

# ENGINEER PROFESSIONAL TOOL CATALOG

## **SD, SH, SK, SL, SS, ST, SW**

MICROSCOPE, MAGNIFYING LOUPE, SOLDERING IRON, SOLDER, INSPECTION MIRROR, MULTIMETER, PCB TOOL, ETC.

## **DA, DB, DG, DH, DJ, DK, DN, DP, DR, DS, DT, DZ**

CERAMIC ALIGNMENT DRIVER, SCREWDRIVER, RATCHET DRIVER, PRECISION DRIVER, DRIVER SET, CIRCUIT TESTING DRIVER, ETC.

## **NK, NN, NP, NS, NZ, PA, PC, PD, PH, PL, PM, PR, PS, PT, PW, PZ**

NIPPERS, SCREW REMOVAL PLIERS, WIRE STRIPPER, CRIMPING PLIERS, COMBINATION PLIERS, LOCK HOLDER, SCISSORS, TWEEZERS, ETC.

## **TD, TF, TH, TM, TN, TP, TR, TS, TT, TV, TW, TZ**

DRILL, FILE, HAMMER, SAW, PIN VISE, PICK-UP TOOL, SPANNER, TAPER REAMER, VISE, WRENCH, SOCKET WRENCH SET, ETC.

## **ZC**

STATIC CONDUCTIVE BAG, CONDUCTIVE FOAM, ESD RUBBER MAT, WRIST STRAP, FLUX, GLOVES, CLEANER, CHEMICAL, ETC.

## **KA, KAC, KD, KDE, KP, KS, KSC, KSE**

ATTACHE CASE, CLEANROOM CASE, PANEL KIT, TOOL PANEL, PARTS CASE, IC STORAGE BOX, TOOL KIT, TOOL CASE, ETC.

Service

# S



P6~19

Driver

# D



P20~31

Nippers Pliers

# N.P



P32~53

Steel

# T



P54~59

Others

# Z



P60~63

Kits

# K



P64~74



# ULTIMATE BITE!!

# SCREW REMOVAL PLIERS **RX**

**NEW**  
**PZ-59**  
MADE IN JAPAN

Super-advanced Combination Pliers  
with Unique Screw Removal Jaws

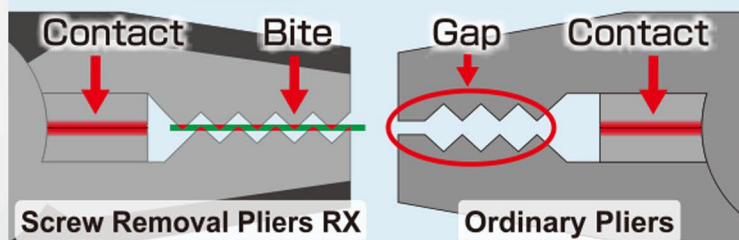


GOOD DESIGN  
AWARD 2014

**International Patents**  
USA [PAT.6923097] [PAT.8656812B2]  
JAPAN [PAT.3486776] [PAT.4471315]  
[PAT.5726365]  
TAIWAN [PAT.178742] [PAT.363675]  
KOREA [PAT.919966]  
CHINA [PAT.201080014706.3]



### Inter-meshed side teeth

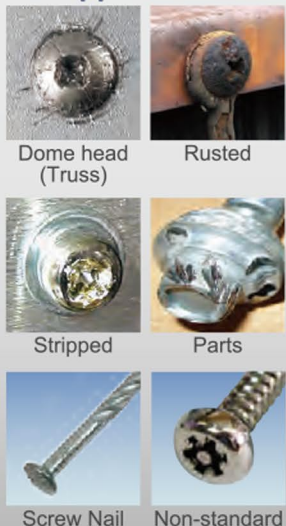


**Screw Removal Pliers RX**  
The cutting blades fully meet and every peak of serrated teeth can bite.

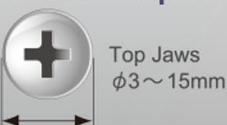
**Ordinary Pliers**  
Designed to have a tiny gap at the top to ensure the cutting blades fully meet.

Designed to have 'crests' & 'troughs' inter-meshed with each other even to hold an extremely-thin plate securely **PATENT.P**

### Applications



### Screw Adapted



### Ultimate bite on screw head



Unique jaws with vertical serrations to grip a screw head without slippage

**PATENT**

### Durable comfort grips



Owing to T-shaped forging handles, the handle sleeve will not twist or slip off.

Model	Size	Hardness	Cutting Capa.	Material	Weight
PZ-59	204mm	HRC60±2	φ3.2mm (Steel wire)	Carbon Steel	300g

Manufacturer  
**ENGINEER INC.**

2-8-9 Higashi-Imazato, Higashinari-ku  
Osaka 537-0011, Japan  
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**URL** <http://www.engineer.jp>





# SCREW REMOVAL PLIERS **GT** PZ-58

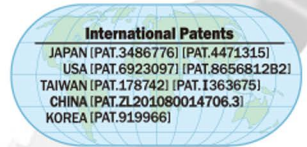
GRIP-A-TRUSS

**ENGINEER®**  
MADE IN JAPAN

## Multi-purpose Extraction Tool for Stubborn Fasteners



Unique jaws with both vertical and horizontal serrations grip a screw head securely without slipping, helpful in confined areas



### Applications



Dome head (Truss)

Rusted



Stripped

Parts



Screw Nail

Non-standard

### T-shaped handle




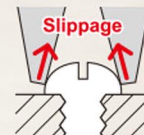

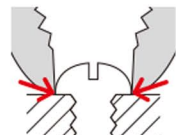
### Screw Adapted



Top Jaws  $\phi 3 \sim 9.5\text{mm}$

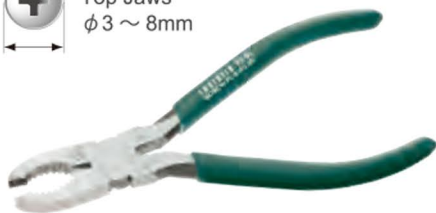
### Q. How do Screw Removal Pliers work?

A. Both vertical and horizontal serrations grasp a screw head with no slip.

Ordinary Pliers		Vertical serrations	Maximizes the friction
			
Ordinary plier jaws are lined with horizontal serrations. When you grasp and turn a screw head with ordinary pliers, the jaws slip and the screw remains stuck.	The tips of jaws can not reach the outer edge of screw head when the jaws are opened.	Specially-designed teeth generate gripping power.	The serrated jaws angled inward grab the rim of screw head, so no slippage.

Model	Size	Hardness	Cutting Capa.	Material	Weight
PZ-58	160mm	HRC58 $\pm$ 2	$\phi 1.2\text{mm}$ (copper wire)	Carbon Steel	130g

### Basic Model **PZ-55**



Size	Material	Weight
150mm	Carbon Steel	125g

### Slip Joint Model **PZ-56**



Size	Material	Weight
175mm	CrV	187g

### ESD-safe Model **PZ-57**



Size	Material	Weight
120mm	Carbon Steel	100g

ENGINEER<sup>®</sup>

MADE IN JAPAN

1RoHS  
Compliant

NEW

# RAPID SCREW EXTRACTOR

DBZ-60G

2-in-1 Bit Set **PATENT.P**



High-torque handle grip



2nd Bit

Shock-absorbable  
rubber sleeve

## APPLICATIONS



Countersunk



Round Head



Dome Head

**No**  
Power  
Required



**No**  
Drilling  
Required

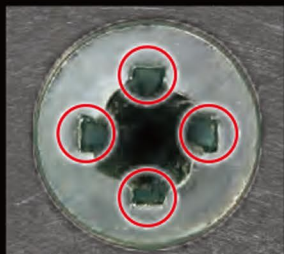


**No**  
Hammer  
Required



(1st Bit only)

**1st Bit - Press & Twist !!**



4 edges of the cross  
tip can firmly grip the  
remaining corners  
of Phillips recess.

**2nd Bit - Strike & Turn !!**



Sharp and durable  
blade can stick into  
the screw recess  
easily for secure grip.



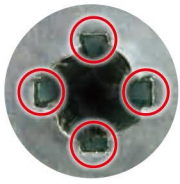
# Stripped Screw Removal – How to

## 1st Bit - Press & Twist!!



DBZ-51

Phillips screw #2



Slightly Damaged



Scrape away burs in the screw recess.



Give a jerk counterclockwise while pressing downward.

## 2nd Bit - Strike & Turn!!

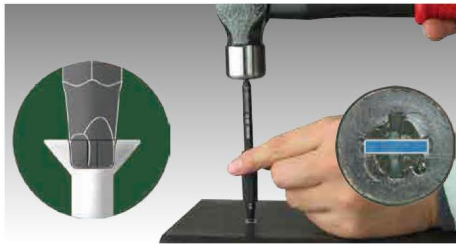
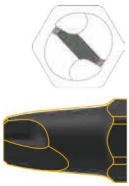


DBZ-52

Phillips screw #2

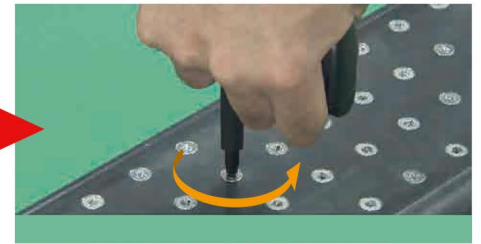


Heavily damaged or failure with the 1st Bit.



