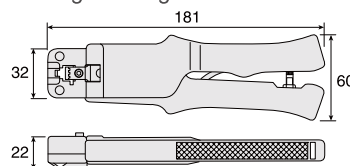


P-711 MODULAR PLUG CRIMPER (for LAN 8-wire)

● A dedicated 8-wire crimper for attaching modular plugs to 8-wire modular cords.

■ Sizes: FCC standard modular plugs, RJ-45 / 48 (8 wires)

■ Weight: 280 g



COMPLETE CRIMPING MECH.

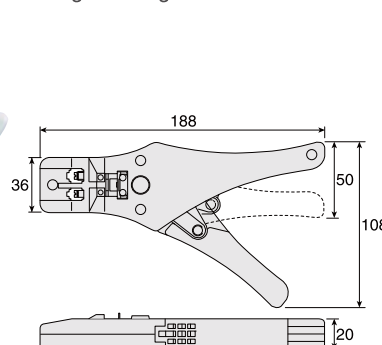
P-710 MODULAR PLUG CRIMPER (for indoor telephone wiring)

● A dedicated crimper for attaching modular plugs to 4 and 6 wire modular cords. Equipped with a dedicated wire stripper.

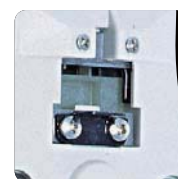
* Not compatible with some non-Japanese brand modular plugs.

■ Sizes: FCC standard modular plugs, RJ-11 / 12 (4 / 6 wires)

■ Weight: 135 g



4-wire and 6-wire dies



Wire Stripper

STRIPPER



Use for 4 and 6 wire modular plugs.

Replacement part P-710-1 REPLACEMENT BLADE SET

■ Quantity:
Upper/lower 2-piece set
■ For P-710



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

For uninsulated terminals and connectors

For insulated terminals and connectors

For insulated closed end terminals

For open end connectors

For F connectors

For open barrel terminals / contacts

For BNC / TNC connectors

For modular plugs



Tweezers

Tweezers lineup

Stainless

*For details regarding special-shape tweezers, see pages 32 & 33.

Heavy-duty tweezers Material: SUS420J2

7 types, including P-891, etc.

Features strong, heat-treated material with a thick design that minimizes bending of the tweezers.

THICK
MATERIAL

HEAVY
DUTY

P-29

Precision tweezers Material: SUS316L

P-850 / P-851 / P-852

HOZAN's premium series
Fine-tipped fully non-magnetic tweezers

COMPLETE
NON-
MAGNETIC

CORROSION
RESISTANCE

CHEMICAL
RESISTANCE

P-30

Standard tweezers Material: SUS420J2 / SUS304

4 types, including P-881, etc.

Tweezers with a good quality/cost balance

NON-
MAGNETIC

CORROSION
RESISTANCE

CHEMICAL
RESISTANCE

*Excluding P-88

P-30

Low-cost tweezers

P-86 / P-87 / P-876

Low cost tweezers

P-31

Plastic

7 types, including P-814-S, etc.



*ESD Tweezers

COMPLETE
NON-
MAGNETIC

HEAT
RESISTANCE

*Heat-resistant
tweezers

- ESD tip tweezers Antistatic engineering plastic is used. Work on electronic parts which are susceptible to static electricity.
- Tip tweezers Made from environment friendly biodegradable plastic. The lightweight aluminum body is ideal for long periods.
- Heat-resistant tip tweezers Features sturdy engineering plastic with superior heat resistance.

P-34

Ceramic

P-855-C / P-890

Fully non-magnetic with excellent insulating qualities and resistance to chemicals, wear, and heat.
Repels solder and silver solder.

COMPLETE
NON-
MAGNETIC

CHEMICAL
RESISTANCE

HEAT
RESISTANCE

P-36

Titanium

P-880-T / P-894-T

Extremely lightweight and fully non-magnetic, with superior resistance to corrosion and chemicals.
It's solder-repelling properties make ideal for solder related work. A safe choice for users with metal allergies.

COMPLETE
NON-
MAGNETIC

CORROSION
RESISTANCE

CHEMICAL
RESISTANCE

P-36

Phosphor bronze

P-893

Fully non-magnetic with excellent wear resistance.

COMPLETE
NON-
MAGNETIC

P-36

Bamboo

P-860 / P-863-150

Fully non-magnetic with superior anti-bacterial properties.
Ideal for picking up and holding easily scratched optical lenses.

COMPLETE
NON-
MAGNETIC

P-37



Remains non-magnetized and unaffected by magnetic field even when working in intense magnetic fields. Ideal when working on precision instruments which are susceptible to even weak magnetism.



May become somewhat magnetized when in intense magnetic field, but is non-magnetized in normal environments.



Handle load
The value when load is applied to the Handle and tip is closed

Heavy-duty tweezers


THICK
MATERIAL

HEAVY
DUTY

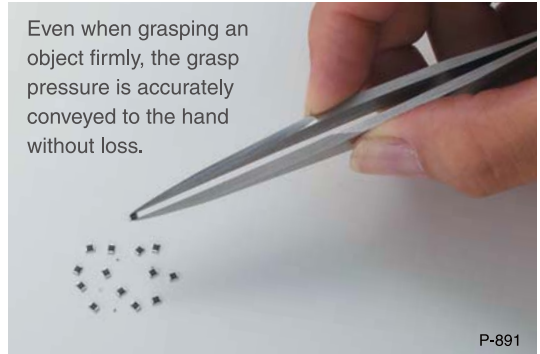
Features strong, heat-treated material with a thick design that minimizes bending of the tweezers.



Can also be used to install small springs, etc.



Enables tasks in places where the hand cannot reach.



P-891

P-891 TWEEZERS

200 g

■ Sheet thickness: 2.3mm

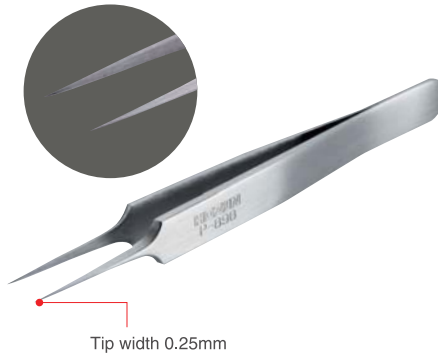


Tip width 0.6mm

P-898 TWEEZERS

150 g

■ Sheet thickness: 2.0mm

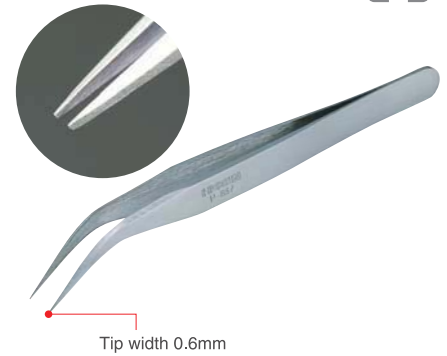


Tip width 0.25mm

P-887 CURVED TWEEZERS

200 g

■ Sheet thickness: 2.3mm



Tip width 0.6mm

P-892 TWEEZERS

250 g

■ Sheet thickness: 2.3mm

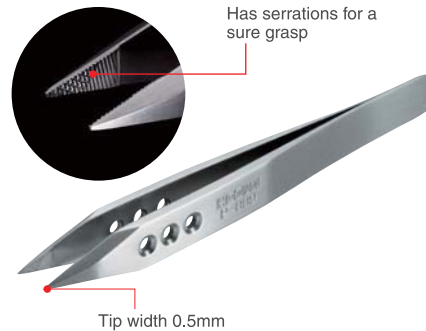


Tip width 1.2 mm

P-899 TWEEZERS

250 g

■ Sheet thickness: 2.5 mm



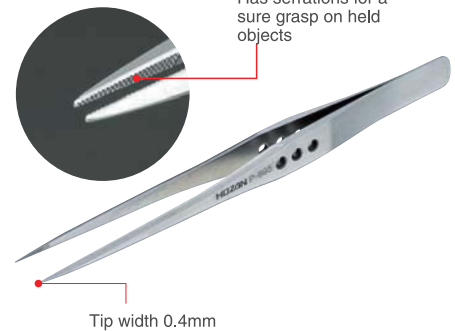
Tip width 0.5mm

Has serrations for a sure grasp

P-895 TWEEZERS

200 g

■ Sheet thickness: 2.5 mm



Tip width 0.4mm

Has serrations for a sure grasp on held objects

P-894 TWEEZERS

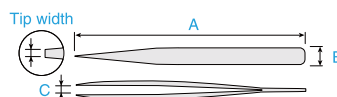
150 g

■ Sheet thickness: 2.0mm



Tip width 0.25mm

Part no.	A	B	C	Tip width	Material	Weight g
P-887	130	10	8	0.6	Stainless	26
P-891						
P-892	125	9.5	9	1.2		23
P-894			8	0.25		
P-895	150	11	10	0.4		28
P-898	110	10	7	0.25		17
P-899		9.5	8	0.5		25



Related products

P-891P TWEEZERS (5-piece set)

RoHS CLASS 100

Washes the tweezers in pure water, then keeps in a double-pack. This clean pack reduces troublesome washing operations, allowing to be taken into the clean room as it is.

*For details, see page 159



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Heavy-duty stainless type

Precision stainless type

Standard stainless type

Low-cost stainless type

ESD cushion grip

Assembly stainless type

Plastic tips

Ceramic

Titanium

Phosphor bronze

Bamboo

Vacuum pick-up tools

Spring hooks

Probes

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Heavy-duty stainless type

Precision stainless type

Standard stainless type

Low-cost stainless type

ESD cushion grip

Assembly stainless type

Plastic tips

Ceramic

Titanium

Phosphor bronze

Bamboo

Vacuum pick-up tools

Spring hooks

Probes

Precision tweezers



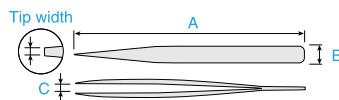
COMPLETE NON-MAGNETIC

CORROSION RESISTANCE

CHEMICAL RESISTANCE

150 g

These fully non-magnetic tweezers are ideal when working on precision instruments which are highly susceptible to magnetic fields.



Part no.	A	B	C	Tip width	Material	Weight g
P-850	120				Stainless	13
P-851	110	10	6	0.2		12
P-852	115					14

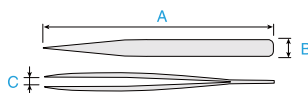
P-850 FULLY NON MAGNETIC TWEEZERS

P-851 FULLY NON MAGNETIC TWEEZERS

P-852 FULLY NON MAGNETIC TWEEZERS



Standard tweezers



Part no.	A	B	C	Material	Weight g
P-88	127		6	Stainless	16
P-881	110	10	7		17
P-882	115				18
P-886	125	12	10		27

P-88 TWEEZERS

P-881 TWEEZERS

P-882 CURVED TWEEZERS

NON-MAGNETIC

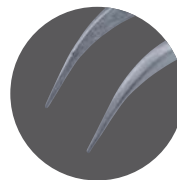
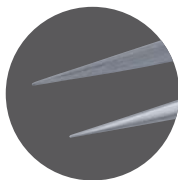
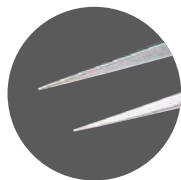
CORROSION RESISTANCE

CHEMICAL RESISTANCE

NON-MAGNETIC

CORROSION RESISTANCE

CHEMICAL RESISTANCE

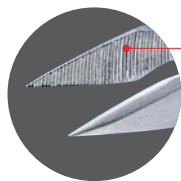


P-886 TWEEZERS

NON-MAGNETIC

CORROSION RESISTANCE

CHEMICAL RESISTANCE



With serrations



■ Replacement

P-881P / P-882P



CLASS 100

TWEEZERS (5-piece set)

- Washes the tweezers in pure water, then keeps in a double-pack. This clean-pack reduces troublesome washing operations, allowing to be taken into the clean room as it is.

*For details, see page 159

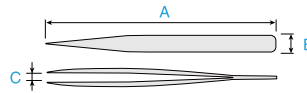
*Photo shows P-881P.



Low-cost tweezers



Part no.	A	B	C	Material	Weight g
	mm				
P-876	136	10	9	Stainless	18
P-87	125	11	13		16
P-86-125	130	10	18		14
P-86-150	150		25		26
P-86-175	175		30		32



P-876 TWEEZERS

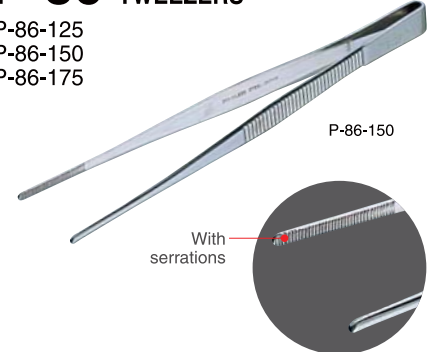


P-87 TWEEZERS



P-86 TWEEZERS

P-86-125
P-86-150
P-86-175



ESD CUSHION GRIP TWEEZERS



- P-881 and P-891 tweezers with antistatic grips.

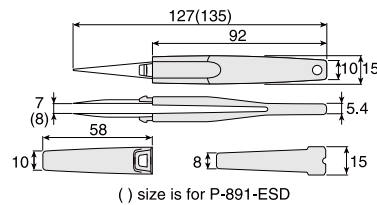
- Material: Elastomer (grip/cap), stainless (tweezers)
- Weight: P-881-ESD 26 g
P-891-ESD 32 g
- ESD standard: Ground resistance
 $R_g < 1 \times 10^{12} \Omega$

* For tweezers body specifications, see those given for P-881 (P.30) and P-891 (P.29).

P-881-ESD



P-891-ESD



P-845 ESD CUSHION GRIP

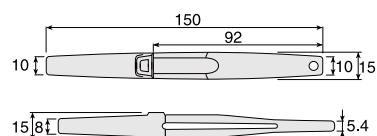


Use this ESD soft grip on your standard tweezers to make them ESD safe.

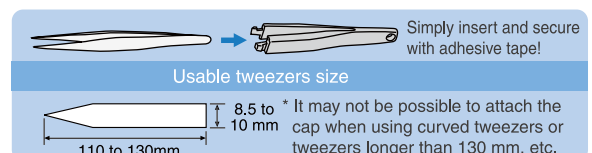
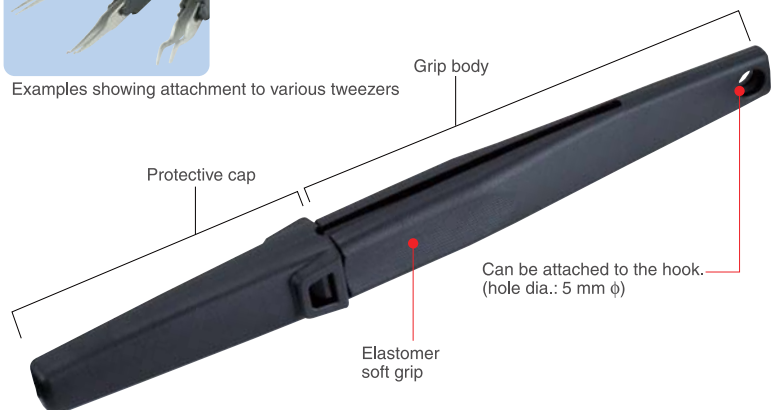
- Compatible with other-brand tweezers.

- Material: Elastomer
- Weight: 9 g
- With protective cap
- Compatible models: N-993 / P-86-125 / P-87 / P-88 / P-850 to P-852 / P-872 / P-880-T / P-881 / P-882 / P-887 / P-891 to P-894 / P-894-T / P-898 / P-899 and other-brand tweezers with lengths of approx. 130 mm. The protective cap cannot be used on the P-852 / P-882 / P-887, and the N-993.

- ESD standard: Ground resistance $R_g < 1 \times 10^{12} \Omega$



Examples showing attachment to various tweezers



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Heavy-duty stainless type

Precision stainless type

Standard stainless type

Low-cost stainless type

ESD cushion grip

Assembly stainless type

Plastic tips

Ceramic

Titanium

Phosphor bronze

Bamboo

Vacuum pick-up tools

Spring hooks

Probes

Assembly stainless type tweezers

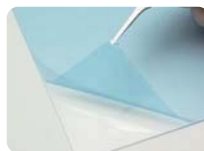
P-888 TWEEZERS



- Tip size: 2 mm (R-type)
- Material: Stainless
- Weight: 15 g



Removes solder balls

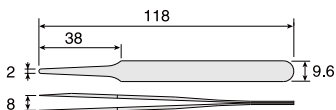


For peeling off protective film



Spatula-shaped tips

150 g



P-872 TWEEZERS



Ultra-thin tip tweezers can fit even between dense chip parts.
(compatible with 0603 / 0402 sizes)

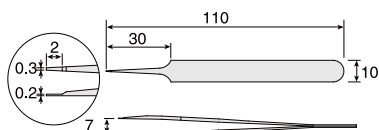
- Tip size: Width 0.3 mm
Thickness 0.2 mm
- Material: Stainless
- Weight: 16 g



Ultra-thin tip



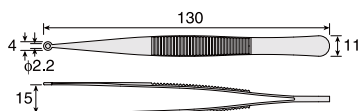
150 g



P-878 TWEEZERS



- Tip size: OD 4 mm ϕ .; ID 2.2 mm ϕ
- Material: Stainless
- Weight: 18 g



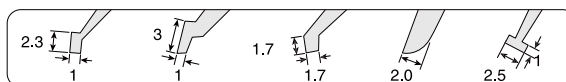
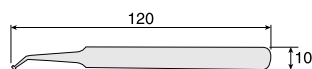
P-810 SMD TWEEZERS SET



- Set contents: 5-piece set
- Material: Stainless
- Weight: 165 g
- With pouch



Stored in a dedicated case



P-89 REVERSE ACTION TWEEZERS



- Reverse-action tweezers. The tip opens when the tweezers are grasped, and closes when released.

- OAL: 165mm
- Tip width: 2mm
- Max. open width: approx. 20mm
- Material: Stainless
- Weight: 24 g



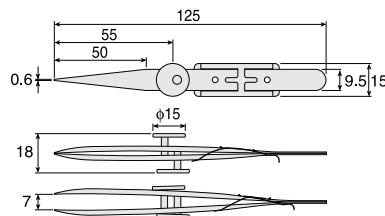
With slip-prevention serrations



P-69 REVERSE ACTION TWEEZERS

- Because objects are held by a preset spring force, there is no risk of an excessive holding force.
- The spring force can be adjusted to 6 settings simply by sliding the spring position.

- Tip width: 0.6mm
- Max. open width: approx. 7mm
- Material: Stainless (body and spring)
Brass (knob)
- Weight: 25 g

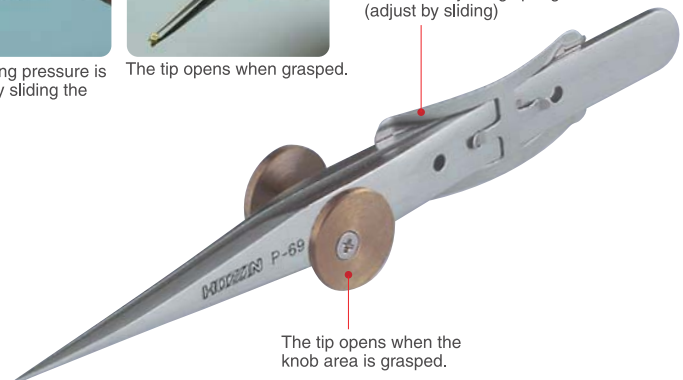


The grasping pressure is adjusted by sliding the spring



The tip opens when grasped.

Pressure adjusting spring (adjust by sliding)



The tip opens when the knob area is grasped.

THICK MATERIAL

HEAVY DUTY

Related products

N-993 CUTTING TWEEZERS



- Cutting capacity: Copper wire
0.08 to 0.3 mm ϕ
- OAL: 110mm
- Material: Stainless
- Weight: 25 g

*For details, see page 11



For jumper wire cutting



HC-56 DESKTOP DEMAGNETIZER

Instantly demagnetizes screwdrivers and tweezers, etc., which have become magnetized. Can also magnetize.

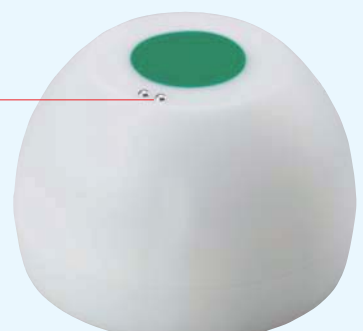
- Simply touch the touch-switch with the body or tool for several seconds.
- After being turned ON, it automatically switches OFF in approx. 3 seconds.
- Safe design keeps the area around this product free of magnetization. (See figure at right)

- Max. flux density: 65mT (50 Hz) / 55mT (60 Hz)
- Temperature fuse: Return type
- Rated voltage / Frequency: 100 VAC, 50 / 60 Hz
- Rated current: 0.6A (50 Hz) / 0.55A (60 Hz)
- Power consumption: 40 W
- External dimensions: Widest point dia. 84 mm ϕ
Head dia.: 48 mm ϕ
Height: 57 mm

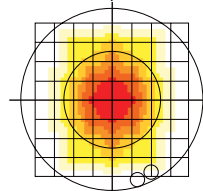
- Weight: 300 g
- Power cable: 2 m

* It may not be possible to demagnetize a large object in a single operation.
For large objects, use the HC-31 / HC-33 (P.170).
* The magnetizing capacity conforms to the JIS standard for magnetic screwdrivers (tip No.2).
Note: Standard magnetic screwdrivers cannot be completely demagnetized. Moreover, a fully non-magnetic tweezers cannot be magnetized.

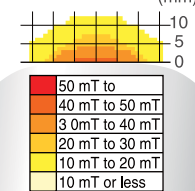
Touch switch



HC-56 top face



HC-56 side face (mm)



1 scale mark = 5 mm

*This is a simplified illustration, and may differ somewhat from the actual data.

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Heavy-duty stainless type

Precision stainless type

Standard stainless type

Low-cost stainless type

ESD cushion grip

Assembly stainless type

Plastic tips

Ceramic

Titanium

Phosphor bronze

Bamboo

Vacuum pick-up tools

Spring hooks

Probes

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Heavy-duty stainless type

Precision stainless type

Standard stainless type

Low-cost stainless type

ESD cushion grip

Assembly stainless type

Plastic tips

Ceramic

Titanium

Phosphor bronze

Bamboo

Vacuum pick-up tools

Spring hooks

Probes

Tip is replaceable Tweezers

Tips are compatible with various models.

The metal handle extends nearly to the tip to minimize bending.

For peeling film off an LCD screen

3 tip shapes

Plastic tips don't scratch the grasped object.

Fine tip

P-814-S / H

Standard

P-815-S / R / H

Flat tip

P-816-S / R

These environment friendly Eco-tweezers are from biodegradable plastic derived from plants.

Applicable products: P-815-R / P-816-R

8 kernels of corn provide the material for a pair of tweezer tips.

What is biodegradable plastic?

This plastic is made from the starch obtained from corn and potatoes, and the carbohydrates obtained from sugarcane.

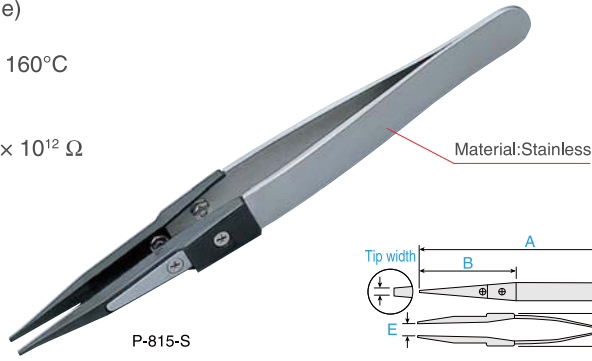
- (1) By using materials derived from plants, we are able to conserve oil and other fossil resources.
- (2) The low combustion energy when incinerated reduces the combustion furnace load.
Moreover, the carbon dioxide emission is lower than that of plastic, and thereby does not contribute to global warming.
- (3) The carbon dioxide emitted when plant-derived materials decompose or are incinerated does not adversely affect the environment. These plants absorb carbon dioxide by photosynthesis when living, and therefore cause no increase in the nature's carbon dioxide levels.
This concept is referred to as "carbon neutral".
- (4) Due to their biodegradable properties, these materials gradually decompose to water and carbon dioxide. They will not decompose during normal use.

ESD TIP TWEEZERS

- Material: PEEK *1 (tip)
Stainless (handle)
- Tip color: Black
- Heat resistant temp. (tip): 160°C
- Weight: 20 g
- ESD standard:
Ground resistance $R_g < 1 \times 10^{12} \Omega$



*Tip only



Part no.	A	B	C	D	E	Tip width
P-814-S	125	55	10	16	7	0.4
P-815-S						1.2
P-816-S						2.3(R-type)

P-814-S

- Replacement tip:
P-814S-1

P-815-S

- Replacement tip:
P-815S-1

P-816-S

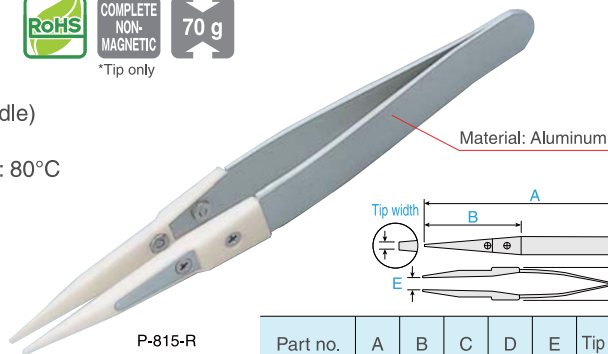
- Replacement tip:
P-816S-1

TIP TWEEZERS

- Material: PLA *2 (tip)
Aluminum (handle)
- Tip color: White
- Heat resistant temp. (tip): 80°C
- Weight: 8 g



*Tip only



Part no.	A	B	C	D	E	Tip width
P-815-R	125	55	10	16	7	1.2
P-816-R	115	45				2.3(R-type)

P-815-R

- Replacement tip:
P-815R-1

P-816-R

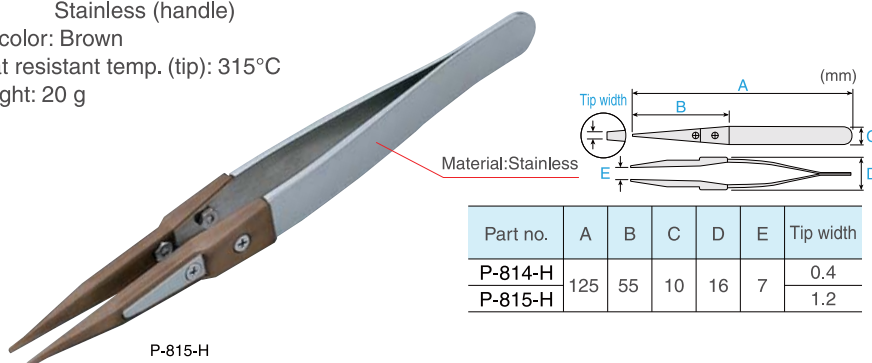
- Replacement tip:
P-816R-1

HEAT-RESISTANT TIP TWEEZERS

- Material: PEEK *1 (tip)
Stainless (handle)
- Tip color: Brown
- Heat resistant temp. (tip): 315°C
- Weight: 20 g



*Tip only



Part no.	A	B	C	D	E	Tip width
P-814-H	125	55	10	16	7	0.4
P-815-H						1.2

P-814-H

- Replacement tip:
P-814H-1

P-815-H

- Replacement tip:
P-815H-1

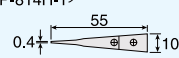
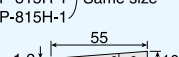
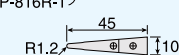
Replacement parts

TWEEZERS TIPS



Tips are interchangeable between the various models.

Part no.	Tip width mm	Material	Color	Heat resistant temp. °C	Quantity
P-814S-1	0.4	PEEK	Black	160	2-per pair
P-815S-1	1.2				
P-816S-1	2.3(R-type)				
P-815R-1	1.2	PLA	White	80	
P-816R-1	2.3(R-type)				
P-814H-1	0.4	PEEK	Brown	315	
P-815H-1	1.2				

 P-814S-1
P-814H-1 Same size

 P-815S-1
P-815R-1
P-815H-1 Same size

 P-816S-1
P-816R-1 Same size


Replacement part P-815-0 SET SCREW



- Common for ESD tweezers / tweezers / heat-resistant tweezers

- Quantity: 50 sets
(50 screws, 50 nuts)



*1. PEEK (polyether ether ketone) is an engineering plastic that has particularly good mechanical properties and heat resistance.

*2. PLA (polylactic acid) is a chemically synthesized biodegradable plastic.

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Heavy-duty stainless type

Precision stainless type

Standard stainless type

Low-cost stainless type

ESD cushion grip

Assembly stainless type

Plastic tips

Ceramic

Titanium

Phosphor bronze

Bamboo

Vacuum pick-up tools

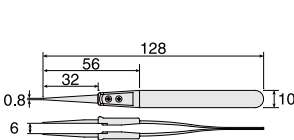
Spring hooks

Probes

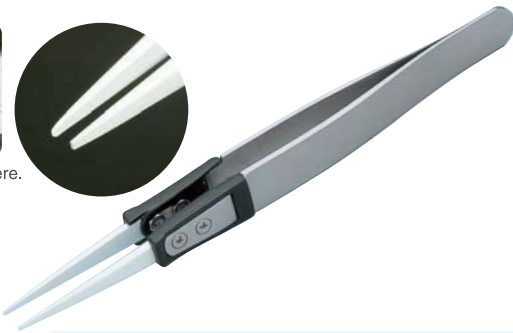
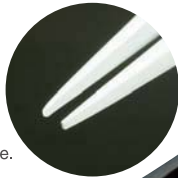
P-855-C CERAMIC TWEEZERS

- Chemical resistant, non-magnetic, insulated, wear and heat resistant (700°C)
* Impervious to nearly all acid, alkaline, and organic solvents except hydrofluoric acid.
The holder material is a chemical-resistant PPS *1.

- Tip width: 0.8mm
- Material: Zirconia ceramic *2 (tip) / Stainless (handle) PPS (holder) / Brass (set screw)
- Weight: 20 g
- Heat resistant temp.: 700°C (tweezers tip) / 265°C (holder)



Solder does not adhere.



COMPLETE NON-MAGNETIC

*Tip only

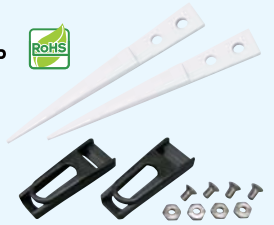
CHEMICAL RESISTANCE

HEAT RESISTANCE

150 g

Replacement part P-855C-1 TWEEZERS TIP

- For P-855-C
- 2-piece set (with holder / screws)

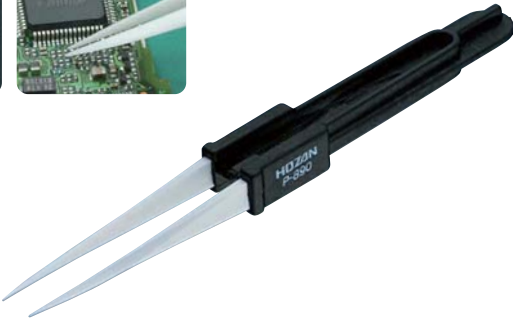
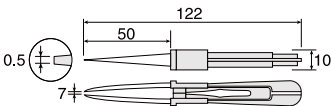


Chemical resistant (acid & alkaline)

P-890 CERAMIC TWEEZERS

- Chemical resistant, non-magnetic, insulated, wear and heat resistant (700°C)
* Impervious to nearly all acid, alkaline, and organic solvents except hydrofluoric acid.

- Tip width: 0.5mm
- Material: Zirconia ceramic (tip) / polyacetal *3 (handle)
- Weight: 8 g
- Heat resistant temp. (tweezers tip): 700°C



COMPLETE NON-MAGNETIC

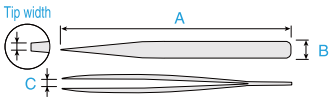
CHEMICAL RESISTANCE

HEAT RESISTANCE

P-880-T / 894-T TITANIUM TWEEZERS



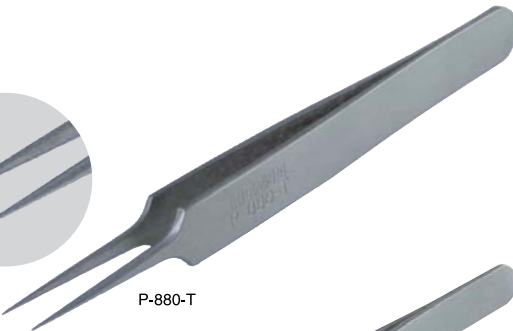
Part no.	A	B	C	Tip width	Material	Weight g
	mm					
P-880-T	110	10	7	0.25	Titanium	9
P-894-T	125	9.5	8			13



P-880-T



P-894-T



COMPLETE NON-MAGNETIC

CORROSION RESISTANCE

CHEMICAL RESISTANCE

100 g

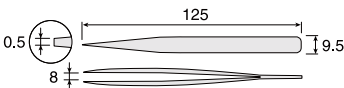
P-880-T

150 g

P-894-T

P-893 PHOSPHOR-BRONZE TWEEZERS

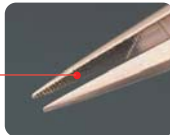
- Antibacterial
- Material: Phosphor bronze
- Weight: 25 g



COMPLETE NON-MAGNETIC

150 g

Has serrations for a sure grasp on held objects



*1. PPS (polyphenylene sulfide) is an engineering plastic with particularly good chemical resistance.

*2. Zirconia ceramic is the generic name for ceramics.

*3. Polyacetal is a plastic with superior mechanical strength and fatigue resistance.

P-860 BAMBOO TWEEZERS

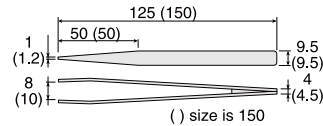
P-860-125
P-860-150

- Material: Bamboo
- Weight: P-860-125 4 g
P-860-150 5 g
- Accessories: Sandpaper



No short even if a battery is grasped.

COMPLETE
NON-
MAGNETIC



Can be sanded with sandpaper.

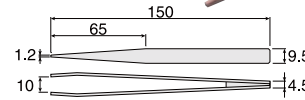
**P-863-150 ESD BAMBOO TWEEZERS**

- ESD condition is maintained even if the tip is sanded with sandpaper.

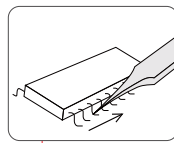


COMPLETE
NON-
MAGNETIC

- Material: Bamboo
- Weight: 5 g
- ESD standard: Ground resistance
 $R_g < 1 \times 10^{12} \Omega$
- Accessories: Sandpaper

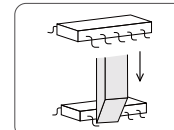
**P-806 BAMBOO PROBE**

- Material: Bamboo
- Weight: 5 g
- Quantity: 2 pieces
- Accessories: Sandpaper

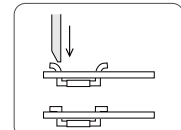


FLAT IC solder check

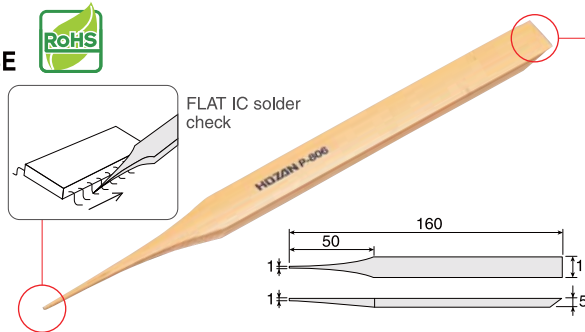
The scraper is ideal for removing solder balls.



Lead correction



Presses the lead of insertion-mounted components

**P-831 ESD VACUUM PICK-UP TOOL**

- Material: Silicone rubber (cup) / ABS (body)
- Heat resistant temp. (cup): 220°C
- Weight: 15 g
- ESD standard: Ground resistance
 $R_g < 1 \times 10^{12} \Omega$
- Accessories: 3 cup types (S,M,L), and nozzles (straight, bent).
- * Can be stored in the tail.



Releases after being pressed



Nozzles and pads can be stored in the tail.



Lens pick-up



IC pick-up

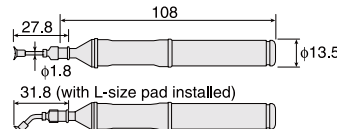
■ Replacement parts
P-832-S / M / L CUP

- For P-831
- Quantity: 3 pieces
- Heat resistant temp.: 220°C



Part no.	Size	Pad dia. mmφ	Lift up g
P-832-S	S	3.5	4
P-832-M	M	6.5	50
P-832-L	L	9.5	130

Accessory

**P-830 VACUUM PICK-UP TOOL**

- Material: Natural rubber (cup) / polypropylene (body)
- Heat resistant temp. (pad): 70°C
- Weight: 5 g
- Accessories: 3 pad types (S, M, L).



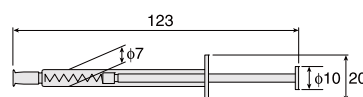
Picking up a coin battery

■ Replacement part
P-830-1 CUP SET

- For P-830
- Quantity: 3 types (1 each)
- Heat resistant temp.: 70°C



Size	Pad dia. mmφ	Lift up g
S	2	2
M	4	20
L	7	70



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Heavy-duty stainless type

Precision stainless type

Standard stainless type

Low-cost stainless type

ESD cushion grip

Assembly stainless type

Plastic tips

Ceramic

Titanium

Phosphor bronze

Bamboo

Vacuum pick-up tools

Spring hooks

Probes

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Heavy-duty stainless type

Precision stainless type

Standard stainless type

Low-cost stainless type

ESD cushion grip

Assembly stainless type

Plastic tips

Ceramic

Titanium

Phosphor bronze

Bamboo

Vacuum pick-up tools

Spring hooks

Probes

P-843 FORCEPS



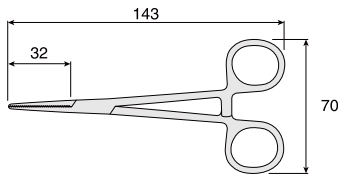
- Material: Stainless
- Weight: 30 g



With serrations



With lock (3-step)



Z-364 MAGNETIC PICKUP TOOL

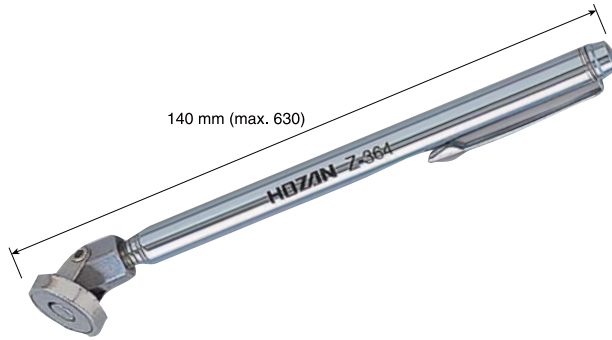
- Magnet power: 120mT (1200 Gauss)
- Magnet dia.: 19 mm
- Weight: 45 g



For access to narrow places



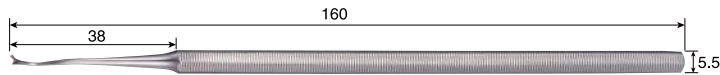
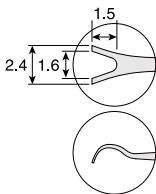
Holds even heavy tools



P-812 SPRING HOOK



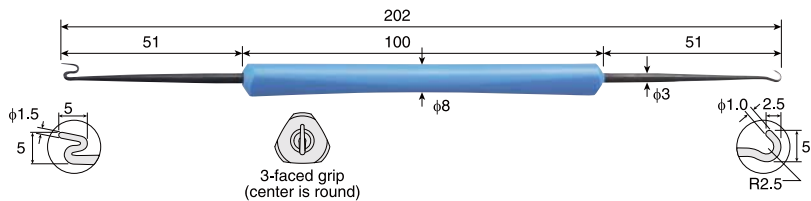
- Handle diameter: 5.5 mm across flats
- Material: Stainless
- Weight: 24 g



P-801 SPRING HOOK



- Weight: 15 g

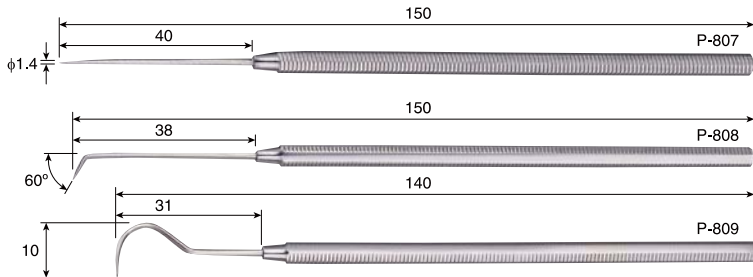


P-807 / 808 / 809 STAINLESS PROBES



- Heat-treated tip resists deformation.

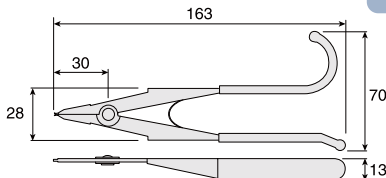
- Material: Stainless
- Weight: 14 g



P-790 RING PLIERS



- Usage range: 3/4 mmf
 - Weight: 55 g
- *This tool is for grip rings only. Do not use for other types of rings such as C-rings or out-of-spec rings.





Screwdrivers



Replaceable blade screwdrivers

Replaceable blade & stronger blades are environment friendly.

The screwdriver blade is now 10% stronger than previous blades. This increased durability minimizes breakage and wear, promising longer use. When the tip becomes broken or worn, only the blade need be replaced, thereby reducing waste products (environment friendly).

Replaceable blade & reduced trash means lower costs.

When the tip becomes worn or broken, only the blade need be replaced. The grip remains in use, thereby reducing costs. This also greatly reduces the amount of trash (1/17 of previous amounts), resulting in waste disposal savings.

An ergonomic design.

A fusion of a cylindrical shape and a ball grip. This soft elastomer grip is easy on the hand. Precision types are available with a rotating end cap, and with a hard grip to directly convey the tightness.

ESD safe is easy on parts

A grip that prevents electrostatic charges from building up when tightening screws, allowing the task to be performed safely.



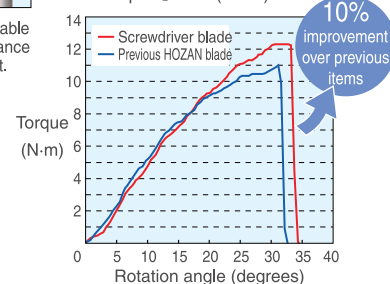
*A wrist-strap should also be worn.



The blade is made from a highly durable new material, and boasts a performance equivalent to a power screwdriver bit.

Tip strength test

*Torque rotation angles up to the tip breaking point are shown below.
Test sample: ⊕ No.2 (blade)



Replaceable blade screwdrivers



Excluding J-150

- ESD standard: Ground resistance $R_g < 1 \times 10^{12} \Omega$
- For product details, see P.39.



D-300 / 302 / 303 / 309 PHILLIPS SCREWDRIVERS

Part no.	Tip size mm	OAL mm	Blade length mm	Blade diameter mm ϕ	Handle diameter mm ϕ	Weight g	Replacement blade part no.
D-300-00	⊕ No.00	120	23	2.0	14	23	J-300-00
D-300-0	⊕ No.0			2.5			J-300-0
D-302-1	⊕ No.1	177	75	4.0	28	62	J-302-1
D-303-2	⊕ No.2	207	100	5.3	32	79	J-303-2
D-309-2		407	300	6		126	J-309-2

D-400 / 402 / 403 SLOTTED SCREWDRIVERS

Part no.	Tip size mm	OAL mm	Blade length mm	Blade diameter mm ϕ	Handle diameter mm ϕ	Weight g	Replacement blade part no.
D-400-18	⊖ 1.8×0.25	120	23	1.8	14	23	J-400-18
D-400-25	⊖ 2.5×0.35			2.5			J-400-25
D-402-4	⊖ 4.0×0.45	177	75	4.0	28	62	J-402-4
D-403-53	⊖ 5.3×0.7	207	100	5.3	32	79	J-403-53

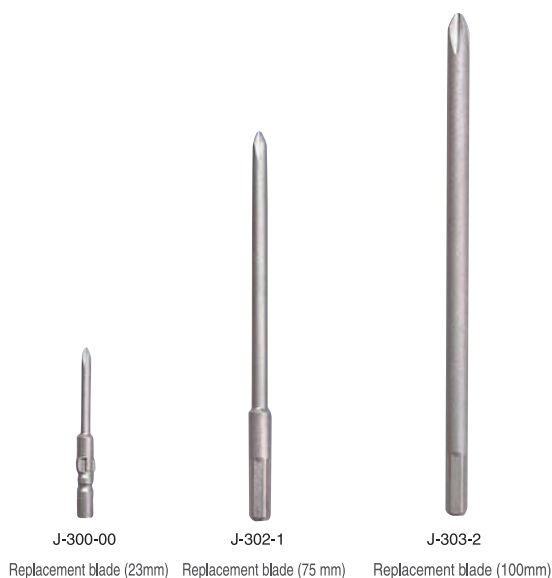
D-500 / 502 / 503 TORX SCREWDRIVERS

Part no.	Tip size mm	OAL mm	Blade length mm	Blade diameter mm ϕ	Handle diameter mm ϕ	Weight g	Replacement blade part no.
D-500-5	★ T5	120	23	2.0	14	23	J-500-5
D-500-6	★ T6			2.5			J-500-6
D-502-8	★ T8	177	75	3.0	28	59	J-502-8
D-502-10	★ T10			4		62	J-502-10
D-503-15	★ T15	207	100	5	32	72	J-503-15
D-503-20	★ T20					77	J-503-20
D-503-25	★ T25						J-503-25

*D-500-5 / D-500-6 do not support tamper-proof.

D-600 / 602 / 603 HEX SCREWDRIVERS

Part no.	Tip size mm	OAL mm	Blade length mm	Blade diameter mm ϕ	Handle diameter mm ϕ	Weight g	Replacement blade part no.
D-600-089	0.89	120	23	2	14	23	J-600-089
D-600-127	1.27						J-600-127
D-600-15	1.5	177	75	5	28	65	J-600-15
D-602-2	2.0					78	J-602-2
D-602-25	2.5						J-602-25
D-603-3	3.0	207	100		32	80	J-603-3
D-603-4	4.0						J-603-4



Replacement blade (23mm) Replacement blade (75 mm) Replacement blade (100mm)



Replacement blades can be custom-ordered.

Custom orders are possible.
Consult with a Hozan representative for details.



Optional item

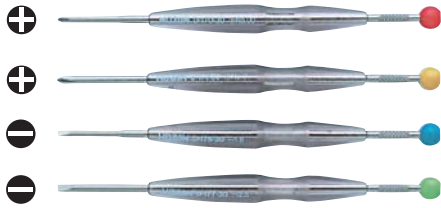
J-150 BLADE CHANGING WRENCH

- Exclusively for this series of screwdrivers (all models)
- External dimensions: 60 (W) × 48 (H) mm
- Opening width: 9 × 12 mm
- Sheet thickness: 1.5mm
- Weight: 25 g



D-27 PRECISION SCREWDRIVER SET

- Pouch dimensions: 60 (W) × 150 (H) × 14(D) mm
- Weight: 50 g



Tip size mm	OAL mm	Blade length mm	Blade diameter mm φ	Handle diameter mm φ
⊕ No.00	130	30	2.0 / 2.5	10
⊖ 1.8 × 0.25			1.8 / 2.5	
⊕ No.0			2.5	
⊖ 2.5 × 0.35				



Tighten by turning the center of handle.



Speedy rotation for more efficient work.



Features a rotating, sphere-shaped cap for supporting the screwdriver.

D-20 PRECISION SCREWDRIVER SET

- Pouch dimensions: 100 (W) × 117 (H) × 10(D) mm
- Weight: 90 g



Tip size mm	OAL mm	Blade diameter mm φ	Handle diameter mm φ
⊕ No.0	102	2.3	5.5
⊕ No.1	110	3.0	6.0
⊖ 1.2 × 0.32	83	1.2	3.9
⊖ 1.8 × 0.32	95	1.8	4.5
⊖ 2.3 × 0.35	102	2.3	5.5
⊖ 3.0 × 0.45	110	3.0	6.0

■ Related products**HC-56 DESKTOP DEMAGNETIZER**

- Instantly demagnetizes screwdrivers and tweezers, etc., which have become magnetized. Can also magnetize.
- Simply touch the touch-switch with the body or tool for several seconds.
- After being turned ON, it automatically switches OFF in approx. 3 seconds.
- Safe design keeps the area around this product free of magnetization.

- Max. flux density: 65 mT (50 Hz) / 55 mT (60 Hz)
- Temperature fuse: Return type
- Rated voltage / Frequency: 100 VAC, 50 / 60 Hz
- Rated current: 0.6 A (50 Hz) / 0.55 A (60 Hz)

*For details, see page 170



Demagnetizing a screwdriver.

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Replaceable blade screwdrivers

Precision screwdrivers

Ceramic screwdrivers

Alignment tools

Various screwdrivers

Wrenches

Spanners

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Replaceable blade screwdrivers

Precision screwdrivers

Ceramic screwdrivers

Alignment tools

Various screwdrivers

Wrenches

Spanners

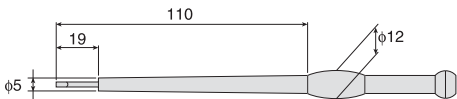
D-17 CERAMIC ALIGNMENT TOOL SET

● Zirconia ceramic *1 is used.

■ Set contents: D-271 / D-272 / D-275

■ Pouch dimensions: 50 (W) × 200 (H) × 17(D) mm

■ Weight: 55 g



The cap rotates freely make fine-adjustments easy.

Ceramic alignment tool

Part no.	Tip size mm	OAL mm	Blade diameter mm φ	Weight g
D-271	⊖ 1.3 × 0.4	175	1.5	10
D-272	⊖ 1.8 × 0.4		1.8	
D-275	⊕ No.0		3.0	11



D-280 / 281 CERAMIC ALIGNMENT TOOL

● Zirconia ceramic is used.

■ Set contents: D-280 ⊖0.9 × ⊖1.8 mm blade thickness 0.4 mm (D-282)
⊖1.3 × ⊖2.6 mm blade thickness 0.4 mm (D-283)

D-281 ⊕ No.0 (D-284) Phillips type, blade width 1.7 mm (D-285)

■ OAL: 145 mm (with ceramic tip mounted)

■ Weight: 14 g



Example when used together with a transparent cap

Even recessed areas can be reached by combining with the handle.

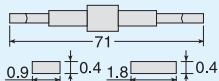


■ Replacement parts

D-282 CERAMIC TIP



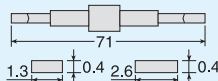
■ Weight: 1.6 g
■ For D-280



D-283 CERAMIC TIP



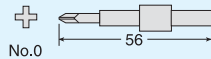
■ Weight: 2 g
■ For D-280



D-284 CERAMIC TIP



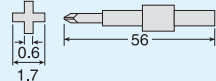
■ Weight: 1.5 g
■ For D-281



D-285 CERAMIC TIP



■ Weight: 1.6 g
■ For D-281



*1. Zirconia ceramic is a fine ceramic with particularly good strength and wear resistance properties. It is used primarily in knives & blades.

D-16 ALIGNMENT TOOL KIT



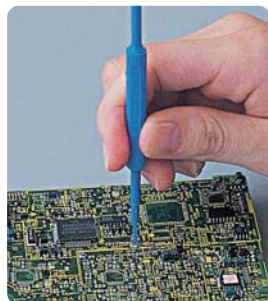
- These alignment tools are used to adjust ferrite cores and semi-fixed volumes.

Material: Polyacetal

Set contents: D-16-1B / D-16-2B / D-16-3B / D-16-4B / D-16-5

Color: D-16-1B to 4B Blue / D-16-5 White

Weight: 45 g



ALIGNMENT TOOL

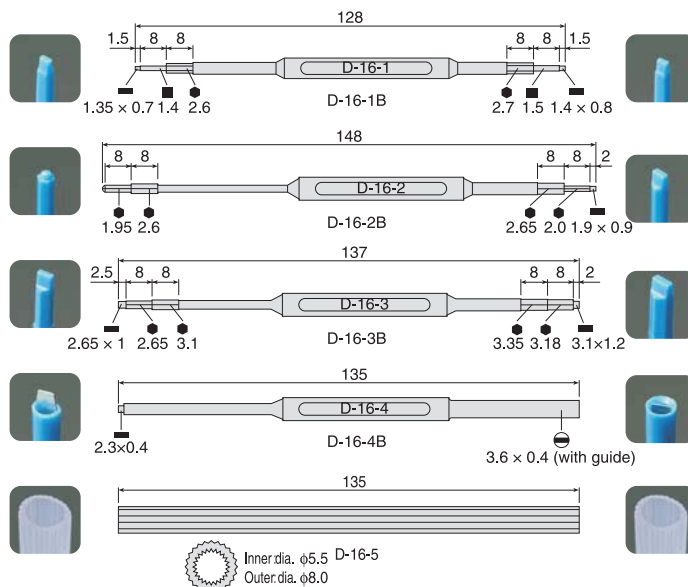


Part no.	Tip size mm	Weight g
D-16-1B	1.35 × 0.7 / 1.4 × 0.8 1.4 / 1.5 ● 2.6 / 2.7	3
D-16-2B	1.9 × 0.9 1.95 / 2.0 / 2.6 / 2.65	
D-16-3B	2.65 × 1 / 3.1 × 1.2 2.65 / 3.1 / 3.18 / 3.35	
D-16-4B	2.3 × 0.4 3.6 × 0.4 (with guide)	4
D-16-5	Inner φ 5.5 Outer dia.: φ 8.0	3

*Unnecessary sizes can be cut, and then used.



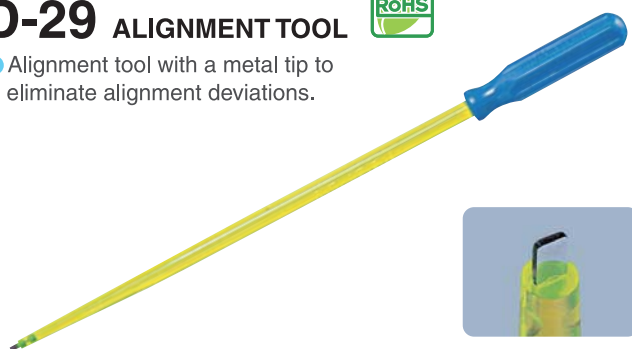
Excluding D-16-4B



D-29 ALIGNMENT TOOL



- Alignment tool with a metal tip to eliminate alignment deviations.



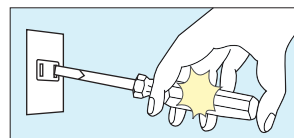
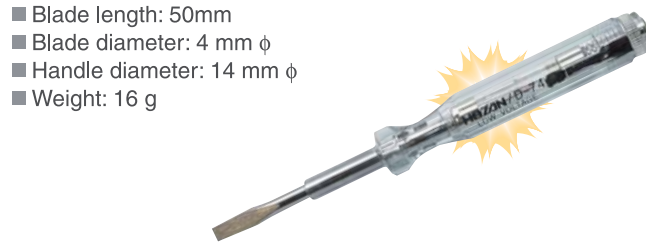
Part no.	OAL mm	Blade length mm	Blade diameter mm φ	Handle diameter mm φ	Blade width mm	Blade thickness mm	Weight g
D-29-100	156	100	6.0	13	2.0	0.5	7
D-29-150	206	150					9

Material: Stainless (tip), cellulose acetate (body)



D-74-L VOLTAGE CHECKER (low voltage)

- Voltage range: 100 to 220 VAC / 100 to 350 VDC
- Tip size: $\ominus$ 4.0 × 0.6 mm
- OAL: 128 mm
- Blade length: 50 mm
- Blade diameter: 4 mm φ
- Handle diameter: 14 mm φ
- Weight: 16 g



Warning: Do not use beyond the prescribed voltage.

D-12 VALVE CORE SCREWDRIVER

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

Handle diameter: 13 mm φ

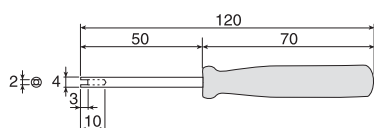
Weight: 20 g



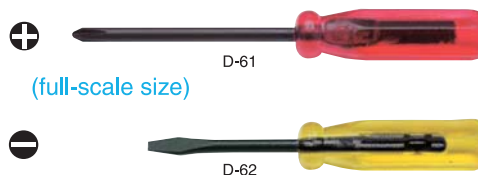
Device valve for piping



USA type tamper-proof



D-61 / 62 MICRO SCREWDRIVERS



Part No.	Tip size mm	OAL mm	Blade length mm	Blade diameter mm φ	Handle diameter mm φ	Weight g
D-61	$\oplus$ No.00	55	30	2.0	7	2
D-62	$\ominus$ 1.5 × 0.25	45	20			1.6

Warning: A screwdriver is designed to turn screws, and should not be used for any other purpose. Do not use where electrical currents exist.

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Replaceable blade screwdrivers

Precision screwdrivers

Ceramic screwdrivers

Alignment tools

Various screwdrivers

Wrenches

Spanners

D-583 / 587

SLOTTED SCREWDRIVERS / PHILLIPS SCREWDRIVERS



Featuring an ergonomic design that easy on the hand.



D-587-100



D-587-300



D-583-100



D-583-300

Part no.	Tip size mm	OAL mm	Blade length mm	Blade diameter mm φ	Handle diameter mm φ	Weight g
D-583-100	⊖6.0×0.8	221	100	6.3	35	125
D-583-300		421	300			190
D-587-100	⊕No.2	221	100	6.3	35	125
D-587-300		421	300			190

D-331 / 332

ELECTRICIAN'S SLOTTED SCREWDRIVERS /
ELECTRICIAN'S PHILLIPS SCREWDRIVERS



D-332-100



D-332-150



D-331-100



D-331-150

Part no.	Tip size mm	OAL mm	Blade length mm	Blade diameter mm φ	Handle diameter mm φ	Weight g
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	6.4	40	120
D-332-150		250	150			130

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.
- Accessory bits: ⊕No.2 / ⊕No.3 / ⊕No.4 / ⊖10 mm (total length: 36 mm)
⊕No.2 / ⊕No.3 (total length: 80 mm)
- With case
- Bit width-across-flats: 8 mm
- Handle diameter: 37.5 mm φ
- Weight: 880 g



D-2 / 4 / 6 / 8 REVERSIBLE SCREWDRIVERS



Part no.	Tip size mm	OAL mm	Blade length mm	Blade diameter mm ϕ	Handle diameter mm ϕ	Weight g
D-2	$\oplus$ No.00 / $\ominus$ 2.6 $\times$ 0.35	200	74+74	3.0	15	26
D-4	$\oplus$ No.1 / $\ominus$ 4.5 $\times$ 0.7			5.0	19	50
D-6	$\oplus$ No.1 / $\oplus$ No.2			5.0 / 6.0	25	77
D-8	$\oplus$ No.2 / $\ominus$ 5.5 $\times$ 0.8			6.0		80



● The "total length" includes the handle.



D-24 REVERSIBLE SCREWDRIVER SET



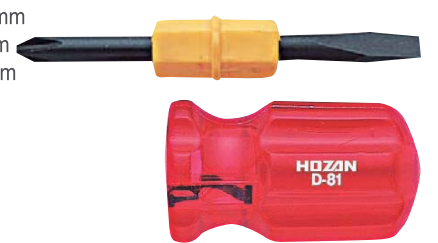
- Set contents: D-2 / D-4 / D-8
- Weight: 180 g



D-81 REVERSIBLE STUBBY SCREWDRIVER



- Tip size: $\oplus$ No.2 / $\ominus$ 6.0 $\times$ 0.8 mm
- OAL: 98 mm
- Blade length: 32 + 32 mm
- Blade diameter: 6.0 mm
- Handle diameter: 29 mm
- Weight: 48 g



D-76 SCREWDRIVER SET

- Set contents: $\oplus$ No.1 / $\oplus$ No.2 (2-pieces provided) / $\ominus$ 3 mm / $\ominus$ 5 mm / $\ominus$ 5.5 mm / $\oplus$ 5.5 $\times$ 7 mm / $\oplus$ 8 $\times$ 10 mm / $\oplus$ 12 $\times$ 14 mm / drill / with electroscope
- Voltage range: 100 to 250 VAC, 100 to 350 VDC (for low voltage)
- Pouch dimensions: 150 (W) $\times$ 100 (H) $\times$ 30 (D) mm
- Weight: 250 g

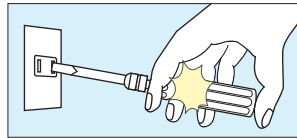


Wearing on the waist.



Screw pocket

⚠ Warning ● Do not use beyond the prescribed voltage.



D-65-P STUBBY SCREWDRIVER



- Tip size: $\oplus$ No.2
- OAL: 83 mm
- Blade length: 35 mm
- Blade diameter: 6.0 mm ϕ
- Handle diameter: 30 mm ϕ
- Weight: 41 g



D-63-P STUBBY SCREWDRIVER



- Tip size: $\ominus$ 6.0 $\times$ 0.8 mm
- OAL: 83 mm
- Blade length: 35 mm
- Blade diameter: 6.0 mm ϕ
- Handle diameter: 30 mm ϕ
- Weight: 42 g



D-37 SCREWDRIVER SET

- Set contents: $\oplus$ No.1 / $\oplus$ No.2 / $\ominus$ 4 mm / $\ominus$ 6 mm / $\ominus$ 5.5 mm / drill / handle
- Weight: 350 g



With screw case

⚠ Warning ● A screwdriver is designed to turn screws, and should not be used for any other purpose. ● Do not use where electrical currents exist.

Technical inquiries can be made by E-mail to the following address: th@hozan.co.jp

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Replaceable blade screwdrivers

Precision screwdrivers

Ceramic screwdrivers

Alignment tools

Various screwdrivers

Wrenches

Spanners

Spanners

Spanners

Spanners

Spanners

Spanners

Spanners

- Cutters & Pliers
- Wire strippers
- Crimpers
- Tweezers

- Screwdrivers & Wrenches
- Metal working

- Parts boxes
- Tool cases
- Tool kits

- Soldering irons & Solder
- Parts & Solder removal equipment
- Measuring instruments
- Optical equipment
- Antistatic products
- Clean products
- Chemical products
- Maintenance & Safety products

- Replaceable blade screwdrivers
- Precision screwdrivers
- Ceramic screwdrivers
- Alignment tools
- Various screwdrivers

- Wrenches
- Spanners

D-130 to D-155 PHILLIPS SCREWDRIVERS



D-130-75

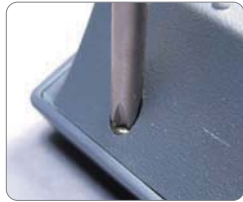


D-155-100



D-155-300

Part no.	Tip size	OAL mm	Blade length mm	Blade diameter mm φ	Handle diameter mm φ	Weight g
D-130-75	⊕No.00	136	75	3.0	14	14
D-140-100	⊕No.0	180	100	4.0	21	36
D-150-100	⊕No.1	195		5.0	26	61
D-155-100	⊕No.2	200	150	5.5	28	80
DISCON. D-155-150		251				88
D-155-300		400				117



Features a thinner blade than standard screwdrivers, making it ideal for reaching those recessed screws in consumer electronic products.



Compare the standard blade size shown at left, the D-155 shown at right.

D-230 to D-255 SLOTTED SCREWDRIVERS



The D-255-100 features a blade width of 5.5 mm for easy use in continuous mounting frame.

Part no.	Tip size mm	OAL mm	Blade length mm	Blade diameter mm φ	Handle diameter mm φ	Weight g
D-230-75	⊖2.5×0.35	136	75	3.0	14	14
D-230-100		161	100			15
D-240-100	⊖4.0×0.45	180		4.0	21	35
D-250-100	⊖5.0×0.7	195		5.0	26	61
D-255-100	⊖5.5×0.8	200		5.5	28	79



D-230-75



D-240-100



D-255-100

Marks & Screws



Mark with magnet

A screwdriver with a magnetized tip holds a screw securely, for a safe and correct works.

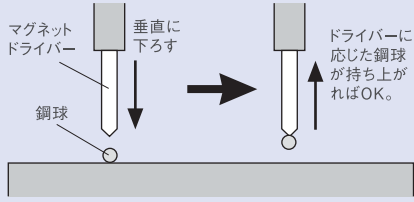
Guideline for screwdriver and suitable screws

Screw nominal size	M2	(M2.2)	*M2.3	M2.5	*M2.6	M3	(M3.5)	M4	(M4.5)	M5	M6	M8
Pitch	0.4	0.45	0.4	0.45	0.45	0.5	0.6	0.7	0.75	0.8	1	1.25
Cross-recess No.	No.1					No.2					No.3	
⊖ Thread groove width (mm)	Standard dimensions	0.6		0.8		1		1.2		1.6		
	Tolerance	+0.15 −0							+0.2 −0			

*Asterisks denote screws which are outside the ISO scope.

マグネットドライバーのJIS規格

マグネットドライバーにもJIS規格が存在します。ドライバーの磁力は、ドライバーを垂直にして下表（JIS B1501）に示すボールベアリング用鋼球（磁力が無いこと）が持ち上がらなければならないという規定があります。

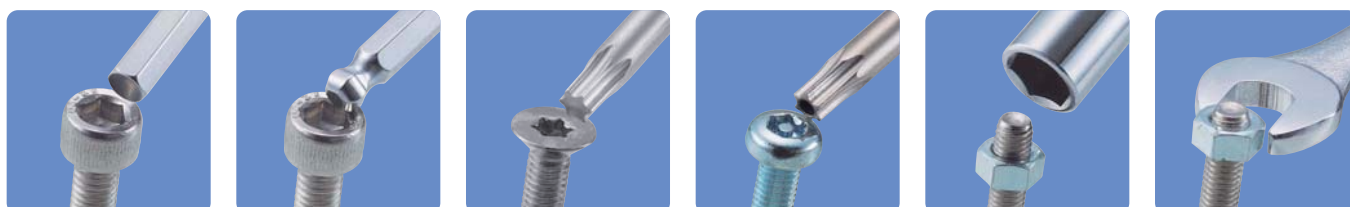


呼び(－)	－	4.5×50	5.5×75	6×100	7×125	8×150	9×200	10×250	10×300
呼び(＋)	(0番)	1番	2番	3番	4番				
鋼球の呼び	3／16	1／4	11／32	13／32	15／32				

必要に応じ、通常のドライバーを意図的にマグネットドライバーにする手段もあります。⇒消磁器

※詳しくは170ページへ

Wrenches |



Hex wrench



Ballpoint L-wrench



Torx wrench



Torx wrench
(tamper-proof ^{*1})



Socket wrench



Spanners

W-27 BOX WRENCH SET



● The box thru-hole allows even long screws to be tightened.