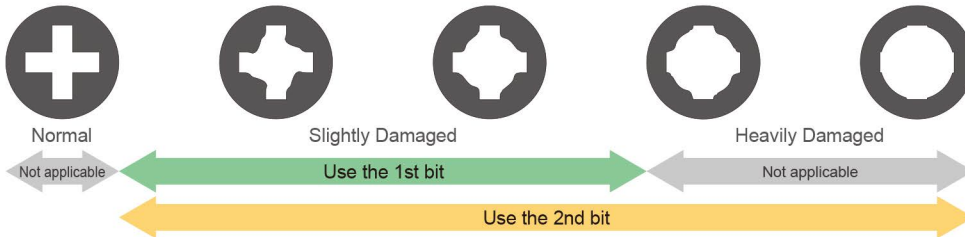
① Strike the end of the bit with a hammer to stick the blade into the recess.

② Then, affix the grip onto the bit.



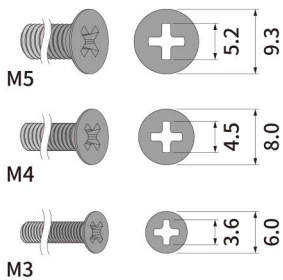
Give a jerk counterclockwise while pressing downward.

## Applications

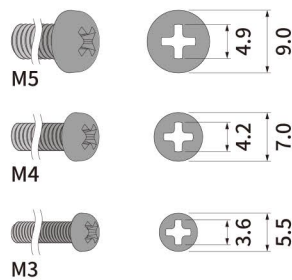


## Screw Size

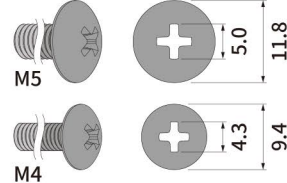
### Countersunk Screw



### Round Head Screw



### Dome Head Screw



DBZ-60G is applicable to Phillips screw #2



#### Material

- Bit : Carbon Steel
- Sleeve : Elastmer (TPR)
- Handle Grip : ABS, Nylon

#### Contents

- Bit (DBZ-51 & DBZ-52)
- Shock-absorbable rubber sleeve
- High-torque handle grip (W:100mm)



Product Page  
<http://goo.gl/nfQUvm>

#### Rapid Screw Extractor

Model	Weight
DBZ-60G	135g

#### Replacement Bit

Model	Screw Size	Length	Weight
DBZ-51	Phillips screw #2	105mm	27g
DBZ-52			

#### Optional Bit

Model	Screw Size	Length	Weight
DBZ-53	Hex socket screw (Across flats:2.5 & 3.0mm)	105mm	26g

#### Manufacturer

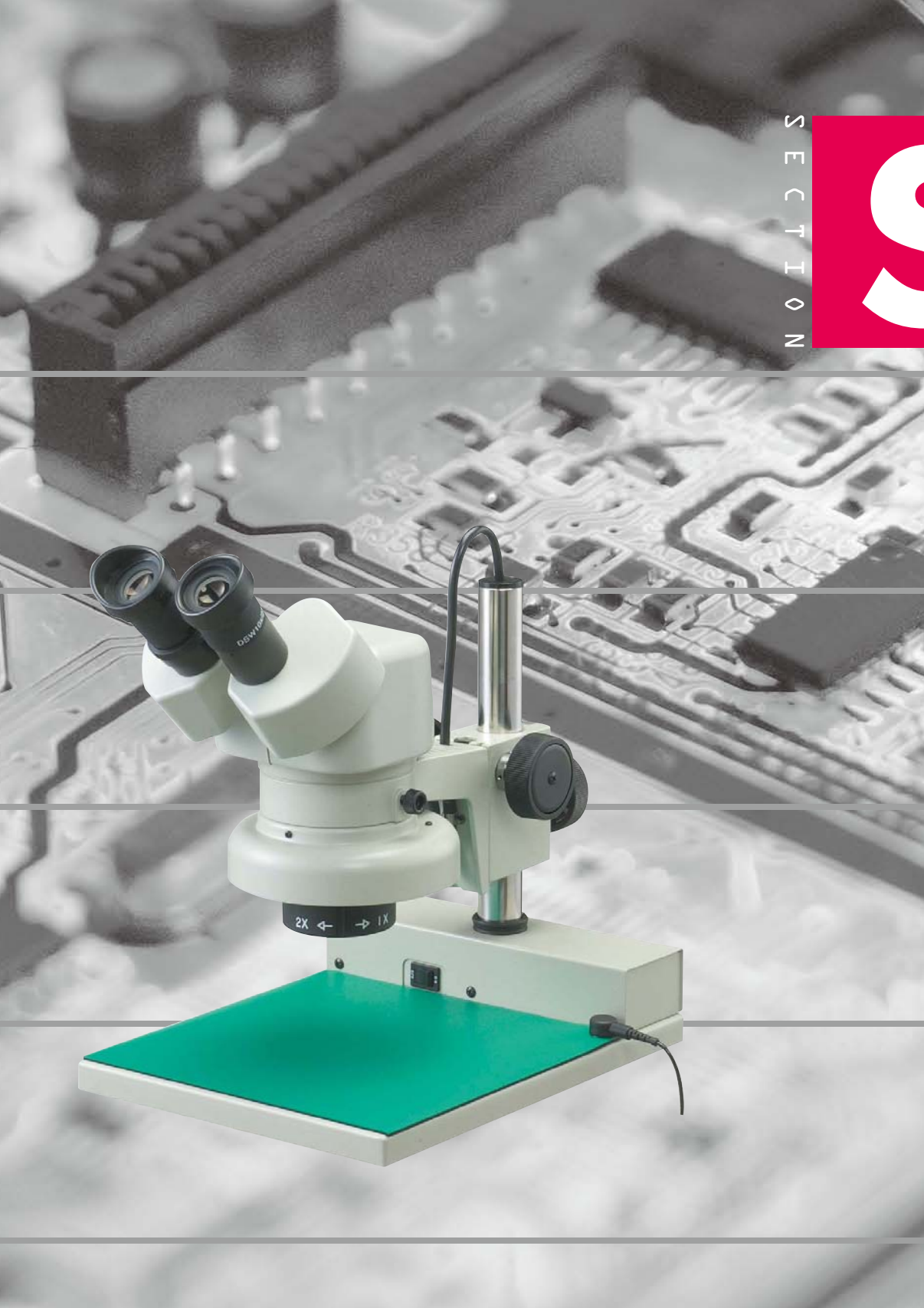
**ENGINEER INC.**

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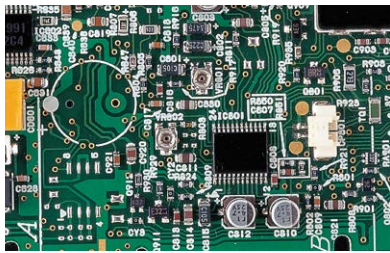
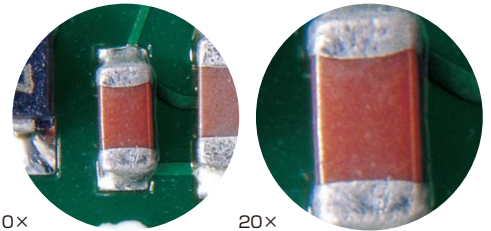


## SL-60

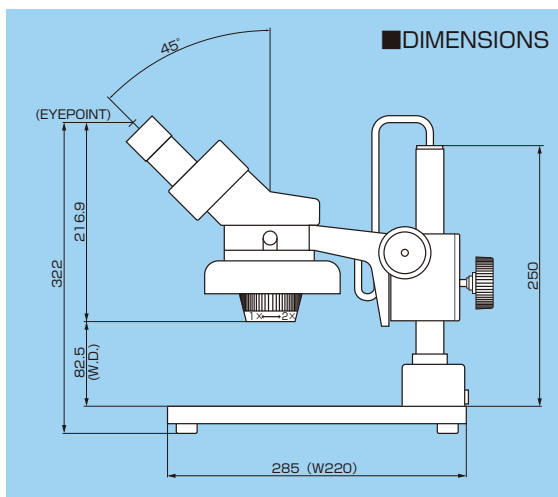
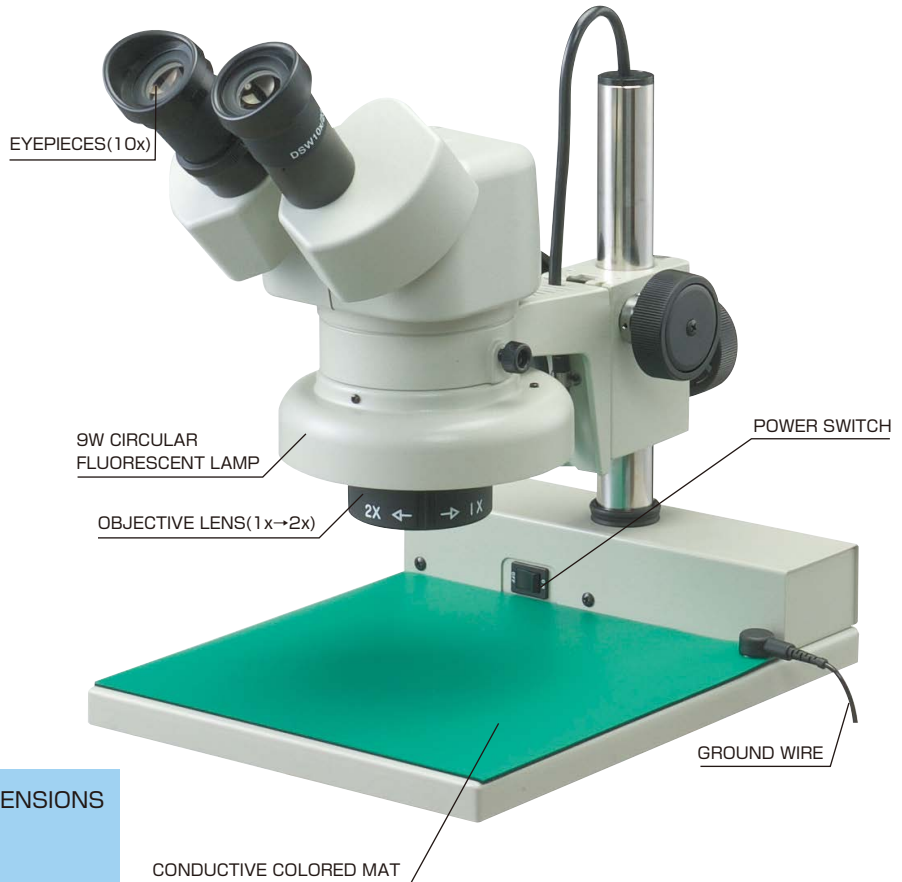
## STEREO MICROSCOPE

Well-functioned Stereo Microscope ideal for work on PC board.

- Very precise lens enables you to watch PCB, microscopic parts and the pattern clearly.
- 10x eyepieces and dual (1x, 2x) objective lens. 20x magnification max.
- Anti-fatigue and clear view by 9w fluorescent lamp
- Wide base stand for comfortable work
- Standard accessory of conductive mat with ground wire to prevent electronic parts from static electricity



ACTUAL SIZE



**SW-20X** Optional eyepiece of x20 magnification.

Replace both right and left eyepieces with one pair of SW20X. Model SL-60 features the magnification of x20/x40 switchable by means of SW20X.



## ■ Specifications

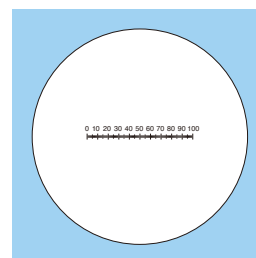
Magnification (Field of view)	10× (φ 23mm), 20× (φ 11.5mm)
Objective Lens	1× · 2×
Eyepieces (Field Number)	SW × 10 (23)
Body	45° ANGLE, 360° ROTARY TYPE BINOCULAR BODY. DIOPTRIC ADJUSTMENT ON LEFT EYEPIECE TUBE
Working Distance	82.5mm
Stage Plate	Static Conductive Mat (220mm × 220mm)
Interpupillary Distance	52mm ~ 75mm
Incident Light(9W)	FLUORESCENT LAMP(FCL9EX-N)
Base	220mm × 285mm
Height	326mm
Net Weight	5.1kg
Accessory	Acryl Plates, Earth Cord, Eye Guards, Dust Cover & Tension Control Pin

## SL-65 · 66

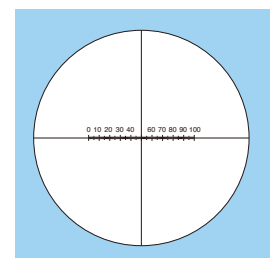
## EYEPIECE WITH MICRO SCALE



- 10x
- φ 30mm



[SL-65]  
Scale:  
0.1mm x 100



[SL-66]  
Cross Scale:  
0.1mm x 100



**SL-62**

**MICROSCOPE CMOS CAMERA**

**2.0 Megapixels High Definition!!**

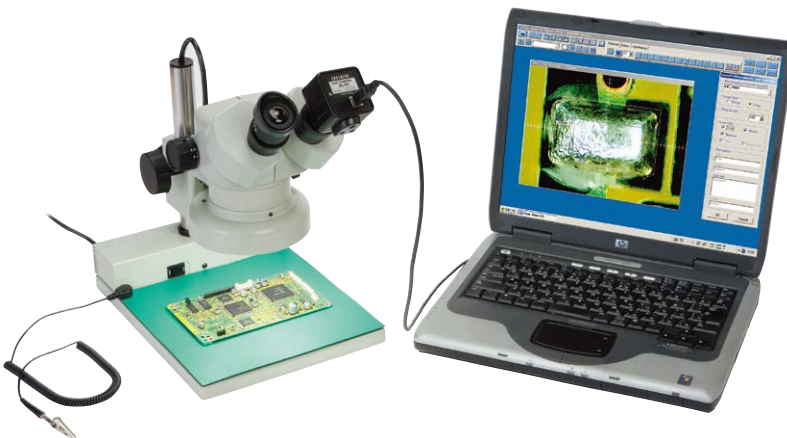
- Easy to capture a still image as well as a live image on PC monitor
- 1/3" high-grade CMOS camera
- Simple measurement software included

Eyepiece tube adapter (φ30mm)

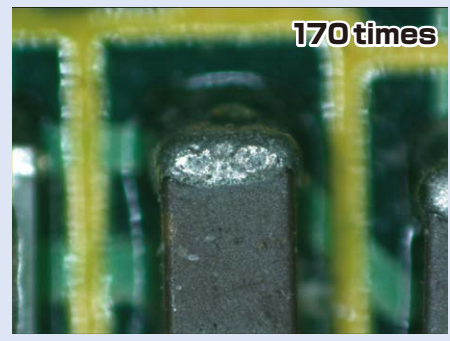


Relay lens (φ23.2mm)

◆ Just insert camera into eyepiece tube.  
 ※Eyepiece size:φ23.2mm(direct-in) or φ30.0mm(with adapter)



Sample Image



■ Specifications

Item No.	SL-62
Camera	1/3" CMOS Sensor (2000K pixels) 50x84x57mm (WxDxH)
Max. Resolution	1600 x 1200
Frame Rate	8 frame/sec.
Interface	USB 2.0
Power Supply	5V (PC USB port)
Frame Size	1600x1200, 800x600
Sensitivity	1.8V/lux-sec.
M/S adaptable	SL-60 or others (eyepiece size: φ23.2 or 30mm type)
Accessories	USB Cable, Measurement Software & Driver Software

■ PC Environment

OS	Windows XP, Vista, 7 & 8 (32-bit & 64-bit versions)
CPU	Pentium III 2GHz or more
Memory	512MB or more (2GB for Windows Vista & 7)
HDD	1 GB or more
Monitor	1024x768 (XGA), 1600x1200 (UXGA) or more
Color	32bit

■ Main Functions

- Live and Paused (still) image by one click
- Still image saving (J.PEG, BMP format)
- Distance measurement (two points)
- Cascade (Live & Still images shown in layers)
- Calibration setting, data save and data load
- Color Adjustment, Image Processing
- Reticle (Cross hairs) displayed



**SL-50~53**

- SL-50**  
 ● 10x/20mm diam.  
 ● 83mm length  
 ● 50mm (case)



- SL-51**  
 ● 8x/25mm dia.& 15x/13mm dia.  
 ● 150mm length  
 ● 84mm (case)



- SL-52**  
 ● Combination of 3x, 4x & 5x lens for max. 10x magnification  
 ● 19mm diam. lens  
 ● 83mm length  
 ● 50mm (case)



- SL-53**  
 ● Sharp and very distinct images with no color distortion  
 ● Ideal for jewelry appraisal  
 ● 18x/17mm diam.  
 ● 63mm length  
 ● 40mm (case)



**SL-55~57**

**INSPECTION LOUPE**

- Focus adjustment by sliding lens sleeve  
 ● Built-in scale (detachable)

**SL-55**



- 10x  
 ● 10mm diam. view  
 ● Scale L

**SL-56**



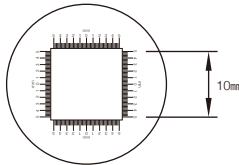
- 15x  
 ● 6mm diam. view  
 ● Scale S

**SL-57**

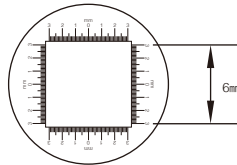


- 22x  
 ● 4mm diam. view  
 ● Scale S

**BUILT-IN SCALE**



L: 0.2mm/scale



S: 0.1mm/scale

**SL-12·58**

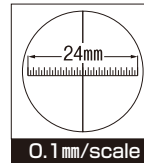
**INSPECTION LOUPE**

- Inspection loupe equipped with crosshairs  
 ● Wide type light-through cylinder for bright and clear view

**SL-12**



- x10 Glass Lens  
 ● Lens diameter : 30mm  
 ● Crosshairs 0.1mm x 240  
 ● Ext. Size : dia.38 x 50(H)  
 ● with carrying pouch

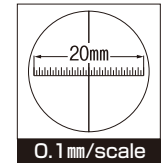


0.1mm/scale

**SL-58**



- x7 Achromatic Glass Lens  
 ● Lens diameter : 22mm  
 ● Crosshairs 0.1mm x 200  
 ● Ext. Size : dia.32 x 45(H)  
 ● with lens cap & case



0.1mm/scale

Model	SL-50	SL-51	SL-52	SL-53	SL-12	SL-55	SL-56	SL-57	SL-58
Magnification	x10	x8 & x15	x3, 4 & 5	x18	x10	x10	x15	x22	x7
Lens Material	Glass	Glass	White Glass	White Glass	White Glass	White Glass	White Glass	White Glass	White Glass
Lens Structure	1+1	1+1	single	5-fold	1+1	1+1	1+1	1+1	1+2

※ 1+1 Structure : 1 pce. of eyepiece and 1 pce. of objective lens  
 ※ 1+2 Structure : Achromatic Lens - combination of different refractive lens minimizes chromatic aberration.  
 ※ 5-fold lens : superior to achromatic lens in aspect of no aberration and creates clearer image.