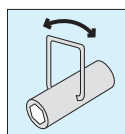
- Width-across-flats: 8 × 9 / 10 × 11 / 12 × 14 mm
- Quantity: 3-piece set
- Weight: 220 g



Box wrench



Part no.	Width-across-flats size mm	OAL mm	Weight g
W-27-0809	8×9	50	58
W-27-1011	10×11		63
W-27-1214	12×14		89



Using the handle in a T-shaped posture enables more forceful tightening.

^{*1}. With regard to screws, the term "tamper-proof" refers to the torque screw specification which has a projection in the center of the screw hole to prevent general-type torque screwdrivers from being inserted. (torque screws)

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Replaceable blade screwdrivers

Precision screwdrivers

Ceramic screwdrivers

Alignment tools

Various screwdrivers

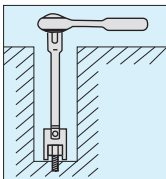
Wrenches

Spanners

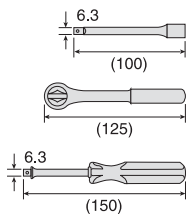
W-510 SOCKET WRENCH SET



- Socket size: 6.3mm square (1/4" sq)
- Pouch dimensions: 160 × 75 × 35mm
- Weight: 430 g



Even deeply recessed areas can be reached by using the extension bar with the ratchet handle.



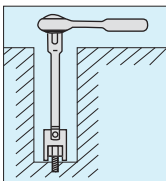
Stowed in a convenient, portable case

Set contents

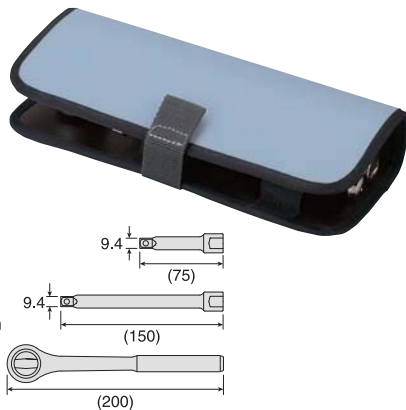
Ratchet handle	6.3 mm square
Screwdriver type handle	6.3 mm square
Extension bar	100 mm
Socket (6.3mm square)	4 mm
ditto	4.5 mm
ditto	5 mm
ditto	5.5 mm
ditto	6 mm
ditto	7 mm
ditto	8 mm
ditto	9 mm
ditto	10 mm
ditto	12 mm

W-511 SOCKET WRENCH SET

- Socket size: 9.5mm square (3/8" sq)
- Pouch dimensions: 230 × 90 × 45mm
- Weight: 880 g



Even deeply recessed areas can be reached by using the extension bar with the ratchet handle.



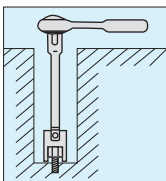
Stowed in a convenient, portable case

Set contents

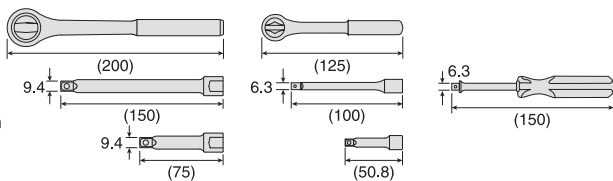
Ratchet handle	9.5 mm square
Extension bar	75 mm
ditto	150 mm
Socket (9.5 mm)	10 mm
ditto	12 mm
ditto	13 mm
ditto	14 mm
ditto	17 mm
ditto	19 mm

W-512 SOCKET WRENCH SET

- Socket size: 6.3 mm square (1/4" sq), 9.5 mm square (3/8" sq)
- Pouch dimensions: 260 × 150 × 35mm
- Weight: 1.4 kg



Even deeply recessed areas can be reached by using the extension bar with the ratchet handle.



Stowed in a convenient, portable case

Set contents

Socket size 6.3mm

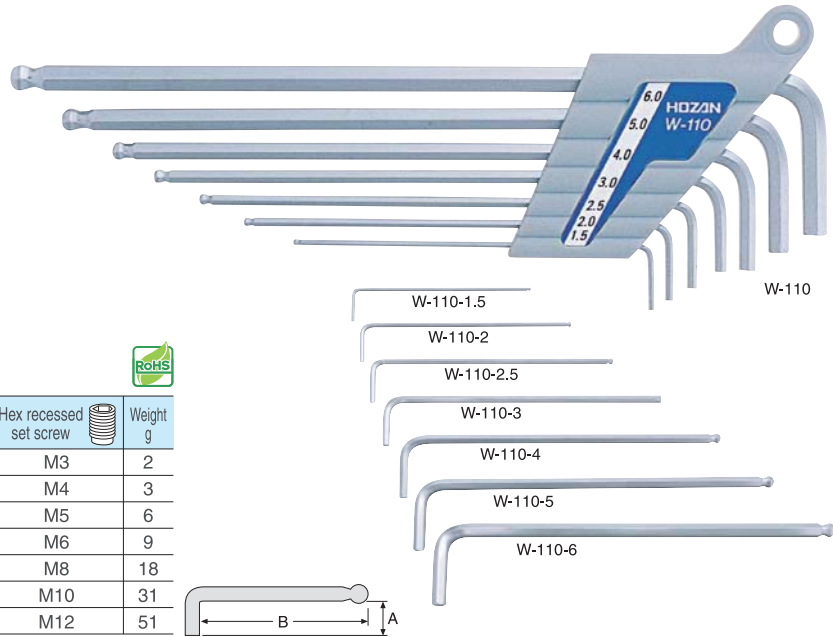
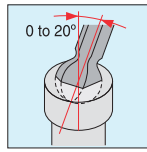
Ratchet handle	6.3 mm square
Screwdriver type handle	6.3 mm square
Extension bar	50 mm
ditto	100 mm
Socket (6.3mm square)	4 mm
ditto	4.5 mm
ditto	5 mm
ditto	5.5 mm
ditto	6 mm
ditto	7 mm
ditto	8 mm
ditto	9 mm
ditto	10 mm
Hex bit	3 mm
ditto	4 mm
ditto	5 mm
ditto	6 mm
ditto	8 mm

Socket size 9.5 mm

Ratchet handle	9.5 mm square
Extension bar	75 mm
ditto	150 mm
Socket (9.5mm square)	10 mm
ditto	12 mm
ditto	13 mm
ditto	14 mm
ditto	17 mm
ditto	19 mm

W-110 BALLPOINT L-WRENCH SET

■ Weight: 130 g

**BALLPOINT L-WRENCH**

Part no.	Width-across-flats size mm	A mm	B mm	Hex recessed head bolt	Hex recessed set screw	Weight g
W-110-1.5	1.5	14	80	M1.6 / M2	M3	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	18
W-110-5	5.0	28	160	M6	M10	31
W-110-6	6.0	32	180	M8	M12	51

* Use care to avoid applying excessive torque.

W-98 HEX WRENCH SET

■ Quantity: 10 pieces

■ Total length (when closed): 85 mm

■ Weight: 115 g



When folded

When torque is required, use with the wrench open at a 90° angle.
* Use care to avoid applying excessive torque.

Width-across-flats size mm	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")
Hex recessed head bolt	M1.4	M1.6 / 2	No.1	M2.5	No.4 / 5	M3	M4	—	M5	1/4"
Hex recessed set screw	M2.5	M3	No.5 / 6	M4	No.10	M5	M6	1/4"	M8	3/8"

W-91 / 96 / 99 HEX WRENCH SET

■ Quantity: W-91 7 pieces / W-96 & W-99 9 pieces

■ Weight: W-91 23 g / W-96 240 g / W-99 32 g



W-91



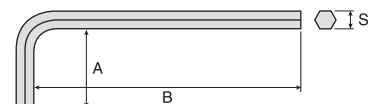
W-96



W-99

Hex wrench dimensions (W-91 / 96 / 99)

Width-across-flats size	S	0.71	0.89	1.27	1.5	1.6	2.0	2.4	2.5	3.0	3.2	4.0	5.0	6.0	8.0	10.0
Bend dimensions	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

**Hex wrench set contents**

Part no.	Width-across-flats size mm	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	—	—	—	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	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	
W-91				•	•	•	•	•				•					
W-96					•		•		•	•		•		•	•	•	•
W-99		•	•	•	•	•	•		•	•		•					

* Use care to avoid applying excessive torque.

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Replaceable blade screwdrivers

Precision screwdrivers

Ceramic screwdrivers

Alignment tools

Various screwdrivers

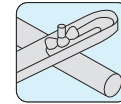
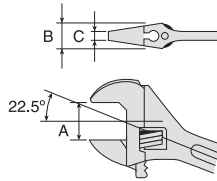
Wrenches

Spanners

W-210 ADJUSTABLE WRENCHES



Part No.	Max. torque (N-m)	Compatible Bolts & nuts	Max. opening width Amm	Head thickness Bmm Cmm	Weight g
W-210-150	142	M12 or smaller	20	10.0 6.0	115
W-210-200	274	M16 or smaller	24	13.0 7.5	235
W-210-250	460	M18 or smaller	29	15.5 9.8	410



Thumbscrew turning function (W-210-150)

W-210-150

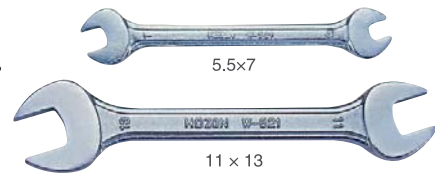
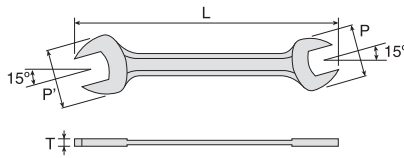
W-521 OPEN END WRENCH SET

- Sizes: 5.5 × 7 / 8 × 10 / 11 × 13 / 12 × 14 / 17 × 19 / 22 × 24 mm
- Set contents: 6-piece set
- Weight: 580 g



With holder

Size mm	Weight g	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



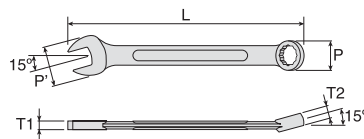
11 × 13

W-520 COMBINATION WRENCH SET



- Sizes: 5.5 / 7 / 8 / 10 / 12 mm
- Set contents: 5-piece set
- Weight: 165 g

Size mm	Weight g	P	P'	T1	T2	L
5.5	14	10.5	15.5	3.0	5.5	85
7	22	12.5	18	3.5	6.5	100
8	24	14	20	4.0	6.7	100
10	32	16	23	4.5	7.5	120
12	60	19.5	27	5.5	8.0	155

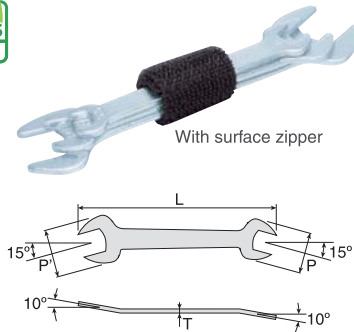


W-76 FLAT WRENCH SET



- Sizes: 5.5 × 7 / 8 × 10 / 12 × 14 mm
- Set contents: 3-piece set
- Weight: 60 g

Size mm	Weight g	P	P'	T	L
5.5×7	12	12.5	15.5		85
8×10	18	17.5	21.5	2.3	100
12×14	26	25	29		120



With surface zipper

Screw and size conversion table

Torx (hex lobular) screw correspondence table

Nominal size	T5	T6	T8	T10	T15	T20	T25	T27	T30
mm	1.4	1.7	2.3	2.7	3.3	3.8	4.4	5	5.5
Recessed head cap bolt	M2	M2	M2.5	M3	M3.5	M4/4.5	M5	M4.5 / 5 (Recessed head) cap bolt only	M6

Spanner and screw correspondence table

Nominal size (mm)	4	4.5	4.5	5.5	6	7	8	10	11	12	13	14	17	19	22	24
Hex bolt	M2	M2.2	M2.3	M2.5	M3	M3.2	M4	M4.5	M5	M6	M7	M8	M10	M12	M14	M16

Metal working

A generous lineup for a variety of materials and application needs

*For details, see the product pages.

Dedicated parts

Standard parts

Cutting

K-280 MILLING MACHINE

▶ For details, see page 53



Cutting



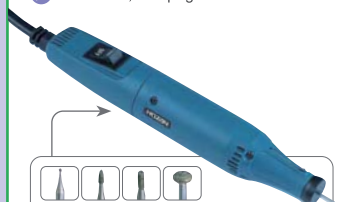
K-280-3 / 4 / 5 / 6 MILLING CUTTER

▶ For details, see page 53



K-108 HAND GRINDER

▶ For details, see page 53



K-107-1 / 2 / 3 / 4 CUTTER TIPS

▶ For details, see page 53



Drilling



K-26 VISE

▶ For details, see page 55



Drilling work



K-16 DESK DRILL PRESS

▶ For details, see page 54

K-53 V-BLOCK

▶ For details, see page 55



K-5 / 493 / 494 / 495 DRILL BIT SET



K-495 K-5 K-494 K-493

▶ For details, see page 55

K-21 DESK DRILL PRESS

▶ For details, see page 54



K-50 XY-TABLE

▶ For details, see page 55



K-24 VISE

▶ For details, see page 55

Cutting

K-210 CIRCULAR SAW

▶ For details, see page 56



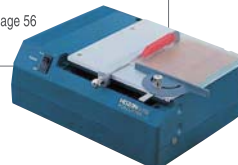
K-210-1 / 2 / 3 DISK CUTTERS

▶ For details, see page 56



K-110-1 / 2 REPLACEMENT BLADES

▶ For details, see page 56



Compact PCB cutter

K-110 CIRCULAR SAW

▶ For details, see page 56

Compact band saws

K-100 BAND SAW

▶ For details, see page 57



K-100-1 / 2 / 3 / 4 DISK CUTTERS

▶ For details, see page 57

K-280 MILLING MACHINE

100 V

Compact milling & Drilling machine

- Accessories: Drill chuck, clamp (blades are sold separately)

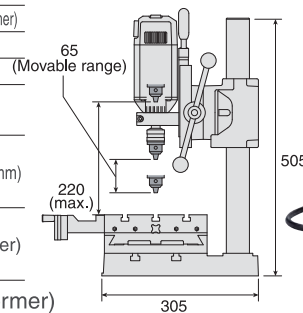
Rotation speed	1200 to 6000 rpm
Spindle axial play	0.05mm (not including chuck)
Chucking dia.	For end-milling dedicated 6 mmφ *1 For drilling 1.0 mm to 10.0 mmφ
Rated voltage	39 VAC (with accessory 100 VAC dedicated transformer)
Power consumption	200 W
Rated time	30 minutes
External dimensions	350 (W) × 505 (H) × 420 (D) mm (base) 200 (W) × 200 (D) mm
Sliding	Base right / left 140 mm Front / back 110 mm (front 70 mm, back 40 mm) Drill stand up / down 65 mm
Weight	5.9 kg (drill stand) + 3.7 kg (table) + 1.9 kg (motor) + 2.5 kg (transformer) Total weight: approx. 14 kg.



Drilling by attaching the accessory drill chuck.
* The drill bit is sold separately.



Milling by attaching a milling cutter
* The milling cutter is sold separately.



- Power cable: 1.7m (from plug to transformer)

*1 Blades with diameters exceeding 6 mm cannot be used.

Note Continuous operation which exceeds 30 min. can cause a motor failure, etc.
Even on & off at 1 to 2 minute intervals is considered continuous.

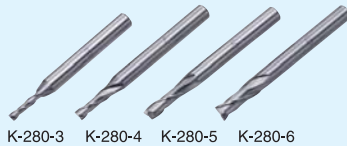
■ Optional items

K-280-3 / 4 / 5 / 6 MILLING CUTTERS

Part No.	Size mm	Blade length mm	OAL mm	Blade diameter mmφ
K-280-3	3	10	55	6
K-280-4	4	12	60	
K-280-5	5	15		
K-280-6	6			

- Material: Cobalt

- Blade type: Square (double blade)



K-280-3 K-280-4 K-280-5 K-280-6

K-53 V-BLOCK

*For details, see page 55

K-26 VISE

*For details, see page 55

K-5 / 493 / 494 / 495 DRILL BIT SET

*For details, see page 55

**K-108** HAND GRINDER

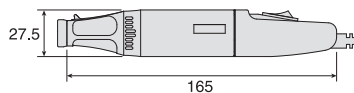
100 V

- Application: PCB pattern cutting, resistive film removal.

- Accessories: Dedicated case, cutter tip (K-107-1), cuttings removal brush, replacement cutter tip case.

Rotation speed	13000rpm
Standard tip	K-107-1 (0.8 mmφ)
Rated voltage / frequency	100 VAC 50 / 60 Hz
Power consumption	25 W
Rated time	15 minutes
Grip outer dia.	15 mmφ (at smallest part)
Weight	120 g (not including cable & bit)

- Power cable: 1.5m



Pattern cutting



Resist film removal



With dedicated case

Note Continuous operation which exceeds 15 min. can cause a motor failure, etc.
Even on & off at 1 to 2 minute intervals is considered continuous.

The rotation speed can be adjusted with the H-17 power controller.
*For details, see page 108

■ Replacement parts

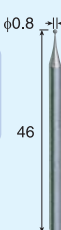
K-107-1 / 2 / 3 / 4 CUTTER TIPS

- For K-108 / 107.
■ Diamond grid: #120
■ Blade diameter: 2.35 mmφ

Part No.	Blade diameter mmφ
K-107-1	0.8
K-107-2	1.0
K-107-3	1.8
K-107-4	5.0



K-107-1



K-107-2



K-107-3



K-107-4

Cutters & Pliers
Wire strippers
Crimpers
Tweezers
Screwdrivers & Wrenches
Metal working
Parts boxes
Tool cases
Tool kits
Soldering irons & Solder
Parts & Solder removal equipment
Measuring instruments
Optical equipment
Antistatic products
Clean products
Chemical products
Maintenance & Safety products

Milling machine
Pattern cutters
Desk drill presses
Circular saws
PCB cutter
Band saw
Sheet metal bender
Drilling tools
Polishing pads
Pipe cutter
Files
Sand blaster

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Milling machine

Pattern cutters

Desk drill presses

Circular saws

PCB cutter

Band saw

Sheet metal bender

Drilling tools

Polishing pads

Pipe cutter

Files

Sand blaster

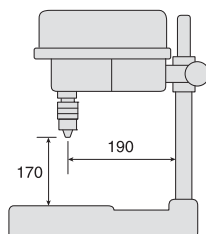
K-16 DESK DRILL PRESS

100 V

- With adjustable drilling depth (max. 35 mm)

Spindle rotation speed	1100 / 1600 / 2500 / 4200 / 6400 / 9600 rpm (adjustable pulley & belt configuration) (at 60 Hz)
Drilling capacity	For iron and non-ferrous 6.5 mm ϕ
Spindle axial play	0.02mm (not including chuck)
Chucking dia.	0.5 to 6.5 mm ϕ
Rated voltage / frequency	100 VAC 50 / 60 Hz
Power consumption	60 W
External dimensions	210 (W) × 450 (H) × 340 (D) mm
Weight	18.6 kg

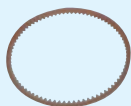
■ Power cable: 1.6m



* Max. dimension values are shown.



■ Replacement part K-16-1 BELT



■ Optional items K-26 VISE

*For details, see page 55



K-53 V-BLOCK



*For details, see page 55



K-5 / 493 / 494 / 495 DRILL BIT SET

*For details, see page 55



K-21 DESK DRILL PRESS

100 V



- With adjustable drilling depth (max. 30 mm)

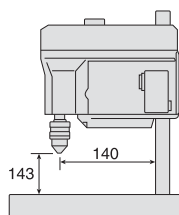


Example of K-21 + H-17 being used together (the rotation speed can be adjusted)

The H-17 is shown on P.108



Drilling depth is adjustable to 30 mm.



* Max. dimension values are shown.



Parallel guide

■ Replacement part K-21-14 BELT



■ For K-21 / 20.



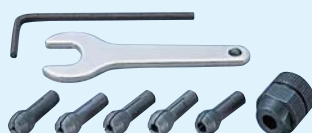
■ Optional items K-21-1 COLLET CHUCK



- A collet chuck can be mounted on the K-21 to suppress axial play to a 0.04 mm.

* Cannot be used on the K-15 and K-16.

- Compatible drills: 1.0 / 1.5 / 2.0 / 2.4 / 3.0 mm ϕ (Collets are dedicated to each size.)
- For K-21



K-24 VISE



*For details, see page 55



K-50 XY-TABLE



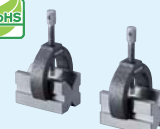
*For details, see page 55



K-53 V-BLOCK



*For details, see page 55



K-5 / 493 / 494 / 495 DRILL BIT SET

*For details, see page 55



Warning Do not wear gloves when working with this product. Always wear safety glasses when working with these tools.

K-50 XY-TABLE



- Sliding: front / back 23 mm each, left / right: 66 mm each
- With clamp
- Table dimensions: 210 × 70 mm
- Weight: 800 g
- Handle scale:
1 scale mark = 0.05 mm (1 turn: 1 mm)
- For K-21
- K-24 attachment (vise) is possible.



Example of K-21 + K-50 being used together

K-53 V-BLOCK



- V-block dimensions:
30 × 30 × 50 mm
- Weight: 800 g
- Attachable sizes: 3 to 20 mmφ
- For K-16, 21, 280
- 2-piece set



Example of K-21 + K-53 being used together

K-24 VISE



- Jaw width: 50 mm
- Max. jaw opening: 33mm
- Jaw height: 12mm
- Weight: 250 g
- External dimensions:
50 (W) × 105 (H) × 35 (D) mm
- For K-21 / 50



Example of K-21 + K-24 being used together (mountable on the K-21 parallel guide)



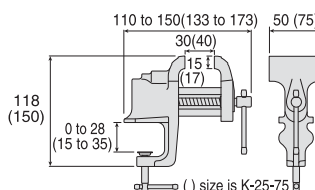
K-26 VISE

- Jaw width: 50 mm
- Max. jaw opening: 30mm
- Jaw height: 25 mm
- Weight: 1.2 kg
- External dimensions: 100 (W) × 175 (H) × 40 (D) mm
* With jaw at max. opening width.
- For K-16 / 280



K-25 BENCH VISES

Part no.	Jaw width mm	Max. opening mm	Weight kg
K-25-50	50	30	0.8
K-25-75	75	40	1.6



K-5 / 493 / 494 / 495 DRILL BIT SET

Part no.	Set contents mmφ	Content quantity	Weight g
K-495	0.5 / 0.6 / 0.8 / 1.0 / 1.2	5	5
K-5	0.8 / 1.0 / 1.5 / 2.0 / 2.5 / 3.0 / 3.2	7	18
K-493	1.5 / 2.0 / 2.5 / 3.0 / 3.2 / 3.5 / 4.0 / 4.5 / 4.8 / 5.0 / 5.5 / 6.0 / 6.5	13	350
K-494	1.0 / 1.5 / 2.0 / 2.5 / 3.0 / 3.5 / 4.0 / 4.5 / 5.0 / 5.5 / 6.0 / 6.5 / 7.0 / 7.5 / 8.0 / 8.5 / 9.0 / 9.5 / 10.0	19	680



K-495



K-5



K-494

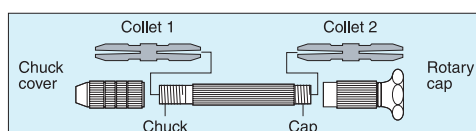


K-493

K-501 PIN VISE



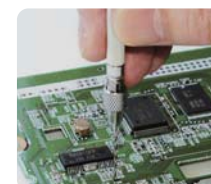
- Sizes:
(collet 1) 0 to 1.1 / 2.0 to 2.5 mmφ
(collet 2) 1.2 to 2.0 / 2.5 to 3.2 mmφ
- OAL: 102mm
- Weight: 41 g



K-502 PIN VISE



- Sizes: 0 to 1.2 mmφ
- OAL: 108mm
- Weight: 21 g



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Milling machine

Pattern cutters

Desk drill presses

Circular saws

PCB cutter

Band saw

Sheet metal bender

Drilling tools

Polishing pads

Pipe cutter

Files

Sand blaster

K-210 CIRCULAR SAW



100 V

- Disk cutter (K-210-2), with angle guide and parallel guide
- Power cable: 2m

Rotation speed	3500 to 6000 rpm
Standard disk cutter	K-210-2
Rated voltage / frequency	100 VAC 50 / 60 Hz
Power consumption	200 W
Rated time	15 minutes
External dimensions	300 (W) × 170 (H) × 260 (D) mm *
Weight	5.8 kg

* Max. width (500 mm) when work table is fully extended.

Cutting capacity

Sheet material type		Sheet thickness mm	Compatible disk cutters
PCB	Glass epoxy	3	K-210-3
	Ceramic	1	
Metal	Steel sheet (without heat treatment)	5	K-210-2 (standard)
	Aluminum sheet (pure aluminum)	10	
	Wood	26	K-210-1



Max. table width of 500 mm when the table guide is extended



Example of angle guide

* Various types of cuts are possible by changing the guide setting.

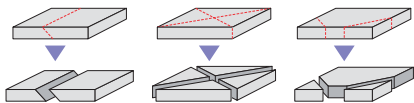
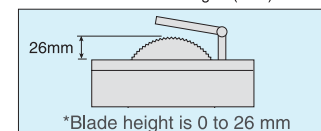


Table surface-to-blade height (max)



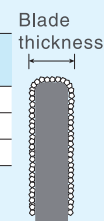
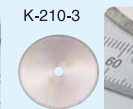
Note Continuous operation which exceeds 15 min. can cause a motor failure, etc. Even on & off at 1 to 2 minute intervals is considered continuous operation.

Replacement parts

DISK CUTTERS (K-210 dedicated blade)



Part no.	Types	Number of teeth	Outer dia. mmφ	Blade thickness mm	Application
K-210-1	Saw	80 teeth	85	1.0	Wood
K-210-2	Carbide	24 teeth		1.2	Metal & plastic
K-210-3	Diamond (grid No.: #150)	—		0.8	PCB & metal



K-110 CIRCULAR SAW



100 V

230 V

K-110-230

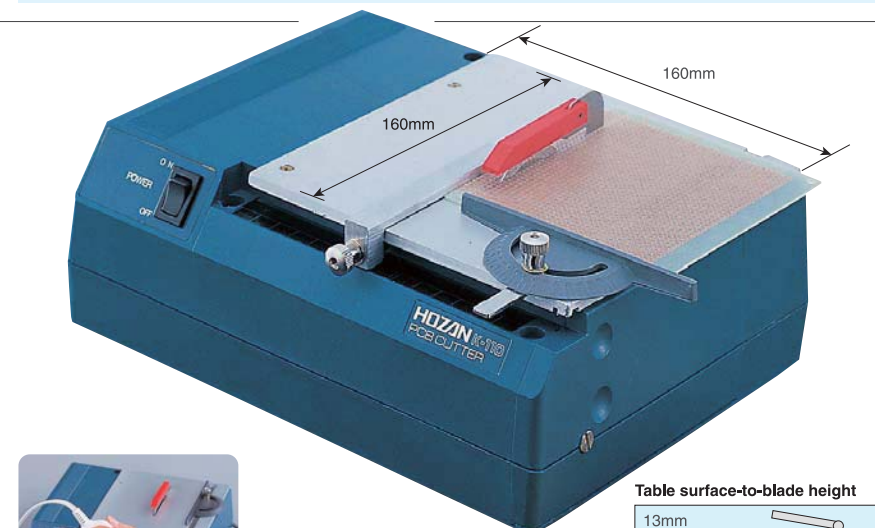
- Disk cutter (K-110-1), with an accessory angle guide and parallel guide
- Power cable: 2m

Rotation speed	3500rpm
Standard disk cutter	K-110-1
Rated voltage / frequency	100 VAC, 50 / 60 Hz (K-110) 230 VAC (K-110-230)
Power consumption	80 W
Rated time	15 minutes
External dimensions	245 (W) × 100 (H) × 185 (D) mm
Weight	1.7 kg

Cutting capacity

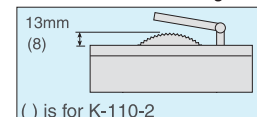
Sheet material type		Sheet thickness mm	Compatible disk cutters
PCB	Paper phenol	2	K-110-2
	Glass epoxy	3	
	Ceramic	1	K-110-1 (standard)
Metal	Steel sheet (without heat treatment)	5	
	Aluminum sheet (pure aluminum)	10	K-110-2
	Wood	26	

Note Continuous operation which exceeds 15 min. can cause a motor failure, etc. Even on & off at 1 to 2 minute intervals is considered continuous operation.



Example of K-110 + H-17 (the rotation speed can be adjusted)

Table surface-to-blade height



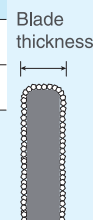
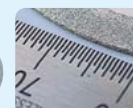
Replacement parts

DISK CUTTERS (K-110 replacement blade)



- Diamond grain: #150 (K-110-1)

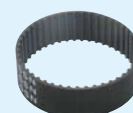
Part no.	Types	Number of teeth	Outer dia. mmφ	Blade thickness mm	Application
K-110-1	Diamond (grid No.: #150)	—	60	0.8	PCB & Metal
K-110-2	Saw	100 teeth	50	0.5	Metal & wood Plastic



K-110-18 BELT



- For K-110



Warning Do not wear gloves when working with this product. Always wear safety glasses when working with these tools.

K-100 BAND SAW

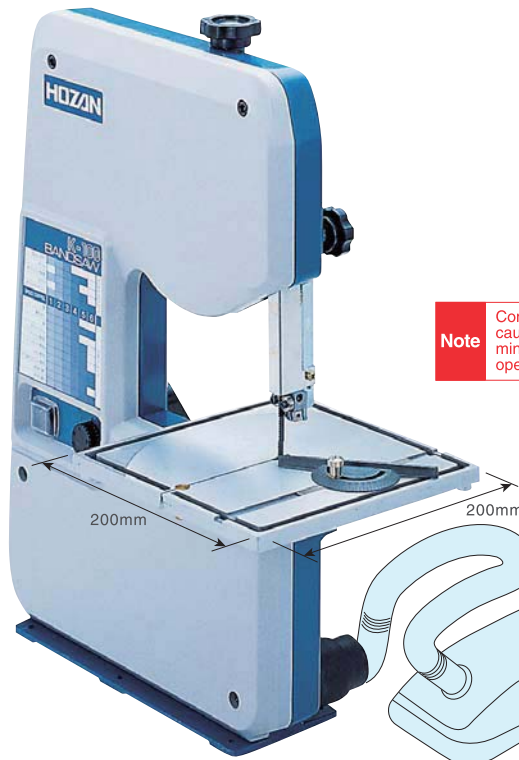
100 V

- Accessories: replacement blade (K-100-2), angle guide.
- Power cable: 2m

Adjustable feed	130 to 200m / minute
Standard blade	K-100-2
Widest point	150 mm
Cuttable thickness	max. 75 mm
Rated voltage / frequency	100 VAC 50 / 60 Hz
Power consumption	100 W
Rated time	30 minutes
External dimensions	395 (W) × 490 (H) × 285 (D) mm
Weight	6 kg

Cutting capacity

Sheet material type	Sheet thickness mm	Suitable blades
Wood	50	K-100-1
Steel sheet (without heat treatment)	10	K-100-2 (standard)
Aluminum sheet (pure aluminum)	20	
Brass & copper sheet	15	
Plastic sheet	30	K-100-4
Glass sheet	10	K-100-3

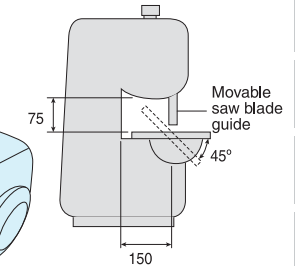


Cutting an aluminum sheet along a curved line

Note

Continuous operation which exceeds 30 min. can cause a motor failure, etc. Even on & off at 1 to 2 minute intervals is considered continuous operation.

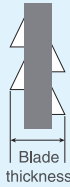
A standard household vacuum cleaner can be used.

**Replacement parts****REPLACEMENT BLADES (for K-100)**

Part no.	Blade width mm	Blade thickness mm	Number of blades	Round length mm
K-100-1	5	0.7	14 teeth / inch	1060
K-100-2	3.2		24 teeth / inch	
K-100-4	3.2		18 teeth / inch	

**K-105 COOLING UNIT**

- For diamond blade

**K-100-3 REPLACEMENT BLADE (diamond blade)**

- Blade width: 3 mm
- Blade thickness: 0.7 mm
- Diamond grid: #120
- Round length: 1060 mm
- For cutting glass, porcelain, tile, ceramic, and stone.
- * Always use K-100-3 together with K-105, cooling unit.

K-100-18 BELT

- For K-100

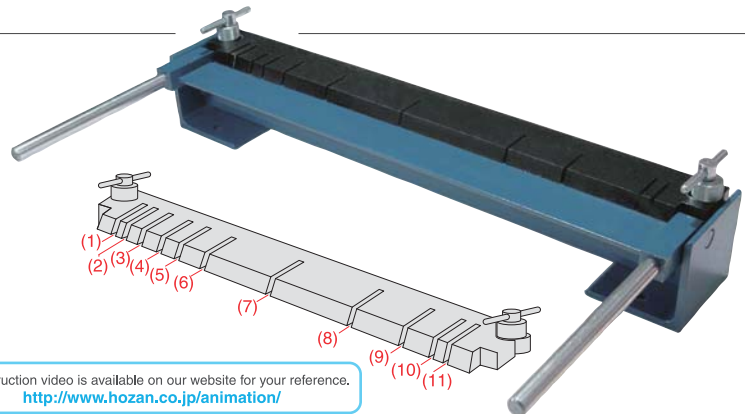


Example of mounted K-105

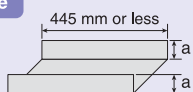
**K-130 SHEET METAL BENDER**

- Bending capacity: Steel sheet 0.6 mm, Aluminum sheet 1.5 mm thickness or less.

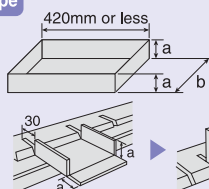
- OAL: 510mm
- Weight: 7.3 kg
- Accessories: vise



An instruction video is available on our website for your reference.
<http://www.hozan.co.jp/animation/>

U-shape

Max. width is 445 mm, but dimension "a" has no particular restrictions.

Case shape

Max. width is 420 mm, and dimension "a" is 30 mm or less. Dimension "b" should be designed so that it matches the slit pitch. (See reference table)

To obtain a case shape, bend in advance as shown in the illustration, then align with the slits and bend.

Slit Nos. and bendable dimensions

5 mm pitch is possible for sizes of 50 mm or less.
 Biped robot aluminum parts can be processed.

(1)	10	30	45	70	120	200	300	350	410	420
(2)	20	35	60	110	190	290	340	40	410	
(3)	15	40	90	170	270	320	380	390		
(4)	25	75	155	255	305	365	375			
(5)	50	130	230	280	340	350				
(6)	80	180	230	290	300					
(7)	100	150	210	220						
(8)	50	110	120							
(9)	60	70								
(10)	10									
(11)										



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Milling machine

Pattern cutters

Desk drill presses

Circular saws

PCB cutter

Band saw

Sheet metal bender

Drilling tools

Polishing pads

Pipe cutter

Files

Sand blaster

K-88 HAND NIBBLING TOOL

DISCON.

■ Cutting capacity *1: For copper and pure aluminum:
0.5 to 2.0 mm sheet thickness

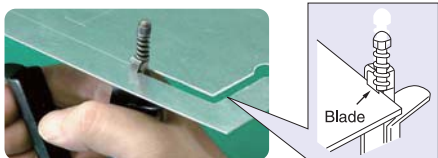
For steel sheet: 0.3 to 0.6 mm sheet thickness

■ OAL: 173mm

■ Weight: 190 g

* A 10 mmφ prepared hole is required for drilling.

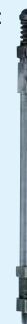
* 1 Restricted to materials which have not heat treated.



■ Replacement part

K-881
REPLACEMENT
BLADE

DISCON.

**K-83** CHASSIS PUNCH KIT

■ Hole-punching capacity *1

Aluminum sheet: Sheet thickness of 1.8 mm or less.

Steel sheet: Sheet thickness: 0.8 mm or less.

■ Set contents: Cutters 16 / 18 / 21 / 25, 30 mmφ; nut, center-bolt, K-441

■ Weight: 480 g (does not include case)

* 10 mmφ predrilling hole required.

* 1 Restricted to materials which have not heat treated.



Image of a case

**K-441 to K-444** TAPER REAMERS

Part no.	Sizes mmφ	Number of blades	Taper angle	OAL mm	Weight g
K-441	3 to 12	6	7°	124	65
K-442	3 to 16		10°		95
K-443	4 to 22	7	12°	149	155
K-444	4 to 32		20°		330



Rotate rightward to cut.

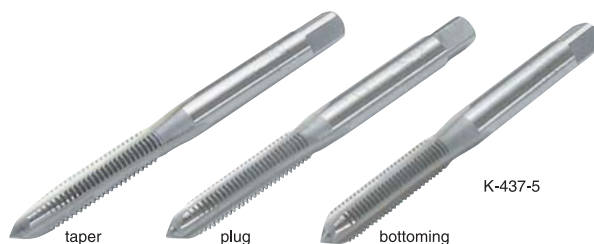


K-441

K-444

K-437 TAP

Part no.	Set contents	Nominal size	Pitch mm	Weight g
K-437-2	taper, plug, bottoming 3-piece set	M2	0.4	10
K-437-3		M3	0.5	15
K-437-4		M4	0.7	20
K-437-5		M5	0.8	30
K-437-6		M6	1	40



K-437-5

taper

plug

bottoming

K-431 TAP SET

■ Set contents: M3 × 0.5 / M4 × 0.7 / M5 × 0.8

■ Weight: 95 g

* 3 sizes of plug taps.

**K-437A / K-438A** TAP HANDLES

Part no.	Tap sizes mm	OAL mm	Weight g
K-437A	3 to 6	80	70
K-438A	2 to 10	210	150



K-437A



K-438A

⚠ Warning • Always wear safety glasses when using this product.

K-140 / 141 / 142 POLISHING PADS



- The fine-grade abrasive prevents clogging and facilitates smooth working.
- Removes surface rust and soiling without damaging the base material.
- Cleans the soldering iron tip better than paste types.

■ Heat resistant temp.: 60 to 70°C

Part no.	Abrasive grain	Application example	Material	Size mm	Color
K-140	#60	Metal sheet rust removal	NBR foam with abrasive	50 × 25.5 × 20	Black
K-141	#120	Aluminum sheet deburring			
K-142	#320	Soldering iron tip oxide removal			

An instruction video is available on our website for your reference.
<http://www.hozan.co.jp/animation/>



Metal surface rust removal



Aluminum sheet deburring

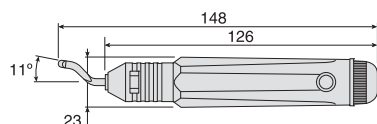


Soldering iron tip cleaning
 (The soldering iron tip should be cooled before cleaning it.)

K-35 DEBURRING TOOL

- 3 blade types are provided. One for steel, copper, and aluminum, one for plastic, and one for general-purpose.

- Blade length: 10 mm
- Weight: 35 g



For deburring metal pipe



For drilled hole deburring



For cut face deburring



Work is also possible from the burred reverse side



The blade can be stowed inside the body.

■ Replacement parts

K-35-1 / 2 / 3 REPLACEMENT BLADES

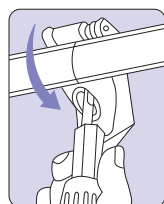
- Quantity: 2 pieces
- Application: K-35-1 for steel (black, flat leaf)
 K-35-2 for plastic (silver, double blade)
 K-35-3 all-purpose (black, double blade)



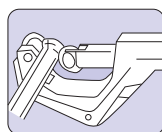
K-35-2

K-203 PIPE CUTTER

- Pipe types: Stainless and copper pipes.
- Pipe sizes: 3 to 32 mmφ (1/8" to 1 1/4"φ)
- OAL: 130mm
- Weight: 205 g
- Accessories: Replacement blade (K-203-1).



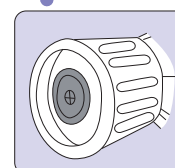
To cut, turn in the arrow direction.



To repair a new flare, place the flare in the roller groove and cut at its base. This minimizes pipe loss.



With blade for chamfering



The replacement blade is located as shown in the illustration.

■ Replacement parts

K-203-1 / 11 REPLACEMENT BLADES

- Application: K-203-1 for stainless & copper pipe
 Dedicated K-203-11 for copper pipe.
- * Dedicated item is recommended for copper pipe cutting.
 The thin blade minimizes outer dia. changes and burrs on the finished product.



K-203-1

K-129S HACKSAW

- Saw blade: 250 mm
- OAL: 450mm
- Weight: 430 g
- Accessories: 12 replacement blades (K-126).



■ Replacement part

K-126 REPLACEMENT BLADE

- OAL: 250mm
- Teeth pitch: 32 / inch
- Quantity: 12 pieces



Warning • Always wear safety glasses when using this product.

Technical inquiries can be made by E-mail to the following address: th@hozan.co.jp

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Milling machine

Pattern cutters

Desk drill presses

Circular saws

PCB cutter

Band saw

Sheet metal bender

Drilling tools

Polishing pads

Pipe cutter

Files

Sand blaster

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Milling machine

Pattern cutters

Desk drill presses

Circular saws

PCB cutter

Band saw

Sheet metal bender

Drilling tools

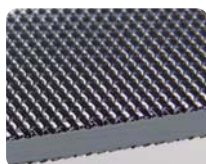
Polishing pads

Pipe cutter

Files

Sand blaster

Files



ハードクロムメッキ

～目詰まりしにくく、切れ味持続～
ヤスリ目にハードクロムメッキを施すことで、切削粉のはく離性に優れ、目詰まりが大幅に削減しシャープな切れ味が持続します。耐錆、耐食性にも優れ、従来の鉄工ヤスリの3～6倍の耐久性があります。硬度が高く軟質材から硬質材まで対応可能です。(K-150のみ)



上目140

～より精密で繊細な作業に～
金属・貴金属などの精密仕上げに最適な目の細かいヤスリ。(K-216)



ダイヤモンド

～今まで困難だった硬質素材に～
基材にダイヤモンドのパウダーを電着させたヤスリ。従来の鉄工ヤスリでは困難な硬質素材や熱処理素材の精密研削加工に最適。(K-180のみ)

断面形状

丸形



丸穴の仕上げなど

半丸形



曲内面の仕上げ、すみの仕上げなど

平形



平面の仕上げなど

三角形



直角より小さい角をもつ二面の仕上げなど

角形



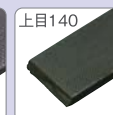
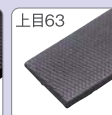
直交する二面の仕上げなど

その他の断面形状

- ▲ 三角(片刃)
- 楕円
- 平(槍型)
- 両半丸
- ◄ 刀刃

ヤスリ目の粗さ

上目はJIS B4703で規定されているヤスリの目数。
25mmあたりの目数(山数)を表わします。



目の粗さ 粗い ← 58 63 140 → 細かい

上目	45	58	63	140	—
K-155-L/K-170～K-174					
K-150/K-155-S/K-160～K-164					
K-215					
K-216					
K-180～K-184					

K-150 FILE SET



- A hard chrome plating effectively repels filings and prevents teeth clogging, and provides a clean cutting.
- Superior rust and corrosion resistance ensures minimal deterioration in humid environments, making 3 to 6 times more durable than conventional steel files.

- File teeth: upcut 58
- OAL: 185mm
- Set contents: 5-piece set
- Hardness: HRC67
- Pouch dimensions: 60 (W) × 210 (H) mm
- Weight: 130 g

[Shapes]

Round



Half-round



Hand



Triangular



Square



UPCUT
58
CUTS/1 inch

Hard chrome plating
Surface treatment that minimizes clogging



K-155 FILE SET

K-155-S
K-155-L

■ Pouch dimensions: 100 (W) × 250 (H) mm

Part no.	File teeth	OAL mm	Weight g	Part no.	Shapes	Weight g
K-155-S	Upcut: 58	185	115	K-160	● Round	15
				K-161	◐ Half-round	25
				K-162	▬ Hand	
				K-163	▲ Triangular	
				K-164	■ Square	13
K-155-L	Upcut: 45	215	290	K-170	● Round	48
				K-171	◐ Half-round	55
				K-172	▬ Hand	60
				K-173	▲ Triangular	55
				K-174	■ Square	48

[Shapes]



UPCUT
58
CUTS/1 inch
(K-155-S)

UPCUT
45
CUTS/1 inch
(K-155-L)

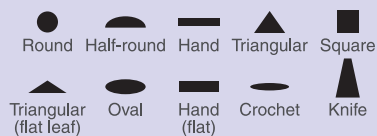


*Photo shows K-155-L (5-piece set).

K-215 FILE SET

- File teeth: upcut 63
- OAL: 160mm
- Set contents: 10-piece set
- Hardness: HRC58
- Pouch dimensions: 147 (W) × 218 (H) mm
- Weight: 165 g

[Shapes]



UPCUT
63
CUTS/1 inch



K-216 FILE SET



- File teeth: upcut 140
- OAL: 160mm
- Set contents: 5-piece set
- Hardness: HRC62
- Pouch dimensions: 60 (W) × 210 (H) mm
- Weight: 60 g

[Shapes]



UPCUT
140
CUTS/1 inch

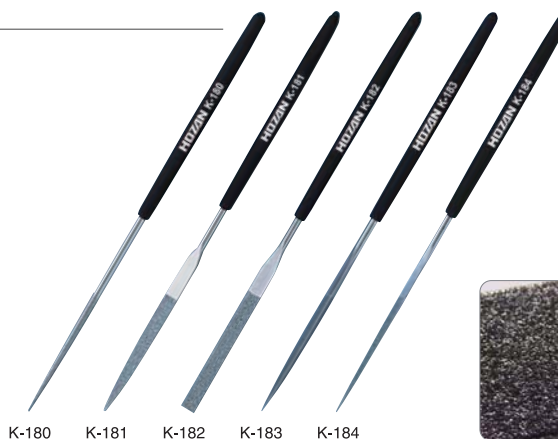


K-180 to 184 DIAMOND FILES



Part no.	Diamond grid	Shapes	Tip size mm	OAL mm	Weight g
K-180	#200	● Round	φ1	170	8
K-181		◐ Half-round	2 × 1		9
K-182		▬ Hand	5.8 × 1.1		8
K-183		▲ Triangular	1.5		7
K-184		■ Square	1		

[Shapes]



200



*1. The "upcut" refers to the number of teeth prescribed by the JIS B4703 standard. It denotes the number of teeth per each 25 mm.

Technical inquiries can be made by E-mail to the following address: th@hazan.co.jp

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Milling machine

Pattern cutters

Desk drill presses

Circular saws

PCB cutter

Band saw

Sheet metal bender

Drilling tools

Polishing pads

Pipe cutter

Files

Sand blaster

SG-106 SAND BLASTER

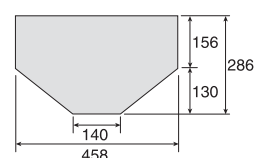
- Using compressed air, this unit sprays abrasives. It can be used for glass etching, for shot-blasting metal products, and for rust removal and deburring, etc.
- After connecting the abrasive tank, air compressor, and vacuum cleaner, then press a foot-valve to automatically execute the complete operation cycle which includes sucking up the abrasives, spraying it, and recovering it.

Blaster gun	Nozzle dia.	2.5 mmφ
	Nozzle material	Ceramic
	Air consumption amount	66 L/min (at 0.5 MPa)
Prescribed air pressure	0.5 to 0.8 Mpa	
Prescribed air compressor	For intermittent use	0.5 kW or higher
	For continuous use	0.75 kW or higher
Rated voltage / frequency	100 VAC, 50 / 60 Hz	
Lighting	100 V, 20 W straight fluorescent lamp	
Body material	Polyethylene	
External dimensions	640 (W) × 1360 (H) × 603 (D) mm	
Weight	24.2 kg	

■ Power cable: 1.4m

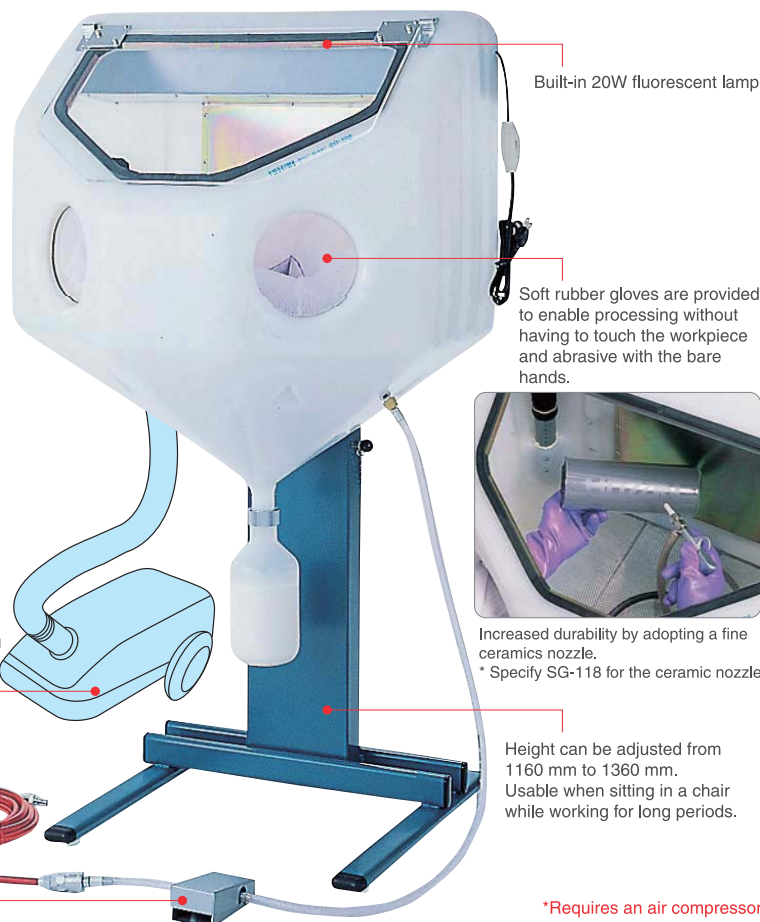
■ Accessories: Foot-valve / blaster gun / air hose (5m, with fixture) / abrasive (WA#80 x 1.5 kg) / 3 hatch protectors.

[Window shape]



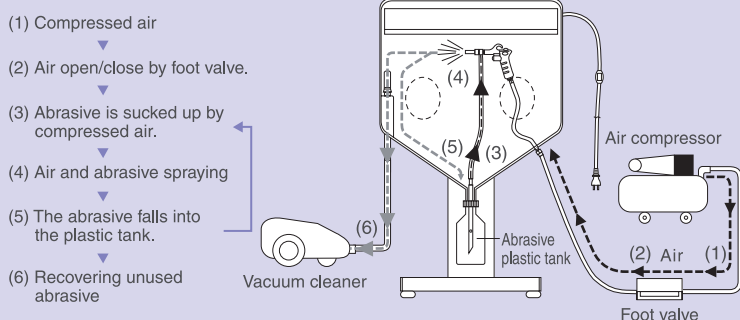
A standard household vacuum cleaner can be used.

With foot valve. Compressed air open/close can be controlled by one foot.



*Requires an air compressor.

[Abrasive media suction & spraying flow]



■ Result example



Stone sculpting
(#60 abrasive used)



Surface preparation before painting
(#120 abrasive used)

An instruction video is available on our website for your reference.
<http://www.hozan.co.jp/animation/>

■ Replacement parts

SAND BLASTER / BLASTER GUN PARTS

Part no.	Part no.	Part name
(1)	SG-112	Foot valve
(2)	SG-115	Rubber gloves
(3)	SG-116	Abrasive (#80 / in 1.5 kg plastic tank)
(4)	SG-106-9	Bottle for Abrasive
(5)	SG-106-1	Suction hose
(6)	SG-106-2	Suction pipe
(7)	SG-106-3	Exhaust filter
(8)	SG-120	Blaster gun
(9)	SG-118	Nozzle set
(10)	SG-119	Ejector

ABRASIVE

■ Weight: 5 kg

■ With plastic tank for the abrasive.

Part no.	Grid
SG-118-60	#60
SG-118-80	#80
SG-118-100	#100
SG-118-120	#120
SG-118-150	#150
SG-118-180	#180
SG-118-220	#220

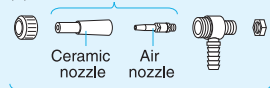


SG-116 ABRASIVE
(alumina WA #80)

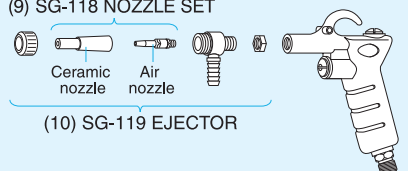
Blaster gun parts ((8) SG-120)

(8) SG-120 BLASTER GUN PARTS

(9) SG-118 NOZZLE SET



(10) SG-119 EJECTOR



■ Optional items

SG-117 AIR FILTER

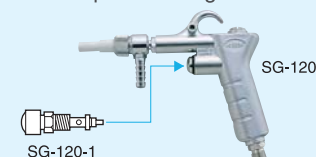
- Simply connect this product between the compressor and the main unit to remove moisture from the compressed air.



Example of SG-117 use

SG-120-1 AIR VALVE

- The valve can be operated by hand when attached to the blaster gun. The foot-valve must be in an "open" during use.



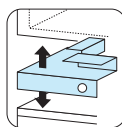
Parts cabinets

A stop mechanism to prevent drawers from coming off (only small and medium types).

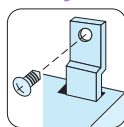
With connection bracket & fall stay

A fall stay is provided with the floor type.

A connection bracket and fall stay are provided with the stacking type.



Connection bracket



Fall stay

* Does not apply to some products.

Thick and durable drawers are transparent.

HOZAN Parts Cabinets feature thick, sturdy drawers that withstand long-term and varied applications.



■ Related products

ESD parts cabinet series

*For details, see page 150



The ESD parts cabinet inner surfaces (vertical partitions and horizontal crosspieces) have been made conductive by plating and stainless covers. Moreover, the conductive plastic drawers make contact with the inner surfaces, and are thus grounded to the parts cabinet ground terminal.



All ESD parts cabinets have terminals for a ground wire connection. Be sure to ground them.



Using the optional ESD foam on the drawer bottoms where ICs are stored enhances the ESD safe. (F-7 ESD foam used)



B-133
ESD parts cabinet
(Bench top type)



B-137
ESD parts cabinet
(floor type)

PARTS CABINETS



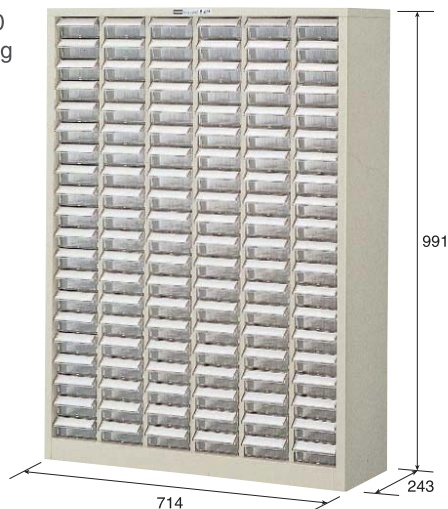
■ 2 accessory dividers are provided for each drawer

B-405

FLOOR
TYPESMALL
DRAWER6 × 20
Rows Levels

FALL STAY (x2)

- Number of drawers: 120
- Weight: 41 kg



Same-size ESD product is also available.

B-135



*For details, see page 150

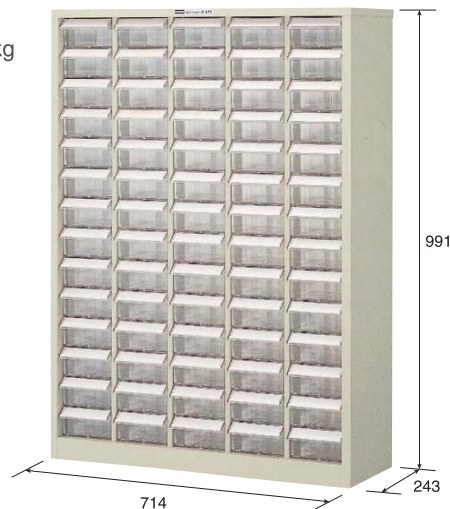


B-415

FLOOR
TYPEMEDIUM
DRAWER5 × 14
Rows Levels

FALL STAY (x2)

- Number of drawers: 70
- Weight: 37 kg



Same-size ESD product is also available.

B-137



*For details, see page 150



B-404

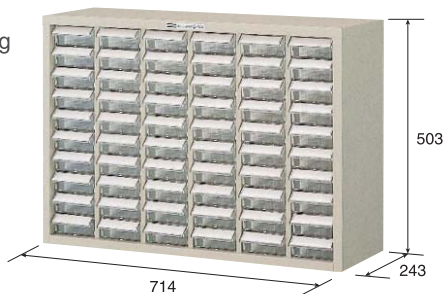
STACKING
TYPESMALL
DRAWER6 × 10
Rows Levels

CONNECTION BRACKET (x4)



FALL STAY (x2)

- Number of drawers: 60
- Weight: 25 kg



B-414

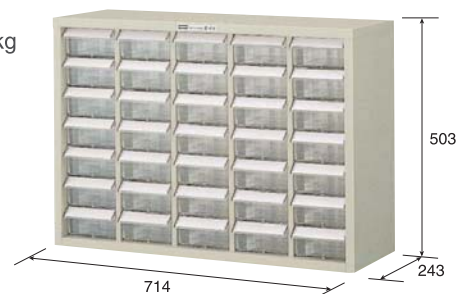
STACKING
TYPEMEDIUM
DRAWER5 × 7
Rows Levels

CONNECTION BRACKET (x4)



FALL STAY (x2)

- Number of drawers: 35
- Weight: 23 kg

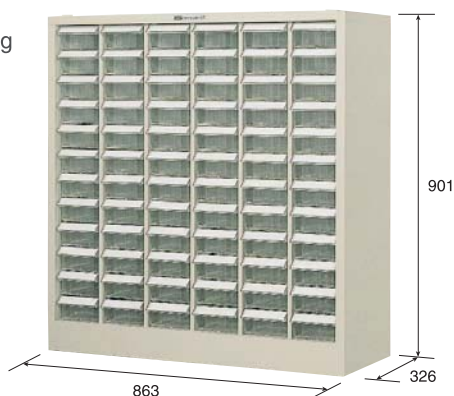


B-200

FLOOR
TYPEMEDIUM
DRAWER6 × 12
Rows Levels

FALL STAY (x2)

- Number of drawers: 72
- Weight: 48 kg

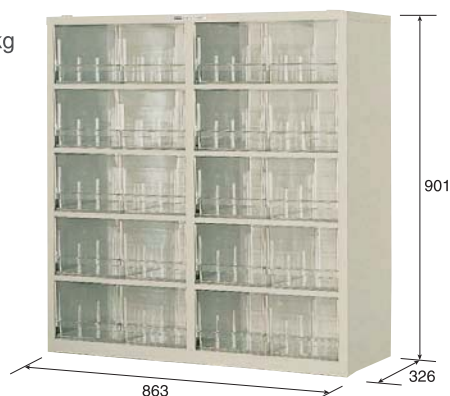


B-201

FLOOR
TYPELARGE
DRAWER4 × 5
Rows Levels

FALL STAY (x2)

- Number of drawers: 20
- Weight: 41 kg



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

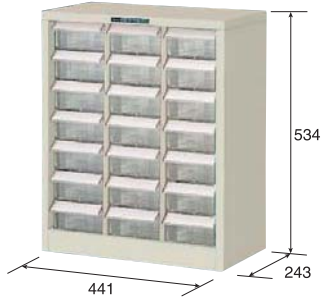
Maintenance & Safety products

Parts cabinets

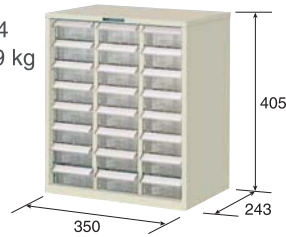
Parts boxes

B-413BENCH
TOPMEDIUM
DRAWER3 × 7
Rows Levels

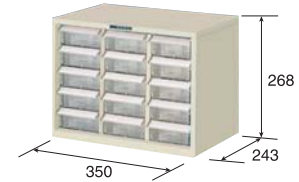
- Number of drawers: 21
- Weight: 13 kg

**B-403**BENCH
TOPSMALL
DRAWER3 × 8
Rows Levels

- Number of drawers: 24
- Weight: 8.9 kg

**B-402**BENCH
TOPSMALL
DRAWER3 × 5
Rows Levels

- Number of drawers: 15
- Weight: 6 kg



Same-size ESD product is also available.

B-133

*For details, see page 150

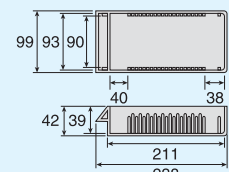
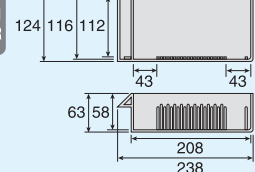
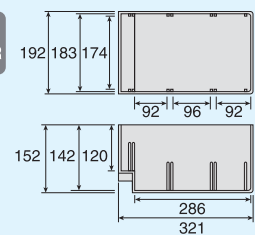


■ Replacement parts

B-108 / 118 / 128 DRAWERS

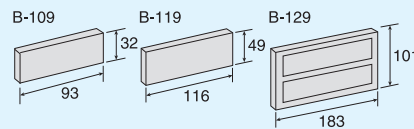
Part no.	Drawer types	Divider
B-108	Small	With 2 dividers.
B-118	Medium	
B-128	Large	

- Material: Polyethylene

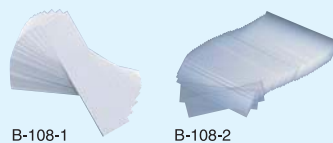
B-108
SMALL
DRAWERB-118
MEDIUM
DRAWERB-128
LARGE
DRAWER**B-109 / 119 / 129 DIVIDERS**

Part no.	Part name	Quantity
B-109	Small divider for B-108	10 cards
B-119	Medium divider for B-118	
B-129	Large divider for B-128	5 cards

- Material: Polyethylene

**INDEX CARDS / CARD COVERS**

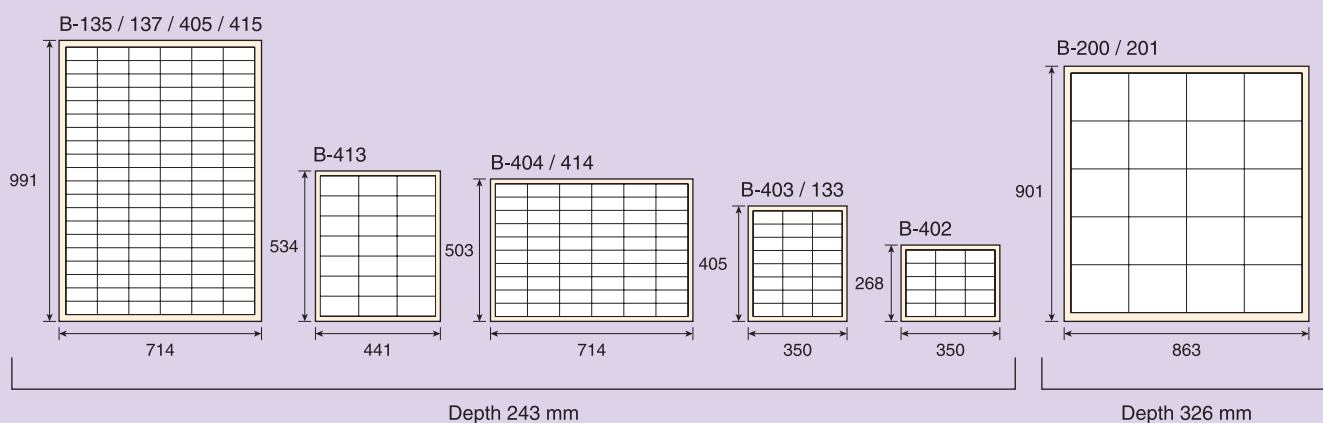
Part no.	Part name	Quantity
B-108-1	Index card For B-108	50 cards
B-108-2	Card cover For B-108	
B-118-1	Index card For B-118	
B-118-2	Card cover For B-118	



B-108-1

B-108-2

■ Size comparison illustration (units: mm)

Cutters &
PliersWire
strippers

Crimpers

Tweezers

Screwdrivers &
Wrenches

Metal working

Parts
boxesTool
cases

Tool kits

Soldering
irons &
SolderParts & Solder
removal
equipmentMeasuring
instrumentsOptical
equipmentAntistatic
productsClean
productsChemical
productsMaintenance
& Safety
productsParts
cabinetsParts
boxes

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Parts cabinets

Parts boxes

Customize as desired

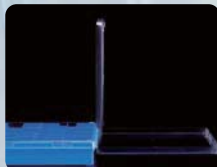
Parts boxes

Multi-function and easy to use perfect for storing small parts.

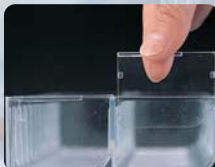
The B-10 / B-50 / B-17BB parts boxes have these functions.



Inner trays can be changed and combined in accordance with the application and purpose. Inner trays G is a thin, 2-level type.



The lid has a 2-step opening posture, at 90 and 180 degrees. (B-50 only)



Divided up to 12 even compartments per row.



Curved inner corner makes small items easy to retrieve.



Handy index labels



Transparent lid.

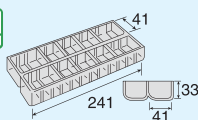
B-17-BB ESD PARTS BOX



- External dimensions: 254 (W) × 41(H) × 185 (D) mm
- Capacity: 1.5L
- Weight: 545 g
- Contents: B-212 Inner tray B type × 2 pieces (with 16 dividers)
- ESD standard: Resistance between points: $R_p \leq 1 \times 10^{12} \Omega$

■ Replacement parts

B-212 ESD INNER TRAY B



- Accessories: 8 dividers

B-222 ESD DIVIDER B



- Quantity: 8 pieces



B-17 ESD PARTS BOX



- Made from transparent material with superior antistatic characteristics.
- Contents are visible without opening the box.
- With conductive urethane foam.
- Simply place the ICs in the foam to prevent potential electrostatic damage.