**SL-64**

**FOLDABLE MAGNIFIER**

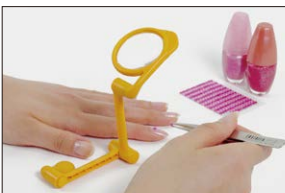
- x 3.5 Magnification acrylic lens  
 ● Lens diameter: 40mm  
 ● Foldable arm, flexible design  
 ● Magnet attachment  
 ● with carrying case



Portable magnifier



Attachment to a crimp tool



Self-standing for handsfree



Collapsible to fit carrying case



**NEW**





**SL-01~03·11**

**INSPECTION MIRROR**

**SL-01**

- 35mm diam. angle-adjustable mirror
- O.A. length: 245mm



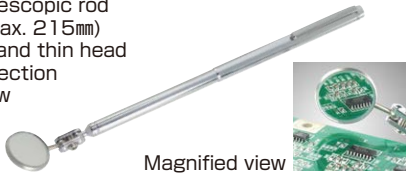
**SL-02**

- 35mm diam. adjustable all-angle ball joint mirror with pocket clip
- Telescopic rod extends from 192 to 540mm in length



**SL-11**

- Anti-magnetic stainless steel (AISI304) frame ideal for work on electronic parts and devices
- 21mm diam. adjustable all-angle ball joint magnifying mirror
- 2-sectioned telescopic rod (Min. 150mm - Max. 215mm)
- Compact body and thin head (frame) for inspection even at a narrow space



Magnified view

**SL-03**

- 35mm diam. adjustable all-angle ball joint magnifying mirror (Concave)
- Telescopic rod extends from 265 to 740mm in length



with built-in magnet

**SL-04·07**

**DESK-TOP LOUPE**

**SL-07**

- x 2.5  $\phi$ 90mm lens
- 175mm Flexible shaft allows easy positioning.



**SL-04**

- Magnifying power: 2.5x/75mm diam. lens.
- Ball joint permits free change of angles and positions.



**SL-22**

**LED LIGHT LOUPE**

- 2x/95mm diam. Acrylic lens with x4 bifocal lens built-in
- Long-life and bright LED (16 bulbs)
- DC power (AA battery x 4 pcs.)
- ※Battery is not included.
- AC adapter (Input voltage 100-240V) included
- Magnet base stand for handsfree work
- 310mm Flexible arm for easy positioning
- Desk clamp (Max. opening 65mm. Depth 58mm)



LED(16bulbs)



NEW

**SL-23**

**LED STAND LOUPE**



Built-in LED

- 2x/105mm diam. Acrylic lens with x5 bifocal lens built-in
- Illuminated by 2 LED's, ideal for inspection and hobby use
- DC power (AA battery x 3 pcs.)
- ※Battery is not included.
- 300mm Flexible arm for easy positioning

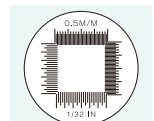


NEW

**SL-71**

**FLASHLIGHT LOUPE**

- Light beam illuminates magnified area.
- 10X, 30mm diam.
- 2 x C-cell battery adapted
- O.A. length: 177mm



Built-in 20mm scale

**SL-72**

**UTILITY LOUPE**

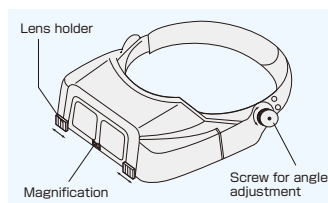
- 3X 65mm diam. lens consists of aberration-free white lens.
- Versatile use with chrome-plated frame and wooden shaft.
- O.A. length: 175mm



**SL-80~83/85~88**

**HEAD LOUPE**

- Suitable for inspection/repair of electronic and precise instruments
- Well-fitted head band with velcro tape
- Usable even while wearing glasses.



**Head loupe**

Item No.	Magnification
SL-80	1.8
SL-81	2.3
SL-82	2.7
SL-83	3.5

**Replacement lens**

Item No.	Magnification
SL-85	1.8
SL-86	2.3
SL-87	2.7
SL-88	3.5

●The size of all the replacement lens is common and suitable for any head loupes.

Service

S

Driver

D

Nippers Pliers

N.P

Steel

T

Others

Z

Kits

K

## SK-30/40SERIES

## SOLDERING IRON

Excellent built-in ceramic heater. Compact & light-weight design suitable for accurate soldering operations

- High efficient ceramic heater permits quick heat-up, enabling soldering operation only in about 1 minute.
- The use of a small connector connecting heater and power cord permits exchange of heaters with one touch.
- Short length from grip to tip for easy operation
- Screw type tip permits easy exchange of tips.
- Perfect for accurate soldering operation with sharp soldering tip. (long life and non corrosive).
- With heat-resistance cap for handy storage after use. (SKC-30/31/32/40/41)

## ■SK-30~41

Grip made of reinforced glass fiber resin.



## ■SKC-30~41

With Heat-Resistant Cap.

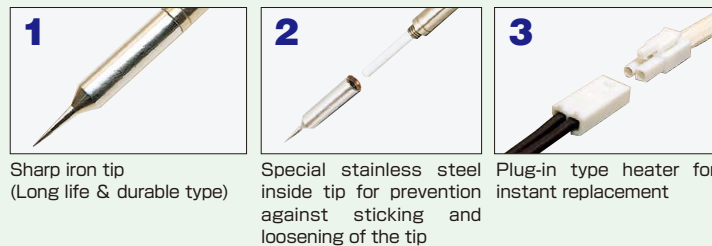


## ■SKE-30~41

With 3-Pin plug to avoid damage of elements caused by electric leakage.



## SK-30/40SERIES Three functions

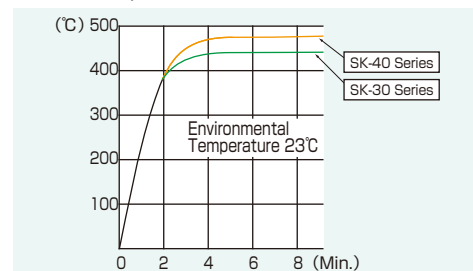


1 Sharp iron tip  
(Long life & durable type)

2 Special stainless steel  
Plug-in type heater for  
prevention against sticking  
and loosening of the tip

3 Plug-in type heater for  
instant replacement

## ■Time/Temp. Chart



## SK-30 SERIES

## ■Specification

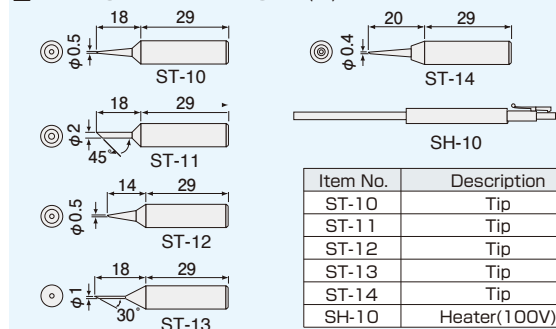
Item No.	Max. Tip Temp.	Watt	Tip	L'gth	Wgt(g)	Rated Voltage	Insulation Resistance
SK-30	400°C	26W	ST-10	202mm	130	100V	100MΩ
SKC-30			ST-11				
SKE-30			ST-11				
SK-31	440°C	26W	ST-11	204mm	130	100V	100MΩ
SKC-31			ST-14				
SKE-31			ST-14				
SK-32	390°C	26W	ST-14	204mm	130	100V	100MΩ
SKC-32			ST-14				
SKE-32			ST-14				

■ SKC with Heat-Resistant Cap. ■ SKE with 3-pin plug.