- External dimensions: 254 (W) × 41 (H) × 185 (D) mm
- Capacity: 1.5L
- Weight: 420 g
- Accessories: F-10-A × 1 piece
- ESD standard: Resistance between points: $R_p \leq 1 \times 10^{12} \Omega$



Transparent lid.



B-18 ESD PARTS BOX



- Ideal for carrying and storing electronic components such as ICs and MOS-IC, etc., which are susceptible to electrostatic damage.
- With conductive urethane foam.
- Simply place the ICs in the foam to prevent potential electrostatic damage.

- External dimensions: 254 (W) × 41 (H) × 185 (D) mm
- Capacity: 1.5L
- Weight: 460 g
- Material: Polystyrene
- Accessories: F-10-A × 1 piece
- ESD standard: Resistance between points: $R_p \leq 1 \times 10^{10} \Omega$



EP & ROM storage example



B-50 PARTS BOXES

- Capacity: 2.3L
- Weight: 720 g (B-50-EE)
- Material: ABS (box), AS (lid)
- B-359 is used as the outer case.

Part no.	Inner tray contents		
	Inner tray, E type	Inner tray, F type	Inner tray, G type
B-50-EE	Inner tray, E × 2 pieces	—	—
B-50-EF	Inner tray, E × 1 piece	Inner tray F × 1 piece	—
B-50-FF	—	Inner tray F × 2 pieces	—
B-50-EG	Inner tray, E × 1 piece	—	Inner tray G × 2 pieces
B-50-FG	—	Inner tray F × 1 piece	Inner tray G × 2 pieces
B-50-GG	—	—	Inner tray G × 4 pieces



B-50-EF

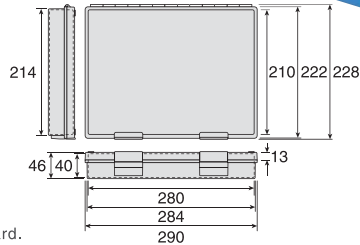
B-353

B-359 OUTER TRAY (for B-50)

- External dimensions: 290 (W) × 46 (H) × 220 (D) mm
- Capacity: 2.3L
- Weight: 430 g
- Material: ABS (case), AS (lid)



Easily opened by pulling the lock forward.

**■Replacement parts****INNER TRAY, E TYPE / INNER TRAY, F TYPE / INNER TRAY, G TYPE**

Part no.	Part name	Max. number of partitioned compartments	Accessory item
B-351	Inner tray, E	24	Divider, E × 8
B-352	Inner tray, F	36	Divider, F × 9
B-353	Inner tray, G		Divider, G × 30

*B-353 has 2 "inner tray G" trays.

DIVIDER, E TYPE (For INNER TRAY, E) / F TYPE (For INNER TRAY, F) / G TYPE (For INNER TRAY, G)

Part no.	Part name	Quantity
B-355	Divider, E (for inner tray, E)	8 cards
B-356	Divider, F (for inner tray, F)	9 cards
B-357	Divider, G (for inner tray, G)	15 cards

B-10 PARTS BOXES

- Capacity: 1.5L
- Weight: 490 g (B-10-AA)
- Material: ABS (box), AS (lid)
- B-19 is used as the outer box.

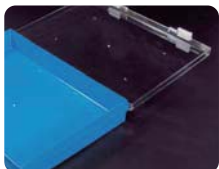
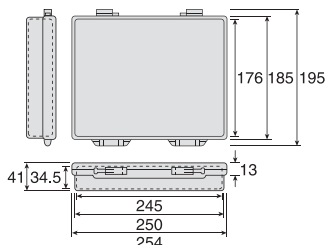
Part no.	Inner tray contents		
	Inner tray, A type	Inner tray, B type	Inner tray, C type
B-10-AA	Inner tray, A × 2 pieces	—	—
B-10-AB	Inner tray, A × 1 piece	Inner tray B × 1 piece	—
B-10-AC	Inner tray, A × 1 piece	—	Inner tray C × 1 piece
B-10-BB	—	Inner tray B × 2 pieces	—
B-10-BC	—	Inner tray B × 1 piece	Inner tray C × 1 piece
B-10-CC	—	—	Inner tray C × 2 pieces



B-10-AB

B-19 OUTER BOX (for B-10)

- External dimensions: 254(W) × 41(H) × 185 (D) mm
- Capacity: 1.5L
- Weight: 300 g
- Material: ABS (box), AS (lid)

180-degree open / close.
(There is no 2-step open / close function.)**■Replacement parts****INNER TRAY, A TYPE / INNER TRAY, B TYPE / INNER TRAY, C TYPE**

Part no.	Part name	Max. number of partitioned compartments	Accessory item
B-311	Inner tray, A	12	Divider, A × 5
B-312	Inner tray, B	24	Divider, B × 8
B-313	Inner tray, C	36	Divider, C × 9

DIVIDER, A TYPE (for inner tray, A) / B TYPE (for inner tray, B) / C TYPE (for inner tray, C)

Part no.	Part name	Quantity
B-321	Divider, A (for inner tray, A)	5 cards
B-322	Divider, B (for inner tray, B)	8 cards
B-323	Divider, C (for inner tray, C)	9 cards

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Parts cabinets

Parts boxes

Sturdy and durable,
this is case for all occasions.

Tool cases



Aluminum

69
Page



Aluminum alloy sheets

70
Page



ABS etc.

71
Page



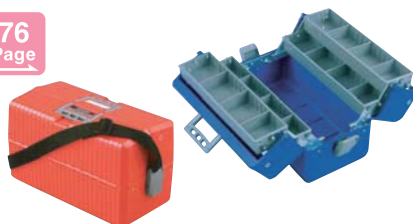
Nylon

74
Page



Box

76
Page



Containers

78
Page



B-740 TOOL PALLET



■ External dimensions: 425 (W) × 295 (H) mm

■ Weight: 420 g

* Can also be stored in the top of B-80 / 600 / 606 / 640 / 660 / 670 / 680 / 685 / 730 / 770.



Table



Rear

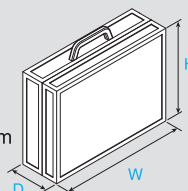
■ Case size indications

The "case size" is indicated as the inner and outer dimensions.

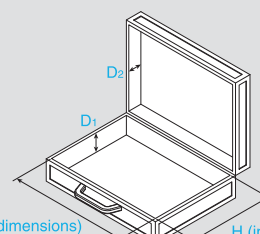
[Example: S-175]

External dimensions: 445(W) × 320 (H) × 115 (D) mm

Internal dimensions: 437 (W) × 306(H) ×
(bottom depth 65 + top depth 36) (D) mm



[External dimensions]



[Internal dimensions]

D1: Bottom depth
D2: Top depth

B-80 TOOL CASE



- External dimensions: 460 (W) × 340 (H) × 145 (D) mm
- Internal dimensions:
440 (W) × 320 (H) × (bottom depth 77 + top depth 53) (D) mm
- Weight: 2.4 kg
- Material: Aluminum
- * Tool pallet is not provided.
- Sold separately: B-80-7 / B-740 (P.68) tool pallet, and B-80-6 document file.

■ Optional items

B-80-1 SHOULDER BELT



- OAL: 1050 mm (max. extendable length)
- Compatible models: B-80 / 81 / 180



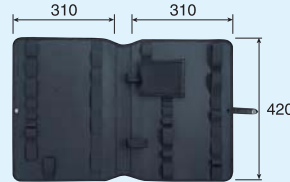
Carrying example



B-80-6 DOCUMENT FILE



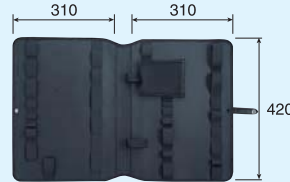
- External dimensions: 420 (W) × 310 (H) mm
- Compatible models: B-80
- * For attaching top snap.
- * Can also be stored in B-78 / 600 / 640 / 660 / 770 / S-179.



B-80-7 TOOL PALLET



- External dimensions: 420 (W) × 310 (H) mm
- Compatible models: B-80
- * Cannot be attached to the top snap.
- * Can also be stored in B-78 / 600 / 640 / 660 / 770 / S-179.



The aluminum frame has gasket inserts to keep water and dust out.



A heavy-duty piano hinge

CAPACITY
18ℓ

LOCK
9 9 9

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Aluminum

Aluminum alloy sheets

ABS

A4 size and smaller

Nylon

Tool bags

Tool boxes

Containers

Custom

B-81 TOOL CASE



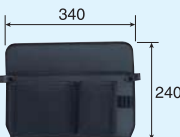
- Accommodates A4 size files, and is compact enough to be opened on the knees while sitting in a train, etc.
- External dimensions: 365 (W) × 275 (H) × 110 (D) mm
- Internal dimensions: 355 (W) × 255 (H) × (bottom depth 55 + top depth 40) (D) mm
- Weight: 1.8 kg
- Material: Aluminum
- * Tool pallet is not provided.
- The B-81-6 document file and B-81-7 tool pallet can be ordered separately.

■ Optional items

B-81-6 DOCUMENT FILE



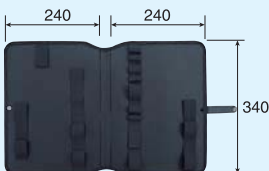
- External dimensions: 340 (W) × 240 (H) mm
- Compatible models: B-81



B-81-7 TOOL PALLET



- External dimensions: 340 (W) × 240 (H) mm
- Compatible models: B-81



B-81-6 and B-81-7 can be placed inside B-81. (example)



Using the shock-absorbing foam. (For details, see page 78.)

CAPACITY
8 ℓ

LOCK
9 9 9

B-770 TOOL CASE



Low-cost, high-quality aluminum case.

- Aluminum case with a stylish design.
- Strong, retractable type lock, with stays on both sides.
- External dimensions: 455 (W) × 355 (H) × 130 (D) mm
- Internal dimensions: 435 (W) × 335 (H) × (bottom depth 70 + top depth 50) (D) mm
- Weight: 2.4 kg
- Material: Aluminum
- * Tool pallet is not provided.
- The B-740 tool pallet can be ordered separately. (P.68)



SHOULDER BELT

CAPACITY
17ℓ

LOCK
9 9 9

LOCK
9 9 9

B-600 TOOL CASE**PVC-free, durable aluminum alloy case.**

- Durable baked titanium color on the aluminum surfaces.
 - External dimensions: 455 (W) × 330 (H) × 130 (D) mm
 - Internal dimensions: 430 (W) × 312 (H) × (bottom depth 63 + top depth 49) (D) mm
 - Weight: 2.7 kg
 - Material: Aluminum alloy sheets
- * Tool pallet is not provided.
The B-600-5 or B-740 (P.68) tool pallet can be ordered separately.

■ **Optional item****B-600-5 TOOL PALLET**

- PVC-free tool pallet
- External dimensions: 425 (W) × 300 (H) mm
- Weight: 250 g



CAPACITY

15ℓ

LOCK

**B-606** TOOL CASE**A case made from durable aluminum sheet material.**

- A strong, retractable type lock.
 - External dimensions: 450 (W) × 330 (H) × 135 (D) mm
 - Internal dimensions: 430 (W) × 310 (H) × (bottom depth 70 + top depth 50) (D) mm
 - Weight: 3.0 kg
 - Material: Aluminum alloy sheets
- * Tool pallet is not provided.
The B-740 tool pallet can be ordered separately. (P.68)

■ **Optional item****S-145-6 SHOULDER BELT**

- Compatible models: B-606 / S-145



CAPACITY

16ℓ

LOCK

**B-640** TOOL CASE**Case with an attractive aluminum finish design.**

- Corner bumpers protect the case contents from impact shocks.
 - With handy dividers.
 - External dimensions: 455 (W) × 355 (H) × 145 (D) mm
 - Internal dimensions: 435 (W) × 315 (H) × (bottom depth 85 + top depth 40) (D) mm
 - Weight: 3.8 kg
 - Material: Aluminum plastic composite board, polycarbonate (corner material)
- * Tool pallet is not provided.
The B-740 tool pallet can be ordered separately. (P.68)

■ **Optional item****B-76-9 SHOULDER BELT**

- Compatible models: B-66 / 68 / 640 / 660



CAPACITY

17ℓ

LOCK

**B-78** TOOL CASE**Attractive black & silver case**

- Offers a functional tool pallet, and document file for drawings.
A tool case with adjustable dividers.
- External dimensions: 460 (W) × 340 (H) × 120 (D) mm
- Internal dimensions: 432 (W) × 318 (H) × (bottom depth 84 + top depth 20) (D) mm
- Weight: 3.8 kg
- Material: Aluminum alloy sheets
- Accessories: Tool pallet, document file, dividers (2 pieces)



CAPACITY

14ℓ

LOCK



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Artistic products

Clean products

Chemical products

Maintenance & Safety products

Aluminum

Aluminum alloy sheets

ABS

A4 size and smaller

Nylon

Tool bags

Tool boxes

Containers

Custom

B-660 TOOL CASE



ABS material with premium metallic finish

- ABS case with laminated metallic film.
- External dimensions: 445 (W) × 340 (H) × 140 (D) mm
- Internal dimensions: 440 (W) × 320 (H) × (bottom depth 75 + top depth 55) (D) mm
- Weight: 1.9 kg
- Material: ABS

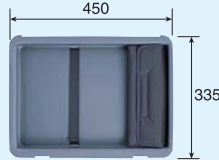
* Tool pallet is not provided.
The B-740 tool pallet can be ordered separately. (P.68)

■ Optional item

B-76-3 PC TRAY



- External dimensions: 450 (W) × 335 (H) × 50 (D) mm
- PC space inner dimensions: 320 (W) × 280 (H) × 45 (D) mm (with adaptor tray removed)
- Compatible models: B-660



B-66 TOOL CASE

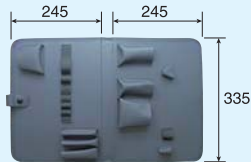
- A laminated metallic film on the ABS material provides a high-quality feel.
- Minimum size for accommodating an A4 file.
- The optional PC tray is ideal for carrying a personal computer.

- External dimensions: 360 (W) × 270 (H) × 110 (D) mm
- Internal dimensions: 350 (W) × 260 (H) × (bottom depth 60 + top depth 40) (D) mm
- Weight: 1.7 kg
- Material: ABS
- With accessory document file

■ Optional items

B-66-1 TOOL PALLET

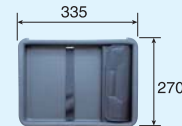
- External dimensions: 335 (W) × 245 (H) × 40 (D) mm
- Compatible models: B-66
- * Can also be stored in B-81 / 693.



B-66-2 PC TRAY

- Convenient tray for carrying a B5 size notebook computer.
- The adaptor tray can be removed.
- * Cannot be used as both a PC tray and a tool pallet.

- External dimensions: 335 (W) × 270 (H) × 40 (D) mm
- PC space inner dimensions: 320 (W) × 230 (H) × 35 (D) mm (With the adaptor tray removed.)
- Compatible models: B-66



B-68 TOOL CASE



- A 2-step stay allows small items to be handled without fully opening the case.
- Equipped with a mounting bracket for a lock, etc. for a protection against theft and a personal information.
- A laminated metallic film on ABS material provides a high-quality feel.
- Equipped with a PC tray, ideal for a personal computer case.

- External dimensions: 445 (W) × 340 (H) × 110 (D) mm
- Internal dimensions: 440 (W) × 320 (H) × (bottom depth 55 + top depth 35) (D) mm
- PC tray inner dimensions: 320 (W) × 280 (H) × 45 (D) mm (not including adaptor)
- Weight: 2.5 kg
- Material: ABS
- Accessories: Document file & tool pallet, PC Tray



3 levels for PC, documents, tools.



A 2-step stay allows the lid partially open and held in that posture. Convenient for small items.



Equipped with a lock mounting bracket as a security measure. * A lock is not included.



With PC tray

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Aluminum

Aluminum alloy sheets

ABS

A4 size and smaller

Nylon

Tool bags

Tool boxes

Containers

Custom

S-176 TOOL CASE

- External dimensions: 450 (W) × 330 (H) × 115 (D) mm
- Internal dimensions:
430 (W) × 305 (H) × (bottom depth 60 + top depth 30) (D) mm
- Weight: 2.4 kg
- Material: ABS
- With accessory S-176-2 tool pallet, A (top)
S-176-3 tool pallet, B (bottom)

CAPACITY
11ℓLOCK
T

■ Replacement parts

S-176-2 TOOL PALLET A



S-176-3 TOOL PALLET B



■ Product without tool pallet

B-670 TOOL CASE

- Dimensions and material are identical to the S-176.
- Weight: 1.4 kg



* Tool pallet is not provided.
The S-176-2 tool pallet, A / S-176-3 tool pallet, B / and the B-740 tool pallet (P.68) can be ordered separately.

B-65 TOOL CASE



- All components are PVC-free.
- External dimensions: 450 (W) × 330 (H) × 115 (D) mm
- Internal dimensions:
430 (W) × 305 (H) × (bottom depth 60 + top depth 30) (D) mm
- Weight: 2.4 kg
- Material: ABS
- With accessory 2 tool pallets

CAPACITY
11ℓLOCK
T

S-175 TOOL CASE



- External dimensions: 445 (W) × 320 (H) × 115 (D) mm
- Internal dimensions:
437 (W) × 306 (H) × (bottom depth 65 + top depth 36) (D) mm
- Weight: 2.1 kg
- Material: ABS
- With accessory S-175-4 tool pallet, A (top)
S-175-5 tool pallet, B (bottom)

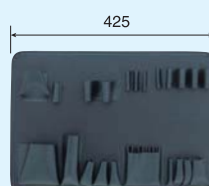
CAPACITY
13ℓLOCK
T

■ Replacement parts

S-175-4 TOOL PALLET A



S-175-5 TOOL PALLET B



■ Product without tool pallet

B-685 TOOL CASE



- Dimensions and material are identical to the S-175.
- Weight: 1.3 kg



* Tool pallet is not provided.
The S-175-4 tool pallet, A / S-175-5 tool pallet, B / and the B-740 tool pallet (P.68) can be ordered separately.

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Aluminum

Aluminum alloy sheets

ABS

A4 size and smaller

Nylon

Tool bags

Tool boxes

Containers

Custom

B-67 TOOL CASE



- External dimensions: 445 (W) × 300 (H) × 140 (D) mm
- Internal dimensions:
435 (W) × 285 (H) × (bottom depth 75 + top depth 55) (D) mm
- Weight: 2.2 kg
- Material: ABS
- With accessory tool pallet and pouch

SHOULDER
BELT

CAPACITY
16ℓ

LOCK



■ Product without tool pallet

B-680 TOOL CASE



SHOULDER
BELT

- Dimensions and material are identical to the B-67.
- Weight: 1.7 kg

* A tool pallet and pouch are not provided as accessories.
The B-740 tool pallet (P.68) can be ordered separately.



B-693 ATTACHE CASE



- External dimensions: 410 (W) × 300 (H) × 100 (D) mm
- Internal dimensions: 400 (W) × 283 (H) ×
(bottom depth 58 + top depth 34) (D) mm
- Weight: 1.3 kg
- Material: ABS
- With accessory document file



CAPACITY
10ℓ

LOCK

B-94 BLOW-MOLDED CASE



- External dimensions: 410 (W) × 300 (H) × 70 (D) mm
- Internal dimensions:
383 (W) × 260 (H) × (bottom depth 31 + top depth 23) (D) mm
- Weight: 1.1 kg
- Material: Polyethylene
- With accessory document file



CAPACITY
5 ℓ

S-179 TOOL CASE



SHOULDER
BELT

CAPACITY
15ℓ

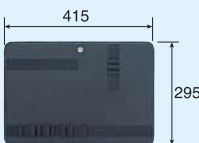
LOCK

LOCK
9 9 9

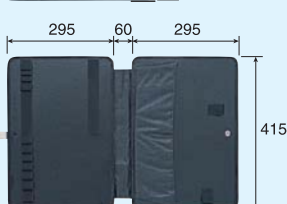
- External dimensions: 450 (W) × 330 (H) × 120 (D) mm
- Internal dimensions: 435 (W) × 320 (H) × (bottom depth 70 + top depth 40) (D) mm
- Weight: 3.3 kg
- Material: ABS
- With accessory pouch and tool pallet (S-186-4 / S-186-5)

■ Replacement parts

S-186-4 TOOL PALLET A



S-186-5 TOOL PALLET B



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Aluminum

Aluminum alloy sheets

ABS

A4 size and smaller

Nylon

Tool bags

Tool boxes

Containers

Custom

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Aluminum

Aluminum alloy sheets

ABS

A4 size and smaller

Nylon

Tool bags

Tool boxes

Containers

Custom

S-145 TOOL BAG

- External dimensions: 335 (W) × 245 (H) × 110 (D) mm
- Internal dimensions: 310 (W) × 225 (H) × (bottom depth 70 + top depth 30) (D) mm
- Weight: 1.2 kg
- Material: ABS + urethane foam
- With tool pallet, A / B



SHOULDER BELT

CAPACITY
6 ℓ

Tool pallet, A (front)



Tool pallet, A (rear)



Tool pallet, B (front)



Tool pallet, B (rear)

S-107 TOOL BAG

- External dimensions: 300 (W) × 200 (H) × 80 (D) mm
- Internal dimensions: 270 (W) × 170 (H) × 50 (D) mm
- Weight: 920 g
- Material: Vinyl leather
- With tool pallet



SHOULDER BELT

CAPACITY
2 ℓ**S-137** TOOL BAG

- External dimensions: 300 (W) × 200 (H) × 90 (D) mm
- Internal dimensions: 290 (W) × 190 (H) × 80 (D) mm
- Weight: 770 g
- Material: Nylon
- With tool pallet



SHOULDER BELT

CAPACITY
4 ℓ

Tool pallet

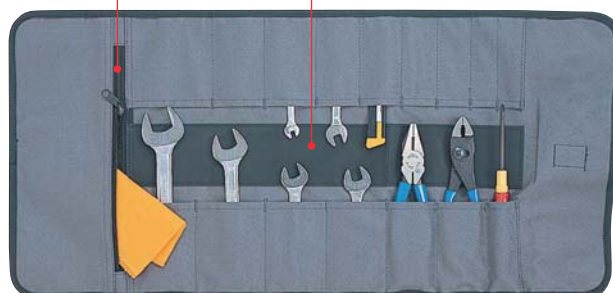
B-98 ROLL-UP POUCH

- Storage pockets: 17 pockets (1 with zipper)
- Size: 690 × 330 mm (when spread open)
- Weight: 380 g
- Material: Nylon



Zippered pocket

Rubber non-slip



*Does not include tools shown in the photograph.

B-730 TOOL BAG



- External dimensions: 465 (W) × 340 (H) × 110 (D) mm
- Internal dimensions: 445 (W) × 325 (H) × (bottom depth 50 + top depth 25) (D) mm
- Weight: 2.0 kg
- Material: Nylon
- * Tool pallet is not provided.
The B-740 tool pallet can be ordered separately. (P.68)



SHOULDER BELT

CAPACITY
10ℓ

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Aluminum

Aluminum alloy sheets

ABS

A4 size and smaller

Nylon

Tool bags

Tool boxes

Containers

Custom



The zipper area is wire-reinforced so that it remains upright when open.



The tool pallet can be placed at either the top or at the bottom.



*Does not include tools shown in the photograph.

B-720 TOOL BAG-ATTACHE

A 3-way tool case: "Hand-held", "Shoulder-strap", and "Backpack".

- External dimensions: 420 (W) × 320 (H) × 150 (D) mm
- Internal dimensions: 410 (W) × 310 (H) × (bottom depth 60 + top depth 60) (D) mm
- Weight: 1.4 kg
- Material: Polyester
- Rain cover included



SHOULDER BELT

CAPACITY
15ℓ

Shoulder belt



Provides enough space for storing large tools for OA equipment maintenance. Also accommodates spray cans, small items, and documents.

* Does not include tools shown in the photograph.



Personnel computer is protected by foam. Also holds B4 size documents.

Rain cover

A rain cover eliminates rainy day worries. The rain cover can be stowed in its pocket.



B-58 / 59 TOOL BAGS



- External dimensions:
B-58 320 (W) × 230 (H) × 220 (D) mm
B-59 390 (W) × 300 (H) × 250 (D) mm
- Internal dimensions:
B-58 310 (W) × 220 (H) × 210 (D) mm
B-59 380 (W) × 280 (H) × 240 (D) mm
- Weight: B-58 860 g / B-59 1.5 kg
- Material: Nylon



With shoulder belt (B-59)

SHOULDER BELT
B-59

CAPACITY
7 ℓ
B-58

CAPACITY
12ℓ
B-59

B-58

B-59



7 large and small pockets on the interior side faces. 10 pockets on both exterior faces.



Large and small pockets. (8 in interior, 14 on exterior)

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Aluminum

Aluminum alloy sheets

ABS

A4 size and smaller

Nylon

Tool bags

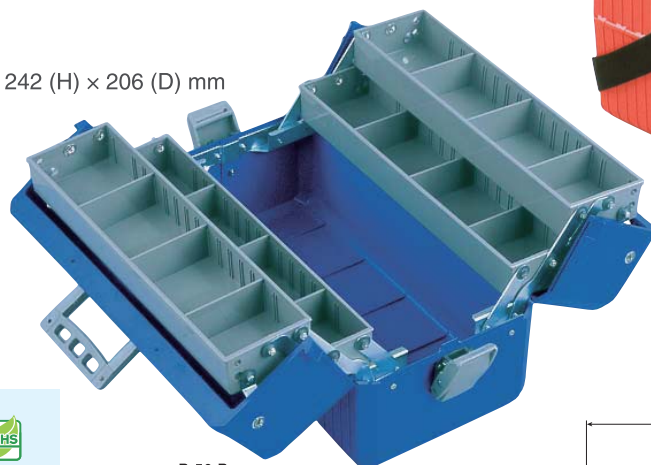
Tool boxes

Containers

Custom

B-56-O / B TOOL BOXESB-56-O (orange)
B-56-B (blue)

- Item tray × 4
- Divider × 16
- Material: ABS
- External dimensions: 413 (W) × 242 (H) × 206 (D) mm
- Weight: 3.8 kg
- Load capacity: 30 kg



B-56-B



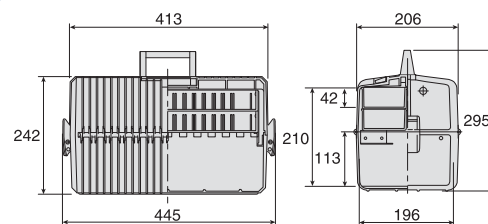
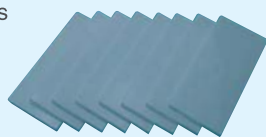
B-56-O

SHOULDER
BELTCAPACITY
16ℓ

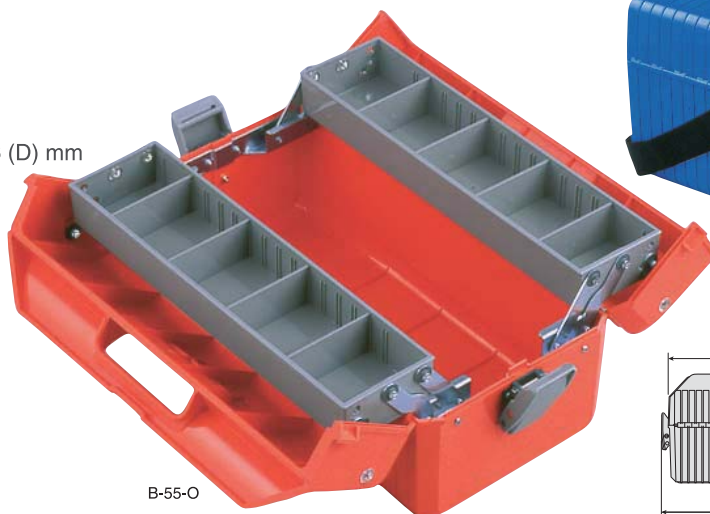
■ Replacement part

B-559 DIVIDER (for B-55 / 56)

- 8 pieces

**B-55-O / B** TOOL BOXESB-55-O (orange)
B-55-B (blue)

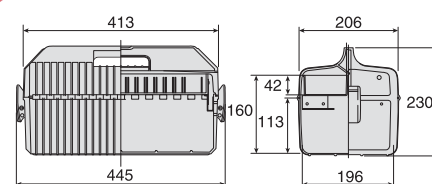
- Item tray × 2
- Divider × 8
- Material: ABS
- External dimensions: 413 (W) × 230 (H) × 206 (D) mm
- Weight: 2.9 kg
- Load capacity: 30 kg



B-55-O



B-55-B

SHOULDER
BELTCAPACITY
12ℓ**B-54-O / B** TOOL BOXESB-54-O (orange)
B-54-B (blue)

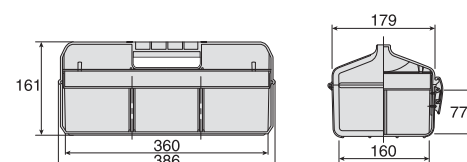
- Inner tray × 1
- Material: ABS
- External dimensions: 386 (W) × 161 (H) × 179 (D) mm
- Weight: 1.3 kg
- Load capacity: 20 kg



B-54-B



B-54-O

CAPACITY
6.5ℓ

The B-54 has a translucent pocket on the top for storing a cloth or work gloves, etc.

4 Main features of the B-56 / 55 / 54 that set them apart from similar products by other manufacturers

Thick molding

Thick molded ABS withstands impact shocks.
Stands up to hard use.



The photo shows B-55-B

Rugged body

Sturdy enough to stand on.



The photo shows B-56-O

Folding handle

The B-56 handle can be stowed inside the top. Usable as a stepstool.



The photo shows B-56-B



A lock can also be mounted.

Lock-mounting holes are provided on the front of the B-54, and on the side of the B-55 and B-56.

(hole dia.: 5.4 mmφ)

* Lock is not provided.



The photo shows B-54-O



B-55 / 56-O

プラスチック材料について

プラスチックには熱可塑性と熱硬化性の2つのタイプがあります。熱可塑性タイプはいったん硬くなって形が整っても熱を加えると再び軟らかくなる性質を持っています。例として台所用ラップや袋やポリバケツ(ポリエチレン)、自動車部品(ABS)などです。熱硬化性タイプはいったん固まると再び熱を加えても軟らかくならず変形しない性質で、例として浴槽やボタン(ポリエステル樹脂)、プリント配線板(フェノール樹脂、エポキシ樹脂)などがあります。

ABSについて

ABS(アクリロニトリル・ブタジエン・スチレン)はASにブタジエン(ゴム)が添加されたもので、他のプラスチックに比べ剛性のバランスが格段に優れています。また、経時変化による寸法変化も少なく成形後の表面外観に光沢があります。

B-83 TOOL BOX



CAPACITY
7 ℓ

- External dimensions: 430 (W) × 125 (H) × 168 (D) mm
- Material: Steel
- Weight: 1.4 kg



B-82 TOOL BOX



CAPACITY
3.5ℓ

- External dimensions: 330 (W) × 88 (H) × 137 (D) mm
- Material: Steel
- Weight: 1.1 kg



B-85 TOOL BOX



CAPACITY
3 ℓ

- External dimensions: 304 (W) × 110 (H) × 164 (D) mm
- Material: Steel
- Weight: 1.0 kg



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Aluminum

Aluminum alloy sheets

ABS

A4 size and smaller

Nylon

Tool bags

Tool boxes

Containers

Custom

B-73 CONTAINER



- Equipped with 3 sturdy hinges withstand heavy loads.
- External dimensions: 525 (W) × 340 (H) × 175 (D) mm
- Internal dimensions: 510 (W) × 326 (H) × (bottom depth 95 + top depth 68) (D) mm
- Weight: 4.5 kg
- Material: Aluminum alloy sheets
- Load capacity: 8 kg
- With foam 4 (with cutting lines) / 2 (without cutting lines)



CAPACITY
27ℓ



The foam has cutting lines which allow the user to design the foam as needed.

■ Replacement part

B-73-1 FOAM

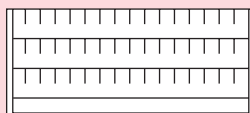


- Material: Polyurethane (soft)
- 4 sheets of foam with (20 × 20 mm) cutting lines, and 2 sheets without cutting lines (total: 6 sheets).
- For B-73

Urethane cross-section

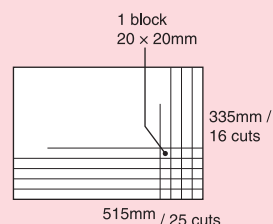


515 (W) × 335 (H) × 30 (D) mm
Without cutting lines (soft) 1 sheet



515 (W) × 335 (H) × 30 (D) mm
With cutting lines (soft) 4 sheets

515 (W) × 335 (H) × 10 (D) mm
Without cutting lines (soft) 1 sheet



B-530 CONTAINER



- External dimensions: 550 (W) × 370 (H) × 165 (D) mm
- Internal dimensions: 520 (W) × 340 (H) × (bottom depth 95 + top depth 50) (D) mm
- Weight: 4.5 kg
- Material: Aluminum alloy sheets
- Load capacity: 8 kg
- With foam (B-89 × 1, B-88 × 1, B87 × 3)



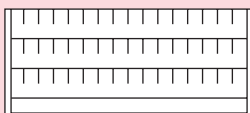
CAPACITY
25ℓ



Urethane cross-section

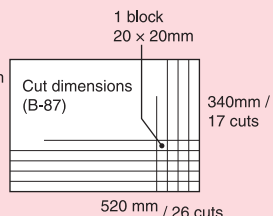


B-89 (soft) 1 sheet
520 (W) × 340 (H) × 25 / 50 (D) mm



B-87 (hard) 3 sheets
520 (W) × 340 (H) × 30 (D) mm

B-88 (hard) 1 sheet
520 (W) × 340 (H) × 5 (D) mm



B-87 / 88 / 89 SHOCK-ABSORBING FOAMS



Part no.	External dimensions mm	Material	Weight g
B-87	520 (W) × 340 (H) × 30 (D)	Polyethylene (hard)	130
B-88	520 (W) × 340 (H) × 5 (D)		20
B-89	520 (W) × 340 (H) × 25 / 50 (D)	Polyurethane (soft)	150

B-89 (soft)

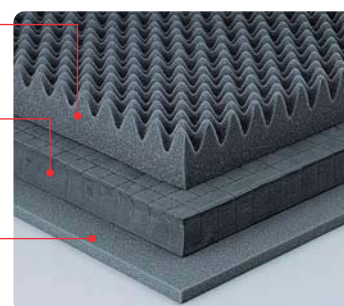
Place the foam in the top to provide flexibility on the contents.

B-87 (hard)

Features cutting lines for flexible use. Select the number of sheets in accordance with the bottom thickness.

B-88 (hard)

Place in the bottom to absorb physical shocks from the outer case.



CONTAINERS



B-505

SHOULDER
BELT

CAPACITY
43ℓ

- Weight: 4.9 kg
- Material: Polyethylene
- Load capacity: 15 kg
- Accessories: 6 foam sheets
- See below for dimensions



An invoice can be affixed on the case then being used as an in-house mail carrier.



Example of a foam cutout pattern for carrying a robot.

Common functions for B-505 / 503 / 500



A built-in coil spring always keeps the handle folded when not in use. (The photo shows B-505.)



A rotary catch keeps the top securely engaged with the bottom and offers a high water resistance. A lock can also be attached. (The photo shows B-505.)



The aluminum frame has gasket inserts to keep water and dust out. (The photo shows B-503.)



B-503

CAPACITY
56ℓ

- Weight: 6.3 kg
- Material: Polyethylene
- Load capacity: 15 kg
- Accessories: 5 foam sheets
- See below for dimensions



With a pull-handle and casters for mobility.



B-500

CAPACITY
112ℓ

- Weight: 9.0 kg
- Material: Polyethylene
- Load capacity: 25 kg
- Accessories: 7 foam sheets / 4 casters (detachable)
- See below for dimensions



Caster

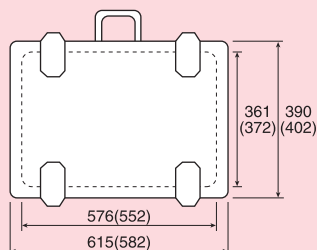


Detachable casters, convenient for carrying heavy objects.

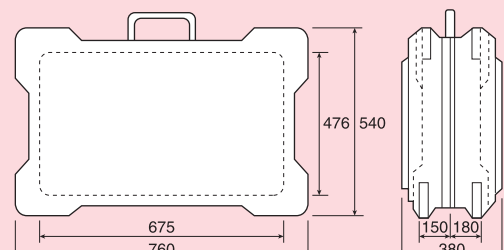


Dimensions

B-505
(B-503)



B-500



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Aluminum

Aluminum alloy sheets

ABS

A4 size and smaller

Nylon

Tool bags

Tool boxes

Containers

Custom

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Aluminum

Aluminum alloy sheet

ABS

A4 size or smaller

Nylon

Tool bags

Tool boxes

Containers

Custom

080

Original Cases & Case Modifications

HOZAN accepts orders for customized case sizes, interior configurations, as well as company name and logo printing, etc., on the case exteriors. We also provide customized tool pallets and urethane foam which is pre-cut to accommodate specific tools. We also maintain an inventory of the various locks and hinges used on our cases, and repairs are available upon request. Contact your HOZAN representative for details.



Original



Cases can be fabricated for specific applications.



Clean room specifications are also possible (empty).



Interior work can also be provided.

Original



Match to the case color.



Matched to the logo color.

Silk screen printing is used, and multi-colored printing also possible. For details, contact a HOZAN representative.

Original



A custom tool pallet



Custom inner TRAYS



Aluminum panels

別注ケースのお見積もりは、
当社webページの見積依頼書をご利用ください。

※お見積もりは無料です。

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

TOPページから、「お見積フォーム」をクリック



各種見積依頼書がダウンロードできます



見積依頼書 (サンプル)

別注ケース見積依頼書		数量		単位		ご予算		円	
ケース本体	数量	単位	ご予算	ケース内仕具	数量	単位	ご予算	ケース内仕具	数量
① ケース本体	1	個	1000	② 内装仕具	1	個	1000	③ 内装仕具	1
④ 内装仕具	1	個	1000	⑤ 内装仕具	1	個	1000	⑥ 内装仕具	1
⑦ 内装仕具	1	個	1000	⑧ 内装仕具	1	個	1000	⑨ 内装仕具	1
⑩ 内装仕具	1	個	1000	⑪ 内装仕具	1	個	1000	⑫ 内装仕具	1
⑬ 内装仕具	1	個	1000	⑭ 内装仕具	1	個	1000	⑮ 内装仕具	1
⑯ 内装仕具	1	個	1000	⑰ 内装仕具	1	個	1000	⑱ 内装仕具	1
⑲ 内装仕具	1	個	1000	⑳ 内装仕具	1	個	1000	㉑ 内装仕具	1
㉒ 内装仕具	1	個	1000	㉓ 内装仕具	1	個	1000	㉔ 内装仕具	1
㉕ 内装仕具	1	個	1000	㉖ 内装仕具	1	個	1000	㉗ 内装仕具	1
㉘ 内装仕具	1	個	1000	㉙ 内装仕具	1	個	1000	㉚ 内装仕具	1
㉛ 内装仕具	1	個	1000	㉜ 内装仕具	1	個	1000	㉝ 内装仕具	1
㉞ 内装仕具	1	個	1000	㉟ 内装仕具	1	個	1000	㊱ 内装仕具	1
㊲ 内装仕具	1	個	1000	㊳ 内装仕具	1	個	1000	㊴ 内装仕具	1
㊵ 内装仕具	1	個	1000	㊶ 内装仕具	1	個	1000	㊷ 内装仕具	1
㊸ 内装仕具	1	個	1000	㊹ 内装仕具	1	個	1000	㊺ 内装仕具	1
㊻ 内装仕具	1	個	1000	㊼ 内装仕具	1	個	1000	㊽ 内装仕具	1
㊾ 内装仕具	1	個	1000	㊿ 内装仕具	1	個	1000	㊻ 内装仕具	1

お見積フォーム

お電話でのお問い合わせは 06-6567-3111

Tool Kits



Tools & case make kits

Standard Tool Kits

P-87



Large-to-medium tool kits

P-92



Small tool kits

P-96



Tool kits

Select it according to your needs,
The Tool Kit For You

P-82



Select tool



Select a case



Max. of 61 types variation

Original Tool Kits

that meets your specific needs.

P-98





Select it according to your needs,

The Tool Kit For You

For example For precision instrument maintenance

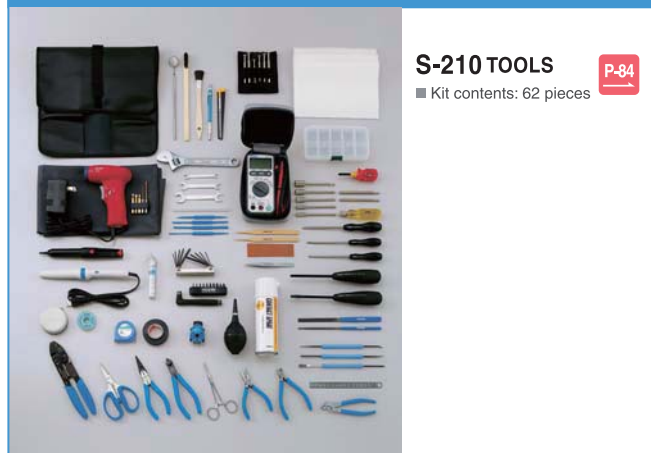


Select the desired tools

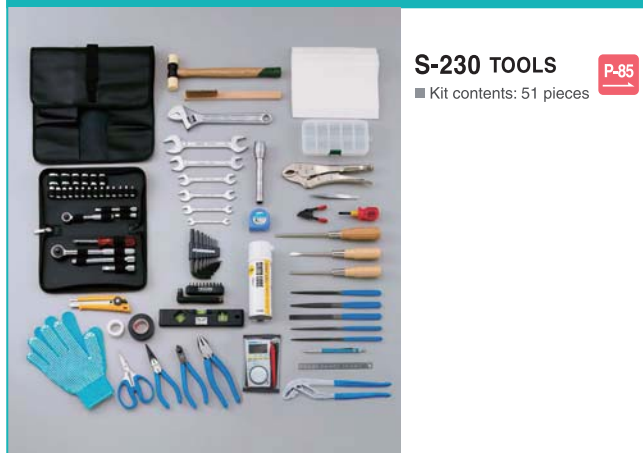


Select the tools for your specific needs.

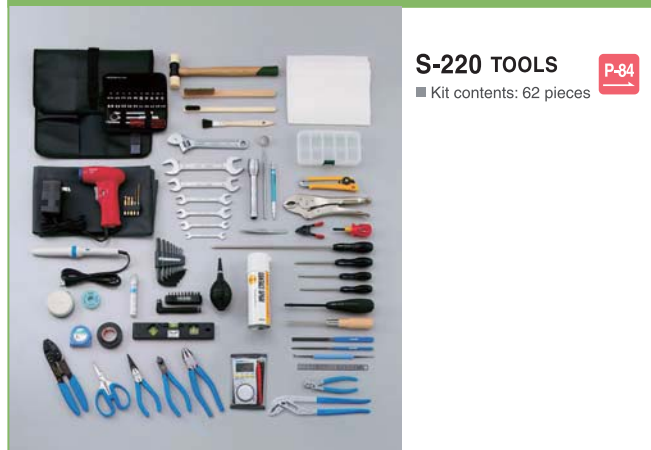
For electronics



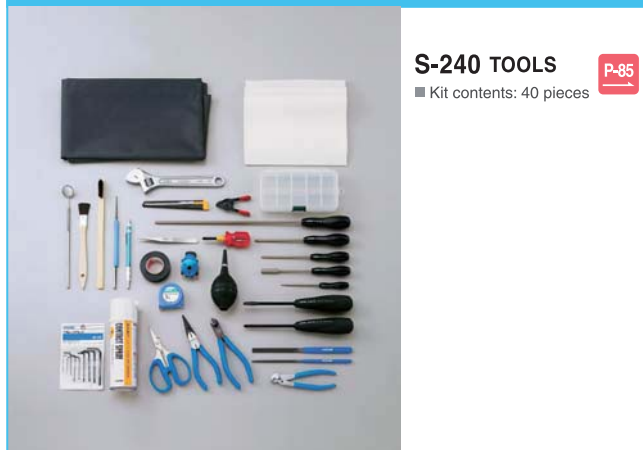
For machinery



For mechatronics



For minor tasks



Select a case



Attache Case

Smart design and easy to carry.

**B-606 TOOL CASE**

■ External dimensions:
450 (W) × 330 (H) ×
135 (D) mm

**B-770 TOOL CASE**

■ External dimensions:
455 (W) × 355 (H) ×
130 (D) mm

**B-640 TOOL CASE**

■ External dimensions:
455 (W) × 355 (H) ×
145 (D) mm

Aluminum case

**B-680 TOOL CASE**

■ External dimensions:
445 (W) × 300 (H) ×
140 (D) mm

**B-660 TOOL CASE**

■ External dimensions:
445 (W) × 340 (H) ×
140 (D) mm

**B-600 TOOL CASE**

■ External dimensions:
455 (W) × 330 (H) ×
130 (D) mm

**B-80 TOOL CASE**

■ External dimensions:
460 (W) × 340 (H) ×
145 (D) mm

Plastic case

**B-685 TOOL CASE**

■ External dimensions:
445 (W) × 320 (H) ×
115 (D) mm

**B-670 TOOL CASE**

■ External dimensions:
450 (W) × 330 (H) ×
115 (D) mm

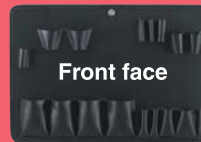
Fabric case

**B-730 TOOL BAG**

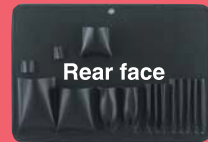
■ External dimensions:
465 (W) × 340 (H) ×
110 (D) mm



Tool pallet is not provided with the tool case, ordered separately.



Front face



Rear face

B-740 TOOL PALLET

■ Dimensions: 425 (W) × 295 (H) mm

Box

Good functionality for easy tool access



Steel box

**B-83 TOOL BOX**

■ External dimensions:
430 (W) × 125 (H) ×
168 (D) mm

The small-capacity B-83 has space only for the S-240 tools.

Fabric bag

**B-59 TOOL BAG**

■ External dimensions:
390 (W) × 300 (H) ×
250 (D) mm

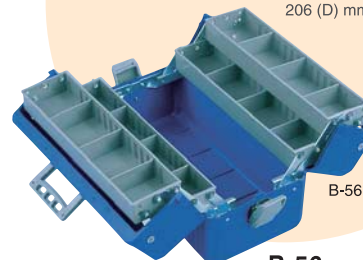
Plastic box



B-55-O (orange)

B-55-o / B TOOL BOXES

■ External dimensions:
413 (W) × 230 (H) ×
206 (D) mm



B-56-B (Blue)

B-56-o / B TOOL BOXES

■ External dimensions:
413 (W) × 242 (H) ×
206 (D) mm

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Selectable Tool Kits

Large-to-Medium Sized Tool Kits

Medium-to-Small Sized Tool Kits

Tool Kits

Original tool kits

For electronics



S-210 TOOLS

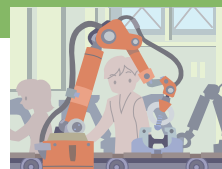


- Weight: 5.2 kg
- Kit contents: 62 pieces

Alignment Tool	D-16-1B	Bamboo Probe	P-806
Ditto	D-16-2B	Forceps	P-843
Ditto	D-16-3B	Tweezers	P-891
Ditto	D-16-4B	Flat Wrench 5.5 x 7 mm	W-76
Ditto	D-16-5	Ditto 8 x 10 mm	
Precision Screwdriver ⊕No.0	D-20	Ditto 12 x 14 mm	
Ditto ⊕No.1		Hex Lobular Wrench Set	W-81
Ditto ⊖1.2		(T6 / T8 / T10 / T15 / T20 / T25 / T27 / T30 /	
Ditto ⊖1.8		⊕No.2 x ⊖6.0 / ⊕No.1 x ⊖4.5)	W-98
Ditto ⊖2.3		Hex Wrench Set	
Ditto ⊖3.0		(1.27 / 1.5 / 1.6 / 2.0 / 2.4 /	
Reversible Stubby Screwdriver ⊕No.2 / ⊖6.0	D-81	2.5 / 3.0 / 3.2 / 4.0 / 4.8 mm)	W-210-200
Phillips Screwdriver ⊕No.0	D-140-100	Adjustable Wrench	
Ditto ⊕No.1	D-150-100	Rubber Blower	Z-262
Slotted Screwdriver ⊖4.0	D-240-100	Contact Spray	Z-295
Ditto ⊖6.0	D-583-100	Measure Tape	Z-341
Phillips Screwdriver ⊕No.2	D-587-100	Inspection Mirror	Z-350
Digital Multimeter	DT-117	Clip Light	
Soldering Iron Stands	H-11	Nut Driver Set	
Soldering Iron with Booster	H-600	(4 / 4.5 / 5 / 5.5 / 7 / 8 / 10 mm)	
Solder Aid Tool Kit (Hook and Reamer)	H-740	Power Screwdriver	
Ditto (Knife and Scraper)		File Hand	
Ditto (Brush and Fork)		Ditto Round	
ESD Desoldering Pump	H-959	Type Brush	
Lead-free Solder	HS-363	Side Brush	
Desolder Braid	HS-380-2.5	Steel Rule 150 mm	
Diagonal Cutter	N-4-150	Utility Knife	
Miniature Diagonal Cutter	N-32	Electrical Tape	
Snips	N-840	Precision Scribing Needle	
Long Nose Pliers with Side Cutter	P-15-150	Screw Case Large	
Miniature Long Nose Pliers	P-36	Roll-up Pouch	
Nut Pliers	P-214	Service Mat	
Crimping Tool	P-704	Cleaning Cloth (3-piece Pack)	



For mechatronics



S-220 TOOLS



- Weight: 7.1 kg
- Kit contents: 62 pieces

Reversible Stubby Screwdriver ⊕No.2 / ⊖6.0	D-81	Socket Wrench Set	W-510
Phillips Screwdriver ⊕No.0	D-140-100	(4 / 4.5 / 5 / 5.5 / 6 / 7 / 8 / 9 / 10 / 12 mm)	W-521
Ditto ⊕No.1	D-150-100	Open End Wrench 5.5 x 7 mm	
Ditto ⊕No.2	D-155-300	Ditto 8 x 10 mm	
Slotted Screwdriver ⊖4.0	D-240-100	Ditto 11 x 13 mm	
Ditto ⊖6.0	D-583-100	Ditto 12 x 14 mm	
Digital Multimeter	DT-121	Ditto 17 x 19 mm	
Soldering Iron Stand	H-11	Ditto 22 x 24 mm	Z-262
Soldering Iron with Booster	H-600	Rubber Blower	
Lead-free Solder	HS-363	Contact Spray	Z-295
Desolder Braid	HS-380-2.5	Flashlight	Z-334
Diagonal Cutter	N-4-150	Measure Tape	Z-341
Snips	N-840	Inspection Mirror	Z-350
Long Nose Pliers with Side Cutter	P-15-150	File Hand	
Lineman's Pliers	P-43-175	Ditto Round	
Nut Pliers	P-214	Ring Pliers	
Water Pump Pliers	P-245	(For Blade & Bent Nose)	
Crimping Tool	P-704	Locking Pliers	
Spring Hook	P-801	Power Screwdriver	
Tweezers	P-891	Thru-hole Screwdriver ⊕No.2	
Hex Lobular Wrench Set	W-81	Type Brush	
(T6 / T8 / T10 / T15 / T20 / T25 / T27 / T30 /	W-96	Side Brush	
⊕No.2 x ⊖6.0 / ⊕No.1 x ⊖4.5)		Brass Brush	
Hex Wrench 1.5 mm		Plastic Hammer	
Ditto 2.0 mm		Steel Rule 150 mm	
Ditto 2.5 mm		Utility Knife (Large)	
Ditto 3.0 mm		Electrical Tape	
Ditto 4.0 mm	W-210-200	Precision Scribing Needle	
Ditto 5.0 mm		Level Gauge	
Ditto 6.0 mm		Screw Case Large	
Ditto 8.0 mm		Roll-up Pouch	
Ditto 10.0 mm		Service Mat	
Adjustable Wrench		Cleaning Cloth (3-piece Pack)	

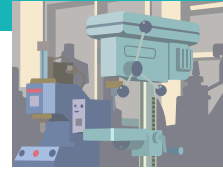


For machinery

S-230 TOOLS



- Weight: 6.4 kg
- Kit contents: 51 pieces



Reversible Stubby Screwdriver ⊕ No.2 / ⊖ 6.0	D-81	Open End Wrench 5.5 × 7 mm	W-521
Digital Multimeter	DT-121	Ditto 8 × 10 mm	
File Round		Ditto 11 × 13 mm	
Ditto Half-round		Ditto 12 × 14 mm	
Ditto Hand	K-155-L	Ditto 17 × 19 mm	
Ditto Triangular		Ditto 22 × 24 mm	
Ditto Square		Conditioner	Z-296
Diagonal Cutter	N-4-150	Flashlight	Z-334
Snips	N-840	Measure Tape	Z-341
Long Nose Pliers with Side Cutter	P-15-150	Ring Pliers (Bent Nose)	
Lineman's Pliers	P-43-175	Locking Pliers	
Water Pump Pliers	P-245	Thru-hole Screwdriver ⊕ No.2	
Tweezers	P-891	Ditto ⊕ No.3	
Hex Lobular Wrench Set	W-81	Ditto ⊖ 6.0	
(T6 / T8 / T10 / T15 / T20 / T25 / T27 / T30 /			
⊕ No.2 x ⊖ 6.0 / ⊕ No.1 x ⊖ 4.5)			
Hex Wrench 1.5 mm	W-96	Brass Brush	
Ditto 2.0 mm		Plastic Hammer	
Ditto 2.5 mm		Steel Rule 150 mm	
Ditto 3.0 mm		Utility Knife (Large)	
Ditto 4.0 mm		Work Gloves	
Ditto 5.0 mm		Electrical Tape	
Ditto 6.0 mm		Shielding Tape	
Ditto 8.0 mm		Precision Scribing Needle	
Ditto 10.0 mm		Level Gauge	
Adjustable Wrench	W-210-250	Screw Case Large	
Socket Wrench Set	W-512	Roll-up Pouch	
(6.3 mm Square 4 / 4.5 /		Cleaning Cloth (3-piece Pack)	
5 / 5.5 / 6 / 7 / 8 / 9 / 10,			
9.5 mm Square 10 / 12 /			
13 / 14 / 17 / 19,			
Hex Tips 3 / 4 / 5 / 6 / 8 mm)			



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

For minor tasks

S-240 TOOLS



- Weight: 2.5 kg
- Kit contents: 40 pieces



Reversible Stubby Screwdriver ⊕ No.2 / ⊖ 6.0	D-81	Type Brush	W-99
Phillips Screwdriver ⊕ No.0	D-140-100	Side Brush	
Ditto ⊕ No.1	D-150-100	Utility Knife	
Ditto ⊕ No.2	D-155-300	Electrical Tape	
Slotted Screwdriver ⊖ 2.5	D-230-75	Precision Scribing Needle	
Ditto ⊖ 6.0	D-583-100	Screw Case Large	
Phillips Screwdriver ⊕ No.2	D-587-100	Service Mat	
Nut Driver	D-850-5.5	Cleaning Cloth (3-piece Pack)	
Diagonal Cutter	N-4-150		
Snips	N-840		
Long Nose Pliers with Side Cutter	P-15-150		
Nut Pliers	P-214		
Spring Hook	P-801		
Tweezers	P-891		
Hex Wrench 0.71 mm	W-99		
Ditto 0.89 mm			
Ditto 1.27 mm			
Ditto 1.5 mm			
Ditto 1.6 mm			
Ditto 2.0 mm			
Ditto 2.5 mm			
Ditto 3.0 mm			
Ditto 4.0 mm			
Adjustable Wrench	W-210-200		
Rubber Blower	Z-262		
Contact Spray	Z-295		
Measure Tape	Z-341		
Inspection Mirror	Z-350		
Clip Light			
File Hand			
Ditto Round			
Ring Pliers			
(For Blade & Bent Nose)			



Selectable Tool Kits

Large-to-Medium Sized Tool Kits

Medium-to-Small Sized Tool Kits

Tool Kits

Original tool kits

Cutters & Pliers
Wire strippers
Crimpers

Tweezers
Screwdrivers & Wrenches

Metal working
Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Selectable Tool Kits

Large-to-Medium Sized Tool Kits

Medium-to-Small Sized Tool Kits

Tool Kits

Original tool kits



Combination example

S-230 TOOLS
B-640 TOOL CASE
B-740 TOOL PALLET



Combination example

S-210 TOOLS
B-80 TOOL CASE
B-740 TOOL PALLET



Combination example

S-240 TOOLS
B-670 TOOL CASE
B-740 TOOL PALLET



Selectable tool kits Combination example

Select it according to your needs
The Tool Kit For You
Combination of 61 types



Combination example

S-220 TOOLS
B-59 TOOL BAG



Combination example

S-240 TOOLS
B-730 TOOL BAG
B-740 TOOL PALLET



Combination example

S-240 TOOLS
B-83 TOOL BOX

Combination example

S-230 TOOLS
B-55-O TOOL BOX



The small-capacity B-83 has space only for the S-240 tools.

S-80 TOOL KIT

CUSTOM

100 V 230 V
S-80-230

- Weight: 7 kg
- Accessory: Tool pallet



Tool pallet (top) rear face

Case

B-80 TOOL CASE



- External dimensions: 460 (W) × 340 (H) × 145 (D) mm

- Weight: 2.4 kg
- Material: Aluminum

For details, see page 69



Now available in the kit, the H-600 soldering iron is a quick-heating for speedy use, and capped for speedy stowing. The set includes the water tight H-11 soldering iron stand.

For details, see pages 105 & 107



Accessory: Digital multimeter (DT-121)

For details, see page 125

Details table (kit contents: 77 pieces)

Reversible Screwdriver ⊕ No.1 / ⊖ No.2	D-6	Miniature Long Nose Pliers	P-35
Precision Screwdriver ⊕ No.00		Lineman's Pliers	P-43-175
Ditto ⊕ No.1	D-27	Reverse Action Tweezers	P-89
Ditto ⊖ 1.8		Slip Joint Pliers	P-211Z-150
Ditto ⊖ 2.5		Crimping Tool	P-704
Alignment Tool	D-29-100	Spring Hook	P-801
Reversible Stubby Screwdriver ⊕ No.2 / ⊖ 6.0	D-81	Stainless Probe (Key)	P-808
Phillips Screwdriver ⊕ No.00	D-130-75	Curved Tweezers	P-882
Ditto ⊕ No.0	D-140-100	Tweezers	P-891
Ditto ⊕ No.1	D-150-100	Flat Wrench 5.5 × 7 mm	
Slotted Screwdriver ⊖ 2.5	D-230-75	Ditto 8 × 10 mm	W-76
Ditto ⊖ 4.0	D-240-100	Ditto 12 × 14 mm	
Ditto ⊖ 5.0	D-250-100	Hex Lobular Wrench Set	
Ditto ⊖ 5.5	D-255-100	T6 / T8 / T10 / T15 / T20 / T25 / T27 / T30	W-81
Slotted Screwdriver ⊖ 6.0	D-583-100	⊕ No.2 × ⊖ 6.0 / ⊕ No.1 × ⊖ 4.5	
Phillips Screwdriver ⊕ No.2	D-587-100	Ballpoint L-wrench 1.5 mm	
Digital Multimeter	DT-121	Ditto 2.0 mm	
Soldering Iron Stand	H-11	Ditto 2.5 mm	
Soldering Iron with Booster	H-600	Ditto 3.0 mm	W-110
Solder Aid Tool Kit (Hook and Reamer)		Ditto 4.0 mm	
Ditto (Knife and Scraper)	H-740	Ditto 5.0 mm	
Ditto (Brush and Fork)		Ditto 6.0 mm	
ESD Desoldering Pump	H-959	Adjustable Wrench	W-210-150
Lead-free Solder	HS-363	Socket Wrench Set	
Desolder Braid	HS-380-2.5	(4 / 4.5 / 5 / 5.5 / 6 / 7 / 8 / 9 / 10 / 12 mm)	W-510
File Round		Precision Oiler	Z-64
Ditto Half-round		Rubber Blower with Extension Nozzle	Z-261
Ditto Crochet		Flashlight	Z-334
Ditto Oval		Level Gauge	Z-340
Ditto Hand	K-215	Measure Tape	Z-341
Ditto Hand (Flat)		Inspection Mirror	Z-350
Ditto Knife		Steel Rule 150 mm	
Ditto Triangular		Utility Knife	
Ditto Triangular (Flat Leaf)		Shielding Tape	
Ditto Square		Table Tap	
Slide-Out Magnifier	L-98	Heat Sink	
Diagonal Cutter with Stripper	N-9-150	Electrical Tape	
Miniature Diagonal Cutter	N-31	Hex Wrench 0.71 mm	
Snips	N-840	Ditto 0.89 mm	
Long Nose Pliers with Side Cutter	P-15-150	Ditto 1.27 mm	

S-81 TOOL KIT

CUSTOM

100 V 230 V
S-81-230

- Weight: 3.5 kg
- Accessory: Tool pallet



Case

B-81 TOOL CASE



- External dimensions: 365 (W) × 275 (H) × 110 (D) mm

- Weight: 1.8 kg
- Material: Aluminum

For details, see page 69



Now available in the kit, the H-600 soldering iron is a quick-heating for speedy use, and capped for speedy stowing. The set includes the water tight H-11 soldering iron stand.

For details, see pages 105 & 107



Accessory: Digital multimeter (DT-121)

For details, see page 125

Details table (kit contents: 32 pieces)

Reversible Screwdriver ⊕ No.00 / ⊖ 2.5	D-2	Snips	N-840
Ditto ⊕ No.1 / ⊖ 4.5	D-4	Long Nose Pliers with Side Cutter	P-15-150
Ditto ⊕ No.2 / ⊖ 5.5	D-8	Slip Joint Pliers	P-211Z-150
Precision Screwdriver ⊕ No.0		Crimping Tool	P-704
Ditto ⊖ No.1	D-20	Tweezers	P-891
Ditto ⊖ 1.2		Ballpoint L-wrench 1.5 mm	
Ditto ⊖ 1.8		Ditto 2.0 mm	
Ditto ⊖ 2.3		Ditto 2.5 mm	
Ditto ⊖ 3.0		Ditto 3.0 mm	W-110
Digital Multimeter	DT-121	Ditto 4.0 mm	
Soldering Iron Stand	H-11	Ditto 5.0 mm	
Soldering Iron with Booster	H-600	Ditto 6.0 mm	
Lead-free Solder	HS-363	Adjustable Wrench	W-210-150
Desolder Braid	HS-380-2.5	Measure Tape	Z-341
Slide-Out Magnifier	L-98	Clip Light	
Diagonal Cutter with Stripper	N-9-150	Utility Knife	

S-76 TOOL KIT

CUSTOM

100 V 230 V
S-76-230

- This user-friendly case features a comfortable elastomer handle and an aluminum-flake finish effectively hides scratches.

- Weight: 4.5 kg
- Accessory: Tool pallet



Details table (kit contents: 48 pieces)

Precision Screwdriver	⊕ No.0	
Ditto	⊕ No.1	
Ditto	⊖ 1.2	D-20
Ditto	⊖ 1.8	
Ditto	⊖ 2.3	
Ditto	⊖ 3.0	
Voltage Checker	⊖ 4.0	D-74-L
Reversible Stubby Screwdriver	⊕ No.2 / ⊖ 6.0	D-81
Phillips Screwdriver	⊕ No.00	D-130-75
Ditto	⊕ No.0	D-140-100
Ditto	⊕ No.1	D-150-100
Ditto	⊕ No.2	D-155-100
Slotted Screwdriver	⊖ 2.5	D-230-75
Ditto	⊖ 4.0	D-240-100
Ditto	⊖ 5.0	D-250-100
Ditto	⊖ 5.5	D-255-100
Nut Driver	5.5 mm	D-850-5.5
Ditto	7 mm	D-850-7
Soldering Iron Stand	H-11	
Soldering Iron with Booster	H-600	
Lead-free Solder	HS-363	
Desolder Braid	HS-380-2.5	
Diagonal Cutter with Stripper	N-9-150	
Snips	N-840	
Long Nose Pliers with Side Cutter	P-15-150	
Lineman's Pliers	P-43-175	
Slip Joint Pliers	P-211Z-150	
Crimping Tool	P-704	
Spring Hook	P-801	
Stainless Probe (Key)	P-808	
Tweezers	P-876	
Hex Wrench	0.71 mm	
Ditto	0.89 mm	
Ditto	1.27 mm	
Ditto	1.5 mm	
Ditto	1.6 mm	W-99
Ditto	2.0 mm	
Ditto	2.5 mm	
Ditto	3.0 mm	
Ditto	4.0 mm	
Adjustable Wrench	W-210-150	
Rubber Blower with Extension Nozzle	Z-261	
Flashlight	Z-334	
Measure Tape	Z-341	
Inspection Mirror	Z-350	
File Hand		
Ditto Round		
Utility Knife		

For details, see pages 105 & 107

Now available in the kit, the H-600 soldering iron is a quick-heating for speedy use, and capped for speedy stowing. The set includes the water tight H-11 soldering iron stand.


Case
S-176 TOOL CASE

LOCK

- External dimensions: 450 (W) × 330 (H) × 115 (D) mm

- Weight: 2.4 kg
- Material: ABS
- Accessory: Tool pallet

For details, see page 72

**S-75 TOOL KIT**

CUSTOM

100 V 230 V
S-75-230

- Weight: 5.8 kg
- Accessory: Tool pallet



Tool Pallet, B (bottom side) rear face

Case
S-175 TOOL CASE

ROHS

LOCK

- External dimensions: 445 (W) × 320 (H) × 115 (D) mm

- Weight: 2.1 kg
- Material: ABS
- Accessory: Tool pallet

For details, see page 72



Now available in the kit, the H-600 soldering iron is a quick-heating for speedy use, and capped for speedy stowing. The set includes the water tight H-11 soldering iron stand.

For details, see pages 105 & 107

Details table (kit contents: 72 pieces)

Alignment Tool	D-16-1B	
Ditto	D-16-2B	
Ditto	D-16-3B	
Ditto	D-16-4B	
Ditto	D-16-5	
Precision Screwdriver	⊕ No.0	
Ditto	⊕ No.1	
Ditto	⊖ 1.2	D-20
Ditto	⊖ 1.8	
Ditto	⊖ 2.3	
Ditto	⊖ 3.0	
Stubby Screwdriver	⊖ 6.0	D-63-P
Ditto	⊕ No.2	D-65-P
Voltage Checker	⊖ 4.0	D-74-L
Phillips Screwdriver	⊕ No.00	D-130-75
Ditto	⊕ No.0	D-140-100
Ditto	⊕ No.1	D-150-100
Ditto	⊕ No.2	D-155-100
Slotted Screwdriver	⊖ 2.5	D-230-75
Ditto	⊖ 2.5	D-230-150
Ditto	⊖ 4.0	D-240-100
Ditto	⊖ 5.0	D-250-100
Ditto	⊖ 5.5	D-255-100
Ditto	⊖ 6.0	D-583-100
Phillips Screwdriver	⊕ No.2	D-587-100
Soldering Iron Stand	H-11	
Solder Aid Tool Kit (Hook and Reamer)		
Ditto (Knife and Scraper)	H-740	
Ditto (Brush and Fork)		
Soldering Iron with Booster	H-600	
Lead-free Solder	HS-363	
Desolder Braid	HS-380-2.5	
File Round		
Ditto Half-Round		
Ditto Crochet		
Ditto Oval		
Ditto Hand		K-215
Ditto Hand (Flat)		
Ditto Knife		
Ditto Triangular		
Ditto Frat Leaf		
Ditto Square		
Diagonal Cutter with Stripper	N-9-125	
Miniature Diagonal Cutter	N-32	
Snips	N-840	
Long Nose Pliers with Side Cutter	P-15-150	
Miniature Long Nose Pliers	P-36	
Lineman's Pliers	P-43-150	
Reverse Action Tweezers	P-89	
Slip Joint Pliers	P-211Z-150	
Crimping Tool	P-704	
Spring Hook	P-801	
Tweezers	P-876	
Wire Stripper	P-968	
Flat Wrench	5.5 × 7 mm	
Ditto	8 × 10 mm	W-76
Ditto	12 × 14 mm	
Hex Wrench	1.27 mm	
Ditto	1.5 mm	
Ditto	1.6 mm	
Ditto	2.0 mm	W-91
Ditto	2.4 mm	
Ditto	3.0 mm	
Ditto	4.0 mm	
Adjustable Wrench	W-210-150	
Measure Tape	Z-341	
Nut Driver Set		
(4 / 4.5 / 5 / 5.5 / 7 / 8 / 10 mm)		
Clip Light		
Steel Rule 150 mm		
Utility Knife		
Screw Case		
Heat Sink		

LOCK

CAPACITY
13 ℓ

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Selectable Tool Kits

Large-to-Medium Sized Tool Kits

Medium-to-Small Sized Tool Kits

Tool Kits

Original tool kits

S-60-B TOOL KIT

CUSTOM

100 V 230 V
S-60-B230

- A stylish case made from ABS material. The sturdy die-cast lock is a retractable type.
- Handy accessory pouch for organizing small items.

- Weight: 4.5 kg
- Accessories: Tool pallet, pouch



Service mat to prevent floor soiling and scratching

LOCK SHOULDER BELT CAPACITY 15 l

Case

B-67 TOOL CASE

ROHS LOCK SHOULDER BELT

- External dimensions: 445 (W) × 300 (H) × 140 (D) mm

- Weight: 2.2 kg
- Material: ABS
- Accessories: Tool pallet, pouch



For details, see page 73

Details table (kit contents: 28 pieces)

Parts Box	B-10-AB	Hex Wrench	1.27 mm	
Reversible Screwdriver	⊕ No.00 / ⊖ 2.5	D-2	Ditto	1.5 mm
Ditto	⊕ No.1 / ⊖ 4.5	D-4	Ditto	1.6 mm
Ditto	⊕ No.2 / ⊖ 5.5	D-8	Ditto	2.0 mm
Reversible Stubby Screwdriver	⊕ No.2 / ⊖ 6.0	D-81	Ditto	2.4 mm
Soldering Iron Stand	H-11	Ditto	Ditto	3.0 mm
Soldering Iron with Cap	H-250	Ditto	Ditto	3.2 mm
Solder	H-702	Adjustable Wrench		W-210-150
Diagonal Cutter with Stripper	N-5-150	Clip Light		
Desolder Braid	No.3738	Utility Knife		
Long Nose Pliers with Side Cutter	P-15-150	Service Mat		
Slip Joint Pliers	P-211Z-150	File Hand		
Spring Hook	P-801	Ditto Round		
Tweezers	P-876	Electrical Tape		

S-79 TOOL KIT

DISCON.

CUSTOM

100 V 230 V
S-79-230

- Weight: 5.9 kg
- Accessory: Tool pallet, pouch



With dial lock. Stores in a safe, secure, and portable manner.



Now available in the kit, the H-600 soldering iron is a quick-heating for speedy use, and capped for speedy stowing. The set includes the water tight H-11 soldering iron stand.



Accessory: Digital multimeter (DT-121)

For details, see page 125

For details, see pages 105 & 107

Case

S-179 TOOL CASE

DISCON. LOCK LOCK SHOULDER BELT

- External dimensions: 450 (W) × 330 (H) × 120 (D) mm

- Weight: 3.3 kg
- Material: ABS
- Accessories: Tool pallet, pouch



For details, see page 73

Details table (kit contents: 52 pieces)

Precision Screwdriver	⊕ No.0	Drill Bit	0.5 mm φ	
Ditto	⊕ No.1	Ditto	0.6 mm φ	
Ditto	⊖ 1.2	Ditto	0.8 mm φ	K-495
Ditto	⊖ 1.8	Ditto	1 mm φ	
Ditto	⊖ 2.3	Ditto	1.2 mm φ	
Ditto	⊖ 3.0	Pin Vise		K-501
Voltage Checker	⊖	Diagonal Cutter with Stripper	N-5-150	
Reversible Stubby Screwdriver	⊕ No.2 / ⊖ 6.0	Miniature Diagonal Cutter	N-31	
Phillips Screwdriver	⊕ No.00	Snips	N-840	
Ditto	⊕ No.0	Long Nose Pliers with Side Cutter	P-15-150	
Ditto	⊕ No.1	Miniature Long Nose Pliers	P-35	
Ditto	⊕ No.2	Crimping Tool	P-704	
Slotted Screwdriver	⊖ 2.5	Tweezers	P-891	
Ditto	⊖ 4.0	Wire Stripper	P-968	
Ditto	⊖ 5.0	Hex Wrench Set		
Ditto	⊖ 5.5	(1.27 / 1.5 / 1.6 / 2.0 / 2.4 / 2.5 / 3.0 / 3.2 / 4.0 / 4.8 mm)		W-98
Digital Multimeter	DT-121	Adjustable Wrench		W-210-150
Soldering Iron Stand	H-11	Combination Wrench	5.5 mm	
Soldering Iron with Booster	H-600	Ditto	7 mm	
Solder Aid Tool Kit (Hook and Reamer)	H-740	Ditto	8 mm	W-520
Ditto (Knife and Scraper)		Ditto	10 mm	
Ditto (Brush and Fork)		Ditto	12 mm	
ESD Desoldering Pump	H-959	Measure Tape		Z-341
Lead-free Solder	HS-363	Clip Light		
Desolder Braid	HS-380-2.5	Utility Knife		
File (Hand)	K-172	Heat Sink		
		Electrical Tape		

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Selectable Tool Kits

Large-to-Medium Sized Tool Kits

Medium-to Small Sized Tool Kits

Tool Kits

Original tool kits

S-51 TOOL KIT

CUSTOM

■ External dimensions: 445 (W) × 243 (H) × 220 (D) mm

■ Weight: 8.5 kg

SHOULDER
BELTCAPACITY
16ℓ

Details table (kit contents: 48 pieces)

Reversible Screwdriver ⊕No.0 / ⊖2.5	D-2
Ditto ⊕No.1 / ⊖4.5	D-4
Ditto ⊕No.2 / ⊖5.5	D-8
Voltage Checker ⊖4.0	D-74-L
Reversible Stubby Screwdriver ⊕No.2 / ⊖6.0	D-81
Electrician's Slotted Screwdriver ⊖6.0	D-331-150
Electrician's Phillips Screwdriver ⊕No.2	D-332-150
Hacksaw	K-129S
File Round	K-170
Ditto Hand	K-172
Diagonal Cutter with Stripper	N-9-150
Snips	N-840
Long Nose Pliers with Side Cutter	P-15-150
Lineman's Pliers	P-43-175
Tweezers	P-86-125
Slip Joint Pliers	P-211Z-150
Water Pump Pliers	P-245
Crimping Tool	P-704
Wire Stripper	P-968
Hex Wrench 1.5 mm	
Ditto 2.0 mm	
Ditto 2.5 mm	
Ditto 3.0 mm	
Ditto 4.0 mm	W-96
Ditto 5.0 mm	
Ditto 6.0 mm	
Ditto 8.0 mm	
Ditto 10.0 mm	
Adjustable Wrench	W-210-150
Ditto	W-210-250
Open End Wrench 5.5 × 7 mm	
Ditto 8 × 10 mm	
Ditto 11 × 13 mm	W-521
Ditto 12 × 14 mm	
Ditto 17 × 19 mm	
Ditto 22 × 24 mm	
Precision Oilier	Z-64
Measure Tape	Z-341
Clip Light	
Hammer	
Plastic Hammer	
Utility Knife (Large)	
Electrical Tape	
Shielding Tape	
Type Brush	
Side Brush	
Brass Brush	
Work Gloves	

For case (B-56-B) details, see page 76

**S-53** TOOL KITNOT FOR
EXPORT

CUSTOM

■ External dimensions: 386 (W) × 163 (H) × 203 (D) mm

■ Weight: 4.3 kg

CAPACITY
6.5ℓ

Details table (kit contents: 31 pieces)

Reversible Stubby Screwdriver ⊕No.2 / ⊖6.0	D-81
Phillips Screwdriver ⊕No.0	D-140-100
Ditto ⊕No.1	D-150-100
Ditto ⊕No.2	D-155-100
Slotted Screwdriver ⊖4.0	D-240-100
Ditto ⊖5.0	D-250-100
Ditto ⊖5.5	D-255-100
File (Half-Round)	K-161
Diagonal Cutter with Stripper	N-9-150
Snips	N-840
Long Nose Pliers with Side Cutter	P-15-150
Tweezers	P-86-150
Slip Joint Pliers	P-211Z-150
Water Pump Pliers	P-245
Hex Wrench Set (1.27 / 1.5 / 1.6 / 2.0 / 2.4 / 2.5 / 3.0 / 3.2 / 4.0 / 4.8 mm)	W-98
Adjustable Wrench	W-210-200
Open End Wrench 5.5 × 7 mm	
Ditto 8 × 10 mm	
Ditto 11 × 13 mm	W-521
Ditto 12 × 14 mm	
Ditto 17 × 19 mm	
Ditto 22 × 24 mm	
Contact Spray	Z-295
Measure Tape	Z-341
Clip Light	
Hammer	
Utility Knife (Large)	
Electrical Tape	
Side Brush	
Brass Brush	
Work Gloves	

For case (B-54-B) details, see page 76



S-55 TOOL KITNOT FOR
EXPORT

CUSTOM

SHOULDER
BELTCAPACITY
12 l

- External dimensions: 445 (W) × 230 (H) × 220 (D) mm
- Weight: 7.0 kg

For case (B-55-B) details, see page 76



Details table (kit contents: 39 pieces)

Reversible Screwdriver $\oplus$ No.00 $\ominus$ 2.6	D-2
Ditto $\oplus$ No.1 $\ominus$ 4.5	D-4
Reversible Stubby Screwdriver $\oplus$ No.2 $\ominus$ 6.0	D-81
Phillips Screwdriver $\oplus$ No.2	D-155-300
Slotted Screwdriver $\ominus$ 6.0	D-583-100
Phillips Screwdriver $\oplus$ No.2	D-587-100
Hacksaw	K-129S
File Round	K-170
Ditto Hand	K-172
Diagonal Cutter	N-12
Snips	N-840
Long Nose Pliers with Side Cutter	P-15-150
Lineman's Pliers	P-43-175
Tweezers	P-86-150
Slip Joint Pliers	P-211Z-150
Water Pump Pliers	P-245
Ballpoint L-Wrench 1.5 mm	
Ditto 2.0 mm	
Ditto 2.5 mm	
Ditto 3.0 mm	W-110
Ditto 4.0 mm	
Ditto 5.0 mm	
Ditto 6.0 mm	
Adjustable Wrench	W-210-200
Open End Wrench 5.5 × 7 mm	
Ditto 8 × 10 mm	
Ditto 11 × 13 mm	W-521
Ditto 12 × 14 mm	
Ditto 17 × 19 mm	
Ditto 22 × 24 mm	
Contact Spray	Z-295
Measure Tape	Z-341
Clip Light	
Hammer	
Plastic Hammer	
Utility Knife (Large)	
Electrical Tape	
Brass Brush	
Work Gloves	

Cutters &
PliersWire
strippers

Crimpers

Tweezers

Screwdrivers &
Wrenches

Metal working

Parts
boxesTool
cases

Tool kits

Soldering
irons &
SolderParts & Solder
removal
equipmentMeasuring
instrumentsOptical
equipmentAntistatic
productsClean
products**S-50** TOOL KIT

CUSTOM

- External dimensions: 320 (W) × 230 (H) × 220 (D) mm
- Weight: 4.4 kg

For case (B-58) details, see page 75

CAPACITY
7 l

Details table (kit contents: 38 pieces)

Reversible Screwdriver $\oplus$ No.00 $\ominus$ 2.6	D-2
Ditto $\oplus$ No.1 $\ominus$ 4.5	D-4
Reversible Stubby Screwdriver $\oplus$ No.2 $\ominus$ 6.0	D-81
Slotted Screwdriver $\ominus$ 6.0	D-583-100
Phillips Screwdriver $\oplus$ No.2	D-587-100
Lineman's Pliers	P-43-150
Tweezers	P-86-150
Water Pump Pliers	P-245
Snips	N-840
Hex Wrench 1.5 mm	
Ditto 2.0 mm	
Ditto 2.5 mm	
Ditto 3.0 mm	
Ditto 4.0 mm	W-96
Ditto 5.0 mm	
Ditto 6.0 mm	
Ditto 8.0 mm	
Ditto 10.0 mm	
Adjustable Wrench	W-210-200
Open End Wrench 5.5 × 7 mm	
Ditto 8 × 10 mm	
Ditto 11 × 13 mm	W-521
Ditto 12 × 14 mm	
Ditto 17 × 19 mm	
Ditto 22 × 24 mm	
Flashlight	Z-334
Measure Tape	Z-341
Ball Joint Mirror	Z-354
Safety Glasses	Z-634
Flat Cutters 150 mm	
Long Nose Pliers 150 mm	
Locking Pliers	
Plastic Hammer	
File Round	
Ditto Hand	
Utility Knife (Large)	
Brass Brush	
Work Gloves	

Chemical
productsMaintenance
& Safety
productsSelectable
Tool KitsLarge-to-
Medium
Sized
Tool KitsMedium-to
Small
Sized
Tool Kits

Tool Kits

Original
tool kits

S-48 TOOL KIT

CUSTOM

- Weight: 3.7 kg
- Accessories: Document file, tool pallet



Details table (kit contents: 24 pieces)

Reversible Screwdriver	⊕No.00 / ⊖2.8	D-2
Ditto	⊕No.1 / ⊖4.5	D-4
Ditto	⊕No.2 / ⊖5.5	D-8
Diagonal Cutter with Stripper		N-9-150
Long Nose Pliers with Side Cutter		P-15-150
Slip Joint Pliers		P-211Z-150
Spring Hook		P-801
Tweezers		P-876
Hex Wrench	1.27 mm	
Ditto	1.5 mm	
Ditto	1.6 mm	
Ditto	2.0 mm	W-91
Ditto	2.4 mm	
Ditto	3.0 mm	
Ditto	3.2 mm	
Adjustable Wrench		W-210-150
Rubber Blower		Z-262
Measure Tape		Z-341
Ball Joint Mirror		Z-354
Magnetic Pickup Tool		Z-364
Nut Driver Set (4/4.5/5/5.5/7/8/10 mm)		
Clip Light		
Utility Knife		
Screw Case		

■ Case

B-66 TOOL CASE

- External dimensions: 360 (W) × 270 (H) × 110 (D) mm
- Weight: 1.7 kg
- Material: ABS
- Accessory: Document file

For details, see page 71

**S-45 TOOL KIT**

CUSTOM



S-45-230

- Weight: 2.5 kg
- Accessory: Tool pallet



A soft case with urethane foam inside.



Now available in the kit, the H-600 soldering iron is a quick-heating for speedy use, and capped for speedy stowing. The set includes the water tight H-11 soldering iron stand.

For details, see pages 105 & 107

■ Case

S-145 TOOL BAG

- External dimensions: 335 (W) × 245 (H) × 110 (D) mm
- Weight: 1.2 kg
- Material: ABS + urethane foam
- Accessory: Tool pallet

For details, see page 74



Tools are contained in 2 tool pallets (1 single faced, and 1 double faced). Easy Velcro-fastened access.



Details table (kit contents: 23 pieces)

Reversible Screwdriver	⊕No.00 / ⊖2.8	D-2
Ditto	⊕No.1 / ⊖4.5	D-4
Ditto	⊕No.2 / ⊖5.5	D-8
Nut Driver	5.5 mm	D-850-5.5
Ditto	7 mm	D-850-7
Soldering Iron Stand		H-11
Soldering Iron with Booster		H-600
Lead-Free Solder		HS-363
Desolder Braid		HS-380-2.5
Diagonal Cutter with Stripper		N-9-150
Long Nose Pliers with Side Cutter		P-15-150
Lineman's Pliers		P-43-150
Tweezers		P-876
Hex Wrench	1.27 mm	
Ditto	1.5 mm	
Ditto	1.6 mm	
Ditto	2.0 mm	W-91
Ditto	2.4 mm	
Ditto	3.0 mm	
Ditto	3.2 mm	
Adjustable Wrench		W-210-150
Measure Tape		Z-341
Utility Knife		

S-37 TOOL KIT

CUSTOM



S-37-230

- Weight: 2.2 kg
- Accessory: Tool pallet



The H-250 capped soldering iron can be stowed immediately after work. No cooling time required. No fuss.

For details, see page 105

■ Case

S-137 TOOL BAG

- External dimensions: 300 (W) × 200 (H) × 90 (D) mm
- Weight: 770g
- Material: Nylon
- Accessory: Tool pallet

For details, see page 74



Details table (kit contents: 17 pieces)

Alignment Tools		D-29-150
Phillips Screwdriver	⊕No.0	D-140-100
Ditto	⊕No.2	D-155-100
Slotted Screwdriver	⊖2.5	D-230-100
Ditto	⊖4.0	D-240-100
Nut Driver 5.5 mm		D-850-5.5
Soldering Iron with Cap		H-250
File (Hand)		K-172
Diagonal Cutter		N-4-125
Desolder Braid		No.3738
Long Nose Pliers with Side Cutter		P-15-150
Lineman's Pliers		P-43-150
Tweezers		P-87
Adjustable Wrench		W-210-150
Measure Tape		Z-341
Solder		
Utility Knife		

S-7 TOOL KIT

CUSTOM

100 V 230 V
S-7-230

Has space for a tester, spray, and gloves, etc.

Weight: 2.2 kg

Case

S-107 TOOL BAG



- External dimensions: 300 (W) × 200 (H) × 80 (D) mm
- Weight: 920 g
- Material: Vinyl leather
- Accessory: Tool pallet

For details, see page 74



SHOULDER BELT CAPACITY 2 l

Details table (kit contents: 16 pieces)

Alignment Tool	D-29-150
Phillips Screwdriver ⊕No.2	
Slotted Screwdriver ⊖2.5	D-230-150
Ditto ⊖4.0	D-240-100
Nut Driver 5.5 mm	D-850-5.5
Soldering Iron	H-849
File (Hand)	K-172
Diagonal Cutter	N-4-125
Long Nose Pliers with Side Cutter	P-15-150
Lineman's Pliers	P-43-150
Tweezers	P-86-150
Adjustable Wrench	W-210-150
Measure Tape	Z-341
Solder	
Utility Knife	
Electrical Tape	

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Selectable Tool Kits

Large-to-Medium Sized Tool Kits

Medium-to-Small Sized Tool Kits

Tool Kits

Original tool kits

S-30 TOOL KIT

CUSTOM

100 V 230 V
S-30-230

Weight: 2.1 kg



Case

S-130 TOOL CASE



- External dimensions: 320 (W) × 200 (H) × 40 (D) mm
- Internal dimensions: 300 (W) × 180 (H) × 30 (D) mm
- Weight: 600 g
- Material: Vinyl leather



Details table (kit contents: 21 pieces)

Alignment Tool	D-29-150
Phillips Screwdriver ⊕No.0	D-140-100
Ditto ⊕No.1	D-150-100
Ditto ⊕No.2	D-155-100
Slotted Screwdriver ⊖2.5	D-230-100
Ditto ⊖4.0	D-240-100
Ditto ⊖5.0	D-250-100
Nut Driver 5.5 mm	D-850-5.5
Ditto 7 mm	D-850-7
Soldering Iron with Booster	H-600
Solder	H-700
Diagonal Cutter with Stripper	N-9-150
Desolder Braid	No.3738
Long Nose Pliers with Side Cutter	P-15-150
Tweezers	P-87
Slip Joint Pliers	P-211Z-150
Adjustable Wrench	W-210-150
Utility Knife	
Electrical Tape	
File Hand	
Ditto Round	

S-10 TOOL KIT

CUSTOM

100 V 230 V
S-10-230

Weight: 2.1 kg



Case

S-110 TOOL CASE



- External dimensions: 320 (W) × 200 (H) × 40 (D) mm
- Internal dimensions: 300 (W) × 180 (H) × 30 (D) mm
- Weight: 600 g
- Material: Vinyl leather



Details table (kit contents: 20 pieces)

Alignment Tool	D-29-150
Phillips Screwdriver ⊕No.0	D-140-100
Ditto ⊕No.2	
Slotted Screwdriver ⊖2.5	D-230-150
Ditto ⊖4.0	D-240-100
Ditto ⊖5.0	D-250-100
Nut Driver 5.5 mm	D-850-5.5
Ditto 7 mm	D-850-7
Solder	H-700
Soldering Iron	H-869
Diagonal Cutter with Stripper	N-9-150
Desolder Braid	No.3738
Long Nose Pliers with Side Cutter	P-15-150
Tweezers	P-87
Slip Joint Pliers	P-211Z-150
Adjustable Wrench	W-210-150
Utility Knife	
Electrical Tape	
File Hand	
Ditto Round	

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Selectable Tool Kits

Large-to-Medium Sized Tool Kits

Medium-to-Small Sized Tool Kits

Tool Kits

Original tool kits

S-22 TOOL KIT

100 V 230 V
S-22-230

■ Weight: 2.0 kg



■ Case

S-122 TOOL CASE

- External dimensions: 330 (W) × 240 (H) × 68 (D) mm
- Weight: 600 g
- Material: Polyethylene



Details table (kit contents: 20 pieces)

Alignment Tool	D-29-150
Phillips Screwdriver ⊕No.0	D-140-100
Ditto ⊕No.2	
Slotted Screwdriver ⊖2.5	D-230-150
Ditto ⊖4.0	D-240-100
Nut Driver 5.5 mm	D-850-5.5
Tip Cleaning Tray	H-8
Solder	H-700
Solder Aid Tool Kit (Knife and Scraper)	H-740-2
Ditto (Brush and Fork)	H-740-3
Soldering Iron	H-869
Diagonal Cutter with Stripper	N-9-150
Long Nose Pliers with Side Cutter	P-15-150
Lineman's Pliers	P-43-150
Tweezers	P-86-125
Adjustable Wrench	W-210-150
Measure Tape	Z-341
Heat Sink	
File Hand	
Ditto Round	

S-35 TOOL KIT

CUSTOM

100 V 230 V
S-35-230

■ Weight: 1.4 kg



■ Case

S-135 TOOL CASE



- External dimensions: 260 (W) × 145 (H) × 35 (D) mm
- Internal dimensions: 240 (W) × 130 (H) × 25 (D) mm
- Weight: 350 g
- Material: Vinyl leather



Details table (kit contents: 13 pieces)

Phillips Screwdriver ⊕No.0	D-140-100
Ditto ⊕No.1	D-150-100
Ditto ⊕No.2	D-155-100
Slotted Screwdriver ⊖2.5	D-230-100
Ditto ⊖4.0	D-240-100
Soldering Iron with Cap	H-250
Diagonal Cutter with Stripper	N-9-125
Desolder Braid	No.3738
Long Nose Pliers with Side Cutter	P-15-150
Lineman's Pliers	P-43-150
Tweezers	P-87
Adjustable Wrench	W-210-150
Solder	

S-34 TOOL KIT

CUSTOM

100 V 230 V
S-34-230

■ Weight: 1.0 kg



■ Case

S-134 TOOL CASE



- External dimensions: 260 (W) × 145 (H) × 35 (D) mm
- Internal dimensions: 240 (W) × 130 (H) × 25 (D) mm
- Weight: 310 g
- Material: Vinyl leather

Details table (kit contents: 10 pieces)

Phillips Screwdriver ⊕No.0	D-140-100
Ditto ⊕No.2	
Slotted Screwdriver ⊖2.5	D-230-75
Ditto ⊖4.0	D-240-100
Soldering Iron with Cap	H-250
Tweezers	P-87
Diagonal Cutter 125 mm	
Long Nose Pliers 150 mm	
Solder	
File (Hand)	

S-33 TOOL KIT

CUSTOM

100 V 230 V
S-33-230

- External dimensions: 280 (W) × 80 (H) × 50 (D) mm
- Weight: 0.6 kg

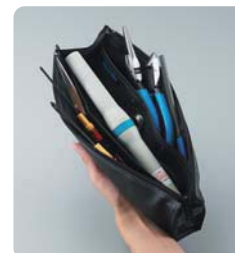


A compact pouch that fits neatly in a briefcase.



Details table (kit contents: 8 pieces)

Reversible Screwdriver	⊕No.00/⊖2.6	D-2
Ditto	⊕No.2/⊖5.5	D-8
Soldering Iron with Cap		H-250
Tweezers		P-87
Diagonal Cutter	125 mm	
Long Nose Pliers	150 mm	
Solder		
File (Hand)		



Dividers allow contents to be organized.

S-3 TOOL KIT

CUSTOM

- Weight: 1.0 kg



Details table (kit contents: 21 pieces)

Phillips Screwdriver	⊕No.00	D-130-75
Ditto	⊕No.0	D-140-100
Ditto	⊕No.2	
Slotted Screwdriver	⊖2.5	D-230-75
Ditto	⊖4.0	D-240-100
Miniature Diagonal Cutter		N-32
Miniature Long Nose Pliers		P-36
Tweezers		P-876
Flat Wrench	5.5 × 7 mm	
Ditto	8 × 10 mm	W-76
Ditto	12 × 14 mm	
Hex Wrench	1.27 mm	
Ditto	1.5 mm	
Ditto	1.6 mm	
Ditto	2.0 mm	W-91
Ditto	2.4 mm	
Ditto	3.0 mm	
Ditto	3.2 mm	
Utility Knife		
File	Hand	
Ditto	Round	

■ Case

S-103 TOOL CASE

- External dimensions: 260 (W) × 145 (H) × 35 (D) mm
- Internal dimensions: 240 (W) × 130 (H) × 25 (D) mm
- Weight: 310 g
- Material: Vinyl leather

S-1 TOOL KIT

CUSTOM

- Weight: 0.3 kg



Details table (kit contents: 7 pieces)

Phillips Screwdriver	⊕No.00	D-130-75
Ditto	⊕No.2	
Slotted Screwdriver	⊖2.5	D-230-75
Ditto	⊖4.0	
Miniature Diagonal Cutter		N-31
Miniature Long Nose Pliers		P-36
Tweezers		P-87

■ Case

S-101 TOOL CASE

- External dimensions: 153 (W) × 82 (H) × 25 (D) mm
- Internal dimensions: 140 (W) × 70 (H) × 20 (D) mm
- Weight: 80 g
- Material: Vinyl leather

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Selectable Tool Kits

Large-to-Medium Sized Tool Kits

Medium-to-Small Sized Tool Kits

Tool Kits

Original tool kits

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Selectable Tool Kits

Large-to-Medium Sized Tool Kits

Medium-to-Small Sized Tool Kits

Tool Kits

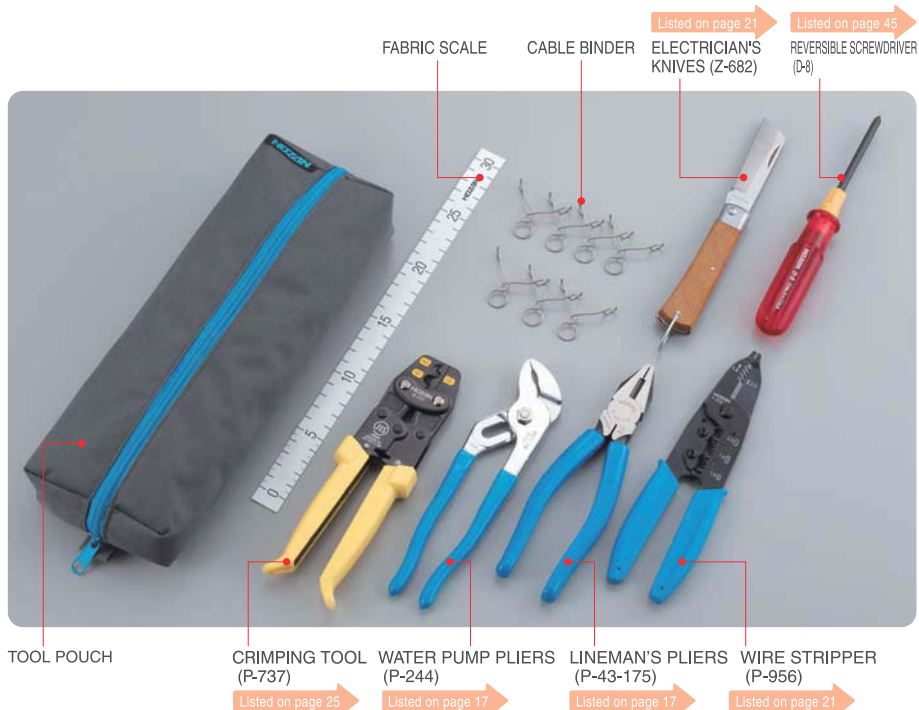
Original tool kits

S-17 TOOL KIT CUSTOM

- External dimensions: 300 (W) × 100 (H) × 50 (D) mm
 - Internal dimensions: 295 (W) × 95 (H) × 45 (D) mm
 - Weight: 1.3 kg
 - * Tools included in this kit can also be purchased separately.
 - * Tools required for the examination may be changed.
- For details, refer to the examination requirements.

Details table (kit contents: 8 pieces)

Reversible Screwdriver	⌀No.2/⌀5.5	D-8
Lineman's Pliers		P-43-175
Water Pump Pliers		P-244
Crimping Tool		P-737
Wire Stripper		P-956
Electrician's Knife		Z-682
Cable Binder		
Fabric Scale		



S-19 TOOL KIT CUSTOM

- External dimensions: 300 (W) × 100 (H) × 50 (D) mm
 - Internal dimensions: 295 (W) × 95 (H) × 45 (D) mm
 - Weight: 1.5 kg
 - * Tools included in this kit can also be purchased separately.
 - * Tools required for the examination may be changed.
- For details, refer to the examination requirements.

Details table (kit contents: 8 pieces)

Slotted Screwdriver	⌀5.5	D-255-100
Electrician's Phillips Screwdriver	⌀No.2	D-332-100
Lineman's Pliers		P-43-175
Crimping Tool		P-77
Water Pump Pliers		P-244
Electrician's Knife		Z-682
Cable Binder		
Fabric Scale		





ホーザンの 電気工事士技能試験推奨工具!

電気工事士試験とは?

電気工事の欠陥による災害の発生を防止するために経済産業省は電気工事士法によって一定範囲の電気工作物の作業に従事する者の資格を定めています。詳しくは(財)電気技術者試験センターのwebページをご覧ください。<http://www.shiken.or.jp/>

第一種、第二種電気工事士試験はいずれも筆記試験と技能試験から構成されており、技能試験は課題の施工図面から支給された材料を使って実際に作業するもので時間内に正確に作業することが求められます。

ホーザンでは現役電気工事士や有資格アドバイザーからの幅広い知識と製品作りのノウハウで使いやすい製品と情報を提供しています。



P-956 VA線ストリッパー

「ストリップ」「電線カット」
「の字曲げ」がこの一本で。

※詳しくは21ページへ



JIS
JQA
P-737 圧着工具

リングスリーブ圧着
「小(1.6×2を含む)」「中」対応。
コンパクトな圧着工具
小さくても軽い力で
圧着可能。

※詳しくは25ページへ



JIS
JQA
P-77 圧着工具

リングスリーブ圧着
「小(1.6×2を含む)」「中」
「大」対応。

※詳しくは25ページへ



P-43-175 ペンチ

電気工事士技能試験の基本工具。

※詳しくは17ページへ



P-244 ウォーターポンプブライヤー

アウトレットボックスで
使いやすい小型タイプ。

※詳しくは17ページへ



Z-682 電工ナイフ

切れ味・刃持ちのよい
厚肉刃の電工ナイフ。

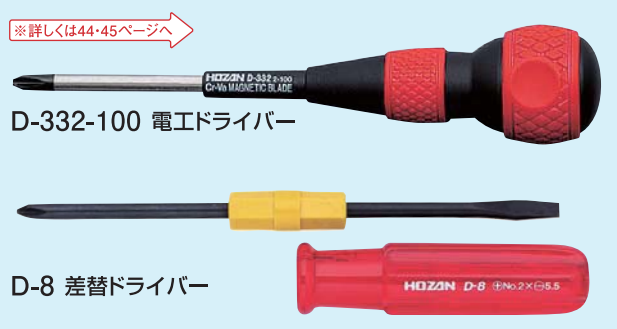
※詳しくは21ページへ



N-18 ケーブルカッター

ケーブル切断の専用工具。

※詳しくは13ページへ



D-332-100 電工ドライバー

D-8 差替ドライバー

※詳しくは44・45ページへ

電気工事士試験受験応援サイト

電工試験の虎

工具の使い方やキャンペーンなど、電気工事士技能試験関連の情報を掲載中。



PC版

<http://www.hozan.co.jp/denko/>



モバイル版

バーコードリーダーで簡単アクセス



ホーザンの 情報配線施工技能検定推奨工具



情報配線施工技能検定とは？

主に宅内、構内のLAN配線施工に関する技能検定制度です。
厚生労働省より、法の規定に基づき認定を受けた「高度情報推進協議会」が実施しています。
技能検定は三級から一級まで、いずれも学科試験および実技試験で構成されています。

また、情報ネットワーク施工プロフェッショナル「iNIP」も実施されています。
iNIPとは、ブロードバンド環境の構築にかかわる世界的な情報配線施工認定機関の評価基準に基づく技能・技術認定制度です。
詳しくは高度情報通信推進協議会のwebページをご覧ください。<http://www.b2every1.org/>

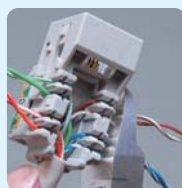
ホーザンでは、それらの実技試験やブロードバンド環境施工のスペシャリストが行う作業において、より高い作業性が期待できる製品を提供しています。

N-23 ニッパー



連続作業にも疲れを感じさせないコイルバネ装備

- Cutting capacity: 銅線 1.6mmφ
銅より線 2mm²
- 硬度HRC(刃部): 60
- 重量: 85g



刃渡りが長いので
モジュージャックとツイストペア
ケーブルの接続の際
余分な線を切り揃えるのに最適です。

※詳しくは12ページへ

P-711 モジュラープラグ圧着工具(LAN(8芯)用)

- 8芯モジュラーコードにモジュラープラグを取り付ける8芯専用圧着工具です。
- 圧着途中ではハンドルが解除しない成形確認機構付。
- 適応サイズ: FCC規格モジュラープラグ、RJ-45/48(8芯)
- 全長: 181mm
- 重量: 280g



LAN8芯モジュラープラグの圧着に



RJ45

RJ48

※詳しくは27ページへ

Original tool kits



CUSTOM

Custom orders are possible for products which bear this mark.

For example



Soldering irons

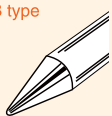
Selecting the proper soldering iron is essential for work efficiency.

Is the tip shape and size appropriate? Is the heating time appropriate? How about the tip temperature? These are some factors to consider in order to achieve clean soldering.

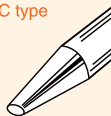
● Tip shape

Commonly used soldering iron tip shape

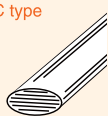
B type



BC type



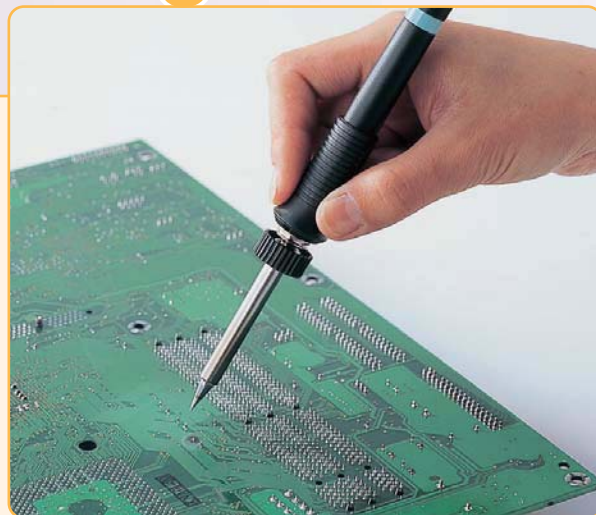
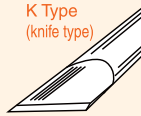
C type



D type
(screwdriver
shape)



K Type
(knife type)



● Tip heat capacity

Touching the base material with the tip lowers the tip temperature. The tip temperature drop varies according to the thermal capacity balance between the soldering iron and the base material. **The tip temperature drop is small and the heat recovery becomes fast if the "soldering iron thermal capacity is greater than or equal to the base material".** The tip temperature drop is large if the "soldering iron thermal capacity is less than the base material." In this case, the heat recovery is slower. The tip temperature also varies depending on the tip shape and size, and it is necessary to select an optimal tip. If temperature verification is required, we recommend using a tip thermometer together with a soldering station.

● Tip maintenance

If left on for extended periods, the tip will become extremely hot, causing oxidized soot to form on the surface which reduces the tip's **wettability**. In this occurs, turn the power off and allow the tip to cool, then use a polishing pad (K-142) to clean the oxidized film from the tip. After cleaning the tip, turn the power on again and coat the tip with solder before resuming work. The power should be turned off when work is interrupted for long periods.



K-142 POLISHING PAD

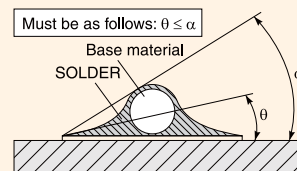
● Lead-free solder

Because lead-free solder has a higher melting point than tin-lead solder, the soldering iron must be hotter than usual. The HS-35 / 36 / 50 / 51 soldering irons have thermal capacities suitable for lead-free soldering.

*  compliant tips are tinned with lead-free solder. D2623

● Soldering

In soldering operations, it is important to select a suitable soldering iron and **suitable heating time** for the base material (bonded area). The selection of the tip is particularly important when working on precision PCBs where both the base material and amounts of solder are small. A suitable soldering temperature (at the point) is approx. 60°C above the melting point, with the tip temperature being approx. 100 to 120°C above the melting point. The solder must also be applied at the right time after reaching the solder melting temperature, beginning with a small amount to ensure good heat transfer, with a suitable amount then being supplied to ensure that the farthest perimeters of the soldering point are soldered. As shown in the illustration, the finished solder shape should be $\theta \leq \alpha$, indicating a good solder wetting condition.

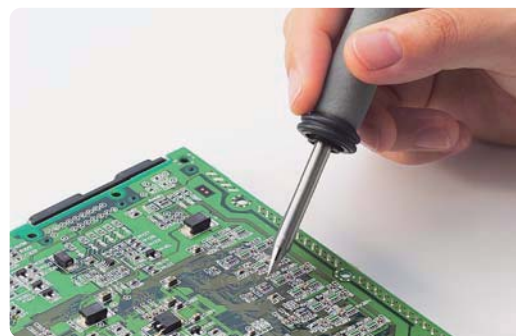


HS-51 SOLDERING STATION

100 V 220 V
HS-51-220



- Speedy replacement of tips without requiring a tool.
- A setting lock feature is provided to secure the soldering temperature. This feature uses a password, and does not require a card or key.
- Features a sleep function (sleep sensitivity & time setting: 0 to 20°C & 0 to 999 minutes).
- Auto shut-off activated when a preset time elapses (setting range: 0 to 999 minutes).
- Station stacking is possible.



Soldering tip changes are possible immediately after the power is switched off.

80 W Power!

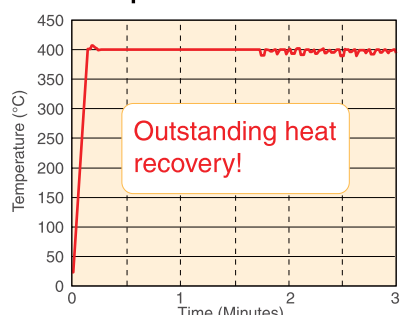


* This product does not include a tip. The tip must be ordered separately.

Rated voltage / Frequency	100 VAC, 50 / 60Hz
Power consumption	80 W (soldering iron 72W)
Heater	Nichrome heater with sensor
Setting temperature	50 to 450°C
Standard tip	Tip (with built-in heater) is sold separately.
External dimensions	Station 115 (W) × 98 (H) × 146 (D) mm Soldering iron Length 158 mm × grip inner dia. 16 mm
Weight	Station 1.8 kg Soldering iron 28 g (not including the cord)
ESD standard	Ground resistance $R_g < 1 \times 10^{12}\Omega$

- Power cord: 1.2 m
- Accessory: Soldering iron stand (tip cleaner)

HS-51 Temperature characteristics



Replacement part

HS-51-1 TIP CLEANER

For HS-51



Optional parts

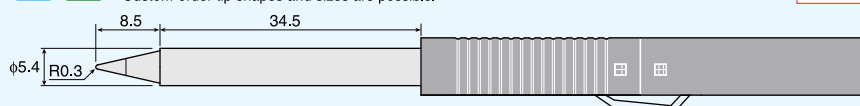
SOLDERING TIPS (for HS-51)



* Custom-order tip shapes and sizes are possible.

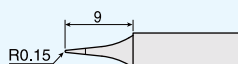
HS-51B03

B type



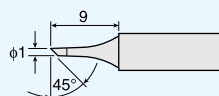
HS-51B01

B type



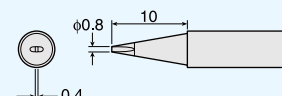
HS-51C01

C type



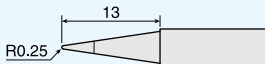
HS-51D01

D type



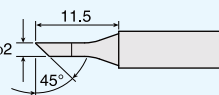
HS-51B02

B type



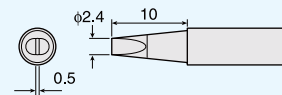
HS-51C02

C type



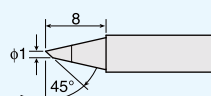
HS-51D03

D type



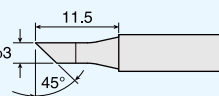
HS-51BC01

BC type



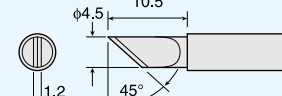
HS-51C03

C type



HS-51K02

K type



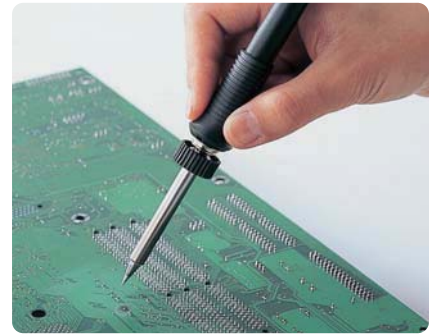
When using a thin tip, adequate pre-soldering should be performed first.
(Example: HS-51B01 to HS-51B02, etc.)

HS-50 SOLDERING STATION

100 V



- Has a sleep function (activates after a 20-minute idle period, and maintains a temp. of 150°C. Switches OFF the power after a 60-minute idle period.)

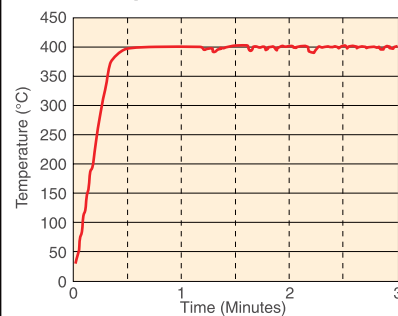


The holder (soldering iron stand) is a standard accessory item.



Rated voltage / Frequency	100 VAC, 50 / 60Hz
Power consumption	95W (soldering iron 80 W)
Heater	Sheath heater
Setting temperature	50 to 450°C
Standard tip	HS-50D02
External dimensions	Station 115 (W) × 102 (H) × 165 (D) mm Soldering iron Length 200 mm × max. dia. 20 mm
Weight	Station 2 kg Soldering iron 30 g (not including the cord)
ESD standard	Ground resistance $R_g < 1 \times 10^{12} \Omega$

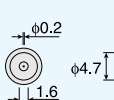
- Power cord: 1.85 m
- Accessory: Soldering iron stand (tip cleaner)

HS-50 Temperature characteristics**Replacement parts****HS-50-1 HEATER (for HS-50)****HS-50-4 TIP CLEANER (for HS-50)****Replacement parts****SOLDERING TIPS**
(for HS-50)

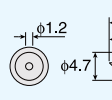
* Custom-order tip shapes and sizes are possible.

HS-50B01

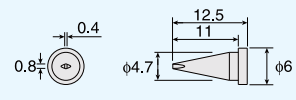
■ B type

**HS-50BC01**

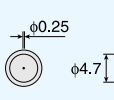
■ BC type

**HS-50D01**

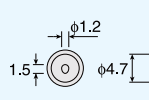
■ D type

**HS-50B02**

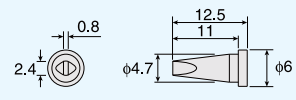
■ B type

**HS-50BC02**

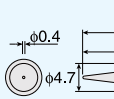
■ BC type

**HS-50D02**

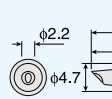
■ D type

**HS-50B03**

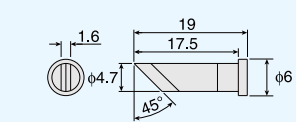
■ B type

**HS-50BC09**

■ BC type

**HS-50K01**

■ K type



When using a thin tip, adequate pre-soldering should be performed first.
(Example: HS-50B01 to 50B03, etc.)

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Soldering Stations

Soldering irons

Soldering iron stands

Soldering related products

Solder Flux

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Soldering Stations

Soldering irons

Soldering iron stands

Soldering related products

Solder Flux

HS-36 SOLDERING STATION



100 V

- Features an automatic power OFF function (switches OFF after a 99-minute idle period.)



Simply move the setting key near the unit in order to fix (lock) the temperature setting.



Setting key
For fixed setting
temperature

The temperature can be set
within a 175 to 455°C range.

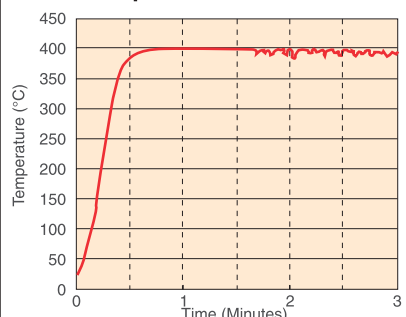
The lightweight handle remains
cool to the touch, making it ideal
for continuous soldering.



Rated voltage / Frequency	100 VAC, 50 / 60Hz
Power consumption	60 W (soldering iron 50 W)
Heater	Sheath heater
Setting temperature	175 to 455°C
Standard tip	HS-290
External dimensions	Station 115 (W) × 95 (H) × 151 (D) mm Soldering iron Length 220 mm × max. dia. 22 mm
Weight	Station 1.4 kg Soldering iron 50 g
ESD standard	Ground resistance $R_g < 1 \times 10^{12} \Omega$

- Power cord: 1.35 m
- Accessory: Soldering iron stand (tip cleaner) , setting key

HS-36 Temperature characteristics

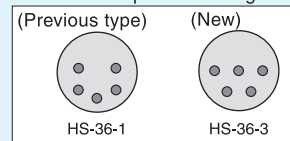


Replacement parts

HS-36-1 / 3 HAND PIECES



Connector shape at soldering iron side



- * There are "old" and "new" connector shapes.
- When order, please verify the connector pin shape.
- * An HS-36 heater replacement requires the replacement of the hand piece.

Replacement parts

SOLDERING TIPS (for HS-36)



* Custom-order tip shapes and sizes are possible.

HS-290

■ B type



HS-294

■ D type



HS-291

■ B type



HS-295

■ D type



HS-292

■ BC type



HS-36B01

■ B type



HS-293

■ BC type



HS-36B02

■ B type



HS-36BC01

■ BC type



HS-36BC02

■ BC type



HS-36K01

■ K type



HS-36K02

■ K type



When using a thin tip, adequate pre-soldering should be performed first.
(Example: HS-291, HS-36B01, HS-36B02, etc.)

HS-35 SOLDERING STATION

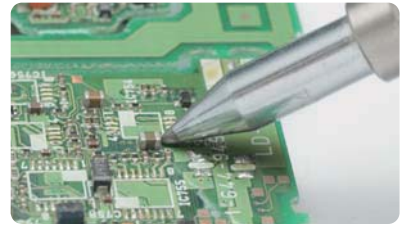
DISCON.

LEAD
FREE

100 / 120 / 220 / 240 V

Rated voltage / Frequency	100 / 120 / 220 / 240 VAC, 50 / 60 Hz
Power consumption	30 W (soldering iron 25W)
Heater	Ceramic heater
Setting temperature	280 to 450°C
Standard tip	HS-35B04
External dimensions	Station 75 (W) × 131 (H) × 165 (D) mm Soldering iron Length 165 mm × max. dia. 20 mm
Weight	Station 1.9 kg Soldering iron 40g (not including the cord)

- Power cord: 1 m (3-pin plug type.)
- Accessory: Soldering iron stand (tip cleaner)



The soldering iron stand is a standard accessory. It can be used from either side.

With handle cover



A 43 mm soldering point is possible [US.PAT.]

BS heat sink

Heat from heater is dissipated throughout the interior of the soldering iron, thus keeping the grip cool. Pin-point soldering is possible. The BS heat sink provide a path to ground leakage current via the ground cap and ground coil.

**Good thermal efficiency
Heater fixed-type tip**

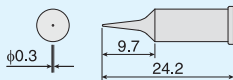
Heat produced by the new metal-sheathed, ceramic type heater is efficiently conveyed. Excels in both heat transfer and temperature control.

Replacement parts**SOLDERING TIPS**
(for HS-35)

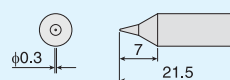
* Custom-order tip shapes and sizes are possible.

HS-271

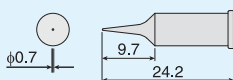
■ B type

**HS-35B03**

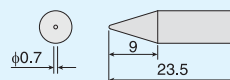
■ B type

**HS-272**

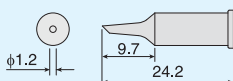
■ B type

**HS-35B04**

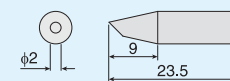
■ B type

**HS-273**

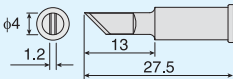
■ BC type

**HS-35BC02**

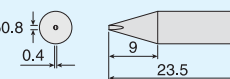
■ BC type

**HS-283**

■ K type

**HS-35D01**

■ D type

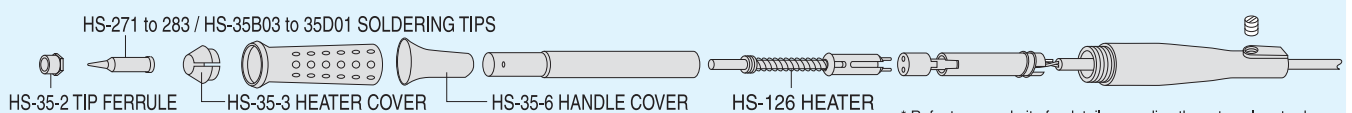
**Optional part****HS-32 3-2 PIN ADAPTER**

- HS-35 has 3-pin plug type.
- Use HS-32 for a 3-pin-plug to 2-pin-plug conversion.



When using a thin tip, adequate pre-soldering should be performed first.
(Example: HS-271 to HS-35B03, etc.)

HS-271 to 283 / HS-35B03 to 35D01 SOLDERING TIPS



* Refer to our website for details regarding the external parts shown.

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Soldering Stations

Soldering irons

Soldering iron stands

Soldering related products

Solder Flux

H-130 SOLDERING IRON

100 V

Rated voltage / frequency	100 V 50 / 60 Hz
Power consumption	15 W
Max. temperature	400°C (with H-131 mounted)
Insulation resistance	100 MΩ
Standard tip	H-131
OAL	178 mm (with H-131 mounted)
Weight	16 g (not including the cord)

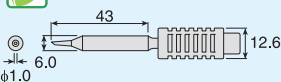
■ Power cord: 1.4 m

Replacement parts

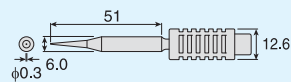
SOLDERING TIPS (for H-130)



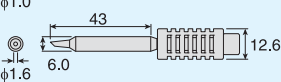
H-131 (BC type)



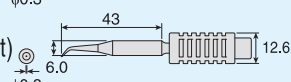
H-133 (B type)



H-132 (BC type)



H-134 (Type B, bent)

10 mm ϕ slim size

15 W

CERAMIC HEATER



H-115 HEATER



■ Compatible models: H-110 / 130



H-110 SOLDERING IRON

100 V

Rated voltage / frequency	100 V 50 / 60 Hz
Power consumption	15 W
Max. temperature	400°C (with H-111 mounted)
Insulation resistance	100 MΩ
Standard tip	H-111
OAL	185 mm (with H-111 mounted)
Weight	32 g (not including the cord)

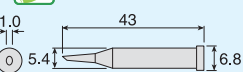
■ Power cord: 1.4 m

Replacement parts

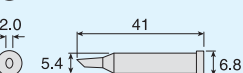
SOLDERING TIPS (for H-110)



H-111 (BC type)



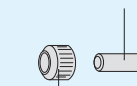
H-112 (BC type)



H-110-1 HEATER COVER

H-110-3 CERAMIC TUBE

■ Quantity: 2-piece set



H-110-2 TIP FERRULE

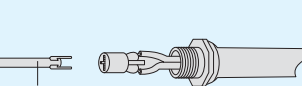


H-111 / 112 SOLDERING TIP



H-110-4 STOP

■ Quantity: 2-piece set



H-115 HEATER



15 W

CERAMIC HEATER



HS-11 SOLDERING IRON

100 V

Rated voltage / frequency	100 V 50 / 60 Hz
Power consumption	11 W
Max. temperature	400°C (with HS-201 mounted)
Insulation resistance	100 MΩ
Standard tip	HS-201
OAL	172 mm (with HS-201 mounted)
Weight	26 g (not including the cord)

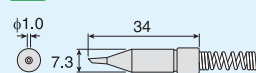
■ Power cord: 1.4 m

Optional parts

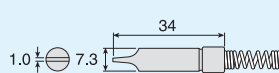
SOLDERING TIPS (for HS-11)



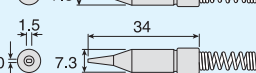
HS-201 (BC type)



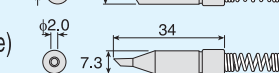
HS-204 (D type)



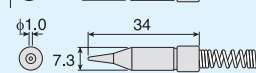
HS-202 (D type)



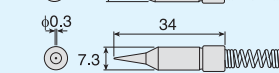
HS-205 (BC type)



HS-203 (B type)

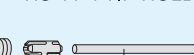


HS-207 (B type)



HS-11-5 RADIATOR

HS-11-4 TIP HOLDER



HS-201 to HS-207 SOLDERING TIPS

HS-113 HEATER



Corrosion-resistant tip with good thermal efficiency



11W

CERAMIC HEATER



Just 64 mm

H-829 to 869 SOLDERING IRONS (with corrosion resistant tip)

100 V 230 V
H-8□9-230



20 W
45 W

MICA
HEATER

Part No.	Rated voltage / frequency	Power consumption W	Max. temp. °C	Standard tip	OAL mm	Weight g
H-829	100 V 50 / 60 Hz (230 V 50 / 60 Hz)	20	300	H-834	212	55
H-839		28	370			
H-849		35	440			
H-869		45	450	H-864	232	75

■ Power cord: 1.5 m

* Overall length and weight do not include power cord.



H-839

Replacement parts

HEATER

100 V 230 V
H-8□1-230

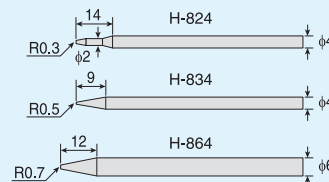


Part No.	Compatible models
H-821	H-829 / 820
H-821-230	H-829-230 / 820-230
H-831	H-839 / 830
H-831-230	H-839-230 / 830-230
H-841	H-849 / 840
H-841-230	H-849-230 / 840-230
H-861	H-869 / 860
H-861-230	H-869-230 / 860-230

SOLDERING TIPS (corrosion resistant)



Part No.	OAL mm	Point type	Compatible models
H-824	75	B	H-829 / 839 / 849 / 820 / 830 / 840
H-834			
H-864	80		H-869 / 860



H-840S SOLDERING IRON KIT

100 V 230 V
H-840S-230

Details Table (kit contents: 4 pieces)

Soldering Iron	H-849
Desolder Braid	No.3738
Heat Sink	
Solder	

■ With pouch



Soldering iron & soldering iron stand compatibility table

	Soldering iron stand	H-5	H-6	H-8	H-10	H-11
Soldering irons	H-130	○ Note 1	○ Note 1	○ Note 2	○	○ Note 2
	H-110	○ Note 1	○ Note 1	○ Note 2	○	○ Note 2
	HS-11	○ Note 1	○ Note 1	○ Note 2	○	○ Note 2
	H-600	×	○ Note 3	○	○	○
	H-510	○ Note 3	○ Note 3	○	○	○
	H-250	○ Note 3	○ Note 3	○	○	○
	H-829	○ Note 3	○ Note 3	○	○	○
	H-839	○ Note 3	○ Note 3	○	○	○
	H-849	○ Note 3	○ Note 3	○	○	○
	H-869	○	○	○	×	○

Note 1: Due to its small size of the soldering iron, can inadvertently be inserted all the way through the holder, and care must be taken to avoid this.

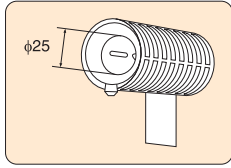
Note 2: Due to its light weight of the soldering iron, can easily be detached from the holder. Use care to avoid this.

Note 3: Use care to prevent the handle of soldering iron from blocking the holder's mouth.

H-6 SOLDERING IRON STAND



- Compatible with nearly all other-brand 20 to 60 W soldering irons.
- 2 iron holders can be mounted.
- External dimensions: 100 (W) × 145 (H) × 110 (D) mm
- Weight: 470 g



Large-mouthed type (inner dia. 25 mm). Accommodates most of soldering irons.

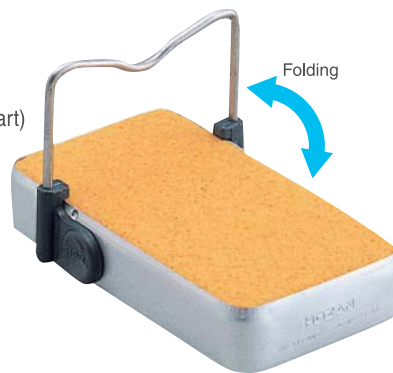


The optional holder (H-106) accommodates 2 soldering irons.

H-8 TIP CLEANING TRAY



- Folding type soldering iron holder.
- External dimensions: 74 (W) × 24 (H) × 110 (D) mm (when folded up, including the projecting part)
- Weight: 45 g



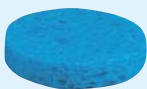
H-11 SOLDERING IRON STAND



- The lid is equipped with a tight-sealing gasket.
- The iron holder folds up under the bottom.
- Exterior dimensions: 65 mm ϕ × 25 (H) mm (when closed), soldering iron stand height is 50 mm
- Weight: 60 g
- Material: Melamine (body)
- Heat resistant temp.: 130°C

Replacement part

H-11-1 TIP CLEANER



With lid closed.



H-11

* Does not include the soldering iron.

Replacement parts

H-106 IRON HOLDER



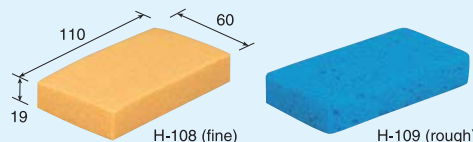
- Compatible models: H-5 / 6 / 16



H-108 / 109 TIP CLEANER

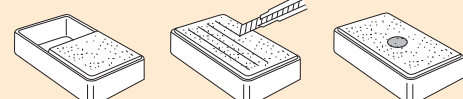


- Compatible models: H-5 / 6 / 8 / 10 / 16 & HS-35 / 801
- Use the sponge in a wetted condition.



Using the tip cleaner

- Cut in half
- Make cut lines.
- Make holes.



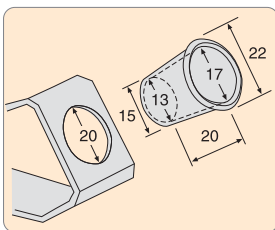
Facilitates solder residue removal.

* A separate sponge should be used for lead-free solder and tin-lead solder.

H-10 SOLDERING IRON STAND

● The angle is adjustable.

- External dimensions:
62 (W) × 115 (H) × 180 (D) mm
- Weight: 310 g
- Compatible soldering irons: H-110 / 130



H-10 + H-130 + H-109
usage example

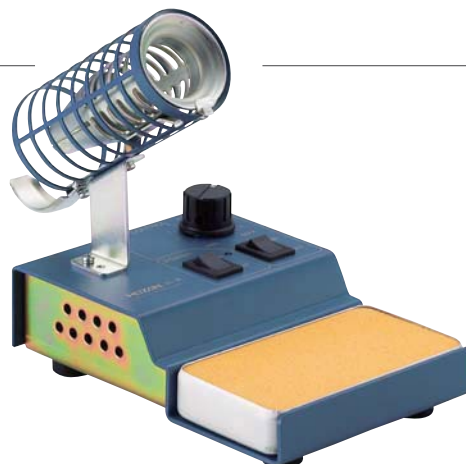
H-5 POWER CONTROLLER (with stand)

100 V

- Capacity range: 100 VAC soldering iron of 100 W or less
- Control range: 50 to 98% (switch ON)
* Bypass the power controller when the control switch is OFF
- External dimensions:
110 (W) × 65 (H) × 160 (D) mm (not including iron holder)
- Weight: 720 g



H-5 + H-250 usage example

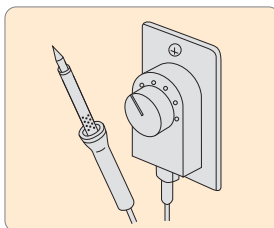


H-17 POWER CONTROLLER

100 V

● In addition to controlling the soldering iron temperature, can also be used to control power drills and the brightness of bulbs.
* An induction motor cannot be used.

- Capacity range: 200 W or less (100 VAC only)
- Control range: 60 to 100%
- External dimensions: 49 (W) × 70 (H) × 45 (D) mm
- Weight: 80 g

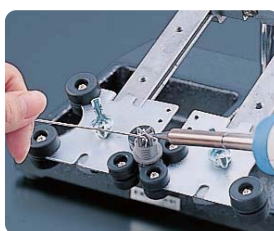


H-91 PCB HOLDER

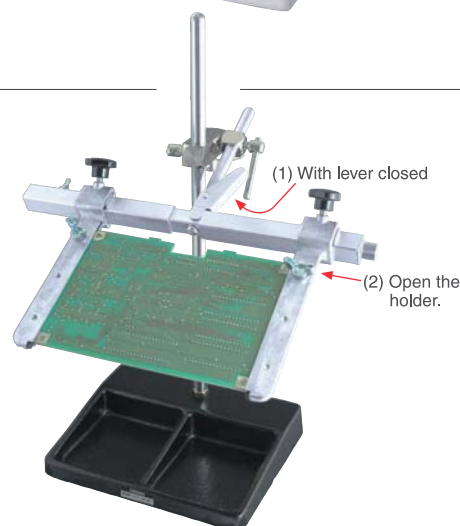
DISCON.

● Independent height, tilt, and rotation adjustments.

- Compatible PCB sizes: (width direction) 25 to 280 mm
- External dimensions:
185 (W) × 360 (H) × 150 (D) mm
(not including the iron holder)
- Weight: 3 kg



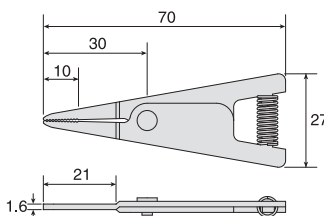
Usage example for standard
connector attachment



H-73 HEAT SINK

● Features a heat dissipating clip to protect components during the soldering.

- Quantity: 2 pieces
- Weight: 5 g (1 piece)
- Material :Aluminum
- Max. opening width: 6 mm



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Soldering Stations

Soldering irons

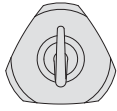
Soldering iron stands

Soldering related products

Solder Flux

H-740 SOLDER AID TOOL KIT

- Quantity: 3 pieces H-740-1 / H-740-2 / H-740-3
- Weight: 15 g each



3-sided grip shape is easy to hold
(round in the center area)



200
Hook
Used to remove components.

H-740-1

Reamer
Used to clear holes clogged with solder.



200
Knife
Severs unnecessary pattern on PCB.

H-740-2

Scraper
Removes lead wire paint coatings, rust, and
solling, for a good soldering.



205
Brush
Used to clean off solder and dust, etc.

H-740-3

Fork
Used to bend and grasp CR leads.



■ H-740 single item



H-740-1 HOOK AND REAMER

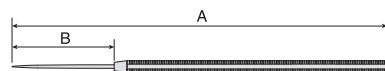
H-740-2 KNIFE AND SCRAPER

H-740-3 BRUSH AND FORK

P-807 / 808 / 809 STAINLESS PROBES

- Heat-treated tip resists deformation.