⚡ 220V 230V 240V are also available. REF. Page 12

**Caution** Ceramic heater is not elastic and may be broken by excess shock. Please refrain from beating and wrenching.

## ■REPLACEMENT PARTS



## SK-40 SERIES

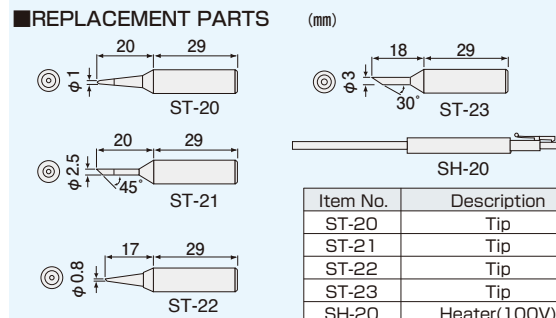
## ■Specification

Item No.	Max. Tip Temp.	Watt	Tip	L'gth	Wgt(g)	Rated Voltage	Insulation Resistance
SK-40	450°C	32W	ST-20	204mm	130	100V	100MΩ
SKC-40			ST-21				
SKE-40			ST-21				
SK-41	470°C	32W	ST-21	204mm	130	100V	100MΩ
SKC-41			ST-21				
SKE-41			ST-21				

■ SKC with Heat-Resistant Cap. ■ SKE with 3-pin plug.

**Caution** Ceramic heater is not elastic and may be broken by excess shock. Please refrain from beating and wrenching.

## ■REPLACEMENT PARTS





**SK-30 SERIES**

**SOLDERING IRON**

Excellent built-in ceramic heater. Compact & light-weight design suitable for accurate soldering operations

- High efficient ceramic heater permits quick heat-up, enabling soldering operation only in about 1 minute.
- The use of a small connector connecting heater and power cord permits exchange of heaters with one touch.
- Short length from grip to tip for easy operation
- Screw type tip permits easy exchange of tips.
- Perfect for accurate soldering operation with sharp soldering tip. (long life and non corrosive).
- With heat-resistance cap for handy storage after use. (SKC-30/31)

■SK-30~31

Grip made of reinforced glass fiber resin.



■SKC-30~31

With Heat-Resistant Cap.



■SKE-30~31

With 3-Pin plug to avoid damage of elements caused by electric leakage.



**SK-30SERIES Three functions**

**1**

Sharp iron tip  
(Long life & durable type)

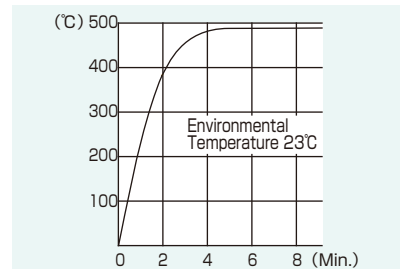
**2**

Special stainless steel  
inside tip for prevention  
against sticking and  
loosening of the tip

**3**

Plug-in type heater for  
instant replacement

■Time/Temp. Chart



**SK-30 SERIES**

■Specification

Item No.	Max. Tip Temp.	Watt	Tip	L'gth	Wgt(g)	Rated Voltage	Insulation Resistance
SK-30	445°C	30W	ST-20	204mm	130	220 240V	100MΩ
SKC-30							
SKE-30							
SK-31	500°C	30W	ST-21	204mm	130	220 240V	100MΩ
SKC-31							
SKE-31							

■ST-22 Max. Tip Temp. 430°C ■ST-23 Max. Tip Temp. 500°C

**Caution** Ceramic heater is not elastic and may be broken by excess shock. Please refrain from beating and wrenching.

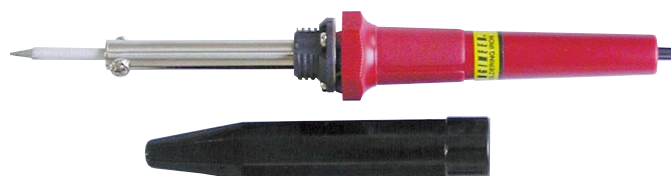
■REPLACEMENT PARTS (mm)

Item No.	Description
ST-20	Tip
ST-21	Tip
ST-22	Tip
ST-23	Tip
SH-12	Heater(220~240V)

**SK-14**

**SOLDERING IRON (30W Mica Heater)**

- Ideal for electric work, job training, D.I.Y. and hobby use
- Tip  $\phi$  1.2mm
- Max. Temperature : 410°C



**SK-50SERIES**

**3 in 1 Multipurpose and cordless soldering iron**

- Pen type for easy carrying.
- No power source permits wider field of use.
- Soldering iron, torch & hot blow – 3 heat function makes the tool versatile.
- Safe & no flame gas catalyst system for soldering iron and hot blow.
- No AC current nor battery.
- Quick heat up in seconds and temperature control is very easy.
- Comes with a handy carrying case for keeping & carrying.
- O.A. length: 165mm



**■TORCH**  
By removing tip & tip housing, possible to use as Torch, easy control of flame. Possible to make metal works and other various applications like aluminium or stainless steel soldering or welding with temperature solders.



**SKA-50**  
●Body with protection cap  
●Hot Blow tip

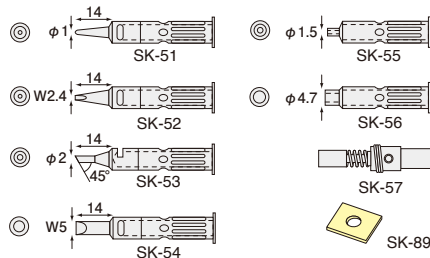
**SK-50**  
●Body with protection cap  
●Hot Blow tip  
●Cleaner Sponge  
●Carrying box with iron stand

**■Kotelyzer(SK-50)Specifications**

System	Gas Catalyst Reaction System Pressure Gas Burning System(Torch)
Thermal Output	Soldering Iron Hot Blow
	Torch
Gas Container Capa.	6cc
Operation Time for One Gas Fill	200°C~450°C (Equivalent to 20~50W electric soldering iron) 430°C MAX 1300°C MAX
O.A. Length	165mm
Weight	53g

**SK-50SERIES**

**REPLACEMENT PARTS**



Item No.	Description
SK-51	Tapered needle
SK-52	Chisel
SK-53	φ2mm spade
SK-54	Chisel
SK-55	Hot blow tip
SK-56	Hot blow tip
SK-57	Ejector unit
SK-89	Cleaning sponge

**SK-60SERIES**

**Newly designed compact body with various functions!**

- Perfect for in-field service and maintenance where accessibility may be limited.
- Light weight for fatigue free use.
- One touch ignition and super quick heat-up (equivalent up to 60 watts).
- More than one hour continuous use capacity.

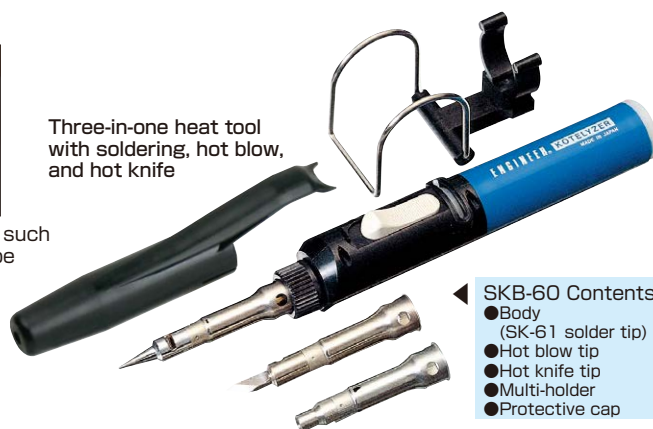


**■Soldering iron**  
Completely cordless assures no electric leakage, no E.M.I. and free from voltage problem.



**■Hot knife**  
Arts, craft, and hobby use such as plastic shaping and rope cutting.

Three-in-one heat tool with soldering, hot blow, and hot knife



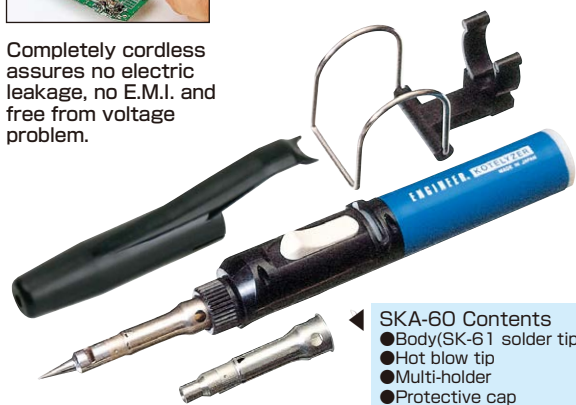
**SKB-60 Contents**  
●Body (SK-61 solder tip)  
●Hot blow tip  
●Hot knife tip  
●Multi-holder  
●Protective cap

**■Kotelyzer(SK-60)Specifications**

System	Gas Catalyst Reaction System
Thermal Output	Soldering Iron Hot Blow
	Hot Blow
Gas Container Capa.	14cc
Operation Time for One Gas Fill	200°C~450°C (Equivalent to 15~60W electric soldering iron) 650°C MAX
O.A. Length	Abt 1 hour 15min. 208mm
Weight	66g



**■Hot blower**  
Pin point accurate hot air for shrink tubing and plastic welding.



**SKA-60 Contents**  
●Body(SK-61 solder tip)  
●Hot blow tip  
●Multi-holder  
●Protective cap

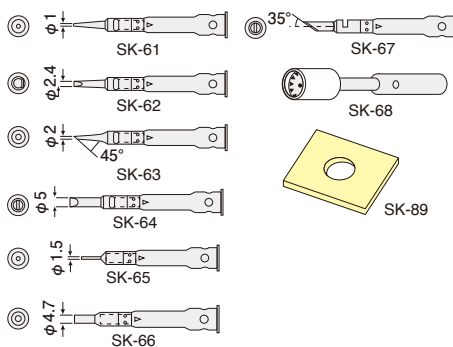
Two-in-one heat tool with soldering and hot blow.



**SKC-60 Contents**  
●Body(SK-61 solder tip)  
●Hot blow tip  
●Protective cap  
●Cleaner stand

**SK-60SERIES**

**REPLACEMENT PARTS**



Item No.	Description
SK-61	Tapered needle
SK-62	Chisel
SK-63	φ2mm spade
SK-64	Chisel
SK-65	Hot blow tip
SK-66	Hot blow tip
SK-67	Hot knife
SK-68	Ceramic unit
SK-89	Cleaning sponge

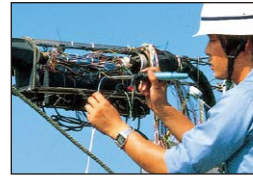
●Multi-Holder is not saleable separately.



**SK-70SERIES**

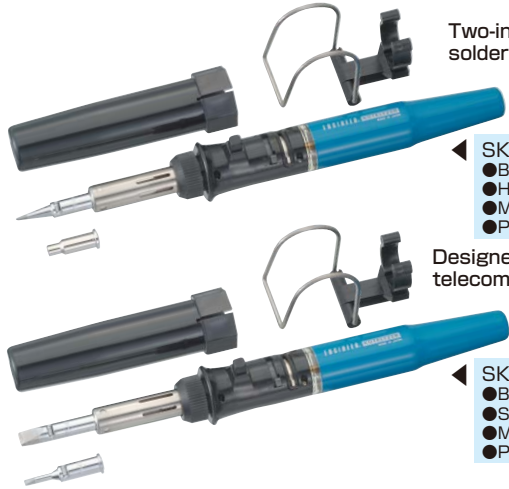
**Multi-holder creates new field of cordless soldering iron!**

- Perfect for in-field service and maintenance where instant heat is required.
- Super quick heat up with one touch operation.
- Completely cordless assures no electric leakage no E.M.I.
- Flameless and safe heat generating system by patented gas catalyst reaction.
- Variable temperature control (equivalent to 20-80 watts).



■ Telecommunication field SKD-70 set comes with a high-power tip for cable maintenance tasks and an accurate tip for telephone office service.

Comes with soldering stand box, adjustable at 3 angles (SK-70)



Two-in-one heat tool with soldering and hot blow.

- ◀ **SKC-70 Contents**
- Body(SK-71 solder tip)
  - Hot blow tip
  - Multi-holder
  - Protective cap

Designed to perform telecommunication tasks.

- ◀ **SKD-70 Contents**
- Body(SK-79 solder tip)
  - Solder tip(SK-72)
  - Multi-holder
  - Protective cap

■ **Kotelyzer(SK-70)Specifications**

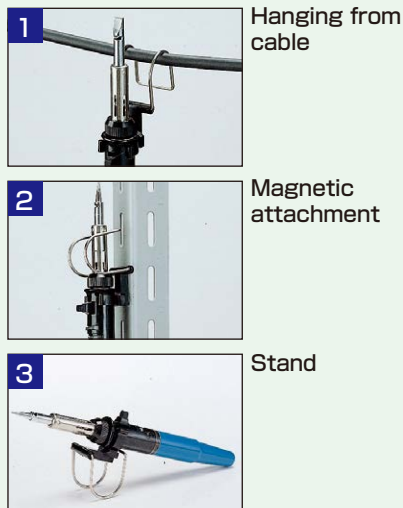
System	Gas Catalyst Reaction System
Thermal Output	Soldering Iron 200°C~500°C (Equivalent to 20~80W electric soldering iron)
Hot Blow	650°C MAX
Gas Container Capa.	28cc
Operation Time for One Gas Fill	Abt 4 hours (Lever position : 2)
O.A. Length	265mm
Weight	110g

- ▲ **SK-70**
- Body(SK-71 solder tip)
  - Hot blow tip
  - Carrying case with stand
  - Cleaner sponge

- SKA-70 Contents**
- Body(SK-71 solder tip)
  - Hot blow tip
  - Protective cap

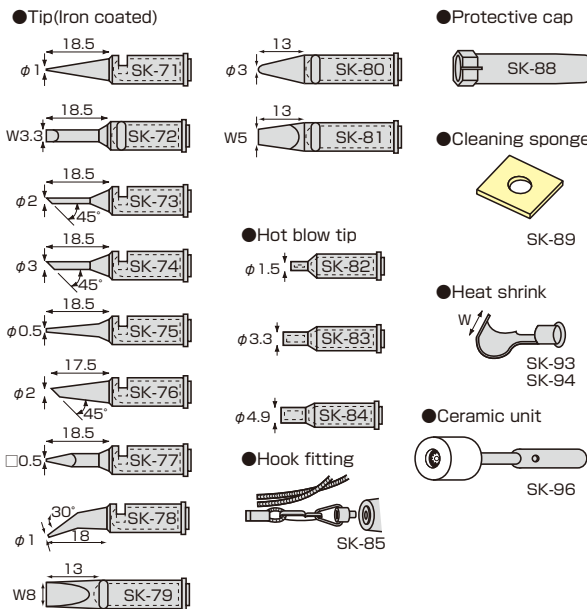
- SKB-70 Contents**
- Body(SK-71 solder tip)
  - Hot blow tip

**Three function of Multi-holder assures safe and wide task field [PAT.]**



Multi-Holder is useable for both SK-60 series and SK-70 series.

**SK-70SERIES**



**REPLACEMENT PARTS**

Item No.	Description
SK-71	Tapered needle
SK-72	Chisel
SK-73	φ2mm spade
SK-74	φ3mm spade
SK-75	Tapered needle
SK-76	φ2mm spade
SK-77	Tapered pyramid
SK-78	Offset tapered needle
SK-79	High powered chisel
SK-80	High powered round head needle
SK-81	High powered long taper chisel
SK-82	Hot blow tip
SK-83	Hot blow tip
SK-84	Hot blow tip
SK-85	Hook fitting
SK-88	Protective cap
SK-89	Cleaning sponge
SK-93	Heat shrink W-22
SK-94	Heat shrink W-18
SK-96	Ceramic unit

**SKM-40**

**HANDY KOTELYZER**

**SK-90-95**

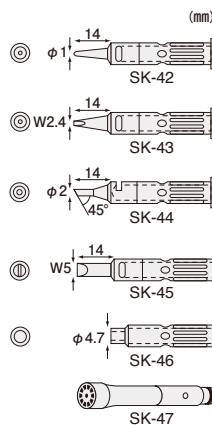
**GAS REFILL**

- Advanced and streamlined design
- Hot blow & powerful torch
- Improved heat-generating structure of metal catalyst
- Come with cleaner stand & solder
- Capable of continuous use in one hour



■ **Specifications**

System	Gas Catalyst Reaction System Pressure Gas Burning System (Torch)
Thermal Output	Soldering Iron 200°C~500°C (Equivalent to 20~60W electric soldering iron)
Hot Blow	650°C MAX
Torch	1300°C MAX
Gas Container Capa.	12ml
Operation Time for One Gas Fill	about 60 min. (Lever position: Middle)
O.A.Length	197mm Cap Included
Weight	74g



Item No.	Description
SK-42	Tapered Needle
SK-43	Chisel
SK-44	φ2mm Spade
SK-45	Chisel
SK-46	Hot blow tip
SK-47	Ejector Unit

- Please use our original gas for refill. (Butane liquefied odorless gas for industry use)



■ Torch



265cc



480cc

Service

S

Driver

D

Nippers Pliers

N.P

Steel

T

Others

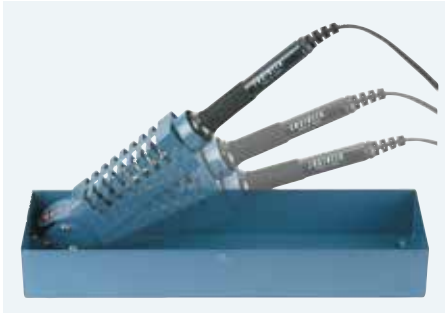
Z

Kits

K

**SS-09**

- Simple and functional design permits easy use and safe storage
- One touch soldering stand, adjustable to 3 angles
- Durable lid makes it easy to carry SS-09 box in any tool case
- Includes tip cleaner sponge
- Inner sizes: 300x85x44mm



Adjustable at 3 steps of angle.



**SD-20**

High-capacity ceramic heater and powerful motor, capable of suction and hot air blow.

- Built-in motor, diaphragm type vacuum pump, temperature adjustable circuit and indicator light.
- Low noise and low vibration due to floating mechanism.
- Minimum reaching time to the maximum vacuum and powerful suction capacity.
- Ideal for desoldering on 4-8 layered PCB's.
- No static damage to IC etc. due to carboniferous body.