Part No.	A	B	Material	Weight g
P-807	150	40	Stainless	14
P-808		38		
P-809	140	31		



P-807



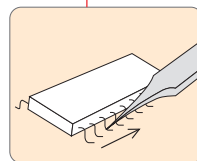
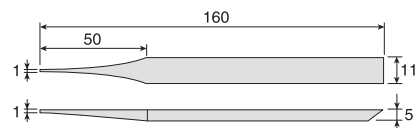
P-808



P-809

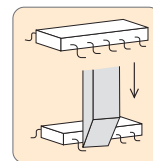
P-806 BAMBOO PROBE

- Quantity: 2 pieces
- Material: Bamboo
- Weight: 5 g (1 piece)
- Accessory: Sandpaper for sanding the tips

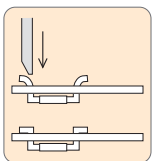


FIC solder condition check

The scraper shape for removing
solder balls.

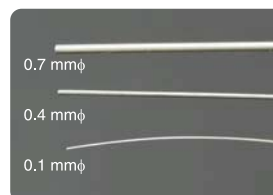


Lead correction

Pressing the
lead wires of
components**HG-4 CLEANING PIN**

- For nozzle hole maintenance, etc.

- Quantity: 3-type set
- Sizes: 0.1 mm ϕ × 60 mm
0.4 mm ϕ × 90 mm
0.7 mm ϕ × 90 mm
- Material: Stainless



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Soldering Stations

Soldering irons

Soldering iron stands

Soldering related products

Solder Flux

Lead-free solder series



HS-301 to 317 / HS-361 to 363

Sn-3Ag-0.5Cu

Bobbin type

ESD-safe bobbin is used on the S / M types.
ESD standard: Ground resistance $R_g < 1 \times 10^{12} \Omega$



Component	Solid / liquid phase temperature	Wire dia. mm ϕ				Weight g	Length m (reference)	Bobbin type	Part No.
		0.3	0.6	0.8	1.0				
Sn-3Ag-0.5Cu	217°C / 220°C	●				100	225	M	HS-301
			●			11	5.6	SS	HS-361
			●			100	56	M	HS-302
			●			400	232	L	HS-312
				●		14	4.2	SS	HS-362
				●		400	127	L	HS-313
				●		800	254	LL	HS-316
					●	17	3.4	SS	HS-363
					●	100	20	M	HS-304
					●	400	81	L	HS-314
					●	800	162	LL	HS-317

HS-341 to 354 Sn-0.3Ag-0.7Cu

Component	Solid / liquid phase temperature	Wire dia. mm ϕ				Weight g	Length m (reference)	Bobbin type	Part No.
		0.3	0.6	0.8	1.0				
Sn-0.3Ag-0.7Cu	217°C / 226°C	●				100	230	M	HS-341
			●				58		HS-342
					●		20		HS-344
			●			400	235	L	HS-352
				●			130		HS-353
					●		83		HS-354

HS-371 / 372 / 374 Sn-0.7Cu

Component	Solid / liquid phase temperature	Wire dia. mm ϕ			Weight g	Length m (reference)	Bobbin type	Part No.
		0.3	0.6	1.0				
Sn-0.7Cu	227°C / 227°C	●			100	190	M	HS-371
			●			48		HS-372
				●		17		HS-374

Solder types and their characteristics

	Reliability	Cost	Ease of use	Luster	Liquid phase temperature	Soldering iron tip life	Wettability	RoHS compliant
Sn-3Ag-0.5Cu	○	△	○	△	○ (220°C)	△	○	◎
Sn-0.3Ag-0.7Cu	△	○	△	△	○ (226°C)	△	○	◎
Sn-0.7Cu	△	◎	△	○	△ (227°C)	○	△	◎
Sn-Pb	◎	◎	◎	◎	◎ (190°C)	◎	◎	×

鉛フリーハンダの組成と特長

古くから使用されてきた錫 (Sn) 鉛 (Pb) 系ハンダはぬれ性、融点、機械的強度や銅食われなどあらゆる点で優れていましたが、鉛が環境へ及ぼす影響が問題視され、これまでに様々な鉛フリーハンダの合金が作られてきました。しかし鉛フリーハンダは融点が高く、ハンダそのものの比熱が大きいため溶けにくく作業性が悪くなる傾向があります。作業性の改善には熱容量が大きく、温度の回復が早い温度調節機能が備わったハンダゴテを使用することが基本になり、適切な加熱温度や時間で正確に作業することが重要です。また鉛フリーハンダはそれぞれの特長に違いがあり、選定するには合金の特性や価格など総合的な判断が必要です。

Tin-Lead Type Solder Series

MSDS

H-712 / 714 / 716 SOLDER (non-washing, RMA type)

- Uses an ESD-safe bobbin.

Plastic characteristics	Component	Solid phase / liquid phase temperature	Wire dia. mm φ					Weight g	Length m (reference)	Bobbin type	Part No.
			0.3	0.6	0.8	1.0	1.6				
RMA	Sn60-Pb40	183°C / 190°C	●					100	200	M	H-712
————				●				200	95	M	H-714
					●			20	4.2	SS	H-711
RA						●		200	53	M	H-42-3707
————						●		500	134	L	H-42-3717
							●	20	3.4	SS	H-700
RA							●	17	3.0	S	H-702 DISCON
RMA							●	200	34	M	H-716
							●	500	86	L	H-42-3719
							●	1000	172	LL	H-42-3720
RA	Sn50-Pb50	183°C / 215°C				●	200	33	M	H-42-3703	
					●		1000	166	LL	H-42-3723	
							●	200	13	M	H-42-3705
							●	1000	64	LL	H-42-3725
————	Sn40-Pb60	183°C / 234°C					●	45	2.5	SS	H-710

H-722 / 728 FLUX



H-722

- For lead-free solder designed to be active at high temperatures.
- H-728 non-halide specs.



H-728



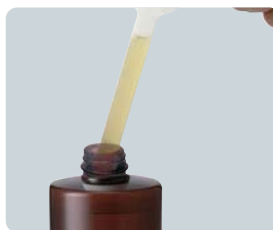
Part No.	Halide content	Insulation resistance Ω	Capacity mL
H-722	0.07%	10 ¹¹	30
H-728	0%	10 ¹³	

H-722-500 FLUX



- For lead-free solder

- Halide content: 0.07%
- Insulation resistance: 10¹¹ Ω
- Capacity: 500 mL
- With syringe



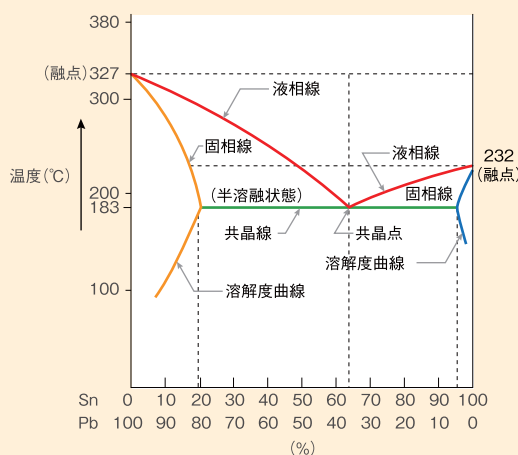
鉛フリーハンダの扱い方

鉛フリーハンダでもハンダ付けの基本となる部分は変わりませんが、コテ先の温度設定が高くなるため注意すべき点がいくつかあります。まずハンダ付けする個所にコテ先を当て予熱します。接合する個所が十分に予熱されたところで接合部とコテ先の間に適量のハンダを溶かし込みます。鉛フリーハンダの主成分である錫は酸化が早いので加熱時間は2〜3秒以内に、素早くコテを離してください。

高温で作業するためコテ先の酸化や焦付きにも気を付ける必要があります。コテ先の酸化を防ぐには常に新しいハンダでコテ先を覆っておきます。また、コテ先温度を必要以上に高く設定しないことでコテ先の寿命を延ばすことができます。

ブリッジなどハンダ不良個所の修正に使用するハンダ吸取線にはHS-380-2.5 (当社品番) (P.119) など鉛フリーハンダ専用の物を使用することをおすすめします。鉛フリーハンダ専用のハンダ吸取線は吸取りが早く加熱時間が短時間ですむため、基板や部品が熱で損傷するリスクを下げるができます。

ハンダの種類と固相/液相 温度について



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

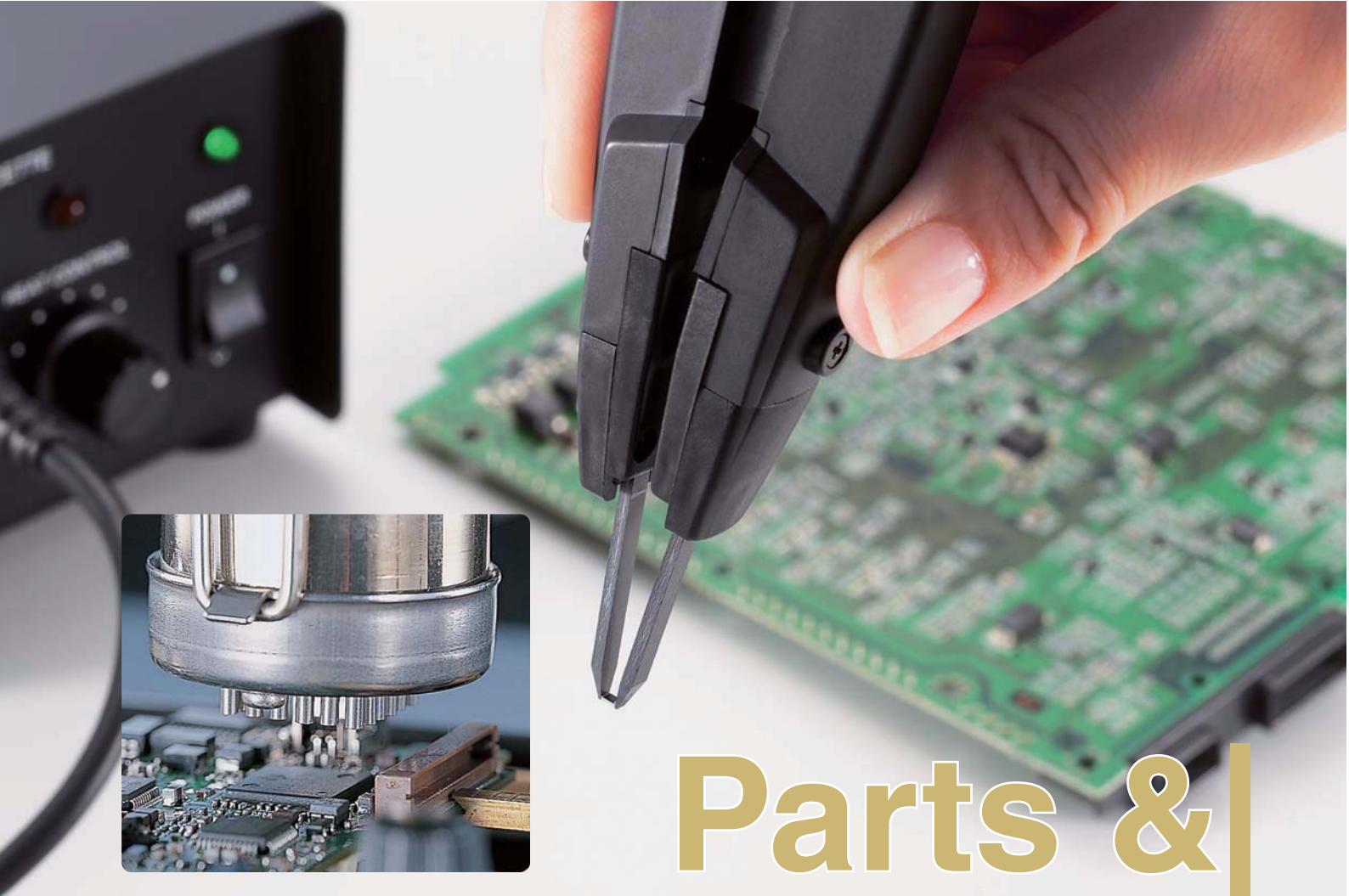
Soldering Stations

Soldering irons

Soldering iron stands

Soldering related products

Solder Flux



Parts & Solder removal equipment

HOT TWEEZERS

113
Page



ESD DESOLDERING PUMPS

118
Page



DESOLDERING STATION

116
Page



DESOLDER BRAIDS

119
Page



HOT AIR STATIONS

117
Page



Lead-free solder compatibility

(HS-401 / HS-603 / HS-801 / HS-559)

LEAD
FREE

Use at a higher than normal temperature for lead-free solder.

HS-401 HOT TWEEZERS

100 / 120 / 220 / 240 V

LEAD FREE

Remote switch

- Safe and energy-saving: heats up only when the remote switch is ON.

Tweezers

Offers the working feel of tweezers

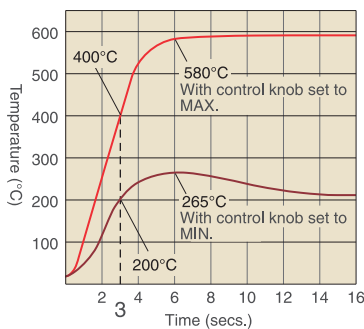
- Compact and lightweight at 42 g (without cord).

Heater unit

World's first dual-purpose soldering iron tip / heater features an SN heater.

- Heats to 400°C in approx. 3 seconds (at max.) . Speedy start-up.
- Unlike copper tips which are corroded by heat and flux, these tips have superior heat and wear resistance, and are unaffected by alkaline or acid.
- Solder does not adhere to the heater, making it ideal for rework.

HS-401 Temperature characteristics



Rated voltage / frequency	100 to 240 V (automatic type) , 50 / 60 Hz
Power consumption	40 W
Heater	Ceramic heater
Setting temperature	210 to 600°C
Standard heater unit	HS-405
Max. grasping width	10 mm
External dimensions	Station 110 x 86 x 240 mm (Not including the projecting part) Tweezers 180 x 40 x 20 mm (Connection cord: 1.2 m)
Weight	Station 1.2 kg Tweezers 125 g (with cord) ; 42 g (without cord)

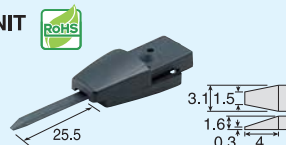
- 3-pin plug type.
- Power cord: 1 m
- Accessory: Dedicated soldering iron stand

Replacement parts

HS-405 HEATER UNIT

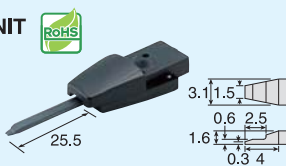
- Standard accessory item

- Quantity: 1 piece



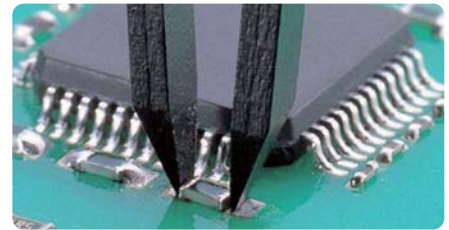
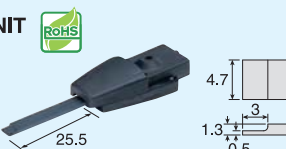
HS-406 HEATER UNIT

- Quantity: 1 piece



HS-407 HEATER UNIT

- Quantity: 1 piece



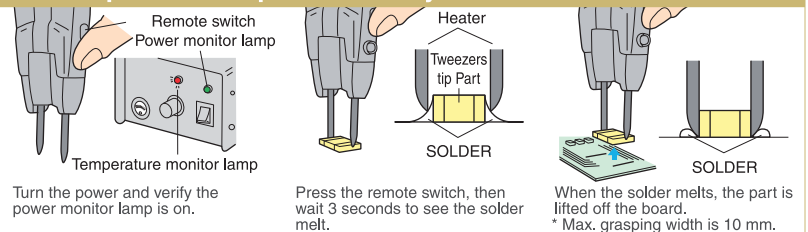
Station

Safety design permits automatic recovery even if a short-circuit occurs at the load side.

- Conforms to FCC radio noise regulations.
- Input voltage: 100 V to 240 V.



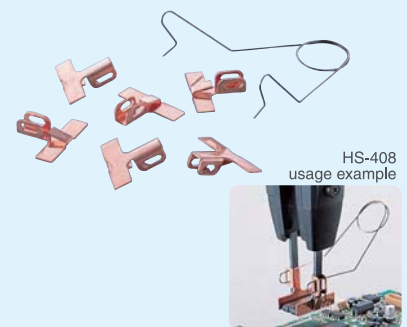
Basic operation is quick and easy



Optional parts

HS-408 SOP ATTACHMENT

- Removes SOPs with lead lengths up to 20 mm in approx. 30 to 60 seconds.
- Contents: Soldering tip x 6 / spring x 1
- Cannot be used with the HS-407.



HS-419 FOOT SWITCH

- External dimensions: 76 mmφ x 23 (H) mm (foot-switch)
- Weight: 215 g
- Cable length: 1.5 m



HS-32 3-2 PIN ADAPTER

- Rating: 15 A, 125 V



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Hot tweezers

Hot air stations

Desoldering station

Desoldering pump (manual type)

Desolder braids

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Hot tweezers

Hot air stations

Desoldering station

Desoldering pump (manual type)

Desolder brails

HS-603 HOT AIR STATION

100 V

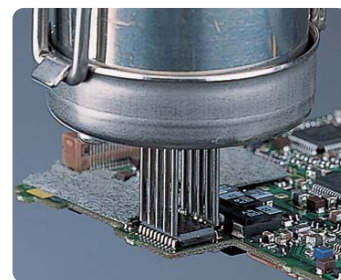
LEAD FREE



* This product does not include a nozzle.
The nozzle must be ordered separately.



Custom-order CSP nozzle used



High-precision SMD nozzle used



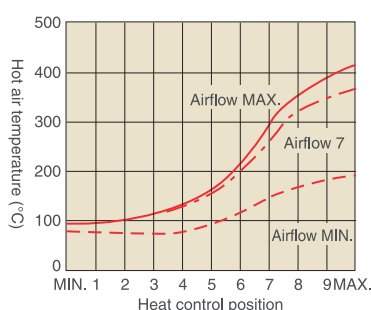
Use a nozzle for PLCC

Rated voltage / frequency	100 VAC, 50 / 60Hz	
Power consumption	330 W	
Heater	Ceramic heater	
Setting temperature	80 to 420°C (with HS-611 mounted)	
Pump	Diaphragm type *1	
Max. airflow rate	21L/minute (60 Hz)	
External dimensions (station)	178 (W) x 112 (H) x 189 (D) mm (not including projecting part)	
Blower overall length	190 mm (not including air hose)	
Weight	Station	5 kg
	Soldering iron	230g

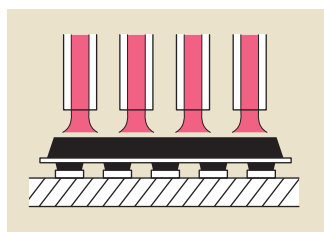
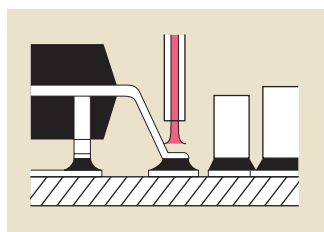
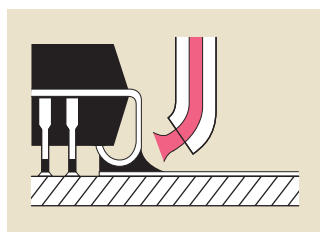
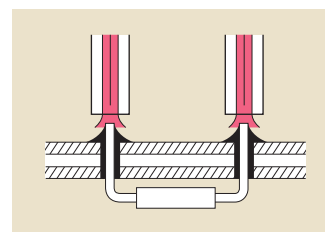
■ 3-pin plug type.

Temperature characteristics with HS-611 (24-pin)

The hot air temperature varies according to the nozzle type mounted, and the air volume setting.



The hot air temperature and airflow can be fine-adjusted to the optimal level for the component.
■ With airflow control

BGA (CSP) desoldering
(Custom-order CSP nozzle used)Desoldering SOP, QFP, etc.
(small pin & straight pin used)Desoldering SOJ & PLCC, etc.
(bent pin used)Desoldering insertion-type SMD components (chip IC)
(straight pins used)

■ Replacement part

HS-605 HEATER

100 V



- For spot heater L
- For HS-600 / 602 / 603



■ Optional part

HS-32 3-2 PIN ADAPTER

*1. A diaphragm pump features a format in which air intake / exhaust occurs by the vibration of a rubber membrane valve.

■ Optional parts

NOZZLES

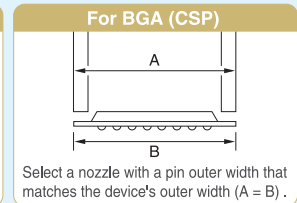
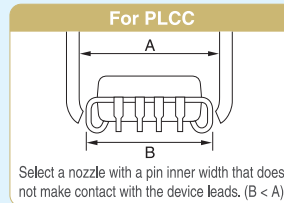
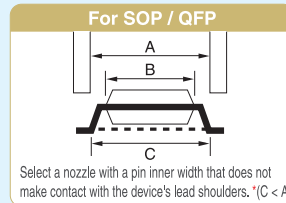


● Values denote the pin inner diameter (mmφ) x the number of pins.

■ Pin length: 16 mm

■ For HS-600 / 602 / 603

Nozzle selection method



* If there is risk of heating an adjacent chip part when removing a device from a PCB with a narrow component pitch, select a width that permits heating from above the lead shoulder.

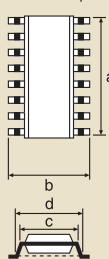
For SOP, For QFP, For DIP, etc.				For SOJ, For PLCC	
Standard pin specs.				Small pin specs.	Bent pin specs.
HS-611 ■ 1.2 mmφ × 24 pin	HS-612 ■ 1.2 mmφ × 5 pin	HS-613 ■ 1.2 mmφ × 7 pin	HS-614 ■ 1.2 mmφ × 12 pin	HS-642 ■ 0.7 mmφ × 10 pin	HS-631 ■ 1.2 mmφB × 36 pin
HS-615 ■ 1.2 mmφ × 28 pin	HS-616 ■ 1.2 mmφ × 28 pin	HS-617 ■ 1.3 mmφ × 2 pin	HS-618 ■ 2.0 mmφ × 1 pin	HS-643 ■ 0.7 mmφ × 32 pin	HS-632 ■ 1.2 mmφB × 44 pin
HS-619 ■ 1.2 mmφ × 44 pin	HS-621 ■ 1.2 mmφ × 8 pin	HS-622 ■ 1.2 mmφ × 10 pin	HS-623 ■ 1.2 mmφ × 12 pin	HS-644 ■ 0.7 mmφ × 16 pin	HS-634 ■ 1.2 mmφB × 28 pin
HS-624 ■ 1.2 mmφ × 16 pin	HS-625 ■ 1.2 mmφ × 16 pin	HS-626 ■ 1.2 mmφ × 28 pin	HS-627 ■ 1.2 mmφ × 14 pin		HS-635 ■ 1.2 mmφB × 22 pin
HS-628 ■ 1.2 mmφ × 16 pin	HS-629 ■ 1.2 mmφ × 18 pin				

Orders for customized nozzles are accepted for even 1 nozzle. * Use the custom nozzle application form provided on our website.

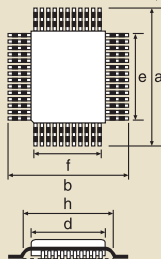
CUSTOM

HOZAN accepts orders for custom nozzles (minimum order: 1 nozzle).

Just prepare a sample of the desolder component, a formal drawing (showing all dimensions), or the required dimensions shown below, then contact a HOZAN representative.



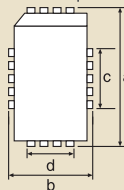
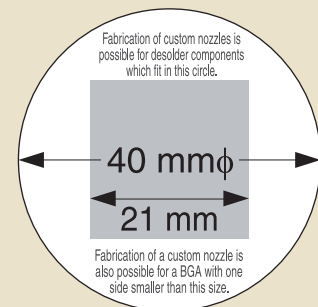
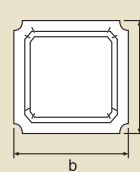
For SOP



For QFP



For PLCC

* The illustration shows the CSP.
For BGA (CSP)

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Hot tweezers

Hot air stations

Desoldering station

Desoldering pump (manual type)

Desolder braids

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Hot tweezers

Hot air stations

Desoldering station

Desoldering pump (manual type)

Desolder braids

HS-801 DESOLDERING STATION

100 V

LEAD FREE

* When using lead-free solder, frequent tip maintenance and filter cartridge replacement are recommended.

Rated voltage / frequency	100 VAC, 50 / 60Hz
Power consumption	140 W
Heater	Ceramic heater
Setting temperature	300 to 480°C
Standard nozzle	HS-812
Pump	Diaphragm type
Max. airflow rate	18 L/minute (60 Hz)
Max. vacuum	80 kPa
External dimensions	Station 173 (W) × 170 (H) × 220 (D) mm Soldering iron 120 (W) × 160 (H) × 35 (D) mm
Weight	Station 5.7 kg Soldering iron 160 g

■ 3-pin plug type.

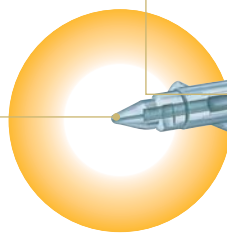


Sucks up chips together with the solder

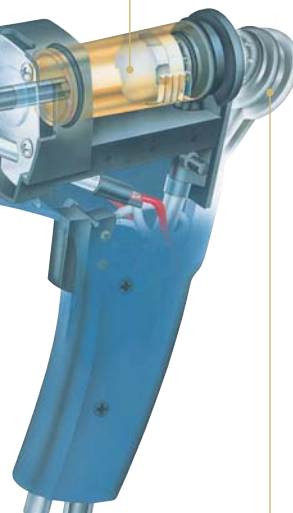
The optional chip component nozzle sucks up chip components (without damaging the PCB).



Dramatic reduction in clogging



Constant suction force
Maintenance-free from 1500 to 2000 points.



Reaches 300°C in 45 seconds
Quick start-up

Easy, one-touch replacement

Filter cartridges can be replaced while work is in progress simply by popping the old one out and inserting a new one.



With dedicated stand.

Another stand (H-106) can be attached to the dedicated stand.



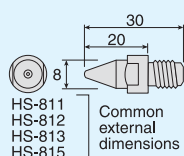
* For details, see page 107

■ Replacement parts

Excluding HS-810 / HS-827

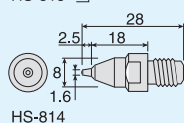
HS-811 to HS-815 NOZZLES

Part No.	Nozzle bore mmφ
HS-811	0.8
HS-812	1
HS-813	1.6
HS-814	0.75
HS-815	1.3



■ Quantity: 1 piece

* For protection, the nozzle tip is tinned with lead-free solder when shipping.

**HS-812Cu / 813Cu NOZZLE SET**

● A pure copper nozzle for superior heat transfer.

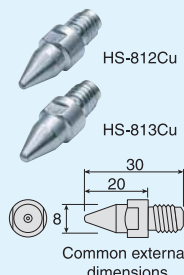
* Although this product offers better heat transfer than the HS-812 / 813, it is also less durable.

■ Nozzle opening dia.:

HS-812Cu 1 mmφ,
HS-813Cu 1.6 mmφ

■ Quantity: 5 pieces

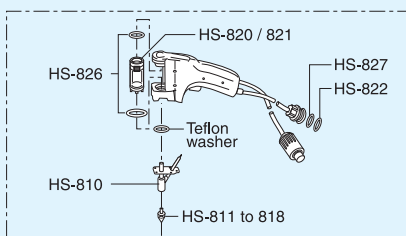
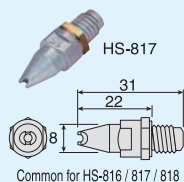
■ Accessory: Scorch retard

**HS-816 to HS-818 NOZZLES**

■ For chip parts

Part No.	Compatible chips mm
HS-816	2 × 1.25
HS-817	1.6 × 0.8
HS-818	3.2 × 1.6

■ Quantity: 1 piece

**HS-825 PAPER FILTER**

● Paper filter sets for HS-821.

■ Quantity:
10 sets

**HS-821 FILTER CARTRIDGE****HS-820 FILTER CARTRIDGE SET**

■ HS-821 10-piece set

HS-826 FILTER GASKET**HS-827 NIPPLE GASKET****HS-822 PUMP FILTER**

■ Quantity: 10 pieces

HS-810 HEATER UNIT**■ Optional parts****HS-830 MAINTENANCE KIT**

■ For HS-801

**Details Table (kit contents: 13 pieces)**

Pipe Cleaning Rod	HS-801-36
Nozzle Cleaning Rod	HS-801-39
Heater Unit	HS-810
Nozzle (1 mmφ)	HS-812
Filter Cartridge (×10)	HS-821
Pump Filter (×5)	HS-822
Filter O-ring Set (×2)	HS-826
Nipple O-ring (×2)	HS-827
Nozzle Box	
Nozzle Spanner	
Alignment Tool	
Work Gloves	
Parts Box	B-50-EF

HS-801-36 PIPE CLEANING ROD**HS-801-39 NOZZLE CLEANING ROD**

HS-559 HOT AIR STATION**LEAD
FREE**

100 V

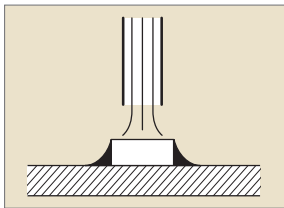
■ With accessory box screwdriver for nozzle replacement.

* This product does not include a nozzle. The nozzle must be ordered separately.

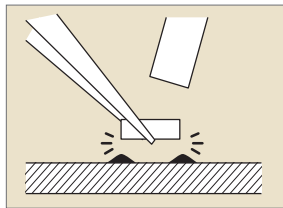


Rated voltage / frequency	100 VAC, 50 / 60Hz
Power consumption	100 W
Heater	Ceramic heater
Setting temperature	220 to 420°C (at max. air volume) 290 to 540°C (at min. air volume) (with HS-551 mounted: 50 / 60 Hz)
Pump	Diaphragm type
Max. airflow rate	10L / minute (at 50 / 60 Hz, with nozzle mounted)
External dimensions (station)	178 (W) × 112 (H) × 189 (D) mm (not including projecting part)
Blower overall length	220 mm (not including air hose)
Weight	3.5 kg

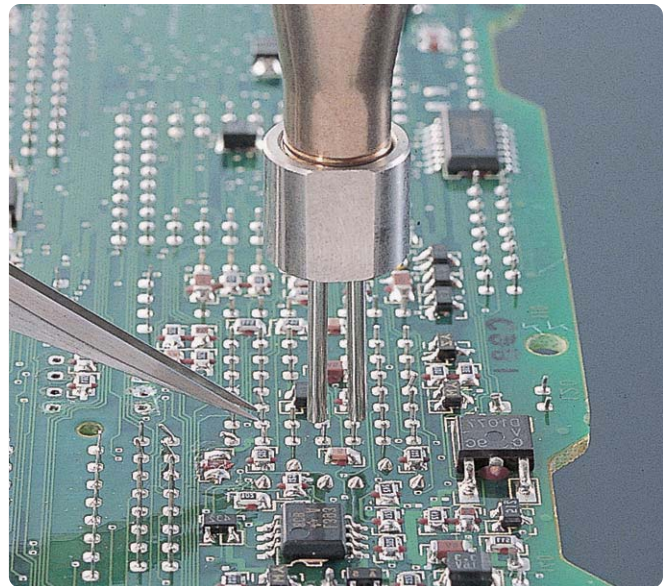
■ Power cord: 1.3 m (3-pin plug type.)



Non-contact type prevents leakage current damage. No pattern peel-off.



Easily removed after heated by tweezers. Extremely fast.



Chip removal (using HS-552)

■ Replacement parts

HS-551 to HS-553 NOZZLES (for HS-559)

Part No.	Pin inner dia. × number of pins
HS-551	2.0 mmφ × 1P
HS-552	1.3 mmφ × 2P
HS-553	1.2 mmφ × 3P



HS-551



HS-552



HS-553

HS-555 HEATER

■ For HS-559



■ Optional part

HS-32 3-2 PIN ADAPTER

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Hot tweezers

Hot air stations

Desoldering station

Desoldering pump (manual type)

Desolder brads

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Hot tweezers

Hot air stations

Desoldering station

Desoldering pump (manual type)

Desolder brails

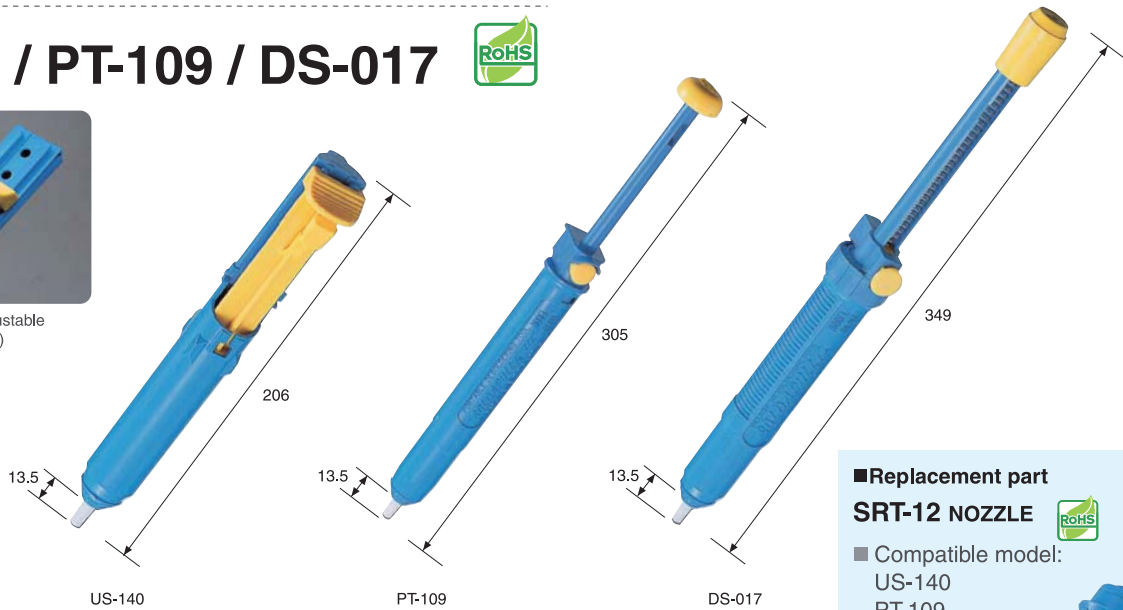
DESOLDERING PUMPS

● Features cleaning mechanism.

US-140 / PT-109 / DS-017



Retractable lever is adjustable (3 steps) (US-140)



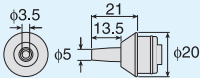
Part No.	Cylinder capacity mL	OAL mm	Weight g
US-140	22 • 18 • 14 (variable type)	206	52
PT-109	20	305	80
DS-017	25	349	100

■ Replacement part

SRT-12 NOZZLE



■ Compatible model:
US-140
PT-109
DS-017



H-959



- Cylinder capacity: 10 mL
- OAL: 205 mm
- Weight: 45 g
- ESD standard: Ground resistance $R_g < 1 \times 10^{12} \Omega$



H-959 application example

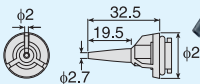


■ Replacement part

H-959-1 NOZZLE



■ Compatible model:
H-959



PT-409 / AS-196



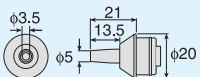
Part No.	Cylinder capacity mL	OAL mm	Weight g	ESD standard Ω
PT-409	20	305	80	Ground resistance $R_g < 1 \times 10^{12}$
AS-196	25	335	100	

■ Replacement part

LS-197 NOZZLE



■ Compatible model:
PT-409
AS-196



DESOLDER BRAIDS

- Antistatic material is used for the ESD*1 bobbin. (Ground resistance $R_g < 1 \times 10^{12} \Omega$)
(Does not apply to No.3734)

HS-380-1.5 / 2.0 / 2.5



- Has excellent heat transfer properties, and dramatically increases the workability of lead-free solder when used with a high-performance flux.

Part No.	Wire width mm	OAL mm	ESD standard Ω
HS-380-1.5	1.5	1.5	Ground resistance $R_g < 1 \times 10^{12}$
HS-380-2.0	2.0		
HS-380-2.5	2.5		



HS-380-1.5



HS-380-2.0



HS-380-2.5

No.3736 / 3737 / 3738 / 3739



Part No.	Wire width mm	OAL mm	ESD standard Ω
No.3736	0.9	3	Ground resistance $R_g < 1 \times 10^{12}$
No.3737	1.3		
No.3738	2.5		
No.3739	3.8		



No.3736



No.3737



No.3738



No.3739

■Bargain extra-length type

No.3734



- Wire width: 2.5 mm
- OAL: 15 m

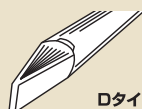
* No.3738 is the extra-long type



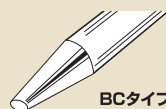
ハンダ吸取線について

ハンダ吸取線は間違った使い方をすると熱によって基板のパターンが剥がれたり部品を破損したりすることがあります。安全な吸い取り作業を行うには効率よく加熱し、長時間コテを当てたり必要以上に設定温度を上げたりしないことが重要です。次のポイントを参考に安全なハンダ吸い取り作業を行ってください。

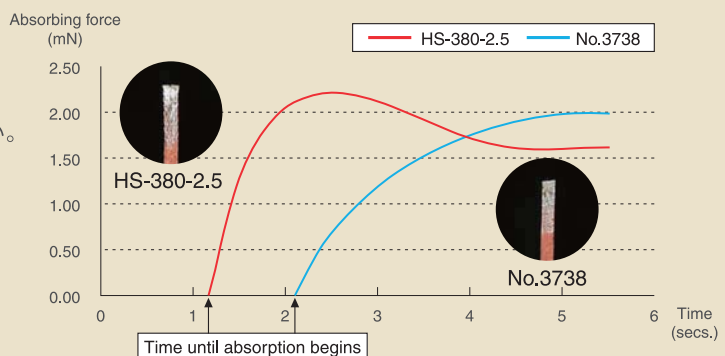
- 吸取線の先端に少量のハンダをつける
- フラックスの焦げつきや酸化皮膜のないコテ先を使用する
- 使用した吸取線はカットして常に先端から使用する
- コテ先は図のように接触面積が広く熱伝導の良い形状の物を使用する



Dタイプ



BCタイプ



The HS-380 desolder braid provides stress-free working conditions even when handling lead-free solder. This is because absorption begins so quickly after heating. Type No.3738 is the most absorbent. Select the type which is best suited to the application.

*1. ESD (Electro-Static Discharge) bobbin is made from material of ESD safe.

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Hot tweezers

Hot air stations

Desoldering station

Desoldering pump (manual type)

Desoldering braids

Measuring instruments



ホーザンの常用標準器は、「国家基準」を満たしています。

ISO9001を応援する トレーサビリティ体制。

品質管理と、その維持継続のためのトレーサビリティ

生産技術の進展に伴い品質管理がますます重要になっています。

その維持管理のための計測器についても、国家標準（国際標準）とのつながりを証明するトレーサビリティが国際的な要請となってきました。

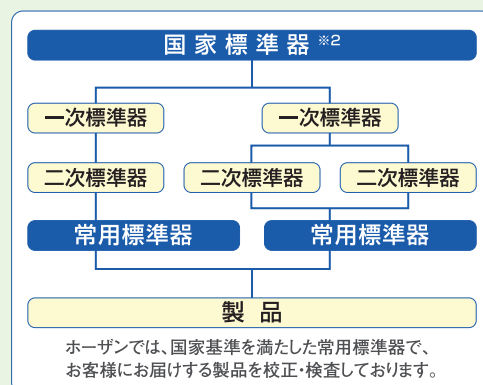
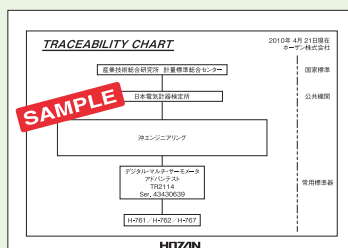
この要請にお応えできるよう、基準となる「ものさし」を国家標準に求め、ホーザンでは、年1回の校正・検査を受けた常用標準器を通して、

ハンダゴテ温度計・デジタルマルチメータ・デジタル温度計などをお客様にお届けしています。

校正証明書 **試験成績表** このマークの製品につきましては、校正証明書※1・試験成績表・トレーサビリティチャートの、ご要望にお応えできるサービス体制を整えています。（有料）

ハンダゴテ温度計（デジタル）試験成績表					
品番	H-707	図番	H02000000	試験日	平成30年09月03日
定値	0-500℃	室温	00℃	湿度	00%
精度	±1.1℃(at 100℃)	表示最小値	±0.01℃		
①温度計（JIS C 1503）に準拠					
温度(℃)	表示値(℃)	規定値(℃)	判定		
500	25.64		○	否	
400	15.4		○	否	
300	15.21		○	否	
200	8.13		○	否	
100	4.1		○	否	
②JIS C 1503-1に準拠（JIS C 1503-1）に準拠					
温度(℃)	表示値(℃)	規定値(℃)	判定		
50	00	00	○	否	

校正証明書			
品番	H-707	図番	H02000000
品名	デジタルマルチメータ	定値	00℃
校正標準器	デジタルマルチメータ	定値	00℃
校正標準器	デジタルマルチメータ	定値	00℃
校正標準器	デジタルマルチメータ	定値	00℃
校正標準器	デジタルマルチメータ	定値	00℃
校正標準器	デジタルマルチメータ	定値	00℃
校正標準器	デジタルマルチメータ	定値	00℃
校正標準器	デジタルマルチメータ	定値	00℃
校正標準器	デジタルマルチメータ	定値	00℃



※校正証明書は、お客様名を明記した証明書です。

試験成績表、校正証明書をお付けした製品は、ご注文いただいてから試験を行いますので、納品までに多少お時間をいただきます。

※1. 校正証明書は製品個々（登録番号毎）に成績表とともに発行されます。一定期間使用後の再校正時も同様です。

※2. 標準器は国家標準に近い方から順次一次標準器、二次標準器となり、製品の校正に用いる測定器を常用標準器と呼びます。

H-767 SOLDERING IRON THERMOMETER (Digital)

Laminated (6F22)



Battery-powered digital type

Measurement range	0 to 500°C
Sensor	H-768
Resolution	1°C
Accuracy	± (1%rdg + 1 dgt)
Max. reading	1999 count
Sampling rate *1	1.25 times/sec.
Power supply	9V Laminated (6F22) battery x 1
Battery life	Approx. 100 hours (continuous use)
External dimensions	120 (W) x 100 (H) x 145 (D) mm
Weight	660 g



* Lead-free tinned by solder.

■ Replacement parts

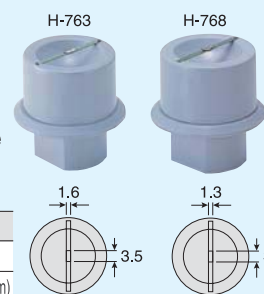
H-763 / 768 SENSORS



● The 2 types are available shown at right.

■ For digital type (Thermocouple K-class 2)

Soldering iron guideline	Sensor
30 W or more	H-763
11 W or more	H-768 (Standard accessory item)



H-767-TA SOLDERING IRON THERMOMETER (with calibration certificate)

Laminated (6F22)



* Because the certificate will bear the purchaser's name (company name, etc.), your name is required when ordering.

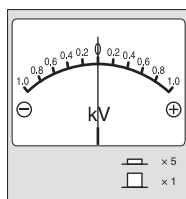
Z-201 STATIC LOCATOR



Laminated (6F22)

Measurement range	(×1 range) ± 1 kV / (× 5 range) ± 5 kV
Measurement distance	25 mm (from sensor to measured object)
Power supply	9V Laminated (6F22) battery x 1
Battery life	40 hours (continuous use)
External dimensions	61 (W) x 31 (H) x 97 (D) mm
Weight	100 g (including battery)

■ Accuracy: ± 10% or reading value



Measurement up to ±5 kV is possible at x5.



To operate, simply press the switch and move the unit near the target object.



Z-201-TA STATIC LOCATOR (with calibration certificate)

Laminated (6F22)



* Because the certificate will bear the purchaser's name (company name, etc.), your name is required when ordering.

F-6 WRIST STRAP TESTER



Laminated (6F22)

Indications	LOW	Wrist strap ≤ 750 kΩ
	GOOD	750 kΩ < Wrist strap < 9 MΩ
	HIGH	9 MΩ ≤ Wrist strap
Accuracy	750 KΩ ... -0%, +6% 9 MΩ ... +0%, -6%	
Power supply	9V Laminated (6F22) battery x 1	
Battery life	150,000 times or more	
External dimensions	61 (W) x 31 (H) x 97 (D) mm	
Weight	150 g	

■ Accessory banana plug with alligator clip



To operate, simply press the center switch while touching the plate with a finger. If OK, the green LED lights and a buzzer sounds.



F-6-TA WRIST STRAP TESTER (with calibration certificate)

Laminated (6F22)



* Because the certificate will bear the purchaser's name (company name, etc.), your name is required when ordering.

*1. The sampling rate is the number of times per second which the tester circuit detects the measurement value.

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Soldering iron thermometer

Static Locator

Soldering irons checker

Digital thermometer

Multimeters

Measuring instruments ▶ SOLDERING IRON CHECKERS

DT-570 SOLDERING IRON CHECKER (ground resistance & voltage leakage meter)

 Laminated (6F22)

Leakage voltage	Resolution	0.1 mV
	Measurement range	0 to 199.9 mV
	Accuracy	± (5%rdg + 1 dgt)
Ground resistance	Resolution	0.1 Ω
	Measurement range	0 to 199.9 Ω
	Accuracy	± (5%rdg + 1 dgt)
Max. readout	199.9 count (Burnout: 1)	
Sampling rate	2 times/sec.	
Power supply	9V Laminated (6F22) battery × 1	
Battery life	Approx. 20 hours (continuous use) (with a "low voltage" warning)	
External dimensions	71 (W) × 31 (H) × 125 (D) mm (not including the protruding part)	
Weight	300 g	

■ With exclusive 2-pin conversion adaptor and ground cord with plug.



Example of ground resistance measurement
(See below for details of the measurement method)

DT-570-TA SOLDERING IRON CHECKER (with calibration certificate)

 Laminated (6F22)

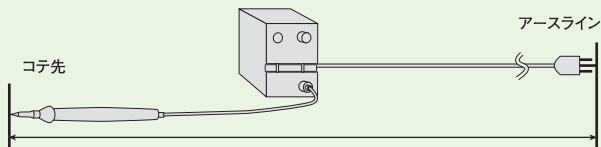


* Because the certificate will bear the purchaser's name (company name, etc.), your name is required when ordering.

ハンダゴテの管理

ハンダゴテの規格について、JIS規格においてはJIS-C-9211*でAA級: 1000MΩ以上、A級: 10MΩ以上、B級: 1MΩ以上のように定められておりました。

米国のMIL規格においては「MIL-STD 2000A」*の中で、コテ先-アース間抵抗、およびリーク電圧の定めがあります。JIS規格の試験方法はコテ先を熱した後、通電を止めて絶縁抵抗計で絶縁抵抗を測るものに対し、MIL規格の試験方法は通電状態での測定であり、MIL規格が実作業に近いより現実的な測定方法と言えます。また、精密ハンダ付け作業に使用される多くのハンダゴテは、ステーションタイプでアース付き仕様であることから、MIL規格の測定方法で管理されることをお勧めいたします。



※JIS-C-9211およびMIL-STD-2000Aはすでに廃止されています。
JIS規格の測定は2線式ハンダゴテ(アースなし)に限ります。

◆アース抵抗

ハンダゴテのリーク電流はコテ先からアース線を通して、コンセントのアースラインへと流れることで電子部品へのダメージを最小限にします。よって、コテ先とアース間に介在する接続部、ネジ部などの劣化やコテ先の酸化物、フラックスによりアース間抵抗が増すことで、コテ先からの電子部品への影響が増大することになります。日常からコテ先-アース間の抵抗を管理することが重要なのです。アース抵抗値については、MIL規格で2Ω以下にするよう規定されていました。もし、規定値より高い場合は、ヒーターおよびビットの交換、接続部のメンテナンスを行う必要があります。

◆リーク電圧

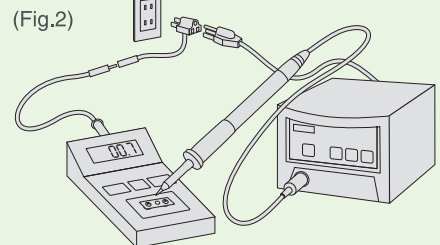
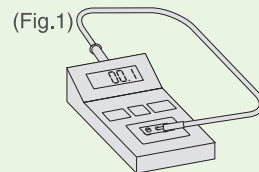
ハンダゴテの劣化にともないコテ先アース間のリーク電圧も増加します。アース抵抗の時と同じようにリーク電圧が高いと部品へのダメージが大きくなります。リーク電圧を日常測定し、メンテナンスすることで部品へのダメージを未然に防ぐことができます。リーク電圧値はMIL規格で2mV以下にするよう規定されていました。

DT-570 measurement method

- (1) Turn the POWER ON, and set the MODE to Ω or mV. Connect the dedicated ground cord to the unit, then touch one end to the plate and record the measurement (V1 or R1) (See Fig.1).
- (2) Using the dedicated adapter, connect the 3-wire type soldering iron, then turn the power ON and set to the maximum temperature (see Fig.2).
- (3) Connect the dedicated ground cord and the dedicated adapter.
After the temperature stabilizes, touch the tip in the center of the plate, then record that value (V2 or R2).
Use the recorded values and the formula below to make the calculation.
Leakage voltage $V = V2 - V1$, or Ground resistance $R = R2 - R1$

Example: Leakage voltage

When $V1=0.1$ and $V2=0.7$, $V = 0.7 - 0.1 = 0.6$ mV.



DT-510 DIGITAL THERMOMETER

Laminated (6F22)

Measurement range	-50 to 800°C (depends on sensor performance)	
Sensor	Thermocouple K-class (CA)	
Resolution	0.1°C / 1°C (switchable)	
Accuracy	See the table below	
Max. reading	1999 count	
Sampling rate	2.5 times / sec.	
Power supply	9V Laminated (6F22) battery × 1	
Battery life	Approx. 125 hours (continuous use)	
External dimensions	74 (W) × 40 (H) × 168 (D) mm	
Weight	360 g	

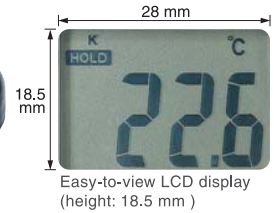
Range (°C)	Resolution (°C)	Accuracy
-50.0 to 199.9	0.1	± (0.2%rdg + 10 dgt)
-50 to 199	1	± (0.3%rdg + 2 dgt)
200 to 800		± (0.4%rdg + 2 dgt)

HOLD switch

0.1° / 1° selector switch

Power switch

MAX. display switch



Easy-to-view LCD display (height: 18.5 mm)



Provided with a vertical-posture stand, and shock-absorbing cover.

* A sensor probe is not included with this product. Can be ordered separately.

DT-510-TA DIGITAL THERMOMETER (with calibration certificate)

Laminated (6F22)

* Because the certificate will bear the purchaser's name (company name, etc.), your name is required when ordering.

CALIBRATION CERTIFICATE

TEST DATA

DT-510A / C SENSOR PROBES



- Standard: Conforms to the JIS thermocouple K-class 2 (previously 0.75 Class) standard.
- Accuracy: ± 0.75 of measured value, or 2.5°C higher

Part No.	Measurement range °C	Shapes	Lead wire length mm
DT-510A	-50 to 800	Sheath type	950
DT-510C	-50 to 500	Surface type	(Includes connector)



DT-510 + DT-510A usage example (solder bath temperature, liquid temperature)



DT-510 + DT-510C usage example (IC surface temp., solid surface temp.)



DT-510C sensor 150

150

15

φ3.2

φ6

DT-510A

DT-510C

DT-510B / E THERMOCOUPLES



DT-510B DT-510B

- Standard: Conforms to the JIS thermocouple K-class 2 (previously 0.75 Class) standard.
- Accuracy: ±0.75 of measured value, or 2.5°C higher
- Lead length: (DT-510B) 1000 mm/ (DT-510E) 500 mm (including connectors)

* Cannot be used for liquid temperature. Also, do not allow the sheath to make direct contact with heat.

Part No.	Measurement range °C	Wire dia. mmφ	Sheath heat resistance °C
DT-510B	-40 to 200	0.25	70
DT-510E	-40 to 760	0.1	250



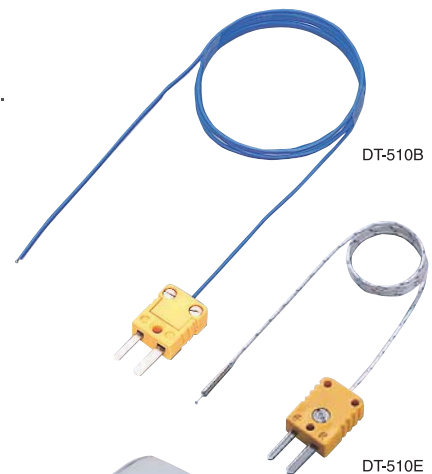
DT-510 + DT-510B usage example (air-conditioner outlet temperature)



DT-510 + DT-510E usage example (hot air temp.)



Left DT-510E, Right DT-510B



DT-510B

DT-510E

DT-510Z CARRYING CASE



- For DT-510

* Cannot hold DT-510A.



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Soldering iron thermometer

Static Locator

Soldering irons checker

Digital thermometer

Multimeters

DT-117 DIGITAL MULTIMETER

AA (R6) batteries

Max. readout	4000 Count
Sampling rate	3 times/sec.
Power supply	AA (R6) batteries × 2
Battery life	Approx. 400 Hrs.
Auto power OFF	30 minutes
Outer dia.	70 (W) × 32.5 (H) × 157.5 mm
Weight	235 g

■ With accessory DT-113-1 / carrying case (DT-510Z)

Function	Range	Accuracy	Internal resistance	Remarks
DC voltage DCV	400.0 mV	± (0.5%rdg + 2 dgt)	Approx. 100 MΩ or higher	
	4.000 V		Approx. 11 MΩ	
	40.00 V	± (0.9%rdg + 2 dgt)	Approx. 10 MΩ	
	400.0 V			
	1000 V	± (1.0%rdg + 2 dgt)		
AC voltage ACV	4.000 V	± (1.2%rdg + 9 dgt)	Approx. 11 MΩ	
	40.00 V	± (1.2%rdg + 5 dgt)	Approx. 10 MΩ	
	400.0 V			
	750 V	± (1.5%rdg + 5 dgt)		
Resistance Ω	400.0 Ω	± (1.5%rdg + 5 dgt)		
	4.000 kΩ	± (1.2%rdg + 4 dgt)		
	40.00 kΩ			
	400.0 kΩ			
	4.000 MΩ	± (1.8%rdg + 2 dgt)		
	40.00 MΩ	± (3.0%rdg + 2 dgt)		
DC current DCA	400.0 μA	± (1.5%rdg + 2 dgt)	Approx. 100 Ω	* Continuous measurement is 5 A or lower
	4000 μA		Approx. 1 Ω	
	40.00 mA			
	400.0 mA	± (2.0%rdg + 2 dgt)	Approx. 0.01Ω	
	4.000 A			
	20.00 A			
AC current ACA	400.0 μA	± (1.8%rdg + 5 dgt)	Approx. 100 Ω	* Continuous measurement is 5 A or lower
	4000 μA		Approx. 1 Ω	
	40.00 mA			
	400.0 mA	± (2.5%rdg + 5 dgt)	Approx. 0.01Ω	
	4.000 A			
	20.00 A			
Continuity test •»		• Audible at approx. (10 to 120 Ω) or less • Release voltage: approx. 0.4 V		
Diode test ►		• Release voltage: approx. 1.5 V		
Capacitance F	50.00 nF	± (5%rdg + 6 dgt)	* Auto range only	
	500.0nF			
	5.000 μF			
	50.00 μF			
	100.0 μF			



Equipped with a handy stand

DT-117-TA DIGITAL MULTIMETER (with calibration certificate)

AA (R6) batteries

* Because the certificate will bear the purchaser's name (company name, etc.) , your name is required when ordering.

CALIBRATION
CERTIFICATE

TEST
DATA

■ Replacement part
DT-113-1 TESTER PROBE (PIN TYPE)

Regarding the digital thermometer & digital multimeter max. readouts and accuracy (permissible error) indications

rdg (reading)

Representation of value displayed by the multimeter.
Read-in value and display value.



dgt (digit)

Indicates the least-significant-digit of the readout. It represents the error used for processing fractions when converting from analog to digital.

Max. readout

The DT-121 max. readout is 4000
The DT-117 max. readout is 4000
The DT-510 max. readout is 1999

This example shows the resistance measured by the DT-117 with auto range switching

Measurement	Display	
4000 kΩ	4.000 MΩ	Automatically displays the MΩ and kΩ .
4000 Ω	4.000 kΩ	
40 Ω	40.00 Ω	Becomes a 4-digit display.
4.0 Ω	4.000 Ω	

Accuracy (tolerance)

Use the DT-117 to measure DC current

2.000

When the above value displays:

Because the 2 VDC accuracy is ± [0.9% rdg + 2 dgt], this would be ± [0.018 + 0.002], making the accuracy in this case 2 V ± 0.02 V.

DT-121 DIGITAL MULTIMETER

CR2032

- Features frequency (Hz) measurement, duty ratio *2 measurement, and relative-value measurement functions.

Max. readout	4000 count
Sampling rate	3 times/sec.
Power supply	Coin battery CR2032 × 1
Battery life	Approx. 150 Hrs.
Auto power OFF	15 minutes
Outer dia.	56 (W) × 11.5 (H) × 108 (D) mm
Weight	50 g

■ Accessory: Carrying case



Function	Range	Accuracy	Internal resistance	
DC voltage DCV	400.0 mV	± (0.7%rdg + 3 dgt)	100 MΩ or higher	
	4.000 V		Approx. 11 MΩ	
	40.00 V	± (1.3%rdg + 3 dgt)	Approx. 10 MΩ	
	400.0 V			
	500 V			
AC voltage ACV	4.000 V	± (2.3%rdg + 10 dgt)	Approx. 11 MΩ	
	40.00 V		Approx. 10 MΩ	
	400.0 V	± (2.3%rdg + 5 dgt)		
	500 V			
	Resistance Ω	400.0 Ω	± (2.0%rdg + 5 dgt)	
4.000 kΩ				
40.00 kΩ				
400.0 kΩ				
4.000 MΩ		± (5.0%rdg + 5 dgt)		
40.00 MΩ		± (10%rdg + 5 dgt)		
Capacitance F	4.000 nF	± (5.0%rdg + 25 dgt)		
	40.00 nF			
	400.0 nF	± (5.0%rdg + 10 dgt)		
	4.000 μF			
	40.00 μF	± (10%rdg + 15 dgt)		
	200.0 μF			
Frequency Hz	9.999 Hz	± (0.7%rdg + 5 dgt)		
	99.99 Hz			
	999.9 Hz			
	9.999 kHz			
	99.99 kHz			
DUTY*2	0.1 to 99%	—————		
Continuity test	••))	• Audible at approx. (10 to 120 Ω) or less		
Diode test	►	Open voltage: approx. 1.5 V		

DT-121-TA DIGITAL MULTIMETER (with calibration certificate)

CR2032

* Because the certificate will bear the purchaser's name (company name, etc.) , your name is required when ordering.

CALIBRATION
CERTIFICATE

TEST
DATA

DT-106 MULTIMETER

AA (R6) batteries Laminated (6F22)

- The high internal resistance of 50 kΩ/V enables high accuracy.

Power supply	AA (R6) batteries × 2 / 9V laminated (6F22) battery × 1
Battery life	Approx. 13 Hrs.
External dimensions	106 (W) × 44 (H) × 165 (D) mm
Weight	350 g

■ Accessories: 2 test leads (pin type, alligator clips), carrying case

	Range
DC voltage DCV	0.12 / 3 / 12 / 30 / 120 / 300 / 1000 V
AC voltage ACV	3 / 12 / 30 / 120 / 300 / 750 V
DC current DCA	0.03 / 0.3 / 3 / 30 / 300 mA
Resistance Ω	5 k / 50 k / 500 k / 5 M / 50 MΩ
Electrostatic capacity F	(C1) 50 pF to 0.2 μF
	(C2) 0.01 μ to 20 μF
Current between terminals LI	80 μ / 800 μ / 8 m / 80 mA
DC current gain hFE	0 to 1000hFE

DT-106-TA MULTIMETER (with calibration certificate)

AA (R6) batteries Laminated (6F22)

* Because the certificate will bear the purchaser's name (company name, etc.) , your name is required when ordering.

CALIBRATION
CERTIFICATE

TEST
DATA

*2. The duty ratio (DUTY) is the ratio of the pulse width and pulse repetition period, and is expressed by percentage.

Provided with a carrying case which holds the unit, 2 test leads, and the instruction manual.



■ Replacement parts

DT-105-1 TESTER PROBE (pin type)



DT-105-1



Alligator clip

DT-112 SMD PROBE

- Dedicated probe for chip components.

- Withstand voltage: 30 VAC / 70 VDC
- Max. current: 3A
- Probe overall length: 120 mm
- Open width: 1 to 8 mm
- Cord length: 1.2 m



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Soldering iron thermometer

Static Locator

Soldering irons checker

Digital thermometer

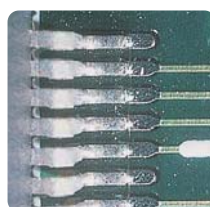
Multimeters

Optical equipment

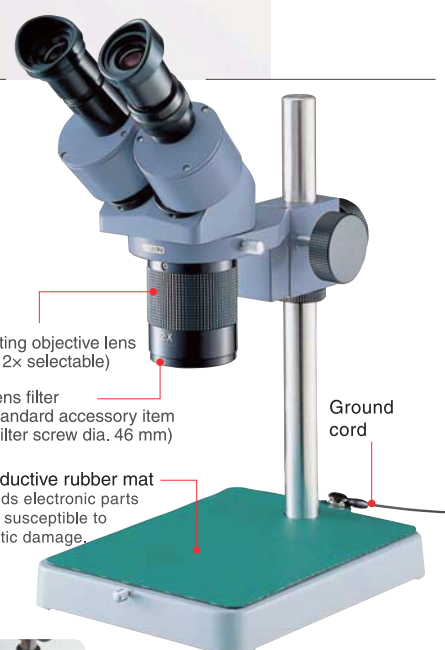
L-50 STEREO MICROSCOPE



×10



×20



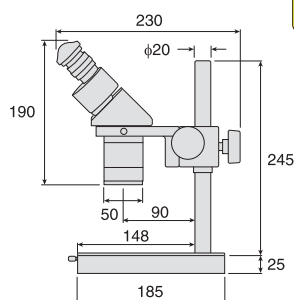
Rotating objective lens
(1× / 2× selectable)

Lens filter
Standard accessory item
(Filter screw dia. 46 mm)

Ground cord



With conductive rubber mat
Safely holds electronic parts
which are susceptible to
electrostatic damage.



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

Total magnification (view)	10× (18 mmφ) / 20× (9 mmφ)
Objective lens	1× / 2× selection format
Eyepiece	WF10× (L-511)
Sight adjustment	Monocular adjustment type, ±5Dptr
Working distance	80 mm
Focus adjustment	Head scope up/down type
Stereo head spec.	Binocular 45° Tilted Head scope
Eye width adjustment range	55 to 74 mm, left/right independent type
Table dimensions	145 (W) × 185 (D) mm
Support height	245 mm
Distance from lens center to support	90 mm
Weight	2.4 kg

L-50 Magnification table Standard item

Objective lens	1×			2×			1×			2×			1×			2×			1×			2×		
CONVERSION LENS	—			—			L-57-0.5			L-57-1.5			L-57-2.0			L-57-2.0			L-57-2.0			L-57-2.0		
EYEPIECE	Magnification ×	Field of view mmφ	Working distance mm	Magnification ×	Field of view mmφ	Working distance mm	Magnification ×	Field of view mmφ	Working distance mm	Magnification ×	Field of view mmφ	Working distance mm	Magnification ×	Field of view mmφ	Working distance mm	Magnification ×	Field of view mmφ	Working distance mm	Magnification ×	Field of view mmφ	Working distance mm	Magnification ×	Field of view mmφ	Working distance mm
L-511 (WF10×)	10	18	80	20	9	80	5	36	150	10	18	150	15	12	40	30	6	40	20	9	27	40	4.5	27
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	80	40	4.5	80	10	18	150	20	9	150	30	6	40	60	3	40	40	4.5	27	80	2.2	27

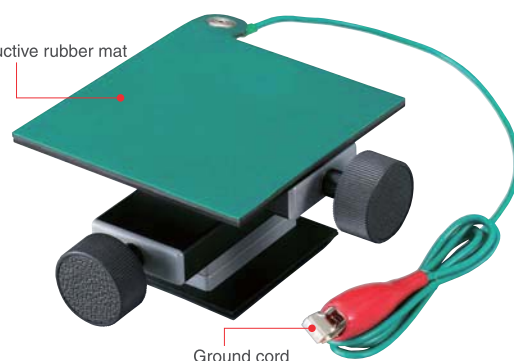
* The "working distance" is the distance from the end of the filter to the subject.

L-527 XY-STAGE

- Stage dimensions: 100 × 100 mm
- Slide width: X-axis / ±20 mm, Y-axis / ±20 mm (4 mm per knob turn)
- External dimensions: 125 (W) × 60 (H) × 125 (D) mm
- Weight: 390 g



With conductive rubber mat



Ground cord

L-50 System diagram

L-511 to 513 EYEPIECES

- 1 set of 2 types (1 of each type)
- With eye cup



L-511 (10x)



L-513 (15x)

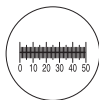


L-512 (20x)



L-69 EYEPIECE WITH SCALE (10x)

- Use as replacement for monocular lenses only.
- Magnification: 10x
- Quantity: 1
- * Not usable where the total magnification is other than 10x.
- * An eye cup accessory is not provided.

Micrometer
(5 mm scale in 1/10 mm units)

L-57 CONVERSION LENS

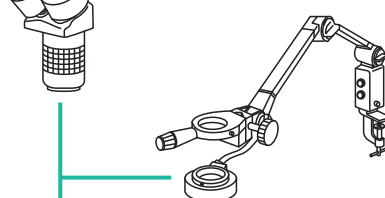
- L-57-0.5 (0.5x)
- L-57-1.5 (1.5x)
- L-57-2.0 (2x)

- Enlarges the field-of-view and the working distance (L-57-0.5), and increases the magnification (L-57-1.5 / 2.0).