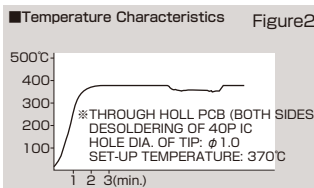
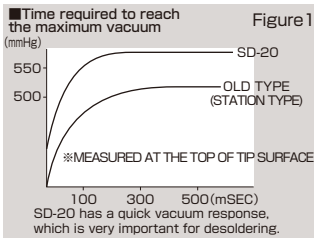
 **DESOLDERING TOOL**



**DESTINATIONS ARE LIMITED FOR EXPORT**

**INDICATOR LIGHT**

When the heater is on, light goes on and when the temperature reaches set-up level, it flickers.



- Contents
  - Carrying case
  - Desoldering tool
  - Spare tip (φ 1.5)
  - Spare filter cartridge (2pcs.)
  - Cleaning pin

**SPECIFICATIONS**

POWER SOURCE	AC100V · 50/60Hz
PUMP	DIAPHRAGM TYPE
MOTOR OUTPUT	12W
VACUUM ATTAINED	650mmHg
TIME REQUIRED TO REACH MAXIMUM VACUUM	0.2 seconds
AIR FLOW RATE (OPEN)	15 liter/min.
HEATER	100W(Ceramic)
CONTROL SYSTEM	Feed back zero cross over type
TEMPERATURE RANGE	350~500°C
TIP (HOLE DIA.)	1.0φ(STANDARD)
POWER SUPPLY CORD	3P CORD (W GROUND) 1.8m
WEIGHT	420g(excluding cord)

**TOOL STAND**



SD-60

**REPLACEMENT PARTS**

Item No.	DESCRIPTION
SD-61	TIP φ0.8
SD-62	TIP φ 1.0
SD-63	TIP φ 1.5
SD-87	TAPERING SLIM TIP φ 0.8
SD-88	TAPERING SLIM TIP φ 1.0
SD-21	HEATER HOLER
SD-22	HEATER ASSY
SD-23	PIPE SETTER
SD-24	FILTER CARTRIDGE (5pcs.)
SD-25	SEAT VALVE
SD-26	DIAPHRAGM

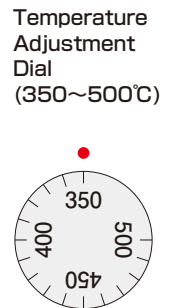
**SD-30**

 **SMD ACCESSORY KIT**

- For easy removal of SMD components including QFP & SOP owing to Hot Blow function of SD-20



- Contents:
  - SD-29 Filter Pipe
  - SD-31 Stainless Wire Reel
  - SD-86 Hot Air Nozzle

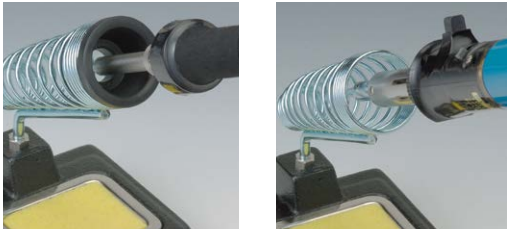




**SS-20**

**IRON STAND**

- Heat resistance engineering plastic on iron holder for cutting heat conduction to iron's grip
- Holds any soldering iron up to 13mm diam.
- 700g massive base stand creates high stability on bench.
- Dimensions: 80Wx140Hx90D (mm)

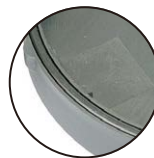


■ Ring detachable

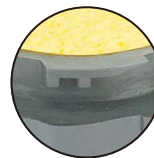
**SS-05**

**TIP CLEANER**

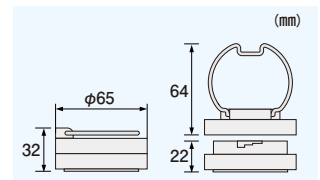
- Glass-filled nylon resin (Housing) featuring heat resistance of 130°C
- O-ring creates airtight condition to keep sponge moist.
- Comes with 2 pcs. of cleaning sponges of different density (blue & yellow)
- Easy to open the lid owing to sliding-lock structure
- Weight: 75g



■ O-ring in lid



■ Sliding lock



**SS-01·02**

**SOLDER SUCKER**

- All aluminum construction, well designed to suck up melted solder easily and efficiently with one-hand plunger action.
- Self-cleaning shaft allows high productivity of continual work without clogging.

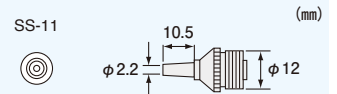
Item No.	Cylinder Capa.	Weight
SS-01	5 cc	33 g
SS-02	9 cc	52 g

**SS-01**

- Teflon tip :  $\phi 2.2\text{mm}$  (Int.)
- Ideal for desoldering work at dense spot on PCB
- Body :  $\phi 14 \times 170\text{mm}$



■ Replacement nozzle for SS-01



**SS-02**

- Silicone nozzle :  $\phi 2\text{mm}$  (Int.)  $\phi 4\text{mm}$  (Ext.)
- High-power and efficient absorption by means of elastic nozzle contact
- Low maintenance cost owing to spare tube only required for replacement
- 2 pcs. of spare silicone tubes (50mm long) originally included
- Body :  $\phi 20 \times 153\text{mm}$



Heat resistant (350°C) silicone nozzle

Compact and durable aluminum body



Elastic and heat-resistant nozzle can stick to soldering iron on board closely and suck up solder powerfully with less residue.



Plunger is within easy reach of thumb. It is ideal for one-hand operation in continuous work.

**SS-16 REPLACEMENT SILICONE TUBES**

- $\phi 2 \times 50\text{mm}$  2 pcs./set
- Cut desired length of tube freely.
- Use only for SS-02



Service

S

Driver

D

Nippers Pliers

N.P

Steel

T

Others

Z

Kits

K

DIGITAL MULTIMETER

SD-06

3200 Count LCD with bar-graph indicator

- AC·DC voltage measurement
- Resistance measurement
- Compact body with test lead rewinder
- Diode Testing
- Continuity Check
- Dust-proof carrying pouch



Dimensions:  
114×72×22.5mm  
Weight:110g

Function	Range	Resolution	Accuracy
DC V	320.0mV	0.1mV	±1.3% rdg ±3 dgt.
	3.200V	1mV	±0.7% rdg ±3 dgt.
	32.00V	10mV	±1.3% rdg ±3 dgt.
	320.0V	100mV	
	500.0V	1V	
AC V	3.200V	1mV	±2.3% rdg ±6 dgt.
	32.00V	10mV	
	320.0V	100mV	
	500.0V	1V	
RESISTANCE	320.0Ω	100mΩ	±2.0% rdg ±5 dgt.
	3.200KΩ	1Ω	±2.0% rdg ±3 dgt.
	32.00KΩ	10Ω	
	320.0KΩ	100Ω	
	3.200MΩ	1KΩ	±6.0% rdg ±4 dgt.
	32.00MΩ	10KΩ	±10% rdg ±10 dgt.
DIODE TEST	3.200V	1mV	±10% rdg ±3 dgt.
CONTINUITY	320.0Ω	100mΩ	Beeper<20Ω Approx.

SD-07

SOLDERING IRON THERMOMETER

Accurate temperature measurement

- The sensor resists corrosion and oxidation by solder, which realizes precise detection
- Quick and easy replacement of sensor (Plug-in type) [SD-58](#)
- Data hold : Max. temperature, Min. temperature and Average temperature
- With carrying case



Specifications

Measuring Range	-99.9°C~+1,200°C
Accuracy	±1°C rdg. ±1 dgt.
Resolution	0.1°C/1°C (Automatic shift)
Measuring Speed	3 times/sec.
Sensor	Thermo Couples, Type K(CA)
Power Source	9V (006P) Alkali Battery
Dimensions	225×42×27mm
Weight	150g

SW-11~53

SOLDER

- High quality solder wire for precision electronic components.
- No paste is necessary because of activated rosin.



Item No.	diam.(mm)	Weight(g)
SW-11	0.6	150
SW-12		500
SW-13		1000
SW-21	0.8	150
SW-22		500
SW-23		1000
SW-30	1.0	20
SW-31		150
SW-32		500
SW-33	1000	
SW-41	1.2	150
SW-42		500
SW-43		1000
SW-51	1.6	150
SW-52		500
SW-53		1000



**SWS-06~12 SUPERIOT RMA SOLDER**

No cleaning high performance resin core solder, highest grade flux construction

- Completely non-corrosive flux residue which requires no cleaning after soldering
- Everlasting and reliable bonding owing to non-conductive and non-absorbable residue
- Wide solder spread and wetting for speedy work
- Contains organic amine activated rosin to meet highest JIS grade & MIL-RMA.



■Superiot RMA / For use on precision PCB of copper and its alloy

Item No.	Tin/Lead Ratio, Melting point	Flux(Wt%)	Soluble resistance Ω · cm	Insulation resistance Ω	Wire diam. (mm)	Wire length. (m)
SWS-06					0.6	5.6
SWS-08	Sn60/Pb40	1.7%	1 × 10 <sup>5</sup>	3 × 10 <sup>13</sup> (Normal temp.)	0.8	4.4
SWS-10	183~190°C	Noncleaning flux			1.0	5.5
SWS-12					1.2	4.6

**SWA-06~12 SUPERIOT RA SOLDER**

No cleaning high performance resin core solder for soldering stainless steel

- Non-corrosive flux residue featuring everlasting bonding
- Featuring stable bonding owing to non-conductive and non-absorbable residue
- Continuous and high performance activation makes it possible to solder stainless steel.
- Contains organic amine activated rosin to meet JIS standard.