L-521 STANDARD TABLE

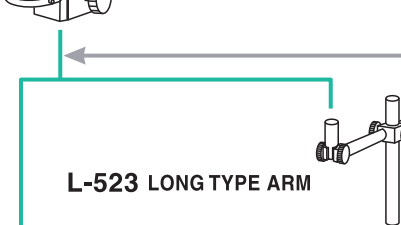
L-501 STEREO HEAD SCOPE



L-522 FLEXIBLE ARM

- (With clamp & dedicated light)
- Max. clamp mounting width is 55 mm

L-509 STEREO HEAD HOLDER



L-523 LONG TYPE ARM

L-527 XY-STAGE

* For details, see page 126

L-62 COLD LIGHT SOURCE



* For details, see page 138

LIGHT GUIDES

L-63-A



L-63-B



L-63-C



L-65 RING LIGHT

* For details, see page 138



L-710 LED RING LIGHT

* For details, see page 137



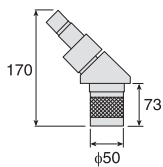
L-701 / 705 LED FLEX NECK LIGHTS

- * Mountable only on the L-522 support.
- * For details, see page 136



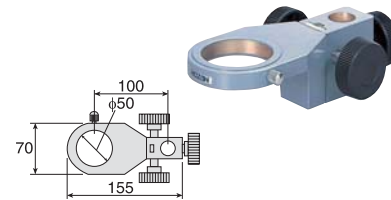
L-501 STEREO HEAD SCOPE

- With lens filter
- * This product does not include an eyepiece. The eyepiece can be ordered separately.



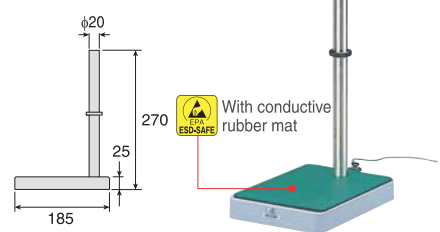
L-509 STEREO HEAD HOLDER

- Support dia.: 20 mmφ
- Slide width: 30 mm



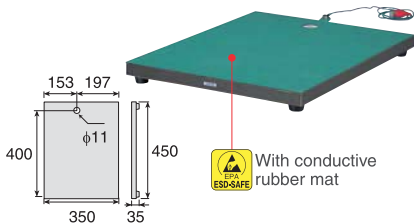
L-521 STANDARD TABLE

- Base dimensions: 145 (W) × 185 (D) mm
- Accessory: Ground cord



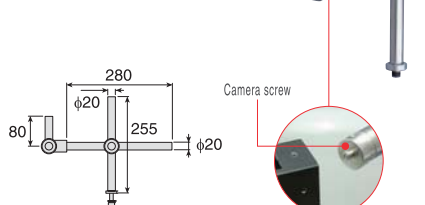
L-525 LARGE TABLE

- Base dimensions: 350 (W) × 450 (D) mm
- Accessory: Ground cord
- Material: Plywood (Table: Melamine facing plate)



L-523 LONG TYPE ARM

- 2 mm/8 mm
- With accessory L type hex wrench (1 each).
- With camera screw for mounting a digital camera, etc. (1/4" × 20 threads)



L-522 FLEXIBLE ARM (With clamp & ring light)

100 V

- Power supply: 100 VAC, 50 / 60 Hz
- Lamp life: Approx. 2000 Hrs.
- Light: 8W daylight lamp (L-65-1)
- Weight: 1.1kg
- Clamp's max. opening width: 55 mm
- Power cord: 1.9 m



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Stereo Microscopes

Color CCD camera

USB cameras

Zoom lens

LED lights

Lighting equipment

Magnifier

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Stereo Microscopes

Color CCD camera

USB cameras

Zoom lens

LED lights

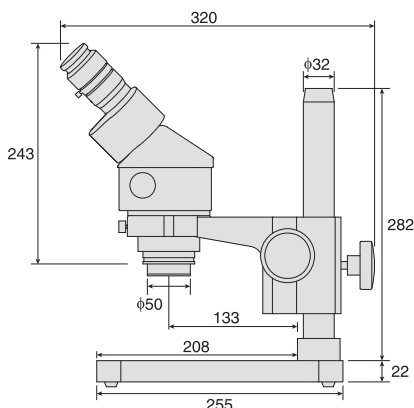
Lighting equipment

Magnifier

L-46 STEREO MICROSCOPE (zoom type)

■ Accessories: Ground cord, 2clips (clamps)

Total magnification	7 to 45x
Objective lens	0.7 to 4.5 × (zoom ratio 6.4)
Eyepiece	WF10 × fields-of-view 20 (L-546-10)
Sight adjustment	Independent left / right adjustment type, ± 5Dptr
Working distance	84 mm (equipped with lens filter / ring)
Focus adjustment	Head scope up / down type (adjustable range: 50 mm)
Stereo head spec.	Binocular 45° Tilted Head scope
Eye width adjustment range	54 to 75 mm left/right interlocking type
Table dimensions	200 (W) × 255 (D) mm
Support height	282 mm
Distance from lens center to support	133 mm
Weight	4.2kg



x7



x18



x45



■ Combination example

The L-830 USB camera can also be used to perform inspections using a personal computer.

L-46 STEREO MICROSCOPE
L-830 USB CAMERA
L-527 XY-STAGE
L-710 LED RING LIGHT



L-46 Magnification table Standard item

Objective lens	0.7 to 4.5x											
	CONVERSION LENS			L-57-0.5			L-57-1.5			L-57-2.0		
EYEPIECE	Magnification ×	Field of view mmφ	Working distance mm	Magnification ×	Field of view mmφ	Working distance mm	Magnification ×	Field of view mmφ	Working distance mm	Magnification ×	Field of view mmφ	Working distance mm
L-546-10 (WF10x)	7 to 45	28.5 to 4.4	84	3.5 to 22.5	57.1 to 8.9	160	10.5 to 67.5	19.0 to 2.9	43	14 to 90	14.3 to 2.2	26
L-546-20 (WF20x)	14 to 90	14.3 to 2.2		7 to 45	28.5 to 4.4		21 to 135	9.5 to 1.5		28 to 180	7.1 to 1.1	

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

実体顕微鏡について

双眼(ステレオ)実体顕微鏡は、2方向の光学軸を結像させるため、より立体視ができる顕微鏡です。対物レンズで拡大され、更に接眼レンズで拡大した虚像を檢視するものです。

ルーペではできない高倍率と、広い作動距離を確保でき幅広い作業が可能です。接眼レンズを更に高倍率のものに交換することで、総合倍率を上げることができます。また、対物レンズにコンバージョンレンズを装着して視野を広くとることができます。

人には左右の視力に差異があり、顕微鏡はこの視度調整ができる、ルーペにはない機能を備えています。

ズーム式顕微鏡では、まず最高倍率でピントを合わせたあと低倍率で左右それぞれを視度調整すれば、どの倍率でもすっきり檢視できるようになります。



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

L-46 System diagram

L-546-10 / 20 EYEPIECES



- 1 set of 2 types (1 of each type)
- With eye cups (2 types)



L-546-10

L-546-20

L-546-10 (10×)



L-546-20 (20×)



L-62 COLD LIGHT SOURCE



LIGHT GUIDE

L-63-A



L-63-B



L-63-C

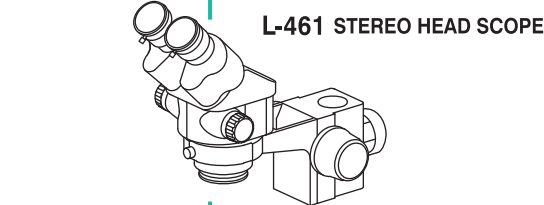


* For details, see page 138

L-527 XY-STAGE

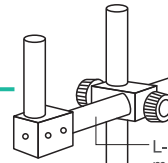


* For details, see page 126



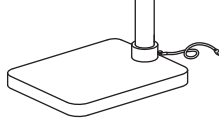
L-461 STEREO HEAD SCOPE

L-424 LONG TYPE ARM

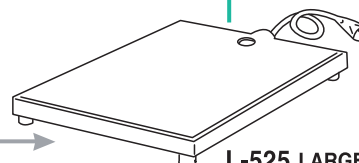


L-701 / 705 is mountable on this arm

L-462 STANDARD TABLE



L-525 LARGE TABLE



L-57 CONVERSION LENS

L-57-0.5 (0.5×)

L-57-1.5 (1.5×)

L-57-2.0 (2×)

- Enlarges the field-of-view and the working distance (L-57-0.5), and increases the magnification (L-57-1.5 / 2.0).



L-710 LED RING LIGHT



* For details, see page 137

L-65 RING LIGHT



* For details, see page 138

L-701 / 705 LED FLEX NECK LIGHTS



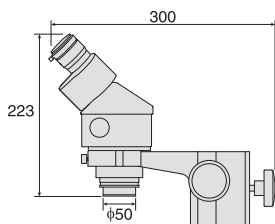
* For details, see page 136

L-461 STEREO HEAD SCOPE



- With lens filter

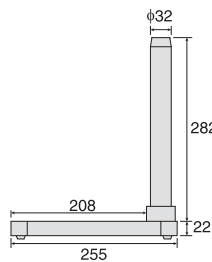
* This product does not include an eyepiece. The eyepiece can be ordered separately.



L-462 STANDARD TABLE

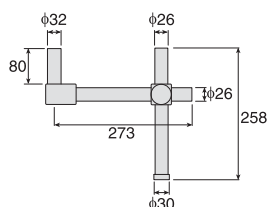


- Base dimensions: 200 (W) × 255 (D) mm
- Accessory: Ground cord, 2 clips (clamps)



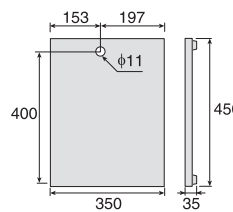
With conductive rubber mat

L-424 LONG TYPE ARM



L-525 LARGE TABLE

- Base dimensions: 350 (W) × 450 (D) mm
- With ground cord
- Material: Plywood (Table: Melamine facing plate)



With conductive rubber mat

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Stereo Microscopes

Color CCD camera

USB cameras

Zoom lens

LED lights

Lighting equipment

Magnifier

L-801 CCD CAMERA100 V 230 V
L-801-230

- 55 to 205x zoom is possible when used on HOZAN's L-814 zoom lens. (Calculated using a 14-inch monitor)

Video format	NTSC (color)
Video terminal	1 / 3" CCD (400,000 pixels)
Resolution	Horizontal: 480 TV lines; Vertical: 350 TV lines
S/N ratio	48dB
Diaphragm	Automatic electronic diaphragm
Lens (L-801-2) dimensions	50 mmφ / 37 mm (not including filter)
Power voltage	12 VDC (with accessory AC adapter)
Power consumption	1.56 W
Weight	290 g

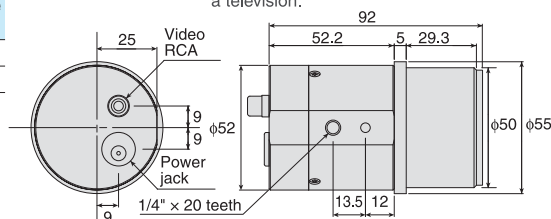
L-801 Magnification table

Zooming	Television size (inches)	Magnification x	Field of view mmφ	Working distance mm
Camera lens rear	14	15	21	160
Camera lens front		30	10	90

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



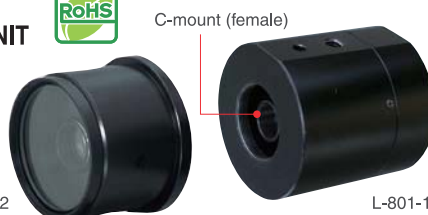
* Simply use an video pin cord to connect to a television.

**L-801-1 / 2** CCD CAMERA / LENS UNIT**L-801-1** CCD CAMERA**L-801-2** LENS UNIT

- L-801 CCD camera and lens.

* Use a commercially available C-mount lens for the L-801-1.

L-801-2



L-801-1

C-mount (female)

C-MOUNT

Replacement part**L-800-4** CAMERA LENS

■ For L-801

■ Lens type: 1 group, 2 elements (coated)



ANALOG

CCD
0.4 MEGA
PIXELS

C-MOUNT

With camera screw

Lens (L-801-2)
Mountable on the HOZAN L-509 holder.
Also compatible with the L-65 and L-710 light.

Aluminum body (L-801-1)
C-mount lens can be mounted.

Camera lens (L-800-4)

Lens filter

Protects the camera lens from solder smoke.
(Filter screw dia. 46 mm)

Set contents



■ Set contents: Camera unit, AC adaptor, RCA cord, hex wrench

L-811 / 812 / 813 EXTENSION RING / DIAPHRAGM SET

- Dedicated optional part for increasing the L-801 CCD camera zoom.
Detach the camera lens from the L-801, then attach the L-811 / 812 extension ring between the camera lens and the L-801.

Part No.	Part Name	OAL mm	Aperture dia. mmφ
L-811	EXTENSION RING	18	17
L-812		28	

- Attach to a camera lens to increase the zoom.

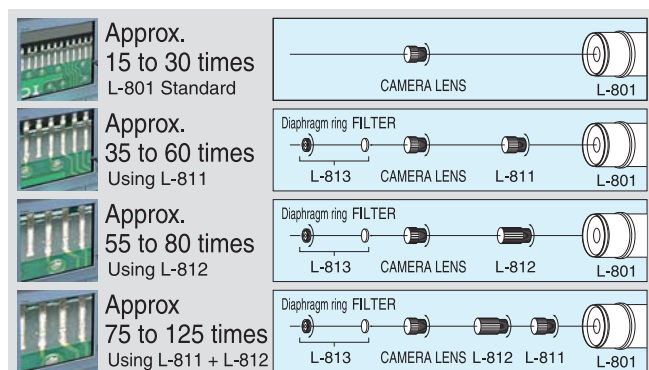
Part No.	Part Name	Aperture dia. mmφ
L-813	DIAPHRAGM SET	2.5

- Diaphragm ring and filter set.
- Facilitates easy focusing by enabling a deeper focal depth.
- * Should be used together with the HOZAN L-710, L-701 / 705, L-62 light.

L-811 / 812 Magnification table

Combination	Camera lens Position	Magnification x (14-inch monitor)	Field of view mmφ	Working distance mm
L-811	MIN	35	8	75
	MAX	60	4.5	50
L-812	MIN	55	5	55
	MAX	80	3	45
L-811 + L-812	MIN	75	3.5	46
	MAX	125	2	38

* The "working distance" is from the camera lens to the subject. (No filter)



* The above are inset images.
* With 14-inch monitor.

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Stereo Microscopes

Color CCD camera

USB cameras

Zoom lens

LED lights

Lighting equipment

Magnifier

L-808 FLEXIBLE ARM

- Compact flexible arm for use with the L-801 or with another commercially available camera, etc. Use the center knob to simultaneously lock the 2 arms (upper/lower) and the camera mount.

- Effective arm length: 310 mm
- Max. clamp opening width: 55 mm
- Camera mounting screw: 1/4" × 20 threads (JIS B7103, 1/4)
- Weight: 470 g
- Accessory: Arm clamp × 1



■ Combination example

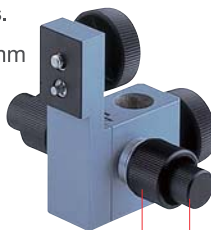


L-801 CCD CAMERA
L-808 FLEXIBLE ARM
L-705 LED FLEX NECK LIGHT

L-804 MICRO-DRIVE HEAD HOLDER*1

- A handy holder when focusing the L-521 and L-523 CCD cameras, or a digital camera. Enables quick rough and fine adjustments.

- External dimensions: 130 × 96.5 × 100 mm
- Weight: 510 g
- Camera mounting screw: 1/4" × 20 threads (JIS B7103, 1/4)
- Mountable support dia.: 20 mmφ
- Slide width: 35 mm



Rough-adjust knob: 25.5 mm per turn
Fine-adjust knob: 3.2 mm per turn

L-809 CAMERA PLATFORM WITH SLIDER

- Enables fine adjustments (up/down) of the L-801 or other camera, etc., when mounted on the L-808 camera screw.

Slider

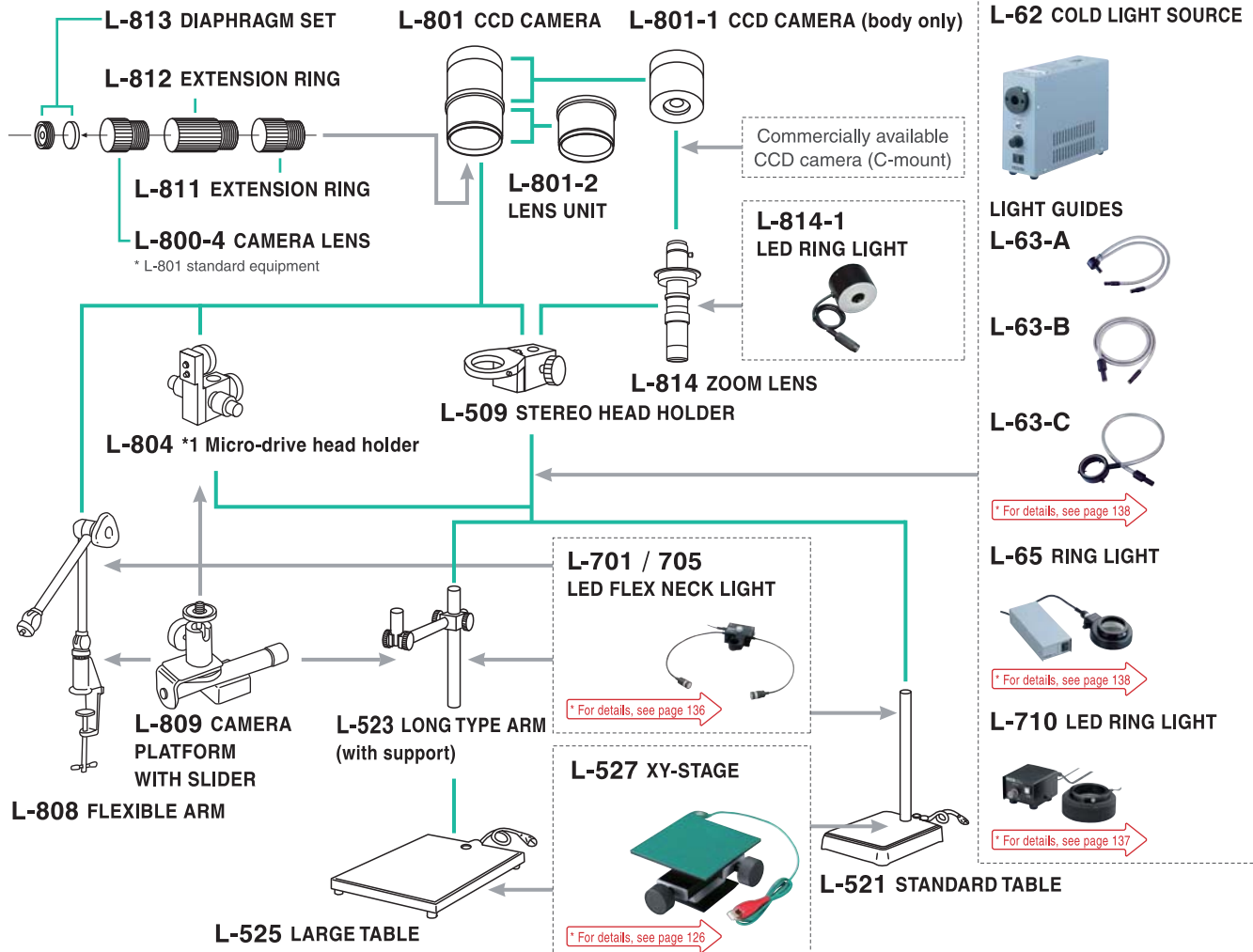
- External dimensions: 30 (W) × 36 (H) × 101 (D) mm
- Weight: 50 g
- Slide width: 30 mm



Free tripod

- External dimensions: 45 (H) × 18 mmφ
- Weight: 57 g
- Camera mounting screw: 1/4" × 20 threads (JIS B7103, 1/4)

CCD camera, system diagram



*1 The L-804 micro-drive head holder cannot be used with the L-65 and L-710.

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Stereo Microscopes

Color CCD camera

USB cameras

Zoom lens

LED lights

Lighting equipment

Magnifier

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Stereo Microscopes

Color CCD camera

USB cameras

Zoom lens

LED lights

Lighting equipment

Magnifier

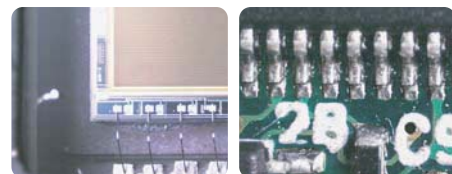
L-830 USB CAMERA (for microscope)

お手持ちの顕微鏡※に装着できるアダプターをセット

※当社L-50・L-46をはじめ23.2及び30mmφの鏡筒内径を備えたJIS規格準拠の光学顕微鏡に接続可能。



L-830+L-50 組み合わせ例



L-830+実体顕微鏡での検視例



USBプラグ
データ出力と電源入力を行います。

M4ネジ穴

USBカメラ本体

Cマウントリング付属

固定用アタッチメントA
(接眼部外径38mmφ以下用)
顕微鏡アダプターを鏡筒に
固定します。



変換用リング

接眼レンズ外径30mmφの鏡筒
に取り付けの際に使用します。

顕微鏡アダプター
カメラを顕微鏡に取り付ける
ためのアダプターです。

固定用アタッチメントB
(接眼部外径38～44mmφ用)
顕微鏡アダプターを鏡筒に固定します。

デジタル

CMOS
130万画素

USB
2.0

Windows
Vista
対応

Cマウント

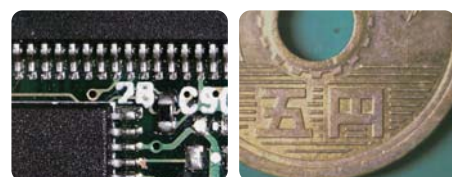
L-831 USB CAMERA (with lens)

20倍※の高解像度レンズを装備したセット

※17インチモニター使用(プレビューサイズ/
モニター画面表示1280×1024設定時)



L-831+L-509+L-521 組み合わせ例



L-831での検視例



レンズフィルター
ハンダの煙からカメラ
レンズを守ります。

M4ネジ穴

高解像度Cマウントレンズ
(L-801-2)

USBプラグ
データ出力と電源入力を行います。

デジタル

CMOS
130万画素

USB
2.0

Windows
Vista
対応

Cマウント



接続はUSBケーブル1本で行えます

本体部

出 力	USB2.0(L-830/831)
撮 像 素 子	1/2"CMOSイメージセンサ
総 画 素 数	130万画素
最大取込画素数	1280×1024(1,310,720)
シャ ッ タ	電子シャッター
フレームレート	最大10fps(1280×1024)
最 小 照 度	3 lx
ホワイトバランス	自動
マ ウ ント	CSマウント(Cマウントリング付属)
消 費 電 力	約1W
動作温度/湿度	-10～70℃/40～90%(結露なきこと)
寸 法	約46×68×36mm
重 量	約140g(ケーブル含む)

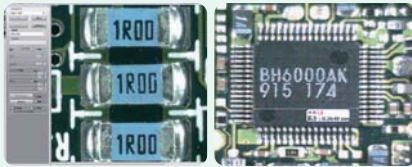
画像閲覧・管理ソフト

出 力	160×120、320×240、400×300、640×480、640×512、768×576、800×600、1024×768、1280×1024、1360×1024、1600×1200、2048×1536
記録ファイル形式	静止画(BMP、JPG、SFC、TIFF)、動画(AVI)
計 測 機 能	直線(長さ)、方形(幅、高さ、面積、周囲の長さ)、円形(半径、面積、円周)、多角形(面積、周囲の長さ)、楕円形(長半径、短半径、面積、円周)、角度、不定形(面積、周囲の長さ)
計 数 機 能	対象の数、総面積、全画面における割合、最小面積、最大面積、平均面積、最短周囲長、最長周囲長、平均周囲長、固有面積、固有周囲長、データ出力(テキスト形式、Excel形式)
画 像 処 理 機 能	補正(明るさ・コントラスト、色相・彩度、カラーバランス)、グレースケール、階調の反転、画像回転(水平反転・垂直反転・90°回転)、画像サイズ(ピクセル、%)、フィルタ(ぼかし、スムーズ、シャープ、浮彫り、グレース、石版画、モザイク、黒強、黒弱、カスタムフィルタ)
合 成 機 能	等比率、加算、減算、AND、OR、差異、乗算、暗、明
記 録 機 能	計測結果、音声データを付加
レ ポー ト 機 能	画像の貼付け、テキスト入力
推奨動作環境	CPU:Pentium4 1GHz以上、OS:Windows XP(SP2以降)/Vista、メインメモリ:512MB以上 ハードディスク:1GB以上の空き容量、モニター:1024×768解像度以上 USBポート:USB2.0、ディスプレイメモリ:64MB以上

ボタンひとつで画像キャプチャー(静止画・動画)、 操作簡単な付属ソフト。 ※L-830/L-831に付属

検視画像の保存はボタンひとつでOK。
さらに明るさやコントラスト調整などの
画像補正も画面上で操作可能です。

L-825/826の後期ロット分は、
L-830/831用のソフトが使用可能です。
詳しくは、WEBへ
<http://www.hozan.co.jp/>



ライブ調整機能

- 画面を見ながらスライドバーで明るさやコントラストを調整可能
- 色相・シャープなどの画像フィルターも装備

計測機能

- 物体・セルの自動計数機能
- 長さ、幅、高さ、周囲の長さ、面積、角度を簡単計測
- 拡大機能を利用して、より高精度な計測が可能
- 計測したデータは表計算ソフトなどに出力可能

レポート機能

- ドラッグ&ドロップで簡単に画像を貼り付け
- 手早く、簡単にレポート作成
- 取り込んだ画像が有効活用できます

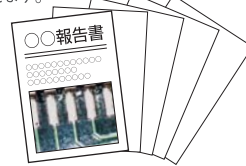
活用1

その場で、パソコンモニターの拡大画像が
多人数で観察できます。
プレゼンテーションなどに。



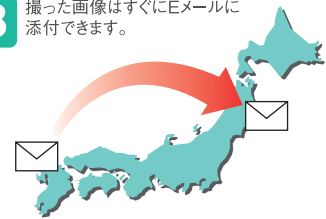
活用2

画像はすぐにデータ保存OK。
報告書やレポートなどへ写真貼り付け
できます。

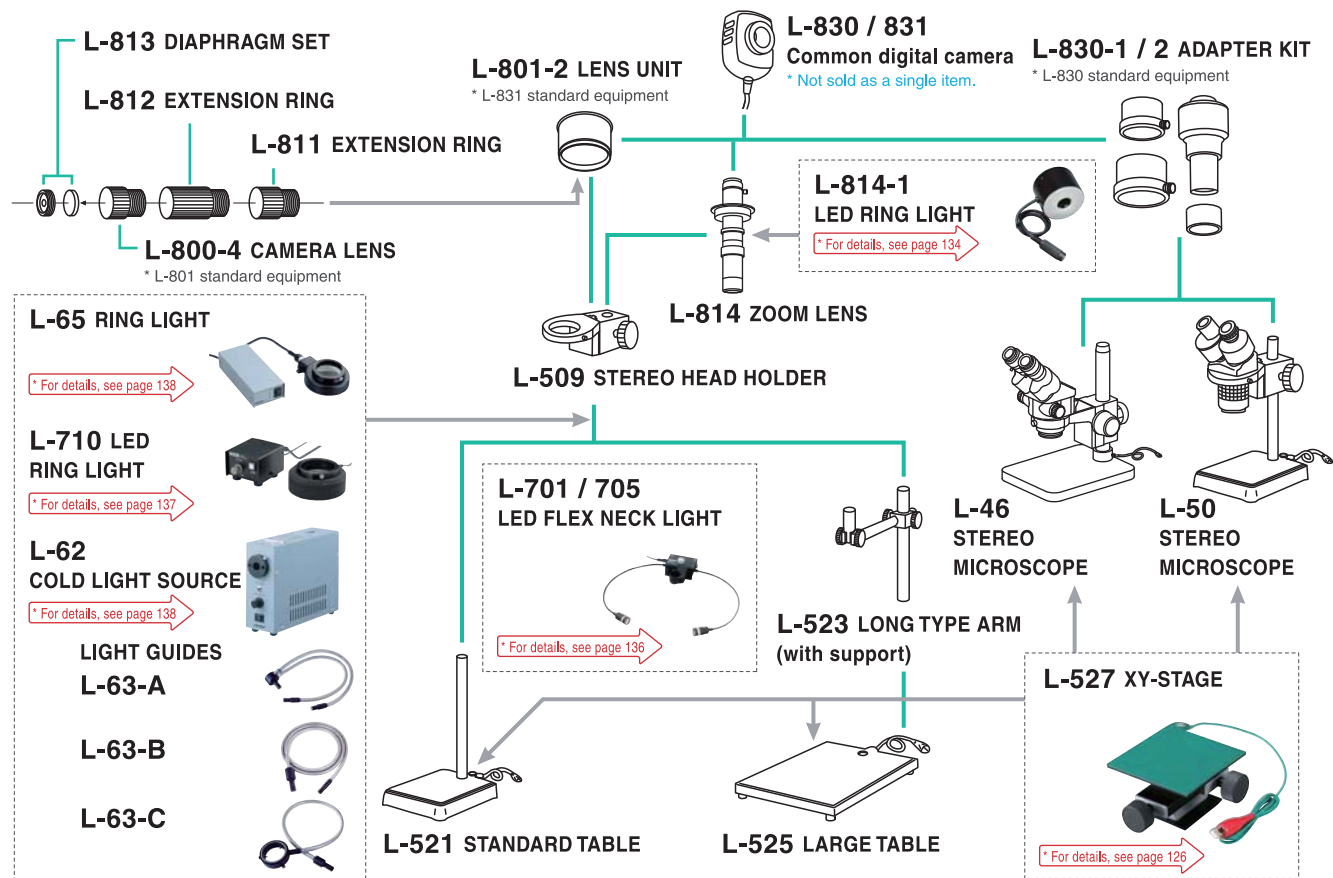


活用3

撮った画像はすぐにEメールに
添付できます。



USB camera & system diagram



L-830-1 / 2 ADAPTER KIT

- Adaptor for connection to an optical microscope.

Part No.	Mount	Lens magnification factor x	Compatible head scope dia. mmφ	End of serial No.
L-830-1	C-mount	0.65	Eyepiece inner dia. 23.2 or 30.0	For b
L-830-2	CS mount	0.4		For c

Verify the final alphabetic character which appears at the end of your USB camera's serial No.
* The compatible adapter varies according the camera No.



L-801-2 LENS UNIT

- Optical C-mount type lens.

When used in combination with the L-830 digital camera, zoom images can be inspected on a monitor without having to use a microscope.

Mount	C-mount
Lens configuration	1 group, 2 elements (coated)
Holder dimensions	50 mmφ / 29.3 mm (Not including filter)



L-811 / 812 / 813 EXTENSION RING / DIAPHRAGM SET

- L-811 EXTENSION RING
- L-812 EXTENSION RING
- L-813 DIAPHRAGM SET

- Enables a 45 to 160x zoom when combined with the L-831.



When combined with the L-831

Combination	Camera lens position	Magnification x	Field of view mm	Working distance mm
L-811	MIN	45	6 × 7.5	80
	MAX	85	3 × 4	55
L-812	MIN	75	3.5 × 4.5	56
	MAX	110	2 × 3	44
L-811 + L-812	MIN	100	2.5 × 3	47
	MAX	160	1.5 × 2	37

* Using 17-inch monitor (1280 × 1024), with a preview setting 1280 × 1024.

Technical inquiries can be made by E-mail to the following address: th@hozan.co.jp

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Stereo Microscopes

Color CCD camera

USB cameras

Zoom lens

LED lights

Lighting equipment

Magnifier

Magnifier

Magnifier

Magnifier

Magnifier

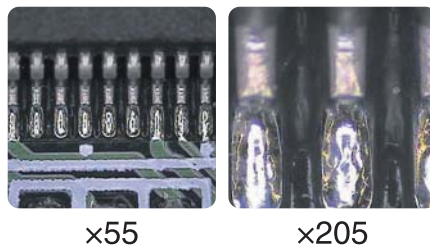
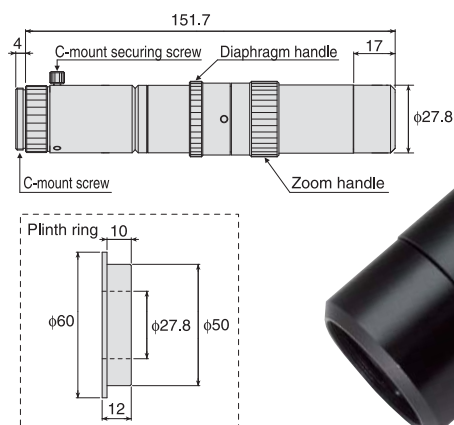
Magnifier

Magnifier

L-814 ZOOM LENS

- C-mount high-resolution zoom lens.
- 55 to 205x zoom (approx.) when combined with the L-801 CCD camera.
- (* Calculated using a 14-inch monitor) .
- 50 to 240x zoom (approx.) is possible when combined with the L-831 USB camera.
- (* Calculated using a 17-inch monitor, a preview size / monitor screen display, 1280 × 1024 setting)

Optical magnification	0.75 to 3x
Working distance	59 mm
Actual field of view	8 to 2 mmφ
Image depth	3 mm (x0.75)
Lens configuration	6 groups, 12 elements (with magenta coating)
Lens diameter	25 mm
External dimensions	156 (L) × 50 mmφ (plinth ring dia.: 60 mmφ)
Weight	250 g



C-MOUNT



C-mount

HOZAN L-801 CCD Camera
The L-831 USB Camera and commercially available C-mount cameras can also be mounted.

50 mmφ ring

Can be combined with HOZAN's L-509 holder.

Diaphragm

Use of the diaphragm function produces a deeper, more vivid image.

Zoom

Optical magnification 0.75 to 3x

LENS UNIT

Features a 6 group, 12 element high-performance lens (magenta coated).

Optional parts

L-814-1 LED RING LIGHT (L-814 dedicated)

100 V

- L-814 dedicated high-brightness LED light.

LED	14 High-brightness white LEDs
LED life	Approx. 100,000 HRS * Varies according to the environment where used.
Color temp.	5500 K
Power supply	5 VDC (with accessory AC adapter)
Power consumption	300 mA
External dimensions	48 mmφ×33 mm
Weight	80 g

Brightness

Distance from light source mm	Brightness lx
30	3200
40	2400
50	1900
60	1500
70	1300



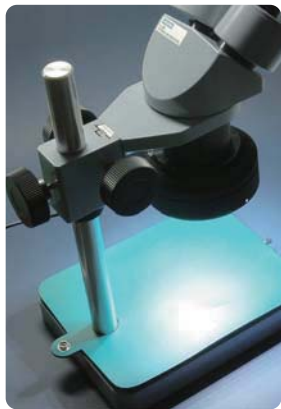
Combination example



L-814 ZOOM LENS
L-814-1 LED RING LIGHT
L-801-1 CCD CAMERA
L-525 LARGE TABLE
L-523 LONG TYPE ARM
L-509 STEREO HEAD HOLDER

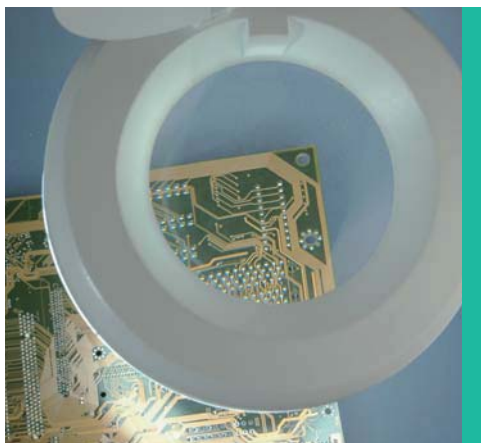


L-814 ZOOM LENS
L-814-1 LED RING LIGHT
L-831 USB CAMERA
L-527 XY-STAGE
L-525 LARGE TABLE
L-523 LONG TYPE ARM
L-509 STEREO HEAD HOLDER



Lights

LED ARM LIGHT
LED RING LIGHT
COLD LIGHT SOURCE



Magnifier

Magnifier for precision inspections



L-701 LED FLEX NECK LIGHT

100 V 220 / 230 / 240 V
L-701-230

- Accessories: Diffusion filter x 2
- * Dimensions drawing is shown in the L-705 column



LED	7 High-brightness white LEDs x 2
LED life	Approx. 10,000 HRS * Varies to the used environment.
Color temp.	6500 K
Rated voltage	12 VDC (with AC adapter)
Power consumption	1.4 W
Mounting support dia.	14 to 28 mmφ
External dimensions	Unit body 75 (W) ×35 (H) ×58 (D) mm
	Arm length 298 mm
Weight	380 g

Light brightness (at full power)

Distance from light source mm	Without diffusion filter 1x	With diffusion filter 1x
30	29500	7700
40	25500	5600
50	20000	4100
60	18500	3600
100	11500	1800

* Shown values apply when the lamp of each arm is adjusted to a 45° angle, with both lamps oriented to create a single circle of light. (Tolerance: 25%)



■ Replacement part L-700-2 CLAMP

- Support dia.: 14 to 28 mmφ
- Accessories: 3 Mounting dia. adjusting rubber sheets (3 / 2 / 1 mm) (1 of each size)
- For L-700 / 701 / 705



L-705 LED FLEX NECK LIGHT

100 V 220 / 230 / 240 V
L-705-230



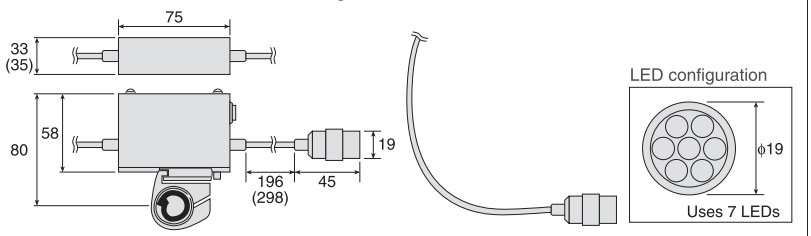
LED	7 High-brightness white LEDs x 2
LED life	Approx. 10,000 HRS * Varies to the used environment.
Color temp.	6500 K
Rated voltage	12 VDC (with AC adapter)
Power consumption	1.4 W
Mounting support dia.	14 to 28 mmφ
External dimensions	Unit body 75 (W) ×33 (H) ×58 (D) mm
	Arm length 196 mm
Weight	340 g

Light brightness

Distance from light source mm	Brightness lx
30	19500
40	15500
50	12000
60	10500
100	6000

* Shown values apply when the each arm is adjusted to a 45° angle, with both lamps make a single circle of light. (Tolerance: 25%)

L-701 / 705 dimensions drawing * () value applies to L-701.



L-710 LED RING LIGHT

100 V



LED	White power LED *1 × 6
LED life	Approx. 40,000 Hrs. * Varies according to the environment
Color temp.	6000 K
Rated voltage	12 VDC (with accessory AC adapter)
Power consumption	10.5 W
Mounting ring dia.	50 mmφ
External dimensions	64 (W) × 43.5 (H) × 71 (D) mm
Weight	Controller 250 g / light 170 g

Brightness comparison data (at full power)

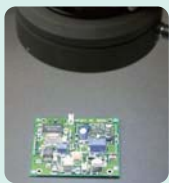
(lx)

Distance from light source mm	L-710	L-710 + L-710-2	L-710 + L-710-3	L-65 (reference value)
30	22000	21000	19000	12700
40	21000	20000	14000	9700
50	19000	18100	11000	7800
60	17000	16200	8900	6200
80	12500	11900	6500	4300
100	9000	8500	4700	3000

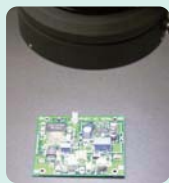


■ Comparison of various light-adjustment examples

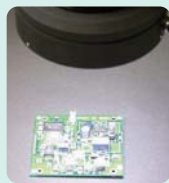
With light adjusted to 30%



With light adjusted to 70%



With light adjusted to 100%



■ Combination example

L-710 LED RING LIGHT
L-50 STEREO MICROSCOPE

■ Optional parts

L-710-2 FILTER (Transparent)

- For L-710
- Size: 86 φ × 40 φ × 1.0 mm thickness
- Material: Acrylic
- Transmissivity: Average approx. 95%
- Accessory: Shading sheet (semi-circular)
- * The objects shadow changes as the shading sheet mounting position is changed.



When used on the L-710



When 100% ON

L-710-3 FILTER (Milky white)

- For L-710
- Size: 86 φ × 40 φ × 1.0 mm thickness
- Material: Acrylic
- Transmissivity: Average approx. 56%
- Accessory: Shading sheet (semi-circular)
- * The objects shadow changes as the shading sheet mounting position is changed.



When used on the L-710



When 100% ON

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Stereo Microscopes

Color CCD camera

USB cameras

Zoom lens

LED lights

Lighting equipment

Magnifier

*1. Power LED: Even brighter than the previous high-brightness LED.

L-62 COLD LIGHT SOURCE

100 / 120 / 220 / 240 V

Lamp	12 V, 100 W Halogen lamp
Lamp life	Approx. 1000 Hrs.
Brightness	500000 lx
Color temp.	3100 K
Light adjustment	Variable voltage type
Cooling format	Forced fan cooling
Rated voltage / frequency	100 to 240 VAC, 50 / 60 Hz (Switching power supply)
Power consumption	130 W
External dimensions	70 (W) × 170 (H) × 210 (D) mm
Weight	2.3 kg



* A light guide is not included.
The light guide can be ordered separately.

Combination example



L-62 + L-63-A

Replacement part

L-62-1 BULB



Custom orders



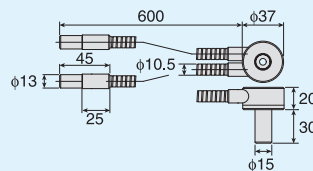
Custom-order light guides are also available.
* Orders for customized lengths are accepted even for 1 item. Contact HOZAN for details.

Optional parts

L-63-A LIGHT GUIDE (2-branched & interlock)

CUSTOM

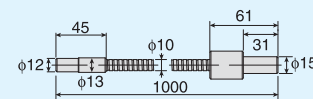
- Overall length: 600 mm
- Interlock type



L-63-B LIGHT GUIDE (Straight & flexible)

CUSTOM

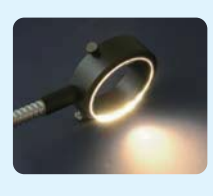
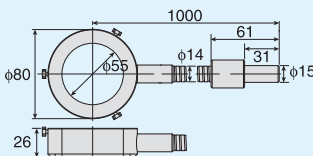
- Overall length: 1000 mm
- Flexible type



L-63-C LIGHT GUIDE (Ring & flexible)

CUSTOM

- Overall length: 1040 mm
- Flexible type

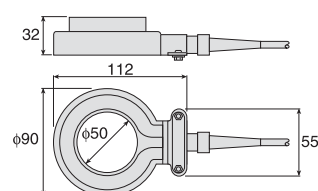


L-65 RING LIGHT

100 V

Inverter type lighting system

Lamp	8W fluorescent lamp
Lamp life	Approx. 2000 Hrs.
Brightness	5200 lx
Color Temp.	4200 K
Rated voltage / frequency	100 VAC 50/60 Hz
Mounting ring inner dia.	50 mmφ
Power consumption	9.5W
External dimensions (unit body)	66 (W) × 43 (H) × 158 (D) mm
Weight	560 g



L-50 Stereo microscope + L-65 image example



L-50 Stereo microscope + L-65 usage example

Replacement parts

L-65-1 BULB

L-65-3 BULB

- Offers excellent color rendering. Ideal for inspecting colors, lettering, and shapes, etc. (L-65-3)



L-65-1

Part No.	Rated	Color temperature K	Lamp life	Compatible models
L-65-1	100 V 8 W	4200	2000 Hrs.	L-65 / 522
L-65-3		7000		

* The L-65-1 is recommended for inspecting metal surfaces such as solder surfaces, etc.

L-677 ILLUMINATED MAGNIFIER

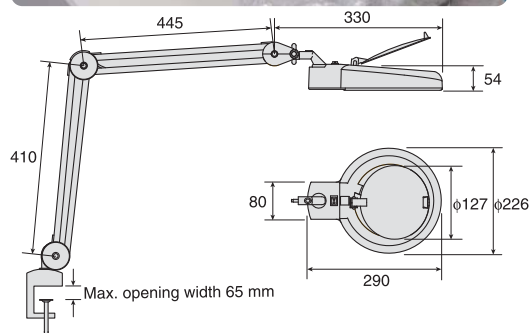
100 V



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

- Inverter lamp lights up quickly and is flicker-free.
- High-quality, large diameter white lens provides bright crisp images (magnification: 2×).
- Flexible arm can be set as desired, leaving plenty of working space around your hands. Springs are housed inside the arm to create a simple and slim design.
- Equipped with a lens dust / protective cover.

Magnification	2×
Lens diameter	120 mmφ
Light	FCL20 Fluorescent light
Rated voltage / frequency	100 VAC 50 / 60 Hz
Arm length	855 mm
Max. clamp opening width	65 mm
Power consumption	20 W
Weight	2.6 kg

**Large diameter white lens**

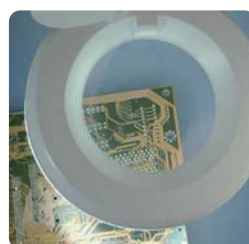
The white lens provides brighter, more vivid images than the blue lens.



White lens

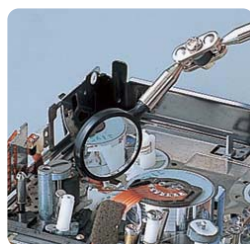


Standard blue lens

**Z-350 / 354** INSPECTION MIRROR / BALL JOINT MIRROR

- Permits inspections in hard-to-reach places.

Part No.	OAL mm	Mirror dia. mmφ	Arm length mm	Arm dia. mmφ	Weight g
Z-350	215	24	195	5.5	30
Z-354	200 to 693	30	150 to 640	Max. 8.5	38



Example of Z-354 usage



Z-350

**Z-355** STAINLESS MIRROR

Stainless mirror used

- Mirror dimensions: 54 x 86 x thickness 0.4 mm
- OAL: 250 to 740 mm
- Arm length: 150 to 640 mm
- Arm dia.: Max. 8.5 mmφ
- Weight: 50 g



To 640 mm,
telescoping
arm is
extendable.

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Stereo Microscopes

Color CCD camera

USB cameras

Zoom lens

LED lights

Lighting equipment

Magnifier

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Stereo Microscopes

Color CCD camera

USB cameras

Zoom lens

LED lights

Lighting equipment

Magnifier

L-97-5 / 10 ILLUMINATED MAGNIFIER



L-97-5 AA (R6) batteries
L-97-10 AA (R6) batteries

- Material: Rigid plastic (lens)
- Spare bulb × 1 (L-97-5 only)
- Accessories: AA (R6) batteries × 2

Part No.	Magnification x	Lens dimensions mmφ	OAL mm	Weight g
L-97-5	5	56	168	79
L-97-10	10	35	123	46



■ Replacement part

L-97-1 BULB (For L-97)

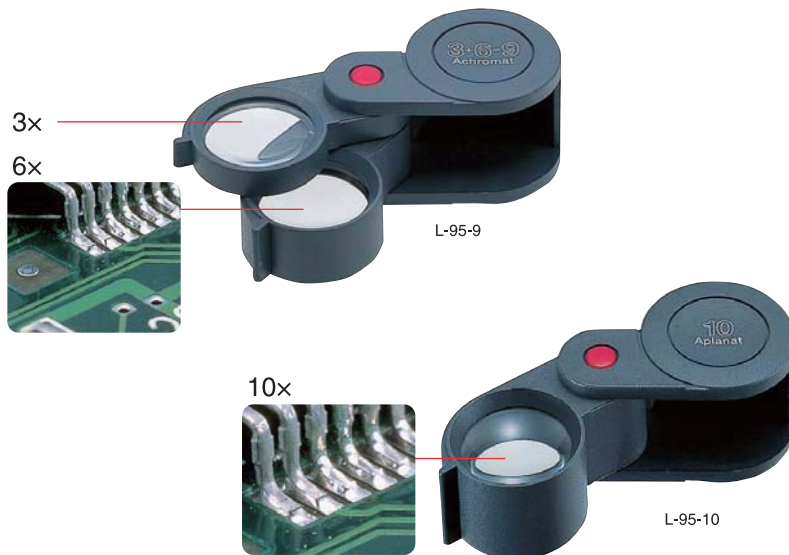
■ Quantity: 2 pieces




L-95-9 / 10 FOLDING MAGNIFIER

- Material: Rigid plastic (lens)

Part No.	Magnification x	Lens dimensions mmφ	OAL mm	Weight g
L-95-9	3 / 6 / 9	23	48	32
L-95-10	10			24



L-98 SLIDE-OUT MAGNIFIER

- Two 3x lens (upper & lower)
- Slide one lens out for 3x magnification, or slide both lenses out for 6x magnification. A magnifier that fits in the palm of your hand.

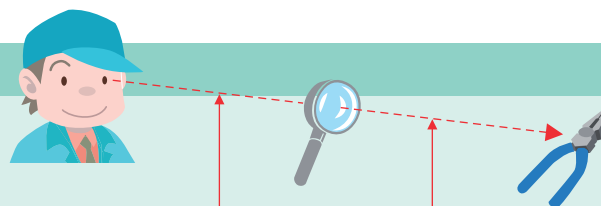
- Material: Rigid plastic (lens)

Magnification x	Lens dimensions mm	Case external dimensions mm	Weight g
3 / 6	22×35	51 (W) × 20 (H) × 46 (D)	26



目からルーペ、ルーペから対象物の距離について

倍率の低いルーペは目から対象物までの距離が長くなります。
倍率の高いルーペは目に近づけて、ルーペから対象物側の距離を調節し
ピント調整を行うと視野が広くなり、扱いやすくなります。
視力の違いによりこの距離は左右されますので、
この数字を目安に最も見やすい位置を割り出してください。



ルーペの倍率	目からルーペまでの距離 mm	ルーペから対象物までの距離 mm
2×程度	250	100～150
3～5×	200	50～100
10～20×	20～50	10～30



Antistatic products

Antistatic standards

HOZAN's ESD-safe products are controlled with reference to the Japanese standard (RCJS-5-1: 2010*) which is based on the international standard (IEC61340-5-1).

Products which bear the " " mark are products to which the standard values (see table below) apply.

The "ESD Standard" listed on each of the product pages denote the HOZAN standard for that product.

■ ESD-safe item requirements (Excerpted from RCJS-5-1: 2010)

[Item-specific requirements]	Point to point resistance Rp, or ground resistance Re, or surface resistance Rs (Ω)	EPA ground resistance or resistance Rg (Ω) of groundable point	Charge decay *(4)
Floor		$\leq Rg < 1 \times 10^9$ Mix. value *(1) (2)	
Work surfaces, Storage shelves, Trolleys, and Carts	$1 \times 10^4 \leq Rp \leq 1 \times 10^{10}$ *(5)	$7.5 \times 10^5 \leq Rg \leq 1 \times 10^9$ *(5)	
Gloves and Finger cots		Gloves and finger sacks that satisfy the system requirements.	
Wrist strap not worn	$Rp \leq 1 \times 10^5$		
Wrist strap cord	$7.5 \times 10^5 \leq Re \leq 5 \times 10^6$ *(3)		
Tool		$Rg < 1 \times 10^{12}$ *(1)	
Ionizing air blowers			Max. 1,000 V to 100 V attenuation time is 20 secs.
Packaging	$1 \times 10^2 \leq Rs < 1 \times 10^{11}$ *(5)		2 secs. or less from initial value (5,000 V) to 1% *(6)

[System requirements]

Using a wrist strap (wrist strap system)		$7.5 \times 10^5 \leq Rg < 3.5 \times 10^7$	
Using gloves and finger cots		$7.5 \times 10^5 \leq Rg < 1 \times 10^{12}$	Less than 2 secs. from initial value (Max. 1,000 V) to 10%
Tool system			Less than 2 secs. from initial value (Max. 1,000 V) to 10%

*(1) ... There is no prescribed "minimum resistance" value for protecting an ESDS device. However, such a minimum resistance is required in some cases to ensure safety. For details, refer to the following standards: IEC61010-1, IEC60479, IEC60536, IEC60364.

(2) ... Where foot grounder and floor systems are employed as personnel grounding device, the grounding resistance must be determined by the ESD coordinator. The recommended value is 7.5×10^5 to $3.5 \times 10^7 \Omega$.

(3) ... In some cases, the max. EPA ground resistance is increased (usually by $1 \times 10^6 \Omega$) for every 250 VAC or 500 VDC in order to ensure a minimum resistance of $7.5 \times 10^5 \Omega$. The resistance must maintain a 1/4 W minimum power rating per each 250 VAC or 500 VDC.

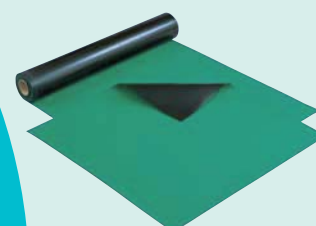
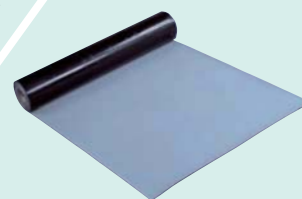
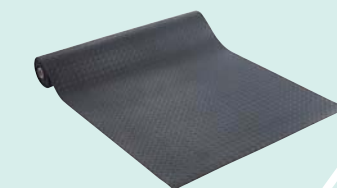
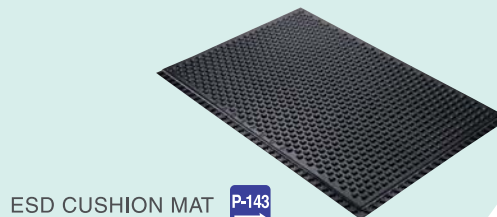
(4) ... A charge decay is required in cases where the surface resistance, point to point resistance, or the groundable point resistance exceeds $1 \times 10^{10} \Omega$ and in cases where the material is not homogeneous, and/or has insulated portion.

(5) ... A resistance lower than the minimum-limit resistance is acceptable if approved by the ESD coordinator.

(6) ... Required if the surface resistance exceeds $1 \times 10^9 \Omega$.

Antistatic Products Lineup

HOZAN provides a wide range of ESD-recommended parts ranging from hand tools to work environment equipment. In addition to those listed on the ESD Products page, many others can be found in the various ESD relative products.



Control
Ionizing
air
blower

Floor
Work
surface

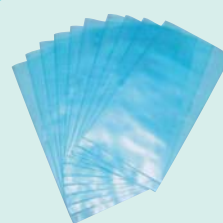
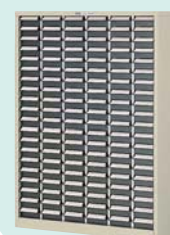


Tool
Gloves /
Wrist
Strap

Storage
Package



ESD PARTS CABINETS P-150



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Rubber mats

ESD racks

ESD trays

ESD foams & Bags

Parts boxes

Parts cabinets

Wrist straps

Ionizers

ESD checkers

ESD brush

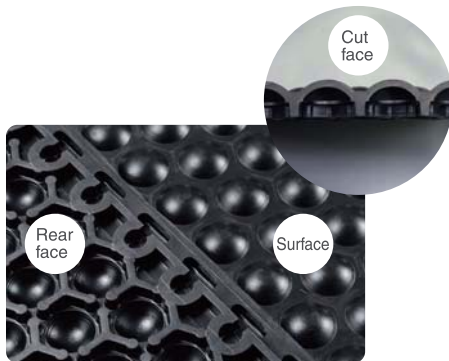
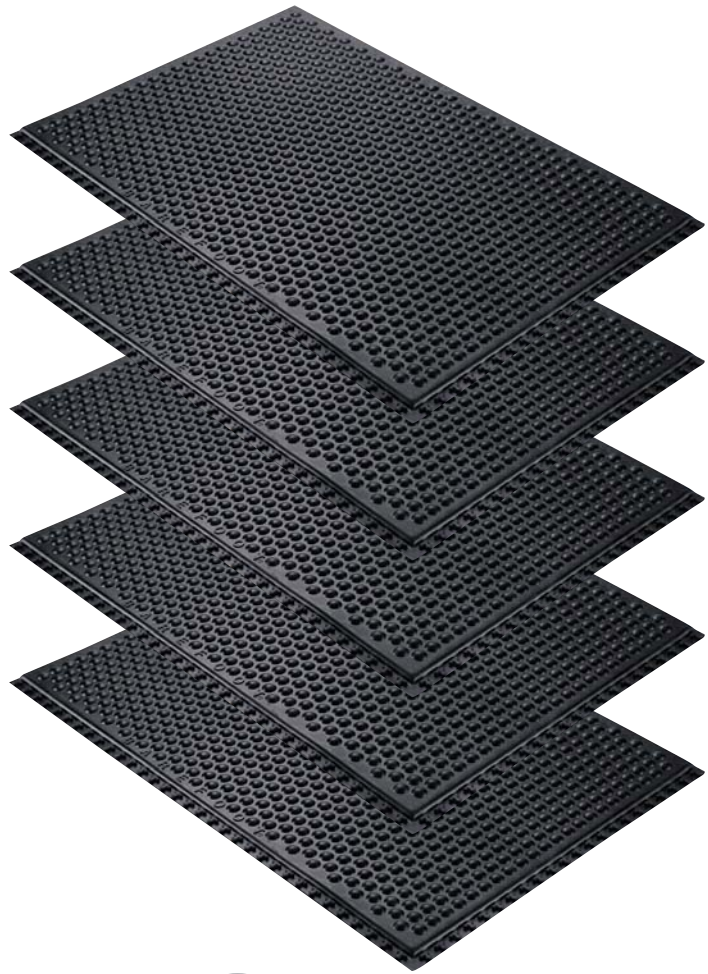
F-735 / 736 ESD CUSHION MATS



CLASS
1000

Part No.	External dimensions mm	Thickness mm	ESD standard Ω	Weight kg	Quantity
F-735	900 (W) × 600 (D)	12.7	Ground resistance $R_g \leq 1 \times 10^7$	18	5
F-736				3.5	1

■ The ground cord is not provided as an accessory. It can be ordered separately.



Eases fatigue from standing

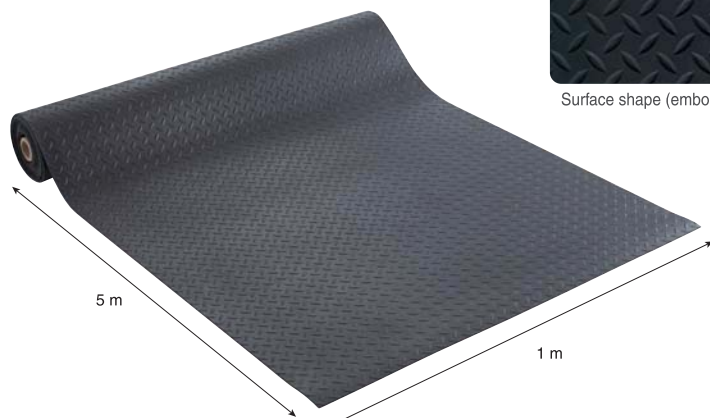


A jointed construction allows expansion to the desired size

F-730 ESD FLOOR MAT



- External dimensions: 1 (W) × 5 (L) m
- Thickness: 4 mm
- ESD standard: Ground resistance $R_g \leq 1 \times 10^8 \Omega$
- Weight: 27 kg
- The ground cord is not provided as an accessory. It can be ordered separately.



Surface shape (embossed)

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Rubber mats

ESD racks

ESD trays

ESD foams & Bags

Parts boxes

Parts cabinets

Wrist straps

Ionizers

ESD checkers

ESD brush

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

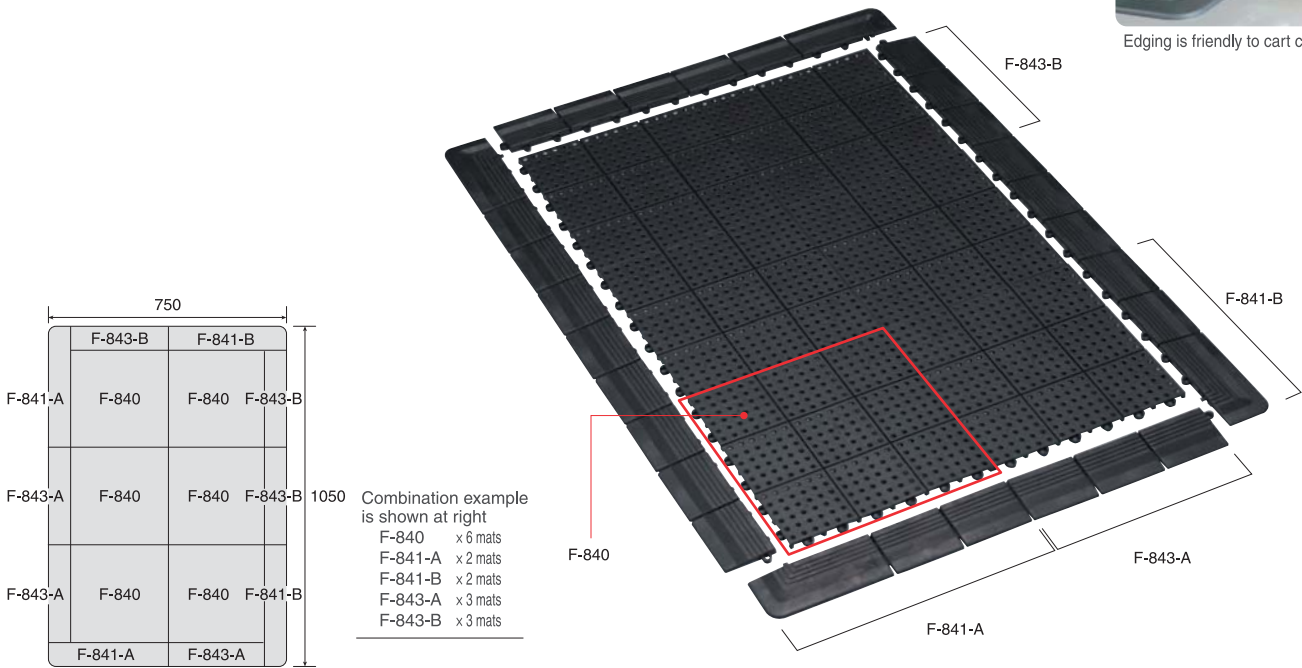
Maintenance & Safety products

Antistatic products ▶ ESD FLOOR MAT

F-840 / 841 / 843 ESD FLOOR MATS



Edging is friendly to cart casters.



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.



Part No.	Part Name	External dimensions mm	ESD standard Ω	Weight g
F-840	ESD Floor Mat	300 (W) × 300 (D)	Ground resistance Rg ≤ 1×10 ⁷	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)			

■ Thickness: 10 mm



Type A



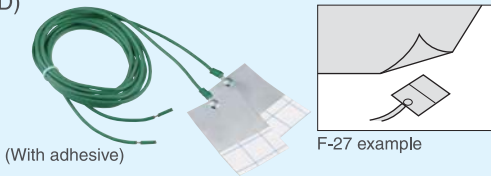
Type B

Related products



F-27 GROUND CORD

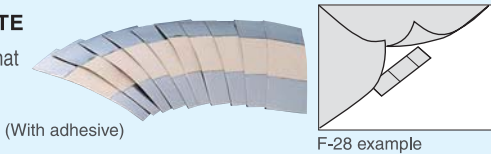
- Wire dia. x length: 2 mm² x 2 m
- For conductive (ESD) rubber mat
- Quantity: 2-piece pack



F-27 example

F-28 GROUND PLATE

- For conductive rubber mat
- Quantity: 10-piece pack



F-28 example

F-29 GROUND CORD

- Wire dia. x length: 1.25 mm² x 1m
- With 1 M Ω resistor



F-29-1 STUD

- Application: For use with conductive rubber mats
- Quantity: 5-piece pack



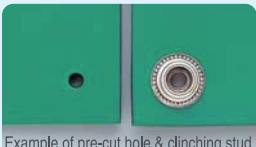
F-29-1

F-29-2 PUNCH KIT

- Quantity: 1 set (punch & chisel)



F-29-2

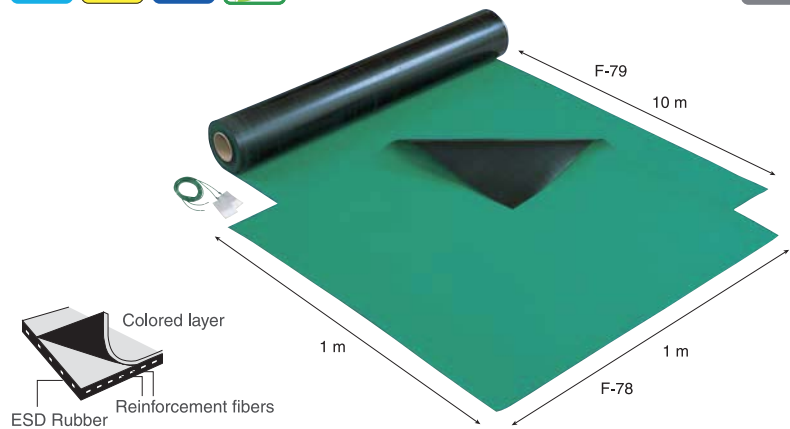


Example of pre-cut hole & clenching stud

F-78 / 79 ESD RUBBER MATS (Green)**CLASS 10000**

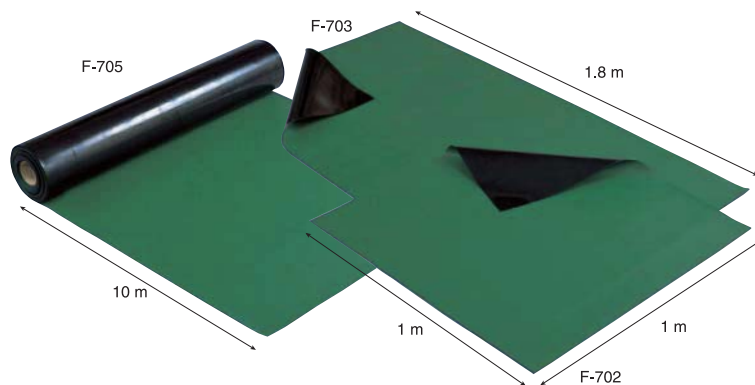
Part No.	External dimensions m	Thickness mm	ESD standard Ω	Weight kg
F-78	1 (W) × 1 (L)	2	Point to point resistance $R_p \leq 1 \times 10^9$	3
F-79	1 (W) × 10 (L)			30.5

- Reinforcement fibers layer inside.
- Accessories: F-78 ground cord × 1;
F-79 ground cord × 2

**F-702 / 703 / 705** ESD RUBBER MATS (Green)

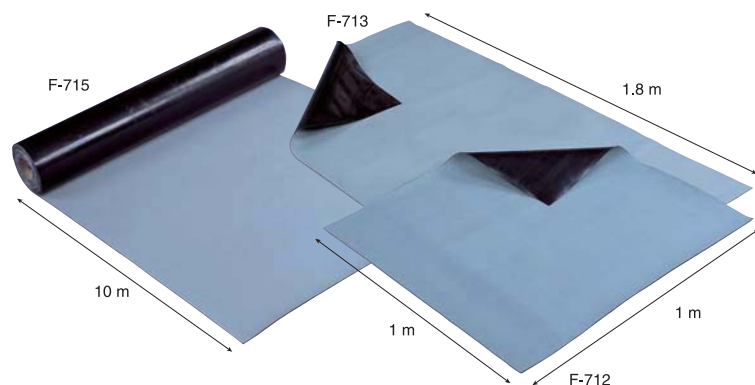
Part No.	External dimensions m	Thickness mm	ESD standard Ω	Weight kg
F-702	1 (W) × 1 (L)	2	Point to point resistance $R_p \leq 1 \times 10^9$	3.5
F-703	1 (W) × 1.8 (L)			6
F-705	1 (W) × 10 (L)			34

- The ground cord is not provided as an accessory. It can be ordered separately.

**F-712 / 713 / 715** ESD RUBBER MATS (Gray)

Part No.	External dimensions m	Thickness mm	ESD standard Ω	Weight kg
F-712	1 (W) × 1 (L)	2	Point to point resistance $R_p \leq 1 \times 10^9$	3.5
F-713	1 (W) × 1.8 (L)			6
F-715	1 (W) × 10 (L)			34

- The ground cord is not provided as an accessory. It can be ordered separately.

**ESD mat installation method****Cut the mat**

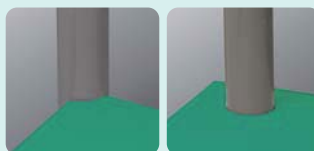
Use a utility knife or scissors, etc., to cut the mat. Easily cut to fit any area.

Grounding the mat

Simply affix the ground plate (F-27) to the bottom face to ground the mat. Ground plate should be connected to each mat. To equalize electrostatic potential, inter-connect the mats with ground plates. (F-28)

**CUSTOM**

* Custom-order pre-cut mats are also available. Contact a HOZAN representative for details.



Examples: a corner cutout, and a hole

Warning Antistatic Mats

1. Be sure that the ground cord is connected in a secure manner. Failing the proper grounding, it damages ESDS items, in addition to posing an electrical shock. This could also cause explosions in some environments.
2. The ESD ground line system must be a different from the motor ground line. Failing could cause electrical shocks.
3. Use care to prevent live wires from making contact with the mats. Failing could cause electrical shocks.

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Rubber mats

ESD racks

ESD trays

ESD foams & Bags

Parts boxes

Parts cabinets

Wrist straps

Ionizers

ESD checkers

ESD brush



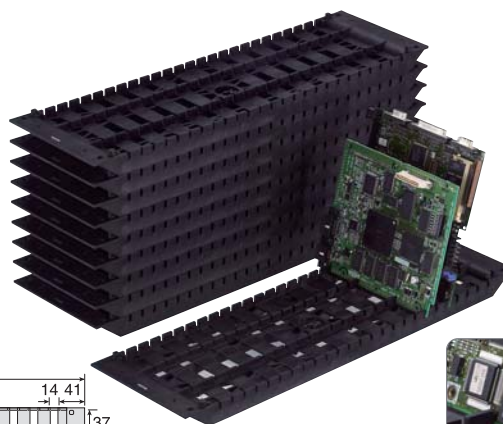
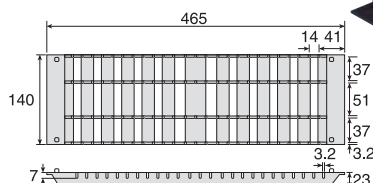
ESD Racks / ESD Trays

F-36 ESD PCB RACK



10-piece pack

- Slot width: 3.2 mm
- Slot depth: 7 mm
- Number of slots: 25
- Pitch: 14 mm
- External dimensions: 465 (W) x 23 (H) x 140 (D) mm
- ESD standard: Resistance point to point: $R_p \leq 1 \times 10^{10} \Omega$
- Heat resistant temp.: 85°C
- Material: Polypropylene
- Weight: 340 g
- Quantity: 10



PCBs are held by at only 4 points (at the 4 slot rows).

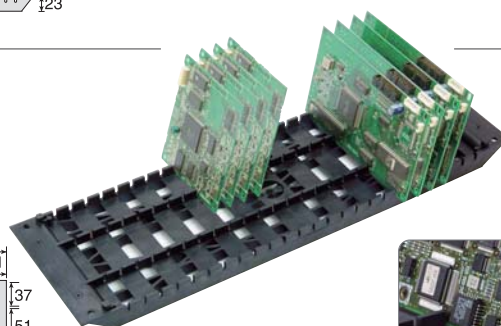
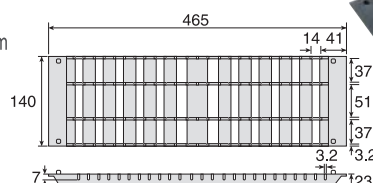


F-37 ESD PCB RACK



Heat resistance 125°C

- Slot width: 3.2 mm
- Slot depth: 7 mm
- Number of slots: 25
- Pitch: 14 mm
- External dimensions: 465 (W) x 23 (H) x 140 (D) mm
- ESD standard: Resistance point to point: $R_p \leq 1 \times 10^{10} \Omega$
- Heat resistant temp.: 125°C
- Material: Polypropylene
- Weight: 380 g



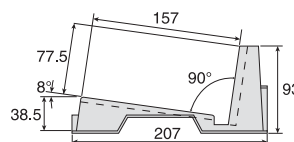
PCBs are held by at only 4 points (at the 4 slot rows).



F-32 ESD PCB RACK



- Slot width: 3 mm
- Slot depth (bottom / rear sides): Bottom 5 mm, Rear 7.5 mm
- Number of slots: 25
- Pitch: 9.5 mm
- External dimensions: 270 (W) x 93 (H) x 207 (D) mm
- ESD standard: Resistance point to point: $R_p \leq 1 \times 10^{10} \Omega$
- Heat resistant temp.: 110°C
- Material: Polypropylene
- Weight: 360 g

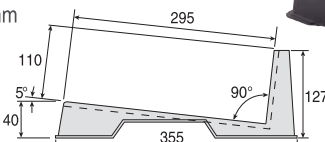


Nesting is possible

F-33 ESD PCB RACK

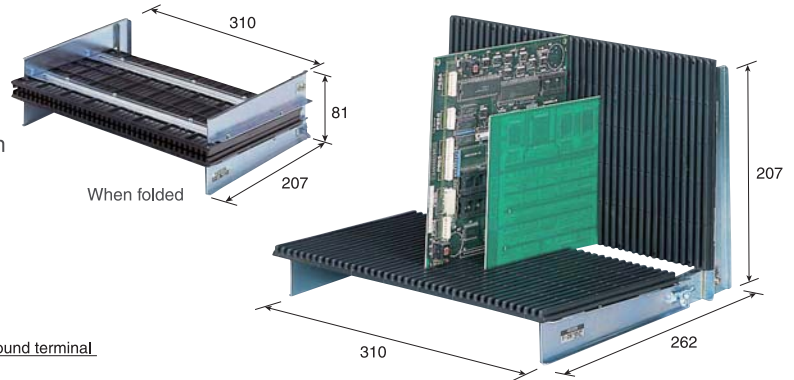
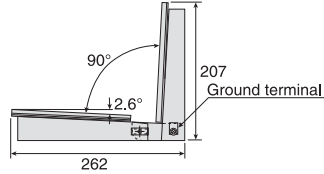


- Can be stored in a nested manner.
- Slot width: 2.5 mm
- Slot depth (bottom / rear sides) : 4.7 mm (same for bottom / rear sides)
- Number of slots: 25
- Pitch: 9.5 mm
- External dimensions: 254 (W) x 127 (H) x 355 (D) mm
- ESD standard: Resistance point to point $R_p \leq 1 \times 10^{10} \Omega$
- Heat resistant temp.: 110°C
- Material: Polypropylene
- Weight: 480 g



F-26 ESD PCB RACK

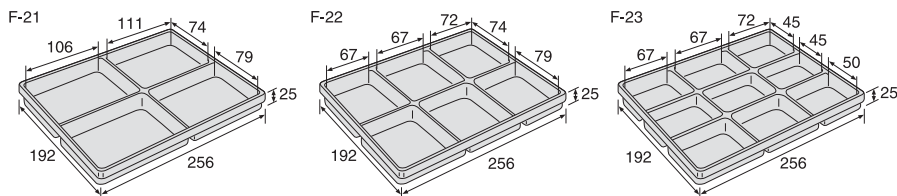
- Slot width: 3 mm
- Slot depth: 4.5 mm (same for bottom / rear)
- Number of slots: 40
- Pitch: 7.7 mm
- External dimensions: 310 (W) × 207 (H) × 262 (D) mm
(When folded: 310 (W) × 81 (H) × 207 (D) mm)
- ESD standard: Resistance point to point: $R_p \leq 1 \times 10^{10} \Omega$
- Heat resistant temp.: 115°C
- Material: Polypropylene
- With ground terminal
- Weight: 1130 g

**F-21 / 22 / 23 ESD KITTING TRAYS**

Part No.	External dimensions mm	ESD standard Ω	Number of compartments	Material	Weight g	Quantity
F-21	192 (W) × 25 (H) × 256 (D)	Point to point resistance $R_p \leq 1 \times 10^{10}$	4	Polypropylene	85	3
F-22			6			
F-23			9			



Stacking each tray in a 180° rotated manner allows them to be stacked without touching the contents (see photo at right).

**F-14 ESD TRAY**

- External dimensions: 192 mmφ × 35 (H) mm
- ESD standard: Resistance point to point: $R_p \leq 1 \times 10^{10} \Omega$
- Weight: 60 g



The tray's pliability makes it ideal for bagging small parts.



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Rubber mats

ESD racks

ESD trays

ESD foams & Bags

Parts boxes

Parts cabinets

Wrist straps

Ionizers

ESD checkers

ESD brush

- Cutters & Pliers
- Wire strippers
- Crimpers
- Tweezers
- Screwdrivers & Wrenches
- Metal working
- Parts boxes
- Tool cases
- Tool kits
- Soldering irons & Solder
- Parts & Solder removal equipment

- Measuring instruments
- Optical equipment
- Antistatic products
- Clean products
- Chemical products

- Maintenance & Safety products

- Rubber mats

- ESD racks

- ESD trays

- ESD foams & Bags

- Parts boxes

- Parts cabinets

- Wrist straps

- Ionizers

- ESD checkers

- ESD brushes

ESD BAGS



F-54

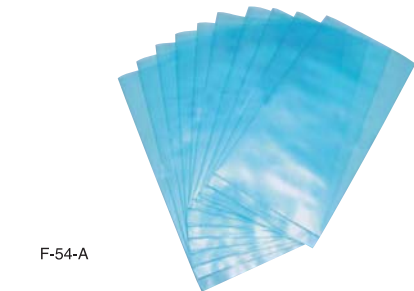
THICKNESS
0.05mm

F-55

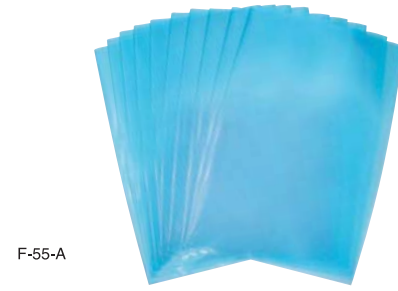
THICKNESS
0.1mm

F-15

THICKNESS
0.1mm



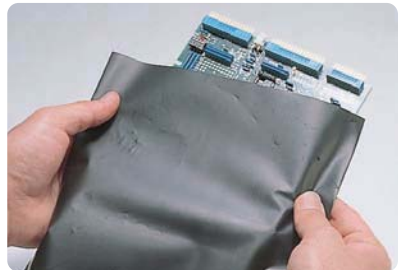
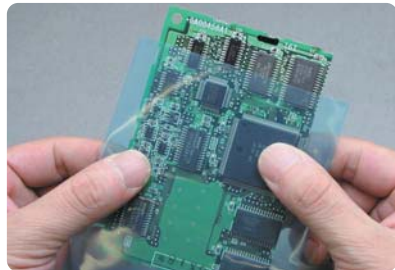
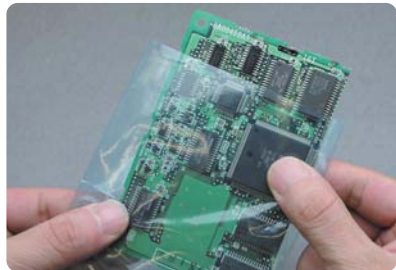
F-54-A



F-55-A



F-15-B

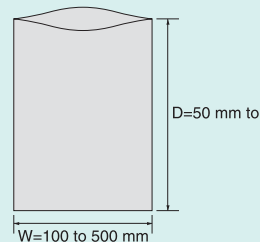


Part No.	External dimensions mm	Thickness mm	Quantity	Material	ESDstandard Ω		
F-54-AA	70(W) x 150(D)	0.05	10	Polyethylene	Surface resistance Rs < 1 x 10 ¹¹		
F-54-A	100(W) x 150(D)						
F-54-B	200(W) x 250(D)						
F-54-C	300(W) x 450(D)						
F-55-A	100(W) x 150(D)	0.1					
F-55-B	200(W) x 250(D)						
F-55-C	300(W) x 450(D)						
F-15-A	100(W) x 150(D)						
F-15-B	200(W) x 250(D)						
F-15-C	300(W) x 450(D)						

Custom ESD bags.

*F-54/55 only; F-15 cannot be custom ordered.

- Please specify the desired "W" and "D" dimensions in 50 mm units.
- Minimum lot: From 100 pieces



F-7 / 9 / 10 ESD FOAMS



- Conductive urethane foam (hard type)
- Simply place the ICs in the foam to establish an equipotential at all terminals, the urethane's elasticity effectively secures the leads.

Part No.	External dimensions mm	Thickness mm	Quantity	ESD standard Ω
F-7	89(W) x 211(D)	5	10	Resistance point to point $R_p \leq 1 \times 10^{10}$
F-9	175(W) x 245(D)		2	
F-9-L	1000(W) x 1000(D)			
F-10-A	175(W) x 245(D)	10	1	
F-10-B	208(W) x 280(D)			
F-10-L	1000(W) x 1000(D)			



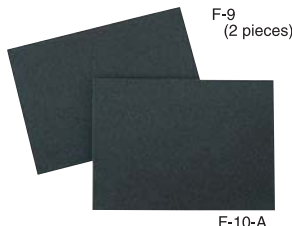
F-9-L
(2-pieces)



F-7 + B-138 usage example
F-7 has been cut to match the B-138.



F-7
(10 pieces)



F-9
(2 pieces)

F-10-A



F-10-L

F-806 / 807 ESD PARTS BOXES

- With conductive urethane foam (soft type, hard type; 1 each)

Part No.	External dimensions mm	Weight g	ESD standard Ω	Material
F-806	93(W) x 68(H) x 19(D)	30	Resistance point to point	Polypropylene
F-807	232(W) x 130(H) x 43(D)	180	$R_p \leq 1 \times 10^{10}$	



F-806



F-807

B-18 ESD PARTS BOX

- External dimensions: 254 (W) x 41 (H) x 185 (D) mm
- Capacity: 1.5 L
- Weight: 460 g
- Material: Polystyrene
- With F-10-A x 1 piece
- ESD standard: Resistance point to point $R_p \leq 1 \times 10^{10} \Omega$



Ideal for EP-ROM storage

**B-17** ESD PARTS BOX

- External dimensions: 254 (W) x 41 (H) x 185 (D) mm
- Capacity: 1.5 L
- Weight: 420 g
- With F-10-A x 1 piece
- ESD standard: Resistance point to point $R_p \leq 1 \times 10^{12} \Omega$

**B-17-BB** ESD PARTS BOX

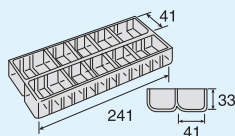
- External dimensions: 254 (W) x 41 (H) x 185 (D) mm
- Capacity: 1.5 L
- Weight: 545 g
- Contents: B-212 INNER TRAY, B TYPE x 2 pieces (with 16 dividers)
- ESD standard: Resistance point to point $R_p \leq 1 \times 10^{12} \Omega$



■ Replacement parts

B-212 ESD INNER TRAY B

- With 8 dividers

**B-222 ESD DIVIDER B**

- Quantity: 8 pieces

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Rubber mats

ESD racks

ESD trays

ESD foams & Bags

Parts boxes

Parts cabinets

Wrist straps

Ionizers

ESD checkers

ESD brushes

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Rubber mats

ESD racks

ESD trays

ESD foams & Bags

Parts boxes

Parts cabinets

Wrist straps

Ionizers

ESD checkers

ESD brush

ESD PARTS CABINETS

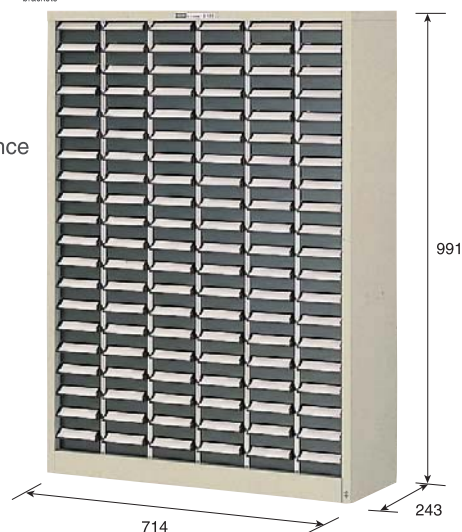


■ Each drawer has 2 accessory dividers.

B-135

FLOOR TYPE
6 × 20
Rows LevelsWith 2
top-tilt prevention
brackets

- Drawer type: ESD compact (B-138)
- Number of drawers: 120
- Weight: 40 kg
- ESD standard: Ground resistance $R_g \leq 1 \times 10^9 \Omega$



All ESD parts cabinets are equipped with ground terminals.
* Be sure to ground the cabinets.



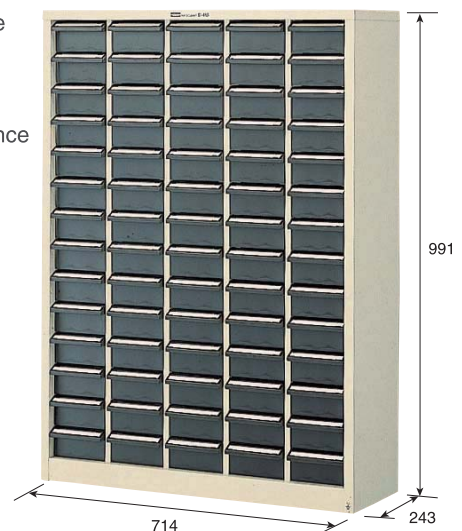
To further enhance the ESD safety when storing ICs, use the optional ESD foam sheets in the drawer.
(F-7 ESD foam usage example)

* For details, see page 148

B-137

FLOOR TYPE
5 × 14
Rows LevelsWith 2
top-tilt prevention
brackets

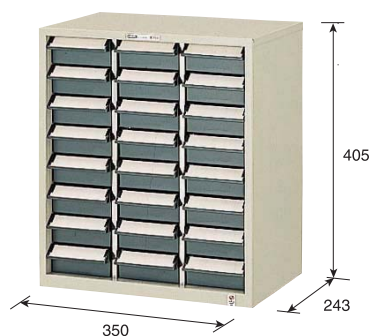
- Drawer type: ESD medium-size (B-218)
- Number of drawers : 70
- Weight: 36.9 kg
- ESD standard: Ground resistance $R_g \leq 1 \times 10^9 \Omega$



B-133

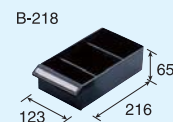
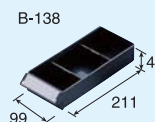
BENCH TOP
3 × 8
Rows Levels

- Drawer type: ESD compact (B-138)
- Number of drawers : 24
- Weight: 7.5 kg
- ESD standard: Ground resistance $R_g \leq 1 \times 10^9 \Omega$



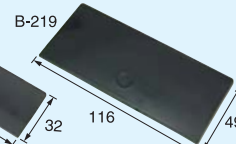
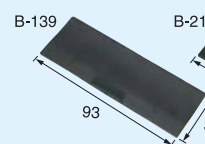
■ Replacement parts

ESD DRAWERS



Part No.	DIVIDER	Compatible models	ESD standard Ω
B-138	Dividers x 2	B-133 / 135 / 136	Point to point resistance $R_p \leq 1 \times 10^{10}$
B-218		B-137	

ESD DIVIDERS



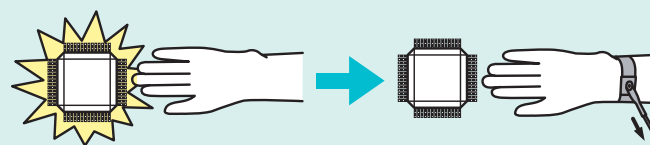
Part No.	Quantity	Compatible models	ESD standard Ω
B-139	10 dividers	B-138	Point to point resistance $R_p \leq 1 \times 10^{10}$
B-219		B-218	

Wrist straps



リストストラップの働き

人が衣服を着て静止状態の場合、体と衣服が+と-に帯電し、電気二重層を形成しますが、見かけ上の電位は0です。しかし、人が動いて衣服と人体がはなれた時に分極し、人体は電位を持ち、指先などから放電します。電子機器組立工程において、ICなどの電子部品が、その放電により静電気障害を起こします。この静電気をアースして、**人体を常に0電位に保つことがリストストラップの役目**です。



金属アレルギーについて

金属は汗に微量に溶ける場合があり、この時の金属イオンが人体の蛋白質と反応してかぶれ、炎症をおこします。これを金属アレルギーと呼んでいます。

アレルギーを起こしやすい金属はニッケル、クロム、コバルト、パラジウム、錫などで起こしにくい金属はチタニウム、アルミニウム、マグネシウム、銀、鉄などです。

Selecting a wrist strap

	F-50	F-51	F-152	F-153	F-155
Metallic allergy	×	×	○	×	○
The strap and cord must be frequently detached	○	○	○	×	○
A banana clip is required	×	○	○	○	○
The strap length must be frequently adjusted	○	○	○	○	△
Durability	○	○	△	○	○

F-6 WRIST STRAP TESTER



■ Laminated (6F22)

Indications	LOW	Wrist strap $\leq 750 \text{ k}\Omega$
	GOOD	$750 \text{ k}\Omega < \text{wrist strap} < 9 \text{ M}\Omega$
	HIGH	$9 \text{ M}\Omega \leq \text{wrist strap}$
Accuracy	$750 \text{ K}\Omega \dots -0\%, +6\%$ $9 \text{ M}\Omega \dots +0\%, -6\%$	
Power supply	9V Laminated (6F22) battery $\times 1$	
Battery life	150,000 times or more	
External dimensions	61 (W) $\times$ 31 (H) $\times$ 97 (D) mm	
Weight	150 g	

■ Accessory alligator clip



To operate, simply press the center switch while touching the top plate with a finger. If OK, the green LED lights and a buzzer sounds.

F-6-TA WRIST STRAP TESTER (with calibration certificate)

■ Laminated (6F22)



* Because the certificate will bear the purchaser's name (company name, etc.), your name is required when ordering.

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Rubber mats

ESD racks

ESD trays

ESD foams & Bags

Parts boxes

Parts cabinets

Wrist straps

Ionizers

ESD checkers

ESD brush

Antistatic products ▶ WRIST STRAPS

F-155 WRIST STRAP



- Stainless wrist strap. (SUS304)
Outer plastic coating prevents electrostatic discharges from devices.
- Effective cord length: 1.6 m
- With 1 MΩ resistor
- Alligator clip
- Weight: 65 g
- ESD standard: Ground resistance $7.5 \times 10^5 \leq R_g < 3.5 \times 10^7 \Omega$
* Being worn.



F-152 WRIST STRAP



Relief from metal allergy
All body contact areas use materials other than metal.

- Effective cord length: 1.6 m
- With 1 MΩ resistor
- Alligator clip
- Weight: 40 g
- ESD standard: Ground resistance $7.5 \times 10^5 \leq R_g < 3.5 \times 10^7 \Omega$ * Being worn.



■ Replacement part

F-152-2 WRIST STRAP

■ For F-152



F-153 WRIST STRAP



- Effective cord length: 1.6 m
- With 1 MΩ resistor
- Alligator clip
- Weight: 40 g
- ESD standard: Ground resistance $7.5 \times 10^5 \leq R_g < 3.5 \times 10^7 \Omega$ * Being worn.



■ Replacement part

F-153-2 WRIST STRAP

■ For F-153



F-51 WRIST STRAP



- A simple design makes the wrist strap and ground cord easy to attach / detach.

- Effective cord length: 1.1m
- With 1 MΩ resistor
- Alligator clip
- Weight: 45 g
- ESD standard: Ground resistance $7.5 \times 10^5 \leq R_g < 3.5 \times 10^7 \Omega$ * Being worn.



Press the hook to detach the ground cord.

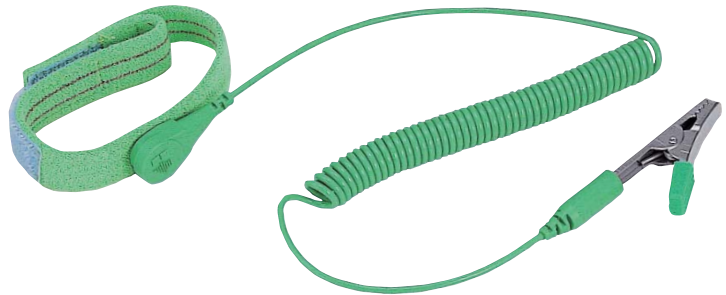


F-50 WRIST STRAP



- Wrist strap with one-size-fits-all Velcro fastener.

- Effective cord length: 1.3m
- With 1 MΩ resistor
- Dedicated alligator clip
- Weight: 25 g
- ESD standard: Ground resistance $7.5 \times 10^5 \leq R_g < 3.5 \times 10^7 \Omega$ * Being worn.



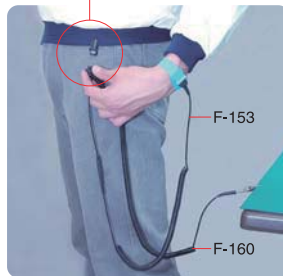
F-160 EXTENSION CORD



- Used as an extension cord for the HOZAN wrist strap. (Excluding the F-50)
- It has no resistor.
- Equipped with a clip for easy attachment

- Effective cord length: 1.9 m
- For F-51 / 152 / 153 / 155
- Weight: 40 g

* Usable with other-brand banana plugs.



F-61-M / L ESD GLOVES



* For details, see page 158



CLASS
1000

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Rubber mats

ESD racks

ESD trays

ESD foams & Bags

Parts boxes

Parts cabinets

Wrist straps

Ionizers

ESD checkers

ESD brush

Ionizing air blowers



静電気対策の原理

1 電位差を作らない

静電気も水と同じで高いところから低いところへ流れます。静電気対策の第一歩は「電位差（水位差）」を作らないということです。相対する二つの物質の間をアースで短絡することで二つの物質は静電的にはひとつの物質になり、電位差が生じなくなります。結果的に電荷の移動が無くなり帯電しなくなります。（導体に限る）

3 静電容量を大きくする

どうしても大地アースを確保できないときにはこの方法です。静電気を水でたとえると、静電容量は容器にあたり、水（静電気）が小さなコップ（静電容量の小さな物体）に注がれ、容量の限界を越えるとあふれます（放電）。これを防ぐには、小さなコップ（帯電物質）→風呂おけ（導電マット・床材）→海（大地アース）の順で容器を大きくするとあふれる（放電）のを防げます。

2 大地アース（接地）を取る

前述の導体には特に効果的で大切です。**1**の様に電位差が生じない様な対策が不可能な場合や、**1**の対策が可能な場合でも念のために大地アースを確保することが基本です。静電誘導に対しても、大地アースを確保することで電荷のバランスが保たれます。

4 静電気除去器を使う

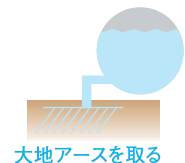
1～3の方法が採用できない場合に、静電気除去器（イオナイザー）が効果的です。電荷のバランスを取る受動的な除電ではなく、プラス・マイナスのイオンを吹き付け、積極的に電荷の偏りを中和します。電気式（コロナ放電式）除去器の動作方法には大別して、放電電極に直流を流すタイプと交流を流すタイプがあります。



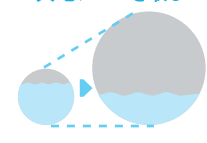
静電気は水に似ている!?



電位差を作らない



大地アースを取る



静電容量を大きくする

直流式と交流式について

ホーザンのイオナイザーシリーズは、直流パルス印加方式と小型・軽量の交流式を取り揃えています。交流式は同じ電極からマイナスとプラスのイオンを交互に生成しますが、直流式はプラスとマイナスのイオンをそれぞれ専用の電極からいつも安定して生成します。（イオンバランス調整可能）フレキシブルアームタイプ・ガンタイプ・据置タイプなど、状況に応じたタイプをお選びください。

状況に応じた使い分けができる



机上タイプ

机上での精密な作業などに最適です。



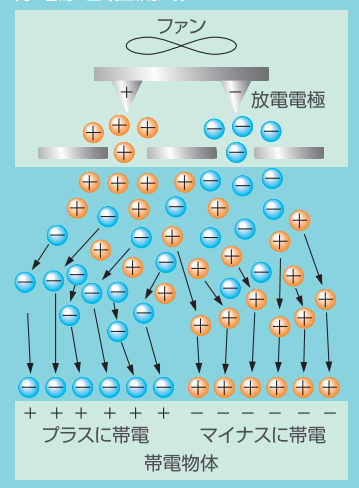
据付タイプ

工場のラインなどの電子部品の除電に最適です。

	直流式	交流式
イオンの安定性	○	○
イオンバランス調節	○	△
除電スピード	○	△
コンパクトさ	△	○
メンテナンスの頻度	△	○

コロナ放電により生成されたプラス・マイナスイオンは、ファンにより混合され放出します。帯電物と逆極性のイオンが帯電物の方へ移動、イオン結合し、中和します。その結果、帯電物は除電されます。

除電原理（直流式）



F-91 BENCH TOP IONIZER

100 V



Air source	Built-in DC fan
Rated voltage	24 VDC (with AC adaptor)
Output voltage	8 kVAC±15%
Power consumption	6W
External dimensions	80 (W) ×125 (H) ×40 (D) mm
Weight	350 g
ESD standard	Max. of 20 secs. for charge decay from 1000 V to 100 V

■ Power cord: 1.6 m



Pipe frame used in the cell production format can be installed (F-84-2 used)



Easy detachable front screen makes maintenance easy.



Can also be combined with HOZAN's L-808 for desktop use. (F-84-1 used)

Neutralization performance

Decay times from ± 1000 V to ± 100 V.

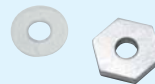
	Distance 150 mm	Distance 300 mm	Distance 450 mm	Distance 600 mm	
F-91	+ 9.1 - 11.0	+ 10.6 - 13.5	+ 13.3 - 21.0	+ 13.0 - 17.5	150 mm
	2.5 V + 2.0 - 2.3	2.1 V + 3.4 - 3.9	1.7 V + 5.0 - 6.4	2.1 V + 7.1 - 9.1	Ion balance *1
	+ 13.5 - 20.2	+ 8.2 - 11.1	+ 8.5 - 10.7	+ 10.1 - 12.6	150 mm
					Front

Optional parts**F-84-1 ATTACHMENT NUT**

■ For F-84/91/L-808

F-84-2 PIPE HOLDER

■ For F-84/90/91

**F-90 BENCH TOP IONIZER**

100 V



AC

■ Attachment hose dia.: 4 mmf

Air source	Compressor
Air consumption	60L/min (at 0.3MPa)
Rated voltage	24 VDC (with AC adapter)
Output voltage	AC4 kV±15%
Power consumption	0.5W
External dimensions	Unit body 63 (W) × 40 (H) × 90 (D) mm Electrode 34 mmφ × 80 mm (Arm length: 290 mm)
Weight	400 g
ESD standard	Max. of 20 secs. for charge decay from 1000 V to 100 V

■ Power cord: 1.6 m



Pipe frame used in the cell production can be installed (F-84-2 used)



* Requires a separate compressor as the air source.
Can be used as a desktop type by attaching the accessory base.

The optional F-85-1 can be attached

Neutralization performance

Decay times from ± 1000 V to ± 100 V; air 0.3MPa

	Distance 150 mm	Distance 300 mm	Distance 450 mm	Distance 600 mm	
F-90	-30.8 V + 11 - 1.5	-38.0 V + 1.7 - 2.9	-36.0 V + 2.5 - 4.6	-23.2 V + 3.2 - 5.6	Ion balance *1
					Front

Optional parts**F-84-2 PIPE HOLDER**

■ For F-84/90/91

F-85-1 FLAT NOZZLE

- Blows air in a "flat" pattern.
- The nozzle tip angle can be freely adjusted.
- CL-886 / F-85 / 88 standard accessory nozzle.



*1. Ion balance...The balance of positive and negative ions supplied by the ionizer.

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Rubber mats

ESD racks

ESD trays

ESD foams & Bags

Parts boxes

Parts cabinets

Wrist straps

Ionizers

ESD checkers

ESD brush

F-85 IONIZING AIR GUN

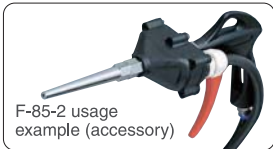
100 / 120 / 220 / 240 V



Ion balance	+/- Independent adjustment
Air source	Compressor (0.75 kW or higher)
Air consumption	140L/min (at 0.3 MPa)
Rated voltage / frequency	100 to 240 VAC, 50/60 Hz
Output voltage	2.5 to 6.5 kVDC
Power consumption	30 W
External dimensions	Station 117 (W) × 71 (H) × 176 (D) mm
Gun	68 (W) × 143 (H) × 245 (D) mm
Cable length	3 m
Weight	1.5 kg (Gun is 230 g, not including cable)
ESD standard	Max. of 20 secs. for charge decay from 1000 V to 100 V

■ Power cord: 1.6 m

■ F-85-1 / 2 accessory



Neutralization performance

Decay times from ± 1000 V to ± 100 V; air 0.3MPa				
Ion balance = Adjustment at distance of 300 mm				
	Distance 150 mm	Distance 300 mm	Distance 450 mm	Distance 600 mm
F-85	+ 23.0	+ 10.4	+ 6.8	+ 4.7
	- 30.7	- 13.3	- 8.4	- 5.9
	6.25 V	6.25 V	3.13V	3.13V
	+ 1.2	+ 1.2	+ 1.5	+ 1.8
	- 1.1	- 1.5	- 1.9	- 2.3
	Ion balance *1			
	+ 13.7	+ 4.9	+ 5.4	+ 4.7
	- 18.8	- 5.6	- 6.2	- 5.4
	150 mm			
	Front			



Nozzle can be adjusted up / down, right / left as desired.

* Requires a separate compressor as the air source.

Optional parts

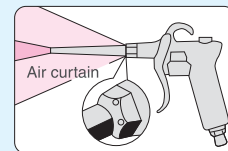
F-85-1 FLAT NOZZLE

- CL-886 / F-85 / 88 standard accessory nozzle



F-85-2 STRAIGHT NOZZLE

- F-85 standard accessory nozzle



HS-32 3-2 PIN ADAPTER

- F-85 has 3-pin plug. Use the HS-32 for converting from 3-pin to 2-pin plug.



CL-886 IONIZING AIR GUN

100 V



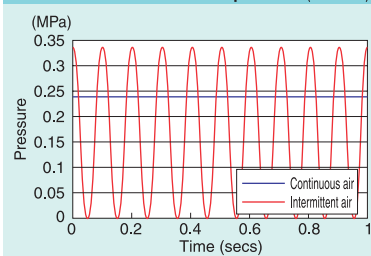
Fluctuations in the airflow scatters dust!

Ion balance	Manual adjustment
Air source	Compressor (0.75 kW or higher)
Air consumption	Intermittent operation: 160L / min Continuous operation: 300L / min (at 0.4MPa)
Rated voltage	DC24 V (with AC adapter)
Output voltage	DC4 to 7 kV
Power consumption	9.6 W
External dimensions	Station 110 (W) × 49 (H) × 160 (D) mm
Gun	45 (W) × 180 (H) × 160 (D) mm
Cable length	2.8m
Weight	1.2kg (gun: 310 g)
ESD standard	Max. of 20 secs. for charge decay from 1000 V to 100 V

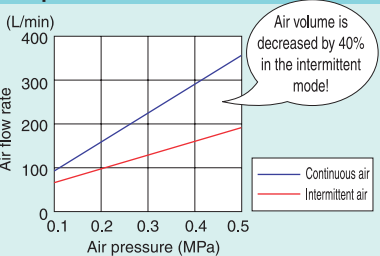
■ Power cord: 1.6 m

■ F-85-1 accessory

Continuous & intermittent air pressure (0.4MPa)



Air pressure & flow rate



Nozzle can be rotated 360°

Ion balance adjustment & air selection are possible

* Requires a separate compressor as the air source.

*1. Ion balance...The balance of positive and negative ions supplied by the ionizer.

F-86 IONIZER W / FLEXIBLE ARM

100 / 120 / 220 / 240 V



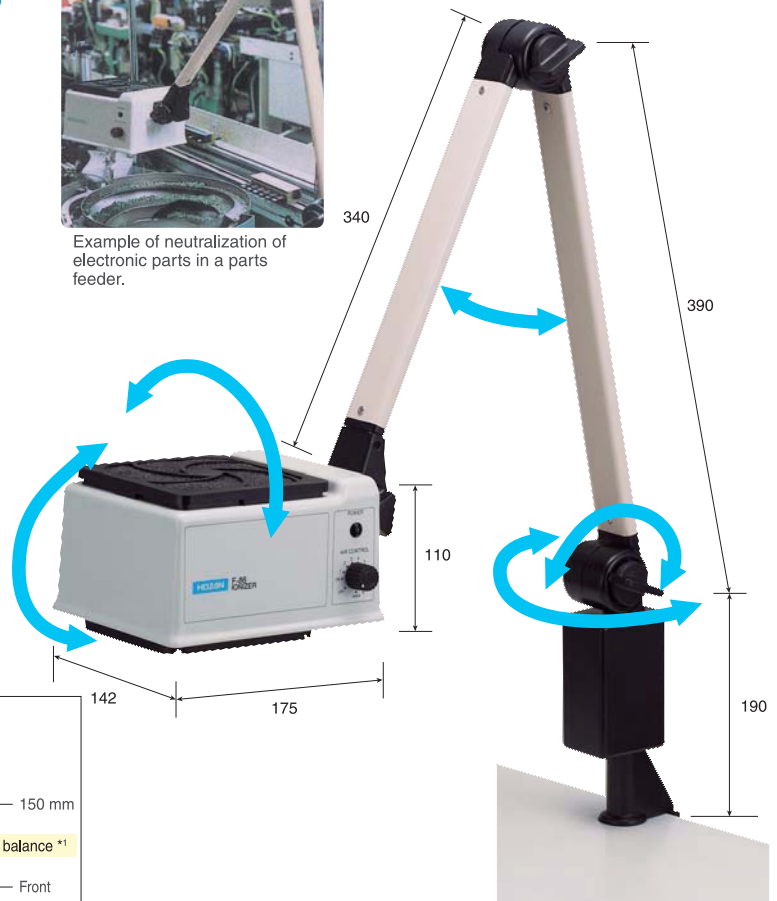
DC

Ion balance	Manual adjustment
Air source	Built-in DC fan
Air filter	Built-in
Fan speed control	Non-stepped (max. 3.5m ³ / min)
Rated voltage	DC24 V (with AC adapter)
Output voltage	4 to 7 kVDC
Power consumption	14.4 W
External dimensions	Blower 175 (W) × 110 (H) × 142 (D) mm
	Arm 340 (H) × 390 (D) mm
Weight	2.4 kg
ESD standard	Max. of 20 secs. for charge decay from 1000 V to 100 V

■ Power cord: 1.8 m



Example of neutralization of electronic parts in a parts feeder.

**■ Neutralization performance**Decay times from ± 1000 V to ± 100 V; fan airflow = MAX
Ion balance = Adjustment at distance of 600 mm

	Distance 150 mm	Distance 300 mm	Distance 450 mm	Distance 600 mm	
F-86	+ 1.0 - 1.4	+ 1.5 - 2.0	+ 2.2 - 2.8	+ 2.9 - 3.5	150 mm
	16.8 V 2.3 V	2.3 V	0.0 V	-2.3 V	Ion balance *1
	+ 0.3 - 0.3	+ 0.8 - 0.9	+ 1.3 - 1.6	+ 1.9 - 2.6	Front
	+ 1.7 - 2.6	+ 2.2 - 3.5	+ 3.2 - 4.3	+ 4.2 - 6.1	150 mm

F-87 BENCH TOP IONIZER

100 / 120 / 220 / 240 V



DC

Ion balance	Manual adjustment
Air source	Built-in DC fan
Air filter	Built-in
Fan speed control	Non-stepped (max. 3.5m ³ / min)
Rated voltage	24 kVDC (with AC adapter)
Output voltage	DC4 to 7 kV
Power consumption	14.4 W
External dimensions (at longest point)	188 (W) × 270 (H) × 150 (D) mm
Weight	1.5 kg
ESD standard	Max. of 20 secs. for charge decay from 1000 V to 100 V

■ Power cord: 1.8 m



Example of neutralization of electronic parts on a tray.

**■ Neutralization performance**Decay times from ± 1000 V to ± 100 V; fan airflow = MAX
Ion balance = Adjustment at distance of 600 mm

	Distance 150 mm	Distance 300 mm	Distance 450 mm	Distance 600 mm	
F-87	+ 1.4 - 1.8	+ 1.7 - 2.0	+ 2.4 - 3.0	+ 3.6 - 4.4	150 mm
	2.6 V -1.1 V	-1.1 V	1.3 V	0.3 V	Ion balance *1
	+ 1.1 - 1.2	+ 1.1 - 1.3	+ 1.6 - 1.9	+ 2.3 - 3.0	Front
	+ 2.8 - 3.4	+ 2.3 - 2.8	+ 2.7 - 3.3	+ 3.6 - 4.5	150 mm

*1. Ion balance...The balance of positive and negative ions supplied by the ionizer.

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Rubber mats

ESD racks

ESD trays

ESD foams & Bags

Parts boxes

Parts cabinets

Wrist straps

Ionizers

ESD checkers

ESD brush

Z-201 STATIC LOCATOR

☑ Laminated (6F22)

To detect electrostatic

- Dedicated for locating electrostatic charges in the workplace.
- Indicates electrostatic charges up to 5 kV.

Measurement range	(×1 range) ± 1 kV / (× 5 range) ± 5 kV
Measurement distance	25 mm (from sensor to measured object)
Power supply	9V Laminated (6F22) battery × 1
Battery life	40 hours (continuous use)
External dimensions	61 (W) × 31 (H) × 97 (D) mm
Weight	100 g (including battery)

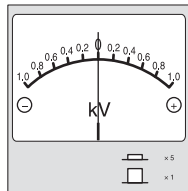
■ Accuracy: ± 10% of reading value



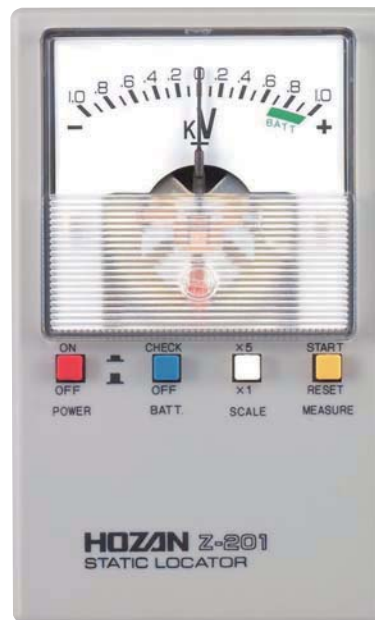
Ionizing air blower's ion balance adjustment



To operate, simply press the switch and move the unit near the target object.



Measurement up to ±5 kV is possible at ×5.

**Z-201-TA** STATIC LOCATOR (with calibration certificate)

☑ Laminated (6F22)

* Because the certificate will bear the purchaser's name (company name, etc.) , your name is required when ordering.

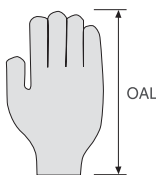
F-61-M / L ESD GLOVES

■ ESD standard: Charge decay from 1000 V to 100 V in less than 2 secs.

■ 1 pair provided

Part No.	OAL mm	Weight g
F-61-M	195	15
F-61-L	205	16

* Dimensions may fluctuate somewhat for cloth products.



CLASS 10000

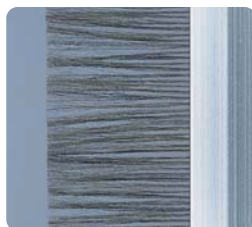
**F-60** ESD BRUSH

- The aluminum frame is easily cut to the desired length.

■ Brush Material: Ultra-Fine stainless wire
(Wire dia. 12 μmφ)

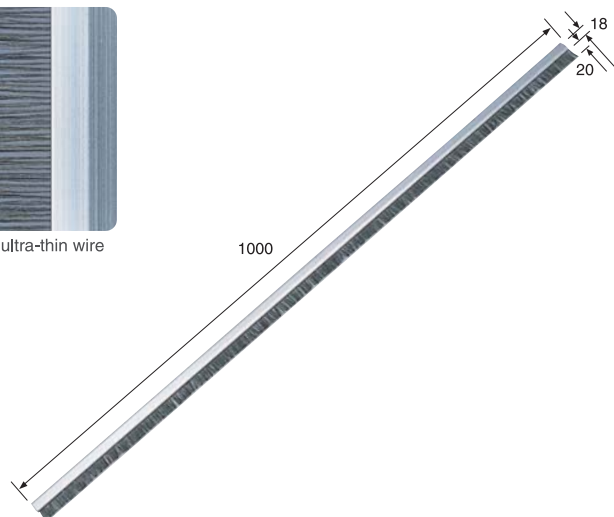
■ Frame thickness: 5 mm

■ Weight: 220 g

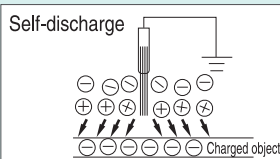


12 micron SUS ultra-thin wire

1000

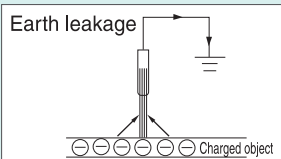


ESD brush principle and usage method



Neutralizing an object with 10,000 V or higher down to 2-3,000 V.

Creating a small gap between the grounded ESD brush and the charged object generates ⊕ and ⊖ ions around the brush, and these ions neutralize the charged object.



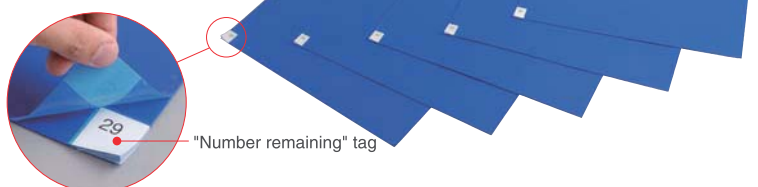
Method for reducing the object's charge to near 0 V.

Touching the charged object with the grounded ESD brush makes a path of leakage current, thus neutralizing the charged object.

Clean products

CL-930 STICKY MAT

- Size: 900 (W) × 600 (D) mm
- Thickness: 2 mm (with 30-sheet laminate)
- Quantity: 5 mats (each mat has 30 layers)
- Weight: 860 g (1 mat)
- Material: Polyethylene



Example of installation at clean booth entrance and exit (CL-930 + CL-901)

B-180 TOOL CASE



- For stowing equipments and tools, etc., which are to be taken into a clean environment.
- External dimensions: 460 (W) × 340 (H) × 145 (D) mm
- Inner dimensions: 440 (W) × 320 (H) × (bottom depth 77 + lid depth 53) (D) mm
- Weight: 2.4 kg
- Material: Aluminum



CLASS
1000

Volume
18 l

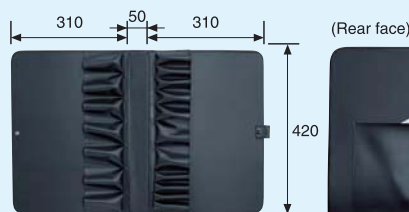
LOCK
9 9 9

■ Replacement part

B-920 TOOL PALLET (For clean room)



- External dimensions: 420 (W) × 310 (H) × 50 (D) mm
- Weight: 500 g
- Material: PVC
- ESD standard: Resistance point to point $R_p \leq 1 \times 10^{10} \Omega$

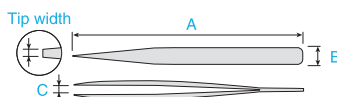


Clean-Pack Products



P-891P TWEEZERS
P-881P TWEEZERS
P-882P TWEEZERS

- Reduces washing operations, allowing the product to be taken as it is into the clean room.
- 5-piece pack of each type



Part No.	A	B	C	Tip width	Material	Weight g
	mm					
P-891	125	9.5	8	0.6	Stainless	23
P-881	110	10	7	-		17
P-882	115					18

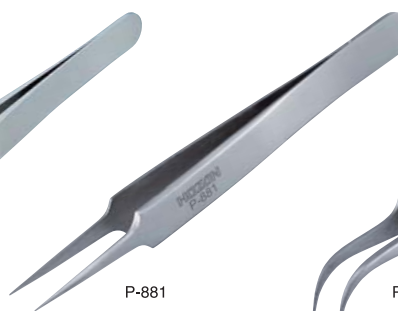
CLASS
100



* Photo shows the P-881P



P-891



P-881



P-882

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Clean Products

Clean Booth

Rubber blowers

Dusters

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Clean Products

Clean Booth

Rubber blowers

Dusters

CL-901

CLEAN BOOTH

NOT FOR EXPORT

CUSTOM

100 V

■ A fan filter unit and booth are included with the CL-901.

Fan Filter Unit (FFU)	
Rated voltage / frequency	100 VAC 50 / 60 Hz
Power consumption	60 / 64 W (50 / 60 Hz)
Filter type	HEPA (main filter) , non-woven fabric (pre-filter)
Trapping efficiency	0.3 μm 99.97% or higher
Airflow rate	9.0 / 10.5 m³ / min (50 / 60 Hz)
Airflow velocity	0.4 / 0.5 m / s (50 / 60 Hz) (with HEPA / Pre-filter installed)
Weight	12 kg (with HEPA / Pre-filter installed)

Booth	
External dimensions	2000 (W) × 2200 (H) × 850 to 2500 (D) mm
Booth capacity	3.3 to 11m³
Air exchange rate	168 to 49 times/hr (min. size to expanded size)
Cleanliness class	1000 to 10000
Sheet material	Fiber reinforced PVC sheet (contains antistatic agent) thickness 0.3mm
Frame material	Aluminum
Weight	39.5 kg

CUSTOM

Custom-order sizes, other tent materials, 220 V specs., etc., are available.

Custom orders are accepted (even for 1 unit)

* Use the quotation form provided on our website.

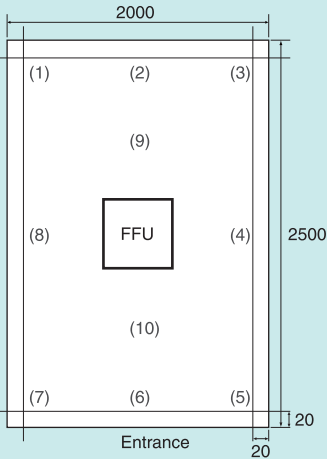


■ CL-901 dust removal performance

(Measured values)
Normal environment: 250,000p/CF
(0.5 μm) CL-901 at max. elongation (2500 mm)
Measured at a height of 1000 mm, 15 minutes after operation startup.

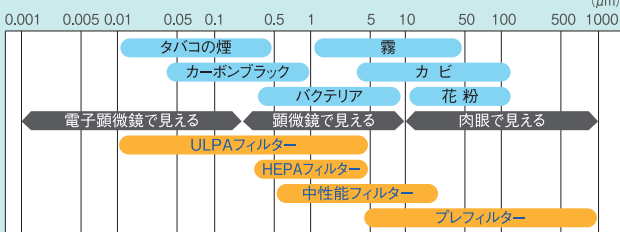
Measurement point	0.3 μm	0.5 μm
(1)	17,939	2,407
(2)	18,732	2,472
(3)	13,884	1,955
(4)	8,578	1,237
(5)	11,780	1,658
(6)	5,638	785
(7)	9,738	1,526
(8)	12,032	1,821
(9)	18,235	2,798
(10)	16,470	2,413

p / CF



クリーン環境の予備知識

■ 粒子の大きさとフィルターの関係



■ 清浄度クラス

清浄度の規格は、JIS-B9920や米国連邦規格、NASA規格などがあります。最も代表的な米国連邦規格において、0.5μm以上の微粒子が1CF (立方フィート) の空气中に何個あるかで、クラス○○○と呼ばれます。

◆クラス1000…微粒子が1000個以下。
◆クラス10000…微粒子が10000個以下。

■ クラス別の主な作業 (参考)

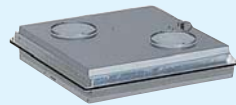
クラス10	クラス100	クラス1000	クラス10000
半導体の結晶精製・拡散			
エッチング・表面処理・金属蒸着		電子機器組立・検査	
	光学レンズ研磨・組立		
	精密機器組立・検査		
	製薬工程・薬剤室		
	無菌室・細菌実験		

エレクトロニクス分野 精密機器分野 バイオ医薬分野

■ Replacement parts

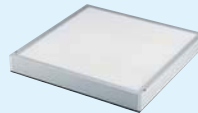
CL-901-1 FAN FILTER UNIT

■ Fan set (includes HEPA filter)



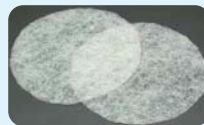
CL-901-2 HEPA-FILTER

■ HEPA filter only



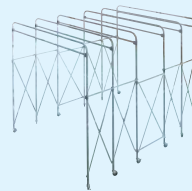
CL-901-3 PRE-FILTER

■ Pre-filter only
■ 2 filters provided



CL-901-7 TENT FOR CLEAN BOOTH

CL-901-8 FRAME FOR BOOTH



■ Optional parts

CL-901-4 PARTITION CURTAIN



CL-901-5 CONNECTION TAPE

■ Two CL-901 units can be easily linked using a Velcro fastener.

■ Related products

CL-930 STICKY MAT

* For details, see page 159



Fits any worksite and processing schedule

Collapsible & movable

The frame size can be increased or expanded to meet the needs of the worksite. Because casters make it easy to move and assemble, it is ideal for short to medium term projects.



Fully extended condition



Fully collapsed condition



Casters allow easy movement by 1 person

Roomy

Roomy working space

The booth capacity is 3.3 to 11 m³, with a generous ceiling height of 2.2 m. If a larger space is needed, multiple booths can be linked.



Working inside the booth



Entrance open / close



Multiple units can be linked
(Using CL-901-5 connection tape)

Partitions enable more applications

Partition curtains (CL-901-4) can be used in the booth to use the booth for multiple applications. For example, one part can be used as a dressing room or preparation room, etc.

Work room in the rear



Use the front area as a preparation room

Antistatic PVC sheet

The sheet contains an antistatic agent that repels dust.



Pipe with ground terminal

User-assembled product

Easy to assemble. Can be assembled by 3 workers in 30 minutes.



Slim fan filter unit

Fan filter unit with built-in HEPA filter and pre-filter. Its compact size maximizes the usable interior space.


Cutters &
Pliers

Wire
strippers

Crimpers

Tweezers

Screwdrivers &
Wrenches

Metal working

Parts
boxes

Tool
cases

Tool kits

Soldering
irons &
Solder

Parts & Solder
removal
equipment

Measuring
instruments

Optical
equipment

Antistatic
products

Clean
products

Chemical
products

Maintenance
& Safety
products

Clean
Products

Clean
Booth

Rubber
blowers

Dusters

用途によって選べるブロー／エアダスター

可燃性

クリーンな
ドライエアが
必要なとき

Z-288
エアダスター
使用ガス:DME+CO₂



明日のために、ノンフロン。



Z-287
エアダスター
使用ガス:HFC152a



フロンガス排出抑制対策※に
Z-288(ノンフロン) エアダスター
Z-287(HFC152a) エアダスター
Z-263/262/261 ブロー

不燃性

Z-282/283
エアダスター
使用ガス:HFC134a



ランニングコストゼロ
手軽に使いたいとき
裸火がある空間でも安心

Z-263 圧縮機能付
Z-262
Z-261
ブロー



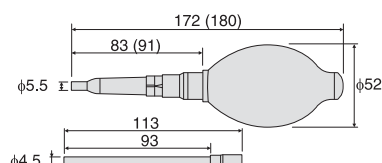
Z-263

Z-263 RUBBER BLOWER WITH COMPRESSOR



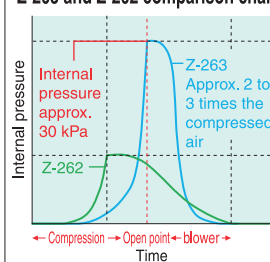
- The new compression valve design delivers 30 kPa (max.) of compressed air (2 to 3 times the blower) for quick dust cleaning.
- The compressor / blower can be selected.
- Features an air inlet valve that prevents blowback from the inlet (only when the compressor).
- An accessory extension nozzle permits access to hard-to-reach places.

- Pump capacity: 80 mL
- Max. compression pressure: 30 kPa
- Overall length: 180 mm (280 mm: with extension nozzle attached)
- Weight: 45 g



* () value applies when blower is selected.

Z-263 and Z-262 comparison chart



With compression function enabled



With compression function disabled (released)



For removing drilling cuttings.

80 mL



Compressor / blower selector

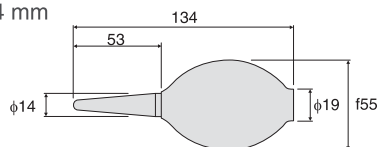
Extension nozzle

For details, refer to the instruction video on our website.
<http://www.hozan.co.jp/animation/>

Z-262 RUBBER BLOWER



- Pump capacity: 86 mL
- Overall length: 134 mm
- Weight: 40 g



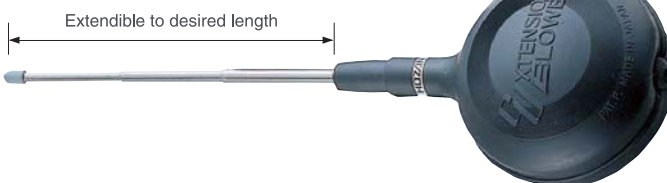
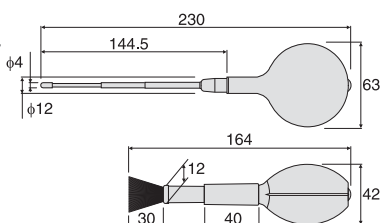
86 mL



Z-261 RUBBER BLOWER WITH EXTENSION NOZZLE

- An extension nozzle enables access to hard-to-reach areas.

- Extendable nozzle.
- Pump capacity: 69 mL
- Overall length: 230 mm
- Weight: 42 g
- Brush Material: Horse hair



69 mL

* Regarding air dusters which use Freon gas, the Japan Electronics and Information Technologies Industries Association (JEITA) is promoting both a switch to HFC152a which has less of a greenhouse effect, and the implementation of other voluntary countermeasures.

Z-288 DME + CO₂ DUSTER



- 使用ガス:DME+CO₂
- 容量:223g(350mL)
- 可燃性
- エクステンションノズル 付属
(内径0.97mmφ/長さ135mm)



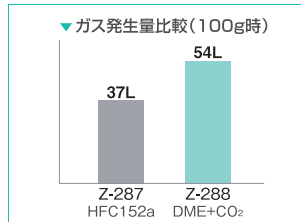
本製品に使用しているガスは可燃性です。火や高温物、電気火花の付近では使用しないでください。引火・爆発する恐れがあります。
特にシュレッダーなど気密性の高い電気製品には絶対に使用しないでください。



逆さでも
液噴射しない安心設計

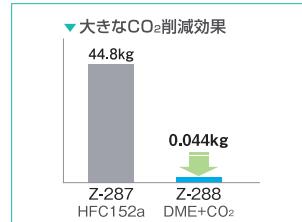


少ない量でもたくさん使える



Z-288に使用しているガスは膨張率が大きく少量でもたくさん使えますので携帯性にも優れています。

温室効果ガス削減



当社従来品のZ-287をZ-288に置き換えることで1本あたり40kg以上のCO₂削減効果^{※2}を得ることができます。



明日のために、ノンフロン。

1缶で40kgの
CO₂削減効果

いろいろな用途で大活躍!

様々な“プロの現場”これ一本で解決です。

例えば

キーボード、プリンタ、コピー機、
自動改札機、光学機器、コネクター、
機器内部、レンズなどに...



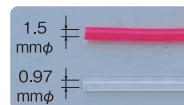
Z-287 152a DUSTER



- 使用ガス:HFC152a(100%)
- 容量:430g(480mL)
- 可燃性
- エクステンションノズル 付属
(内径0.97・1.5mmφ各1本/長さ130mm)



本製品に使用しているガスは可燃性です。火や高温物、電気火花の付近では使用しないでください。引火・爆発するとともにガスの熱分解により人体に有害なガスが発生する恐れがあります。特にシュレッダーなど気密性の高い電気製品には絶対に使用しないでください。



エクステンションノズルは
内径違いを、2本付属しています。
1.5mmφ=強(赤色)
0.97mmφ=弱(白色)



Z-282 / 283 134a DUSTER



- スプレーガス圧により、電子機器、精密機械などのゴミ、ホコリを取り除くことができる携帯に便利なエアダスターです。

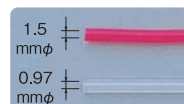
- 使用ガス:HFC134a(100%)
- 容量:Z-282 230g(190mL)
Z-283 460g(380mL)
- 不燃性
- エクステンションノズル 付属
(内径0.97・1.5mmφ各1本/長さ130mm)



ガスの熱分解により人体に有害なガスが発生する恐れがありますので、裸火のある個所での多量のご使用は避けください。



※本製品は不燃性ガスを使用していますので、通電状態での電気製品やスパークが懸念される場所でも安全にお使いいただけます。



エクステンションノズルは
内径違いを、2本付属しています。
1.5mmφ=強(赤色)
0.97mmφ=弱(白色)

不燃性



Z-282

Z-283

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Clean Products

Clean Booth

Rubber blowers

Dusters

Dusters

Dusters

Dusters

Dusters

163

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Artistic products

Clean products

Chemical products

Maintenance & Safety products

Cleaners

Flux Remover

Liquid Dispenser

Chemical products

Z-294 CLEANER / DEGREASER



油性のグリス汚れから水溶性の泥汚れまで幅広く対応

- グリス汚れ、ヤニなどの油脂汚れから水溶性の泥汚れまで幅広く対応します。
- 油脂と泥、ホコリなどが組み合わさった複合的な汚れにも効果的です。
- ゴム、プラスチックを侵さず、乾燥後に固形分を残しません。
- コネクタ、リレーなどの接点洗浄、プリント基板のフラックス洗浄にもお使いいただけます。

- 有機溶剤中毒予防規則対象外
- 容量:310g(500mL)
- 可燃性
- エクステンションノズル 付属

(内径0.6・1.1mmφ各1本/長さ95mm)
内径違いを2本付属しています。



Z-294は逆さに使用しても、クリーナー液をスプレーできます。



Z-293 FLUX REMOVER



プリント基板上のフラックスを洗浄

- 人体や環境に影響のある物質を排し、手作業のフラックス洗浄を想定したクリーニング剤です。
- ブラシやウエス等に含ませて、プリント基板上のフラックスを、白く跡形を残さずきれいに洗浄できます。

- 有機溶剤中毒予防規則対象外
- 容量:360g(400mL)
- 可燃性
- 無色透明



Z-76 LIQUID DISPENSER

- Material: Cap (polypropylene), lid (brass), container (glass), pump (brass)

- External dimensions: 72 mmφ × 83 (H) mm (not including cap)

- Capacity: 125 mL

- Weight: 230 g

- Accessory: Velcro bottom fastener (prevents the dispenser from toppling and moving)

* Do not use for solvents which harm the pump (brass) , for strong acidic / alkaline solvents, or for chemicals which are toxic to humans.



Example of use together with Z-293 flux remover



Provided with a cap for safe storage

125mL

Z-281 / 285 FREEZER

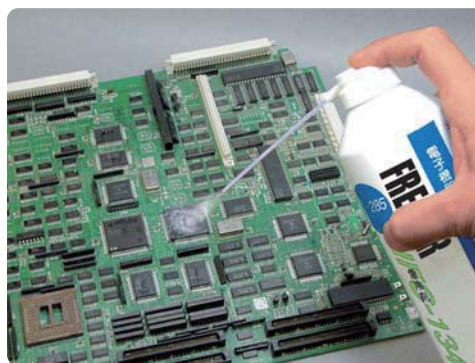


不良個所の発見や性能変化のチェックに

- 電子部品の温度変化による不良の発見や、性能変化をチェックするための急速冷却剤です。
- 樹脂、ゴム塗装面、金属、ガラス等を侵さず約-58℃まで冷却します。

- 使用ガス:HFC134a(100%)
- 容量:Z-281 230g(190mL)
Z-285 460g(380mL)
- 不燃性
- エクステンションノズル 付属
(内径0.97mmφ1本/長さ120mm)

※本製品は不燃性ガスを使用していますので、通電状態での電気製品やスパークが懸念される場所でも安全にお使いいただけます。



Z-281



Z-285



ガスの熱分解により人体に有害なガスが発生する恐れがありますので、裸火のある箇所での多量のご使用はお避けください。

Z-296 CONDITIONER

潤滑・防錆処理に

- テフロン (PTFE) パウダー粒子によるミクロのベアリング効果を持つ潤滑被膜を形成し、油脂に頼らない潤滑効果があります。
- 合成油ベースのためプラスチックやゴム製品への影響が無く安心して使用できます。
- 浸透性に優れており、高い水置換性による防錆効果が期待できます。
- 無臭性でいやな臭いもありません。

- 容量:140g (220mL)
- 可燃性
- エクステンションノズル 付属
(内径0.64mmφ1本/長さ100mm)



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Cleaners

Flux Remover

Liquid Dispenser

Chemical products

Z-292 ANTISTATIC CLEANER

帯電しやすい個所の清掃に

- OA機器、電化製品などの帯電防止、汚れ落としスプレーです。
- プラスチックや塗装面を侵さず、ふき取り後は、帯電を抑える効果があります。

- 容量:180g (220mL)
- 可燃性

**Z-272** PCB CONDITIONER

完成プリント基板の吸湿、ハンダの腐食を防ぐ絶縁皮膜の形成に

- 実装プリント基板用スプレー式吸湿・絶縁コーティング剤。
- ハンダの腐蝕を防ぐ絶縁皮膜を形成し、数分で硬化します。
- 屋外アンテナ・メッキ製品などの腐食防止に、優れた防錆力で湿気、塩害から守ります。

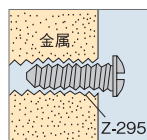
- 電気特性:体積抵抗 $0.8 \times 10^{15} \Omega \cdot m$
絶縁破壊電圧3.5kV (交流50Hz)
- 容量:140g (220mL)
- 可燃性
- 無色透明

**Z-295** CONTACT SPRAY

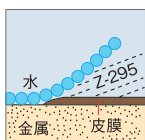
接点不良の解消に

- 接点復活剤として、ボリューム、スイッチなどの接触不良を解消。
- サビなどで固定したボルト・ナットをゆるめる際に浸透性潤滑剤としてもご利用いただけます。

- 容量:140g (220mL)
- 可燃性
- エクステンションノズル 付属
(内径0.64mmφ1本/長さ100mm)



浸透潤滑剤として、強力な浸透力によりサビついたボルト・ナットなどを簡単に取り外すことができます。



防湿剤として、優れた水置換性により金属表面の水分を除去します。塗付後は水分の付着と吸収を防止できます。



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Safety glasses

Oilers

Work stand

Measuring instruments

Lights

Shielding booth

Demagnetizers

Z-634 / 637 SAFETY GLASSES



- Conforms to the ANSI Z87.1 USA safety standard
- Hard coating surface resists scratching.
- The Z-634 Can be worn over glasses.



Example of Z-634 usage

Temple length is adjustable (4 steps)



Z-637

Z-634

Part No.	Material	Lens thickness mm	Adjustable temple length	Weight g
Z-634	Polycarbonate	2.3	None	52
Z-637	Nylon (frame) PVC (nose pad) Polycarbonate (lens)	2	4-step adjustment	32

Z-64 PRECISION OILER

- Material: Nozzle (stainless), Protective cap (polypropylene), valve (brass), O-ring (nitrile rubber), container (polyethylene), packing (polyethylene foam), container cap (polyethylene)
- Bottle: 9 mL
- Overall length: 133 mm
- With leak prevention mechanism (needle valve)
- With protective cap

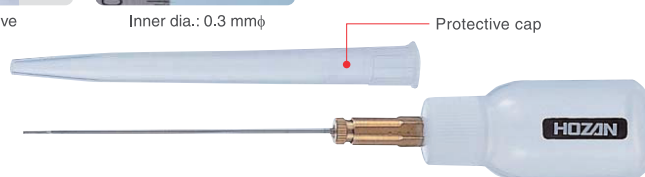


Needle valve



Inner dia.: 0.3 mmφ

9mL



Protective cap

Z-101 UTILITY CART

CAPACITY
60kg

- Load capacity: 60 kg (when not moving)
- External dimensions: 700 (W) × 630 (H) × 500 (D) mm
- Small parts tray (drawer) : 180 × 150 mm
- With work mat (fixed)
- With 4 casters (65 mmφ / including 2 stoppers)
- Weight: 14.5 kg

* To be assembled by the user.



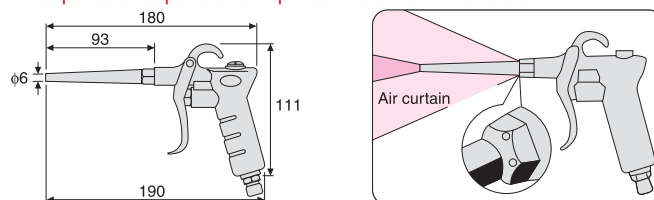
Small parts tray

Casters with stops

Z-390 AIR DUST GUN

- An air curtain enhances safety and cleanliness by preventing dust and cutting particles, etc., from blowing back at the user.
- Nozzle bore: 2 mmφ
- Nozzle length: 93 mm
- Standard air pressure: 0.4 to 0.6 Mpa
- Required air compressor: 0.4 kW or higher
- Overall length: 190 mm
- Weight: 250 g

* Requires a separate compressor as the air source.



Optional parts

Z-391 AIR HOSE COUPLER

- Male coupler for connecting the Z-390 to an air hose coupler.

Z-392 AIR HOSE JOINT

- Dedicated joint for connecting the Z-390 directly to an air hose.
- Compatible hose: 1/4" (6.35 mm)

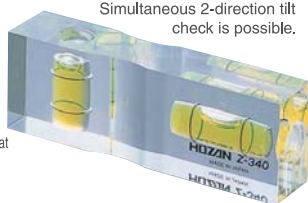
Z-340 LEVEL GAUGE



- Sensitivity: 0.5 mm / m (=0.03°)
- Accuracy: ± 2.5 mm / m (= ± 0.14° or less)
- External dimensions: 75 (W) × 25 (H) × 15 (D) mm
- Weight: 31 g



Simultaneous 2-direction tilt check is possible.



* The sensitivity is the tilt angle at which bubble motion can be perceived by the eye. The accuracy is the level's overall measurement error.

Z-341 MEASURE TAPE

- Measurement: 2 m long (no stopper)
- External dimensions: 49 (W) × 49 (H) × 20 (D) mm
- JIS Class 1
- Weight: 68 g



Z-301 LED FLASHLIGHT

AAA (LR03) batteries

Flashlight with white power LED

- Brightness: 220 lumens
- With focus control
- Watertight (IEC standard IP65)
- Lamp: Power LED × 1
- LED life: 100,000 Hrs.
- Continuous ON: Approx. 6 Hrs.
- Power supply: AAA alkaline batteries × 3
- External dimensions: Overall length 145 mm × lamp dia. 35 mmφ
- Weight: 114 g (not including batteries)
- Accessories: clip holder, strap



With clip holder for wearing on the waist (belt), etc.



Set contents

**Z-306** CLIP LIGHT

CR2032

- Lamp: White LED × 6
- LED life: 100,000 Hrs
- Continuous ON: Approx. 45 Hrs.
- Power supply: Coin lithium battery (CR2032) × 2
- External dimensions: 48 (W) × 35 (H) × 50 (D) mm (includes clip groove)
- Weight: 21 g (not including battery)



Shining direction can set as desired.



Easily clips to anything to provide a handy light.



With magnet

Z-334 FLASHLIGHT

AA (LR6) batteries

- Watertight specs. (IEC standard IP65)
- Handy clip holder holds the light while working.

- Lamp: Krypton bulb
- Power supply: AA cell (Alkali) batteries × 2
- External dimensions: Overall length 157 mm × lamp area 29 mmφ
- Weight: 64 g (without batteries)
- Accessories: Clip holder, strap



360° rotary clip holder.



Watertight



Set contents

■ Replacement part

Z-334-1 BULB

- For Z-334



■ Related products

Z-333 HEAD STRAP

- With Velcro fastener on the woven rubber strap for one-size-fits-all.

- External dimensions: 25 (W) × 590 (H) mm
- Weight: 160 g
- For Z-334



* Does not include Z-334.

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Safety glasses

Oilers

Work stand

Measuring instruments

Lights

Shielding booth

Demagnetizers

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Safety glasses

Oilers

Work stand

Measuring instruments

Lights

Shielding booth

Demagnetizers

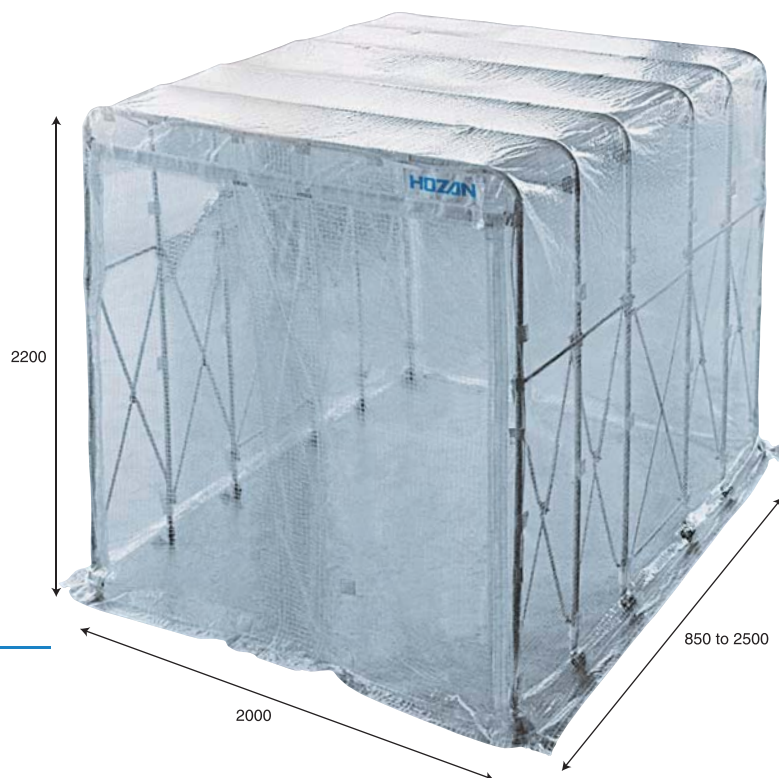
Z-902 SHIELDING BOOTH

NOT FOR EXPORT

CUSTOM

- This booth offers a simple isolation space that can be used to keep dust off materials stored over long periods, or it can be used as a dedicated work and machinery booth to contain splashing, etc.

External dimensions	2000 (W) × 2200 (H) × 850 to 2500 (D) mm
Booth adjustable capacity	3.3 to 11m ³
Sheet material	Fiber reinforced PVC sheet (contains antistatic agent) thickness 0.3 mm
Frame material	Aluminum
Weight	40.5 kg



Collapsible & movable



Fully extended



Fully collapsed

Easily moved by rolling up the sheet bottoms and securing them with the fasteners

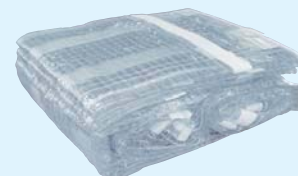
User-assembled product

Easy to assemble. Can be assembled by 3 workers in 20 minutes.



■ Replacement parts

Z-902-1 TENT FOR SHIELDING BOOTH



CL-901-8 FRAME FOR BOOTH



Shielding booth

Usage example

CUSTOM

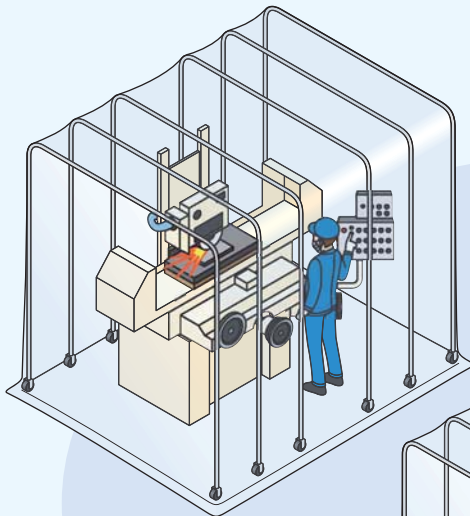
Sizes, changed sheet, etc.

Custom orders are accepted (even for 1 unit)

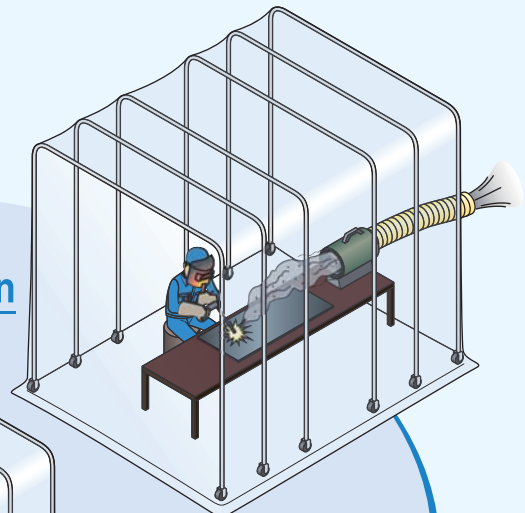
* Use the estimate request form provided on our website.

Dust prevention

For long-term storage of materials

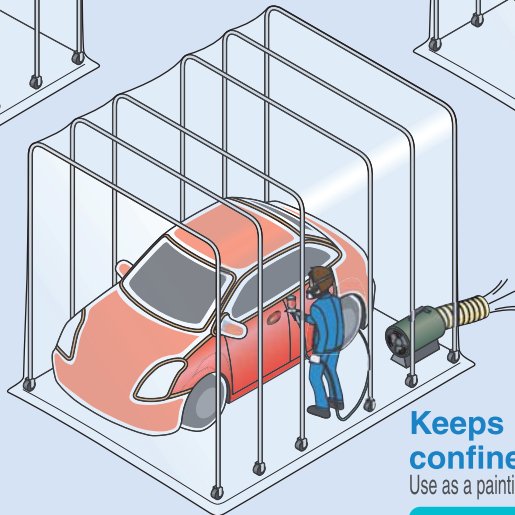
**Splash prevention****Dust scattering prevention**

As a machinery booth

**Smoke spreading prevention**

Use as a welding booth

Fire-retardant sheet & ventilation duct hole specs. (custom order)

**Keeps paint in the confined area**

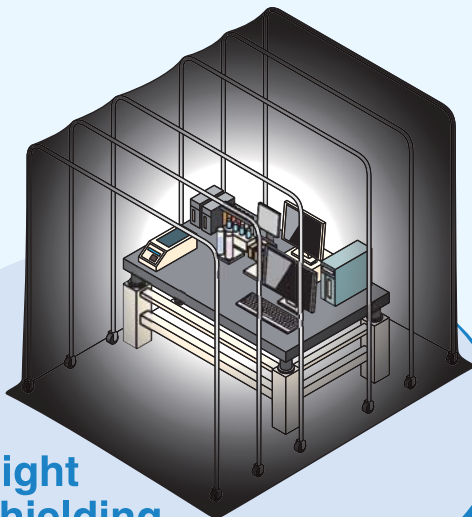
Use as a painting booth

Exhaust duct hole specs. (custom order)

Light shielding

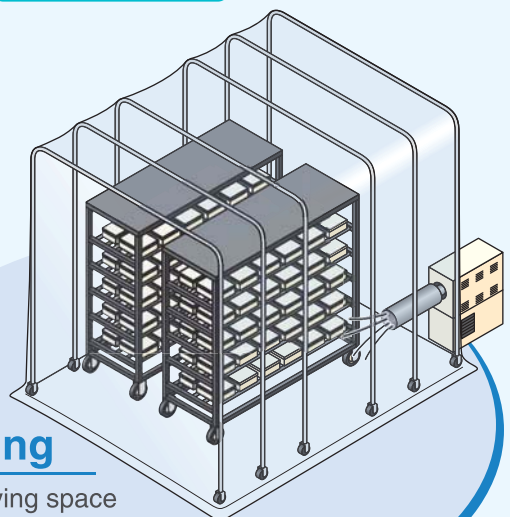
For darkroom or inspection room

Light shielding specs. (custom order)

**Drying**

For drying space

Specs. with dryer duct hole (custom order)



Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Safety glasses

Oilers

Work stand

Measuring instruments

Lights

Shielding booth

Demagnetizers

HC-56 DESKTOP DEMAGNETIZER

100 V

- Automatically switches OFF approx. 3 seconds after being switched ON.
- Keeps the area free of magnetic fields (see illustration below)

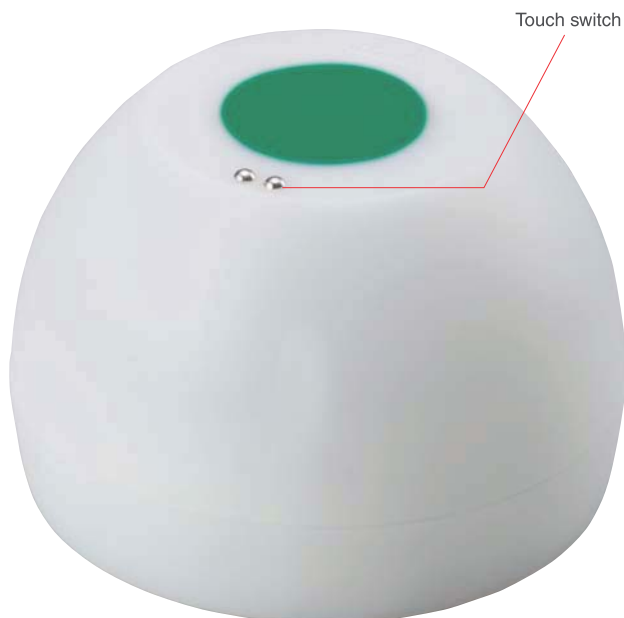
- Max. flux density: 65 mT (60 Hz) / 55mT (60 Hz)
- Temperature fuse: Return type
- Rated voltage & frequency: 100 VAC, 50 / 60 Hz
- Rated current: 0.6 A (50 Hz) / 0.55 A (60 Hz)
- Power consumption: 40 W
- External dimensions: At widest point 84 mmφ
At narrowest point 48 mmφ
Height 57 mm

- Weight: 300 g
- Power cord: 2 m

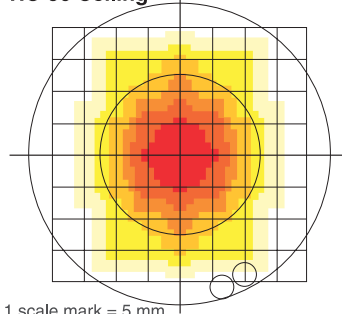
* It may not be possible to demagnetize a large object in a single operation. For large objects, use the HC-31 / HC-33.

* The magnetizing capability conforms to the JIS standard for magnetic screwdrivers (tip No.2) .

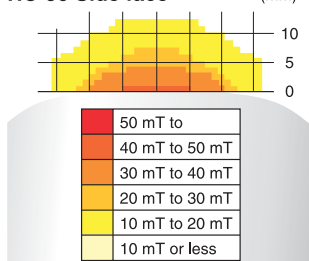
Note: Standard magnetic screwdrivers cannot be completely demagnetized.



HC-56 Ceiling



HC-56 Side face



* This is a simplified illustration, and may differ somewhat from the actual data.



Demagnetize a pair of charged tweezers



Magnetize a screwdriver

For details, refer to the instruction video on our website.
<http://www.hozan.co.jp/animation/>

HC-31 / 33 DEMAGNETIZERS

HC-31 100 V

HC-31-110 110 / 120 V

HC-31-220 220 / 230 / 240 V

HC-33 100 V

Simply press the switch to demagnetize (equipped with output damping mechanism) *HC-33

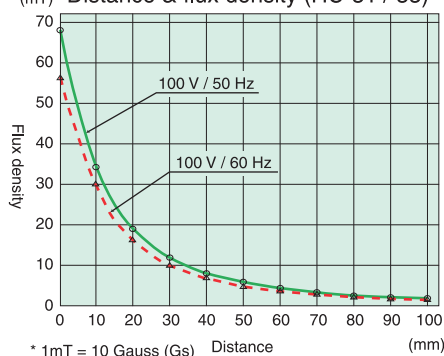
* The HC-31 specs. are identical to the HC-33, except that it does not have the output damping mechanism. Therefore, while demagnetizing, the unit must be moved away from the target object.

Max. flux density	68 mT (50 Hz) / 56 mT (60 Hz)
Rated voltage / frequency	AC100 V 50/60 Hz
Rated current	1.0 A (50/60 Hz)
Power consumption	12 W
External dimensions	34 (W) × 59 (H) × 216 (D) mm
Weight	930 g
Power cord	1.9 m



HC-31 / HC-33

Distance & flux density (HC-31 / 33)

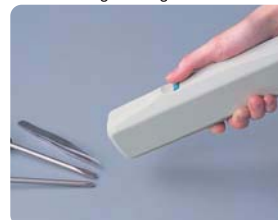


CRT & Television demagnification



Switch ON / OFF operation near the screen

Tool demagnetizing



Mold demagnetizing
(Horizontal posture is also possible)



Place on top of the mold, then press the switch.

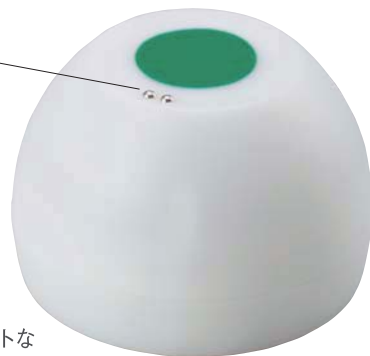
帯磁したピンセットやドライバーなどを 瞬時に消磁 着磁も可能



帯磁解消で作業環境を円滑化。
磁界コントロールで作業効率アップに貢献。

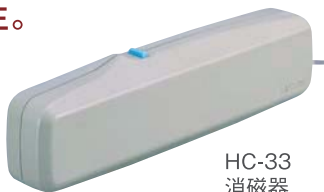
ホーザン株式会社
消磁器開発担当
皆谷 明宏

HC-56 卓上消磁器
タッチスイッチ



1 逆転の発想で誕生。 画期的な消磁器！

今回ご紹介する「卓上消磁器 HC-56」は、従来の消磁器と比べてもっとも異なるのが、その使い方です。これまでは工具に消磁器を近づけて使用するというのが一般的で、当社の「消磁器 HC-31/HC-33」などがそのタイプです。卓上消磁器の開発に際し、まず本体を卓上タイプにして、消磁対象物の工具を消磁器に近づけて消磁するということがポイントになりました。つまり消磁器の使い方を逆転する、発想の転換が開発のきっかけになりました。



HC-33
消磁器

2 通常作業の流れに、 「消磁」を組み入れた。

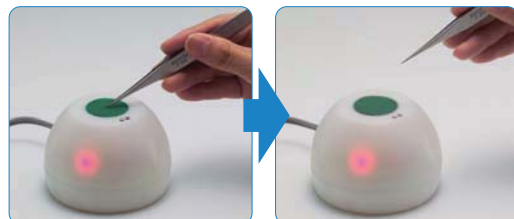
どうして卓上にこだわったのか、それはプロユースにおける作業環境への適応性を重視したからです。限られた作業スペースで、ドライバーやピンセットなどの消磁のために消磁器を持ち出して消磁をするという動作は、本来の組み立て作業の流れを中断し、作業効率にムダが生じてしまいます。スムーズに流れる一連の作業の中に、消磁作業を組み入れたいという想いから、組み立てや修理をされるオペレーターさんの作業リズムの中に、違和感なく取り入れられることを目指しました。

3 卓上=コンパクト、 操作性もポイントに。

本体の形状デザインには、あれこれと試行錯誤をかさねました。まず、卓上=コンパクトを最重要と位置づけました。次に操作性、一連の作業の流れに違和感なく取り入れられるにはどうするか。これは消磁器の電源スイッチを「タッチスイッチ」にすることでクリアしました。作業中に手や工具で軽く触れるだけで、電源が入ります。そして、電源ON状態が一目でわかるよう、本体内部にLED（発光ダイオード）を組み入れ、消磁が終了する約3秒後には電源が自動OFFするハンズフリー設計を採用しました。

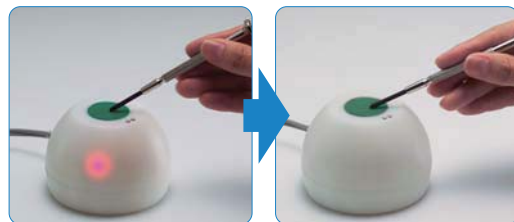
消磁

消磁したい工具を近付けて
タッチスイッチに一度触れ
そのまま工具を遠ざける
だけで消磁できます。



着磁

着磁したい工具を近付けて
タッチスイッチに一度触れ
そのまま約3秒待てば
着磁できます。



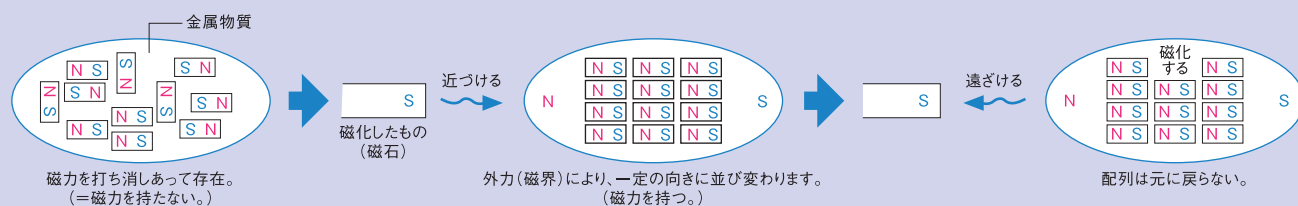
4 「こんなのあったの！」 と現場で喜ばれます。

卓上消磁器は常に卓上で使用されるため、本体周辺への磁気の影響しないよう、本体上部にのみ磁気が発生するよう設計しています。また、付随的な機能として、消磁器でありながら、「着磁」させてマグネットドライバーとして使用することもできます。つまり、1本のドライバーやピンセットが2wayに使えるわけです。

本器は現在、エレクトロニクス分野のメーカー様が主な納入先ですが、現場のオペレーターの皆さんから「こんなのあったの!」と驚きと共に喜ばれています。今後は時計修理関連をはじめ、さまざまな工業分野でご活用いただけたらと願っています。

金属はなぜ磁気を帯びるのか？

金属物質には、N極とS極をもつ磁石が無秩序に存在するものと考えられています。



※あくまで磁化の一例であり、物理的な衝撃や熱処理等、他の理由で磁化することもあります。
銅などの磁化しない金属は、安定状態にあるため、磁界の影響を受けません。
磁化対策品として、特殊なステンレス、銅、セラミックなどを利用した非磁性ピンセットがあります。

非磁性ピンセットは30ページに掲載

Cutters & Pliers	A			B-118	Drawer, Medium	65
	AS-196	ESD Desoldering Pump	118	B-118-1	Index Card	65
Wire strippers	B			B-118-2	Card Cover	65
				B-119	Divider, Medium	65
Crimpers				B-128	Drawer, Large	65
				B-129	Divider, Large	65
Tweezers	B-10-AA	Parts Box	67	B-133	ESD Parts Cabinet	150
	B-10-AB	Parts Box	67	B-135	ESD Parts Cabinet	150
Screwdrivers & Wrenches	B-10-AC	Parts Box	67	B-137	ESD Parts Cabinet	150
	B-10-BB	Parts Box	67	B-138	ESD Drawer, Small	150
Metal working	B-10-BC	Parts Box	67	B-139	ESD Divider, Small	150
	B-10-CC	Parts Box	67	B-180	Tool Case	159
Parts boxes	B-17	ESD Parts Box	66 / 149	B-200	Parts Cabinet	64
	B-17-BB	ESD Parts Box	66 / 149	B-201	Parts Cabinet	64
Tool cases	B-18	ESD Parts Box	66 / 149	B-212	ESD Inner Tray B	66 / 149
	B-19	Outer Box	67	B-218	ESD Drawer, Medium	150
Tool kits	B-50-EE	Parts Box	67	B-219	ESD Divider, Medium	150
	B-50-EF	Parts Box	67	B-222	ESD Divider B	66 / 149
Soldering irons & Solder	B-50-EG	Parts Box	67	B-311	Inner Tray, A	67
	B-50-FF	Parts Box	67	B-312	Inner Tray, B	67
Parts & Solder removal equipment	B-50-FG	Parts Box	67	B-313	Inner Tray, C	67
	B-50-GG	Parts Box	67	B-321	Divider, A	67
Measuring instruments	B-54-B	Tool Box	76	B-322	Divider, B	67
	B-54-O	Tool Box	76	B-323	Divider, C	67
Optical equipment	B-55-B	Tool Box	76	B-351	Inner Tray, E	67
	B-55-O	Tool Box	76	B-352	Inner Tray, F	67
Antistatic products	B-56-B	Tool Box	76	B-353	Inner Tray, G	67
	B-56-O	Tool Box	76	B-355	Divider, E	67
Clean products	B-58	Tool Bag	75	B-356	Divider, F	67
	B-59	Tool Bag	75	B-357	Divider, G	67
Chemical products	B-66	Tool Case	71 / 92	B-359	Outer Tray	67
	B-66-1	Tool Pallet	71	B-402	Parts Cabinet	65
Maintenance & Safety products	B-66-2	PC Tray	71	B-403	Parts Cabinet	65
	DISCON. B-65	Tool Case	72	B-404	Parts Cabinet	64
	B-67	Tool Case	73 / 89	B-405	Parts Cabinet	64
	B-68	Tool Case	71	B-413	Parts Cabinet	65
	B-73	Container	78	B-414	Parts Cabinet	64
	B-73-1	Foam	78	B-415	Parts Cabinet	64
	B-76-3	PC Tray	71	B-500	Container	79
	B-76-9	Shoulder Belt	70	B-503	Container	79
	B-78	Tool Case	70	B-505	Container	79
	B-80	Tool Case	69 / 87	B-530	Container	78
	B-80-1	Shoulder Belt	69	B-559	Divider	76
	B-80-6	Document File	69	B-600	Tool Case	70
	B-80-7	Tool Pallet	69	B-600-5	Tool Pallet	70
	B-81	Tool Case	69 / 87	B-606	Tool Case	70
	B-81-6	Document File	69	B-640	Tool Case	70
	B-81-7	Tool Pallet	69	B-660	Tool Case	71
	B-82	Tool Box	77	B-670	Tool Case	72
	B-83	Tool Box	77	B-680	Tool Case	73
	B-85	Tool Box	77	B-685	Tool Case	72
	B-87	Shock-Absorbing Foam	78	B-693	Attache Case	73
	B-88	Shock-Absorbing Foam	78	B-720	Tool Bag-Attache	75
	B-89	Shock-Absorbing Foam	78	B-730	Tool Bag	75
	B-94	Blow-Molded Case	73	B-740	Tool Pallet	68
	B-98	Roll-Up Pouch	74	DISCON. B-770	Tool Case	69
	B-108	Drawer, Small	65	B-920	Tool Pallet	159
	B-108-1	Index Card	65			
	B-108-2	Card Cover	65			
	B-109	Divider, Small	65			

CL

DISCON. CL-886	Ionizing Air Gun	156
CL-901	Clean Booth	160
CL-901-1	Fan Filter Unit	160
CL-901-2	HEPA-Filter	160
CL-901-3	Pre-Filter	160
CL-901-4	Partition Curtain	160
CL-901-5	Connection Tape	160
CL-901-7	Tent for Clean Booth	160
CL-901-8	Frame for Booth	160
CL-930	Sticky Mat	159

D

D-2	Reversible Screwdriver	45
D-4	Reversible Screwdriver	45
D-6	Reversible Screwdriver	45
D-8	Reversible Screwdriver	45
D-12	Valve Core Screwdriver	43
D-16	Alignment Tool Kit	43
D-16-1B	Alignment Tool	43
D-16-2B	Alignment Tool	43
D-16-3B	Alignment Tool	43
D-16-4B	Alignment Tool	43
D-16-5	Alignment Tool	43
D-17	Ceramic Alignment Tool Set	42
D-20	Precision Screwdriver Set	41
D-24	Reversible Screwdriver Set	45
D-27	Precision Screwdriver Set	41
D-29-100	Alignment Tool	43
D-29-150	Alignment Tool	43
D-36	Nut Driver Set	50
D-37	Screwdriver Set	45
D-61	Micro Screwdriver	43
D-62	Micro Screwdriver	43
D-63-P	Stubby Screwdriver	45
D-65-P	Stubby Screwdriver	45
D-74-L	Voltage Checker	43
D-76	Screwdriver Set	45
D-81	Reversible Stubby Screwdriver	45
D-130-75	Phillips Screwdriver	46
D-140-100	Phillips Screwdriver	46
D-150-100	Phillips Screwdriver	46
D-155-100	Phillips Screwdriver	46
DISCON. D-155-150	Phillips Screwdriver	46
D-155-300	Phillips Screwdriver	46
D-230-75	Slotted Screwdriver	46
D-230-100	Slotted Screwdriver	46
D-240-100	Slotted Screwdriver	46
D-250-100	Slotted Screwdriver	46
D-255-100	Slotted Screwdriver	46
D-271	Ceramic Alignment Tool	42
D-272	Ceramic Alignment Tool	42
D-275	Ceramic Alignment Tool	42
D-280	Ceramic Alignment Tool	42
D-281	Ceramic Alignment Tool	42
D-282	Ceramic Tip	42
D-283	Ceramic Tip	42
D-284	Ceramic Tip	42

D-285	Ceramic Tip	42
D-300-00	Phillips Screwdriver	40
D-300-0	Phillips Screwdriver	40
D-302-1	Phillips Screwdriver	40
D-303-2	Phillips Screwdriver	40
D-309-2	Phillips Screwdriver	40
D-331-100	Electrician's Slotted Screwdriver	44
D-331-150	Electrician's Slotted Screwdriver	44
D-332-100	Electrician's Phillips Screwdriver	44
D-332-150	Electrician's Phillips Screwdriver	44
D-400-18	Slotted Screwdriver	40
D-400-25	Slotted Screwdriver	40
D-402-4	Slotted Screwdriver	40
D-403-53	Slotted Screwdriver	40
D-500-5	Torx Screwdriver	40
D-500-6	Torx Screwdriver	40
D-502-8	Torx Screwdriver	40
D-502-10	Torx Screwdriver	40
D-503-15	Torx Screwdriver	40
D-503-20	Torx Screwdriver	40
D-503-25	Torx Screwdriver	40
D-583-100	Slotted Screwdriver	44
D-583-300	Slotted Screwdriver	44
D-587-100	Phillips Screwdriver	44
D-587-300	Phillips Screwdriver	44
D-600-089	Hex Screwdriver	40
D-600-127	Hex Screwdriver	40
D-600-15	Hex Screwdriver	40
D-602-2	Hex Screwdriver	40
D-602-25	Hex Screwdriver	40
D-603-3	Hex Screwdriver	40
D-603-4	Hex Screwdriver	40
D-850-4	Nut Driver	50
D-850-5	Nut Driver	50
D-850-5.5	Nut Driver	50
D-850-7	Nut Driver	50
D-850-8	Nut Driver	50
D-850-10	Nut Driver	50
D-963	Impact Screwdriver	44

DS

DS-017	Desoldering Pump	118
--------	------------------	-----

DT

DT-105-1	Tester Probe	125
DT-106	Multimeter	125
DT-106-TA	Multimeter	125
DT-112	SMD Probe	125
DT-113-1	Tester Probe	124
DT-117	Digital Multimeter	124
DT-117-TA	Digital Multimeter	124
DT-121	Digital Multimeter	125
DT-121-TA	Digital Multimeter	125
DT-510	Digital Thermometer	123
DT-510-TA	Digital Thermometer	123
DT-510A	Sensor Probe	123
DISCON. DT-510B	Thermocouple	123
DT-510C	Sensor Probe	123

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Part No. index ▶ DT to H

DISCON. ... The items (products) will be / have been discontinued depending on its stock status.

Cutters & Pliers	DT-510E	Thermocouple	123	F-160	Extension Cord	153			
	DT-510Z	Carrying Case	123	F-702	ESD Rubber Mat	145			
Wire strippers	DT-570	Soldering Iron Checker	122	F-703	ESD Rubber Mat	145			
	DT-570-TA	Soldering Iron Checker	122	F-705	ESD Rubber Mat	145			
Crimpers	F					F-712	ESD Rubber Mat	145	
						F-713	ESD Rubber Mat	145	
Tweezers	F-6	Wrist Strap Tester	121 / 151	F-715	ESD Rubber Mat	145	F-730	ESD Floor Mat	143
	F-6-TA	Wrist Strap Tester	121 / 151	F-735	ESD Cushion Mat	143	F-736	ESD Cushion Mat	143
Screwdrivers & Wrenches	F-7	ESD Foam	148	F-736	ESD Cushion Mat	143	F-806	ESD Parts Box	149
	F-9	ESD Foam	148	F-807	ESD Parts Box	149	F-840	ESD Floor Mat	144
Metal working	F-9-L	ESD Foam	148	F-840	ESD Floor Mat	144	F-841-A	ESD Floor Mat	144
	F-10-A	ESD Foam	148	F-841-A	ESD Floor Mat	144	F-841-B	ESD Floor Mat	144
Parts boxes	F-10-B	ESD Foam	148	F-841-B	ESD Floor Mat	144	F-843-A	ESD Floor Mat	144
	F-10-L	ESD Foam	148	F-843-A	ESD Floor Mat	144	F-843-B	ESD Floor Mat	144
Tool cases	F-14	ESD Tray	147						
	F-15-A	ESD Bag	148						
Tool kits	F-15-B	ESD Bag	148						
	F-15-C	ESD Bag	148						
Soldering irons & Solder	F-21	ESD Kitting Tray	147						
	F-22	ESD Kitting Tray	147						
Parts & Solder removal equipment	F-23	ESD Kitting Tray	147						
	DISCON F-26	ESD PCB Rack	147						
Measuring instruments	F-27	Ground Cord	144						
	F-28	Ground Plate	144						
Optical equipment	F-29	Ground Cord	144						
	F-29-1	Stud	144						
Antistatic products	F-29-2	Punch Kit	144						
	F-32	ESD PCB Rack	146						
Clean products	F-33	ESD PCB Rack	146						
	F-36	ESD PCB Rack	146						
Chemical products	F-37	ESD PCB Rack	146						
	F-50	Wrist Strap	153						
Maintenance & Safety products	F-51	Wrist Strap	153						
	F-54-A	ESD Bag	148						
	F-54-AA	ESD Bag	148						
	F-54-B	ESD Bag	148						
	F-54-C	ESD Bag	148						
	F-55-A	ESD Bag	148						
	F-55-B	ESD Bag	148						
	F-55-C	ESD Bag	148						
	F-60	ESD Brush	158						
	F-61-L	ESD Gloves	153 / 158						
	F-61-M	ESD Gloves	153 / 158						
	F-78	ESD Rubber Mat	145						
	F-79	ESD Rubber Mat	145						
	F-84-1	Attachment Nut	155						
	F-84-2	Pipe Holder	155						
	F-85	Ionizing Air Gun	156						
	F-85-1	Flat Nozzle	155 / 156						
	F-85-2	Straight Nozzle	156						
	F-86	Ionizer W / Flexible Arm	157						
	DISCON F-87	Bench Top Ionizer	157						
	F-90	Bench Top Ionizer	155						
	F-91	Bench Top Ionizer	155						
	F-152	Wrist Strap	152						
	F-152-2	Wrist Strap	152						
	F-153	Wrist Strap	152						
	F-153-2	Wrist Strap	152						
	F-155	Wrist Strap	152						

H		
H-5	Power Controller	108
H-6	Soldering Iron Stand	107
H-8	Tip Cleaning Tray	107
H-10	Soldering Iron Stand	108
H-11	Soldering Iron Stand	107
H-11-1	Tip Cleaner	107
H-17	Power Controller	108
H-42-3703	Solder	111
H-42-3705	Solder	111
H-42-3707	Solder	111
H-42-3717	Solder	111
H-42-3719	Solder	111
H-42-3720	Solder	111
H-42-3723	Solder	111
H-42-3725	Solder	111
H-73	Heat Sink	108
DISCON H-91	PCB Holder	108
H-106	Iron Holder	107
H-108	Tip Cleaner	107
H-109	Tip Cleaner	107
H-110	Soldering Iron	104
H-110-1	Heater Cover	104
H-110-2	Tip Ferrule	104
H-110-3	Ceramic Tube	104
H-110-4	Stop	104
H-111	Soldering Tip	104
H-112	Soldering Tip	104
H-115	Heater	104
H-130	Soldering Iron	104
H-131	Soldering Tip	104
H-132	Soldering Tip	104
H-133	Soldering Tip	104
H-134	Soldering Tip	104
H-250	Soldering Iron with Cap	105
H-251	Heater	105
H-254	Soldering Tip	105
H-510	Soldering Iron with Cap	105
H-543	Soldering Tip	105
H-546	Heater	105
H-600	Soldering Iron with Booster	105

H-601	Heater	105
H-602	Soldering Tip	105
H-700	Solder	111
DISCON. H-702	Solder	111
H-710	Solder for Stainless Steel	111
H-711	Solder	111
H-712	Solder	111
H-714	Solder	111
H-716	Solder	111
H-722	Flux	111
H-722-500	Flux	111
H-728	Flux	111
H-740	Solder Aid Tool Kit	109
H-740-1	Hook and Reamer	109
H-740-2	Knife and Scraper	109
H-740-3	Brush and Fork	109
H-763	Sensor	121
H-767	Soldering Iron Thermometer	121
H-767-TA	Soldering Iron Thermometer	121
H-768	Sensor	121
H-821	Heater	106
H-824	Soldering Tip	106
H-829	Soldering Iron	106
H-831	Heater	106
H-834	Soldering Tip	106
H-839	Soldering Iron	106
H-840S	Soldering Iron Kit	106
H-841	Heater	106
H-849	Soldering Iron	106
H-861	Heater	106
H-864	Soldering Tip	106
H-869	Soldering Iron	106
H-959	ESD Desoldering Pump	118
H-959-1	Nozzle	118

HC

HC-31	Demagnetizer	170
HC-33	Demagnetizer	170
HC-56	Desktop Demagnetizer	170

HG

HG-4	Cleaning Pin	109
-------------	--------------	-----

HS

HS-11	Soldering Iron	104
HS-11-4	Tip Holder	104
HS-11-5	Radiator	104
HS-32	3-2 Pin Adapter	103 / 113 / 114 / 117 / 156
DISCON. HS-35	Soldering Station	103
HS-35-2	Tip Ferrule	103
HS-35-3	Heater Cover	103
HS-35-6	Handle Cover	103
HS-35B03	Soldering Tip	103
HS-35B04	Soldering Tip	103
HS-35BC02	Soldering Tip	103
HS-35D01	Soldering Tip	103
HS-36	Soldering Station	102

HS-36-1	Hand Piece	102
HS-36-3	Hand Piece	102
HS-36B01	Soldering Tip	102
HS-36B02	Soldering Tip	102
HS-36BC01	Soldering Tip	102
HS-36BC02	Soldering Tip	102
HS-36K01	Soldering Tip	102
HS-36K02	Soldering Tip	102
DISCON. HS-50	Soldering Station	101
HS-50-1	Heater	101
HS-50-4	Tip Cleaner	101
HS-50B01	Soldering Tip	101
HS-50B02	Soldering Tip	101
HS-50B03	Soldering Tip	101
HS-50BC01	Soldering Tip	101
HS-50BC02	Soldering Tip	101
HS-50BC09	Soldering Tip	101
HS-50D01	Soldering Tip	101
HS-50D02	Soldering Tip	101
HS-50K01	Soldering Tip	101
HS-51	Soldering Station	100
HS-51-1	Tip Cleaner	100
HS-51B01	Soldering Tip	100
HS-51B02	Soldering Tip	100
HS-51B03	Soldering Tip	100
HS-51BC01	Soldering Tip	100
HS-51C01	Soldering Tip	100
HS-51C02	Soldering Tip	100
HS-51C03	Soldering Tip	100
HS-51D01	Soldering Tip	100
HS-51D03	Soldering Tip	100
HS-51K02	Soldering Tip	100
HS-113	Heater	104
HS-126	Heater	103
HS-201	Soldering Tip	104
HS-202	Soldering Tip	104
HS-203	Soldering Tip	104
HS-204	Soldering Tip	104
HS-205	Soldering Tip	104
HS-207	Soldering Tip	104
HS-271	Soldering Tip	103
HS-272	Soldering Tip	103
HS-273	Soldering Tip	103
HS-283	Soldering Tip	103
HS-290	Soldering Tip	102
HS-291	Soldering Tip	102
HS-292	Soldering Tip	102
HS-293	Soldering Tip	102
HS-294	Soldering Tip	102
HS-295	Soldering Tip	102
HS-301	Lead-Free Solder Series	110
HS-302	Lead-Free Solder Series	110
HS-304	Lead-Free Solder Series	110
HS-312	Lead-Free Solder Series	110
HS-313	Lead-Free Solder Series	110
HS-314	Lead-Free Solder Series	110
HS-316	Lead-Free Solder Series	110
HS-317	Lead-Free Solder Series	110
HS-341	Lead-Free Solder Series	110
HS-342	Lead-Free Solder Series	110

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Cutters & Pliers	HS-344	Lead-Free Solder Series	110	HS-814	Nozzle	116
	HS-352	Lead-Free Solder Series	110	HS-815	Nozzle	116
Wire strippers	HS-353	Lead-Free Solder Series	110	HS-816	Nozzle	116
	HS-354	Lead-Free Solder Series	110	HS-817	Nozzle	116
Crimpers	HS-361	Lead-Free Solder Series	110	HS-818	Nozzle	116
	HS-362	Lead-Free Solder Series	110	HS-820	Filter Cartridge Set	116
Tweezers	HS-363	Lead-Free Solder Series	110	HS-821	Filter Cartridge	116
	HS-371	Lead-Free Solder Series	110	HS-822	Pump Filter	116
	HS-372	Lead-Free Solder Series	110	HS-825	Paper Filter	116
Screwdrivers & Wrenches	HS-374	Lead-Free Solder Series	110	HS-826	Filter Gasket	116
	HS-380-1.5	Desolder Braid	119	HS-827	Nipple Gasket	116
Metal working	HS-380-2.0	Desolder Braid	119	HS-830	Maintenance Kit	116
	HS-380-2.5	Desolder Braid	119			
Parts boxes	HS-401	Hot Tweezers	113			
	HS-405	Heater Unit	113			
Tool cases	HS-406	Heater Unit	113	J-150	Blade Changing Wrench	40
	HS-407	Heater Unit	113	J-300-00	Replacement Blade	40
Tool kits	HS-408	SOP Attachment	113	J-300-0	Replacement Blade	40
	HS-419	Foot Switch	113	J-302-1	Replacement Blade	40
Soldering irons & Solder	HS-551	Nozzle	117	J-303-2	Replacement Blade	40
	HS-552	Nozzle	117	J-309-2	Replacement Blade	40
	HS-553	Nozzle	117	J-400-18	Replacement Blade	40
Parts & Solder removal equipment	HS-555	Heater	117	J-400-25	Replacement Blade	40
	HS-559	Hot Air Station	117	J-402-4	Replacement Blade	40
Measuring instruments	HS-603	Hot Air Station	114	J-403-53	Replacement Blade	40
	HS-605	Heater	114	J-500-5	Replacement Blade	40
Optical equipment	HS-611	Nozzle	115	J-500-6	Replacement Blade	40
	HS-612	Nozzle	115	J-502-8	Replacement Blade	40
	HS-613	Nozzle	115	J-502-10	Replacement Blade	40
Antistatic products	HS-614	Nozzle	115	J-503-15	Replacement Blade	40
	HS-615	Nozzle	115	J-503-20	Replacement Blade	40
Clean products	HS-616	Nozzle	115	J-503-25	Replacement Blade	40
	HS-617	Nozzle	115	J-600-089	Replacement Blade	40
Chemical products	HS-618	Nozzle	115	J-600-127	Replacement Blade	40
	HS-619	Nozzle	115	J-600-15	Replacement Blade	40
Maintenance & Safety products	HS-621	Nozzle	115	J-602-2	Replacement Blade	40
	HS-622	Nozzle	115	J-602-25	Replacement Blade	40
	HS-623	Nozzle	115	J-603-3	Replacement Blade	40
	HS-624	Nozzle	115	J-603-4	Replacement Blade	40
	HS-625	Nozzle	115			
	HS-626	Nozzle	115			
	HS-627	Nozzle	115			
	HS-628	Nozzle	115			
	HS-629	Nozzle	115			
	HS-631	Nozzle	115			
	HS-632	Nozzle	115			
	HS-634	Nozzle	115			
	HS-635	Nozzle	115			
	HS-642	Nozzle	115			
	HS-643	Nozzle	115			
	HS-644	Nozzle	115			
		HS-801	Desoldering Station	116		
	HS-801-36	Pipe Cleaning Rod	116			
	HS-801-39	Nozzle Cleaning Rod	116			
	HS-810	Heater Unit	116			
	HS-811	Nozzle	116			
	HS-812	Nozzle	116			
	HS-812Cu	Nozzle Set	116			
	HS-813	Nozzle	116			
	HS-813Cu	Nozzle Set	116			

J		
	</	

K-100	Band Saw	57
K-100-1	Replacement Blade	57
K-100-2	Replacement Blade	57
K-100-3	Replacement Blade	57
K-100-4	Replacement Blade	57
K-100-18	Belt	57
K-105	Cooling Unit	57
K-107-1	Cutter Tip	53
K-107-2	Cutter Tip	53
K-107-3	Cutter Tip	53
K-107-4	Cutter Tip	53
K-108	Hand Grinder	53
K-110	Circular Saw	56
K-110-1	Disk Cutter	56
K-110-2	Disk Cutter	56
K-110-18	Belt	56
K-126	Replacement Blade	59
K-129S	Hacksaw	59
K-130	Sheet Metal Bender	57
K-140	Polishing Pad	59
K-141	Polishing Pad	59
K-142	Polishing Pad	59
K-150	File Set	60
K-155-L	File Set	61
K-155-S	File Set	61
K-160	File	61
K-161	File	61
K-162	File	61
K-163	File	61
K-164	File	61
K-170	File	61
K-171	File	61
K-172	File	61
K-173	File	61
K-174	File	61
K-180	Diamond File	61
K-181	Diamond File	61
K-182	Diamond File	61
K-183	Diamond File	61
K-184	Diamond File	61
K-203	Pipe Cutter	59
K-203-1	Replacement Blade	59
K-203-11	Replacement Blade	59
K-210	Circular Saw	56
K-210-1	Disk Cutter	56
K-210-2	Disk Cutter	56
K-210-3	Disk Cutter	56
K-215	File Set	61
K-216	File Set	61
K-280	Milling Machine	53
K-280-3	Milling Cutter	53
K-280-4	Milling Cutter	53
K-280-5	Milling Cutter	53
K-280-6	Milling Cutter	53
K-431	Tap Set	58
K-437-2	Tap	58
K-437-3	Tap	58
K-437-4	Tap	58
K-437-5	Tap	58
K-437-6	Tap	58

K-437A	Tap Handle	58
K-438A	Tap Handle	58
K-441	Taper Reamer	58
K-442	Taper Reamer	58
K-443	Taper Reamer	58
K-444	Taper Reamer	58
K-493	Drill Bit Set	55
K-494	Drill Bit Set	55
K-495	Drill Bit Set	55
K-501	Pin Vise	55
K-502	Pin Vise	55
DISCON. K-881	Replacement Blade	58

L

L-46	Stereo Microscope	128
L-50	Stereo Microscope	126
L-57-0.5	Conversion Lens	127 / 129
L-57-1.5	Conversion Lens	127 / 129
L-57-2.0	Conversion Lens	127 / 129
L-62	Cold Light Source	138
L-62-1	Bulb	138
L-63-A	Light Guide	138
L-63-B	Light Guide	138
L-63-C	Light Guide	138
L-65	Ring Light	138
L-65-1	Bulb	138
L-65-3	Bulb	138
L-69	Eyepiece with Scale	127
L-95-9	Folding Magnifier	140
L-95-10	Folding Magnifier	140
L-97-1	Bulb	140
L-97-5	Illuminated Magnifier	140
L-97-10	Illuminated Magnifier	140
L-98	Slide-Out Magnifier	140
L-424	Long Type Arm	129
L-461	Stereo Head Scope	129
L-462	Standard Table	129
L-501	Stereo Head Scope	127
L-509	Stereo Head Holder	127
L-511	Eyepiece	127
L-512	Eyepiece	127
L-513	Eyepiece	127
L-521	Standard Table	127
L-522	Flexible Arm	127
L-523	Long Type Arm	127
L-525	Large Table	127 / 129
L-527	XY-Stage	126
L-546-10	Eyepiece	129
L-546-20	Eyepiece	129
L-677	Illuminated Magnifier	139
L-700-2	Clamp	136
L-701	LED Flex Neck Light	136
L-705	LED Flex Neck Light	136
L-710	LED Ring Light	137
L-710-2	Filter	137
L-710-3	Filter	137
L-800-4	Camera Lens	130
L-801	CCD Camera	130
L-801-1	CCD Camera	130

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Cutters & Pliers	L-801-2	Lens Unit	130 / 133	P-14-1	Coil Spring	16
	L-804	Micro-Drive Head Holder	131	P-14-125	Long Nose Pliers with Side Cutter	16
Wire strippers	L-808	Flexible Arm	131	P-14-150	Long Nose Pliers with Side Cutter	16
	L-809	Camera Platform with Slider	131	P-15-125	Long Nose Pliers with Side Cutter	16
Crimpers	L-811	Extension Ring	130 / 133	P-15-150	Long Nose Pliers with Side Cutter	16
	L-812	Extension Ring	130 / 133	P-16	Flat Nose Pliers	16
Tweezers	L-813	Diaphragm Set	130 / 133	P-22	Long Nose Pliers with Side Cutter	16
	L-814	Zoom Lens	134	P-34	Miniature Flat Nose Pliers	15
Screwdrivers & Wrenches	L-814-1	LED Ring Light	134	P-35	Miniature Long Nose Pliers	14
	L-830	USB Camera	132	P-36	Miniature Long Nose Pliers	14
Metal working	L-830-1	Adapter Kit	133	P-36-1	Coil Spring	14
	L-830-2	Adapter Kit	133	P-37	Miniature Long Nose Pliers	15
Parts boxes	L-831	USB Camera	132	P-37-1	Coil Spring	14
	LS			P-39	Miniature Round Nose Pliers	15
Tool cases	LS-197	Nozzle	118	P-43-150	Lineman's Pliers	17
	N			P-43-175	Lineman's Pliers	17
Tool kits	N-4-125	Diagonal Cutter	12	P-51	Precision Pliers	9
	N-4-150	Diagonal Cutter	12	P-57-175	Lineman's Pliers	17
Soldering irons & Solder	N-5-125	Diagonal Cutter with Stripper	12	P-57-200	Lineman's Pliers	17
	N-5-150	Diagonal Cutter with Stripper	12	P-69	Reverse Action Tweezers	33
Parts & Solder removal equipment	N-9-125	Diagonal Cutter with Stripper	12	P-75	Crimping Tool	23
	N-9-150	Diagonal Cutter with Stripper	12	P-77	Crimping Tool	25
Measuring instruments	N-12	Diagonal Cutter	12	P-77-6	Spring	23 / 25
	N-16	Wire Cutter	13	P-86-125	Tweezers	31
Optical equipment	N-18	Cable Cutter	13	P-86-150	Tweezers	31
	N-21	Plastic Cutters	11	P-86-175	Tweezers	31
Antistatic products	N-21-1	Coil Spring	10 / 16	P-87	Tweezers	31
	N-23	Diagonal Cutter	12	P-88	Tweezers	30
Clean products	N-23-1	Coil Spring	12	P-89	Reverse Action Tweezers	33
	N-31	Miniature Diagonal Cutter	10	P-90-A	Wire Stripper	20
Chemical products	N-31-1	Coil Spring	10 / 14	P-90-B	Wire Stripper	20
	N-32	Miniature Diagonal Cutter	11	P-90-C	Wire Stripper	20
Maintenance & Safety products	N-32-1	Coil Spring	10	P-90-F	Wire Stripper	20
	N-33	Miniature End Cutter	11	P-97	Motor Drive Wire Stripper	20
	N-34	Miniature Diagonal Cutter	10	P-211Z-150	Slip Joint Pliers	17
	N-35	Miniature Diagonal Cutter	11	P-211Z-200	Slip Joint Pliers	17
	N-36	Miniature End Cutter	11	P-214	Nut Pliers	17
	N-55	Precision Diagonal Cutter	9	P-220	Chain Pliers	17
	N-57	Precision Diagonal Cutter	9	P-244	Water Pump Pliers	17
	N-58	Precision Diagonal Cutter	9	P-245	Water Pump Pliers	17
	N-838	Snips	13	P-704	Crimping Tool	24
	N-839	Snips	13	P-706	Crimping Tool	26
	N-840	Snips	13	P-707	Crimping Tool	26
	N-993	Cutting Tweezers	11	P-710	Modular Plug Crimper	27
	No.			P-710-1	Replacement Blade Set	27
	No.3734	Desolder Braid	119	P-711	Modular Plug Crimper	27
	No.3736	Desolder Braid	119	P-715	Crimping Tool	25
	No.3737	Desolder Braid	119	P-722	Crimping Tool	23
	No.3738	Desolder Braid	119	P-732	Crimping Tool	23
	No.3739	Desolder Braid	119	P-732-6	Spring	23
	P			P-736	Crimping Tool	24
	P-12	Bent Nose Pliers	16	P-737	Crimping Tool	25
				P-740	Crimping Tool	27
				P-741	Crimping Tool	27
				P-743	Crimping Tool	24
				DISCON. P-790	Ring Pliers	38
				P-801	Spring Hook	38
				P-806	Bamboo Probe	37 / 109
				P-807	Stainless Probe	38 / 109
				P-808	Stainless Probe	38 / 109

P-809	Stainless Probe	38 / 109
P-810	SMD Tweezers Set	32
P-812	Spring Hook	38
P-814-H	Heat-Resistant Tip Tweezers	35
P-814H-1	Tweezers Tip	35
P-814-S	ESD Tip Tweezers	35
P-814S-1	Tweezers Tip	35
P-815-0	Set Screw	35
P-815-H	Heat-Resistant Tip Tweezers	35
P-815H-1	Tweezers Tip	35
P-815-R	Tip Tweezers	35
P-815R-1	Tweezers Tip	35
P-815-S	ESD Tip Tweezers	35
P-815S-1	Tweezers Tip	35
P-816-R	Tip Tweezers	35
P-816R-1	Tweezers Tip	35
P-816-S	ESD Tip Tweezers	35
P-816S-1	Tweezers Tip	35
P-830	Vacuum Pick-Up Tool	37
P-830-1	Cup Set	37
P-831	ESD Vacuum Pick-Up Tool	37
P-832-L	Cup	37
P-832-M	Cup	37
P-832-S	Cup	37
P-843	Forceps	38
P-845	ESD Cushion Grip	31
P-850	Fully Non Magnetic Tweezers	30
P-851	Fully Non Magnetic Tweezers	30
P-852	Fully Non Magnetic Tweezers	30
P-855-C	Ceramic Tweezers	36
P-855C-1	Tweezers Tip	36
P-860-125	Bamboo Tweezers	37
P-860-150	Bamboo Tweezers	37
P-863-150	ESD Bamboo Tweezers	37
P-872	Tweezers	32
P-876	Tweezers	31
P-878	Tweezers	32
P-880-T	Titanium Tweezers	36
P-881	Tweezers	30
P-881-ESD	ESD Cushion Grip Tweezers	31
P-881P	Tweezers	159
P-882	Curved Tweezers	30
P-882P	Tweezers	159
P-886	Tweezers	30
P-887	Curved Tweezers	29
P-888	Tweezers	32
P-890	Ceramic Tweezers	36
P-891	Tweezers	29
P-891-ESD	ESD Cushion Grip Tweezers	31
P-891P	Tweezers	159
P-892	Tweezers	29
P-893	Phosphor-Bronze Tweezers	36
P-894	Tweezers	29
P-894-T	Titanium Tweezers	36
P-895	Tweezers	29
P-898	Tweezers	29
P-899	Tweezers	29
P-910	Replacement Blade	20
P-911	Replacement Blade	20
P-912	Replacement Blade	20

P-915	Replacement Blade	20
P-918	Wire Stop	20
P-927	Cutter Plate	20
P-928	Replacement Blade	20
P-956	Wire Stripper	21
P-960	Wire Stripper	19
P-960-1	Spring	19
P-963	Wire Stripper	19
P-967	Wire Stripper	19
P-968	Wire Stripper	19

PT

PT-109	Desoldering Pump	118
PT-409	ESD Desoldering Pump	118

S

S-1	Tool Kit	95
S-3	Tool Kit	95
S-7	Tool Kit	93
S-10	Tool Kit	93
S-17	Tool Kit	96
S-19	Tool Kit	96
S-22	Tool Kit	94
S-30	Tool Kit	93
S-33	Tool Kit	95
S-34	Tool Kit	94
S-35	Tool Kit	94
S-37	Tool Kit	92
S-45	Tool Kit	92
S-48	Tool Kit	92
S-50	Tool Kit	91
S-51	Tool Kit	90
S-53	Tool Kit	90
S-55	Tool Kit	91
S-60-B	Tool Kit	89
S-75	Tool Kit	88
S-76	Tool Kit	88
DISCON. S-79	Tool Kit	89
S-80	Tool Kit	87
S-81	Tool Kit	87
S-101	Tool Case	95
S-103	Tool Case	95
S-107	Tool Bag	74 / 93
S-110	Tool Case	93
S-122	Tool Case	94
S-130	Tool Case	93
S-134	Tool Case	94
S-135	Tool Case	94
S-137	Tool Bag	74 / 92
S-145	Tool Bag	74 / 92
S-145-6	Shoulder Belt	70
S-175	Tool Case	72 / 88
S-175-4	Tool Pallet A	72
S-175-5	Tool Pallet B	72
S-176	Tool Case	72 / 88
S-176-2	Tool Pallet A	72
S-176-3	Tool Pallet B	72
DISCON. S-179	Tool Case	73 / 89

Cutters & Pliers

Wire strippers

Crimpers

Tweezers

Screwdrivers & Wrenches

Metal working

Parts boxes

Tool cases

Tool kits

Soldering irons & Solder

Parts & Solder removal equipment

Measuring instruments

Optical equipment

Antistatic products

Clean products

Chemical products

Maintenance & Safety products

Cutters & Pliers
Wire strippers
Crimpers
Tweezers
Screwdrivers & Wrenches
Metal working
Parts boxes
Tool cases
Tool kits
Soldering irons & Solder
Parts & Solder removal equipment
Measuring instruments
Optical equipment
Antistatic products
Clean products
Chemical products
Maintenance & Safety products

DISCON. S-186-4	Tool Pallet A	73
DISCON. S-186-5	Tool Pallet B	73
S-210	Tools	84
S-220	Tools	84
S-230	Tools	85
S-240	Tools	85

SG		
SG-106	Sand Blaster	62
SG-106-1	Suction Hose	62
SG-106-2	Suction Pipe	62
SG-106-3	Exhaust Filter	62
SG-106-9	Bottle for Abrasive	62
SG-112	Foot Valve	62
SG-115	Rubber Gloves	62
SG-116	Abrasive	62
SG-117	Air Filter	62
SG-118	Nozzle Set	62
SG-118-60	Abrasive	62
SG-118-80	Abrasive	62
SG-118-100	Abrasive	62
SG-118-120	Abrasive	62
SG-118-150	Abrasive	62
SG-118-180	Abrasive	62
SG-118-220	Abrasive	62
SG-119	Ejector	62
SG-120	Blaster Gun	62
SG-120-1	Air Valve	62

SRT		
SRT-12	Nozzle	118

US		
US-140	Desoldering Pump	118

W		
W-27	Box Wrench Set	47
W-27-0809	Box Wrench	47
W-27-1011	Box Wrench	47
W-27-1214	Box Wrench	47
W-76	Flat Wrench Set	51
W-81	Hex Lobular Wrench Set	50
W-82	Torx Wrench Set	50
W-82-6	Torx Wrench	50
W-82-8	Torx Wrench	50
W-82-10	Torx Wrench	50
W-82-15	Torx Wrench	50
W-82-20	Torx Wrench	50
W-82-25	Torx Wrench	50
W-91	Hex Wrench Set	49
W-96	Hex Wrench Set	49
W-98	Hex Wrench Set	49
W-99	Hex Wrench Set	49
W-110	Ballpoint L-Wrench Set	49
W-110-1.5	Ballpoint L-Wrench	49
W-110-2	Ballpoint L-Wrench	49

W-110-2.5	Ballpoint L-Wrench	49
W-110-3	Ballpoint L-Wrench	49
W-110-4	Ballpoint L-Wrench	49
W-110-5	Ballpoint L-Wrench	49
W-110-6	Ballpoint L-Wrench	49
W-210-150	Adjustable Wrench	51
W-210-200	Adjustable Wrench	51
W-210-250	Adjustable Wrench	51
W-510	Socket Wrench Set	48
W-511	Socket Wrench Set	48
W-512	Socket Wrench Set	48
W-520	Combination Wrench Set	51
W-521	Open End Wrench Set	51

Z		
Z-64	Precision Oiler	166
Z-76	Liquid Dispenser	164
Z-101	Utility Cart	166
Z-201	Static Locator	121 / 158
Z-201-TA	Static Locator	121 / 158
Z-261	Rubber Blower with Extension Nozzle	162
Z-262	Rubber Blower	162
Z-263	Rubber Blower with Compressor	162
Z-272	PCB Conditioner	165
Z-281	Freezer	164
Z-282	134a Duster	163
Z-283	134a Duster	163
Z-285	Freezer	164
Z-287	152a Duster	163
Z-288	DME + CO ₂ Duster	163
Z-292	Antistatic Cleaner	165
Z-293	Flux Remover	164
Z-294	Cleaner / Degreaser	164
Z-295	Contact Spray	165
Z-296	Conditioner	165
Z-301	LED Flashlight	167
Z-306	Clip Light	167
Z-333	Head Strap	167
DISCON. Z-334	Flashlight	167
Z-334-1	Bulb	167
Z-340	Level Gauge	166
Z-341	Measure Tape	166
Z-350	Inspection Mirror	139
Z-354	Ball Joint Mirror	139
Z-355	Stainless Mirror	139
Z-364	Magnetic Pickup Tool	38
Z-390	Air Dust Gun	166
Z-391	Air Hose Coupler	166
Z-392	Air Hose Joint	166
Z-634	Safety Glasses	166
Z-637	Safety Glasses	166
Z-682	Electrician's Knife	21
Z-902	Shielding Booth	168
Z-902-1	Tent for Shielding Booth	168

HOZAN HOZAN TOOL INDUSTRIAL CO.,LTD.
1-2-12 Saiwaicho, Naniwa-ku, Osaka 556-0021, Japan

TEL : +81-6-6567-3111

FAX : +81-6-6562-0024

E-mail : info@hozan.co.jp

<http://www.hozan.co.jp/E/>

Specification and appearance of products listed in this catalog
are subject to change without notice.
All information in this catalog is as of January 1, 2011.