■Superiot RA / For use on stainless steel & nickel

Item No.	Tin/Lead Ratio, Melting point	Flux(Wt%)	Soluble resistance Ω · cm	Insulation resistance Ω	Wire diam. (mm)	Wire length. (m)
SWA-06					0.6	5.6
SWA-08	Sn60/Pb40	2.7%	6 × 10 <sup>4</sup>	2 × 10 <sup>13</sup> (Normal temp.)	0.8	4.4
SWA-10	183~190°C	Noncleaning flux			1.0	5.5
SWA-12					1.2	4.6

**SWS-56~82 SUPERIOT RMA SOLDER**



Item No.	Wire diam. (mm)	Weight (g)
SWS-56	0.6	500
SWS-58	0.8	
SWS-60	1.0	
SWS-62	1.2	1000
SWS-76	0.6	
SWS-78	0.8	
SWS-80	1.0	
SWS-82	1.2	

**SWA-56~82 SUPERIOT RA SOLDER**



Item No.	Wire diam. (mm)	Weight (g)
SWA-56	0.6	500
SWA-58	0.8	
SWA-60	1.0	
SWA-62	1.2	1000
SWA-76	0.6	
SWA-78	0.8	
SWA-80	1.0	
SWA-82	1.2	

**SWU-02~06**

**SOLDER WICK**

- SODER-WICK® Highest copper braid features fast absorption of solder.
- No cleaning process required and leaving less residue of flux on circuit board



For desoldering highly dense SMD

SWU-02 1.5mm×1.5m



For desoldering small electronic parts or plated through hole

SWU-03 1.9mm×1.5m



For desoldering medium electronic parts or solder bridges

SWU-04 2.8mm×1.5m



For desoldering large-sized parts or terminals

SWU-05 3.9mm×1.5m



For use at large solder lugs

SWU-06 5.6mm×1.5m

※Product of chemtronics, U.S.A

Service

S

Driver

D

Nippers Pliers

N.P

Steel


T

Others

Z

Kits

K

**SS-08**  **IC EXTRACTOR**

- Ideal for extracting 8~42 pins ICs in one single operation.
- Squeeze clip and hold ICs tightly.
- Overall Length : 125mm



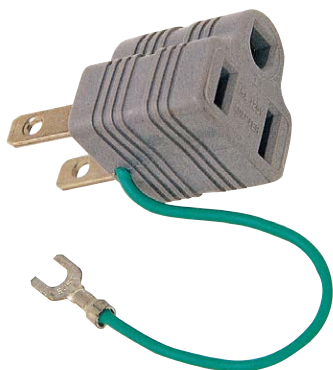
**SS-10**  **PC BOARD CONNECTOR EXTRACTOR**

- Ideal for insertion or extraction of housing connectors on the PC boards.
- Holds PC board connectors with accurately machined tip, picking them uprightly and smoothly without a cut of wire or deformity.
- Accurate tip design to insert or extract PCB connectors (straight type & right-angle type) mounted on dense PCB
- Overall Length : 112mm



**SS-15** **2P-3P PLUG CONVERTER**

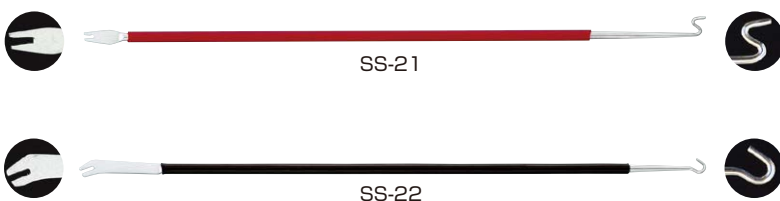
- Converts 3P Plug with ground wire into 2P.



**SS-21·22**

 **SPRING HOOK**

- Ideal for inserting, removing and adjusting coil springs of electronic components or precision instruments
- Suitable for removing connector leads, aligning leads of resistor or condenser and testing arrangements of wires
- 3mm diam.X215 O.A. length

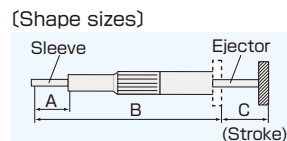


**SS-30~34**

 **PIN EXTRACTOR**

Perfect for extracting both pin and socket terminals.

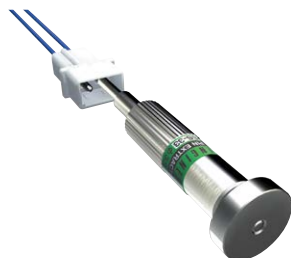
- The ejector rod inside the sleeve enables you to knock out both male & female pin easily from socket terminal.



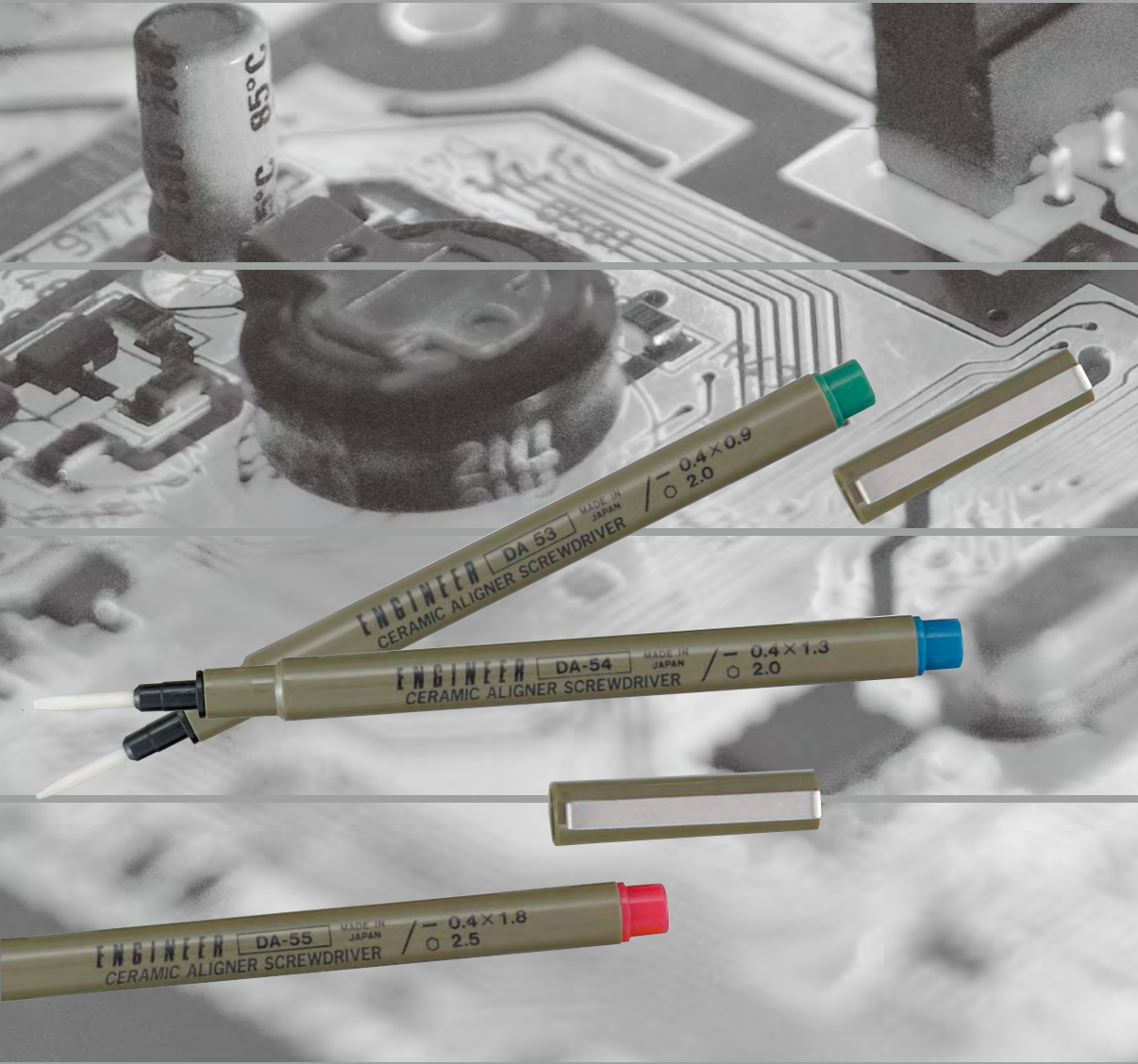
Item No.	Outer Diam of Sleeve	Inner Diam of Sleeve	(mm)		
			A	B	C
SS-30	2.5	1.9	12	64	21
SS-31	2.7	2.1			
SS-32	2.9	2.4			
SS-33	3.6	3.1			
SS-34	3.2	2.7			

**Reference for extracting typical connectors**

Brand/Connector	Pin Housing	Socket Housing
"TYCO" Mini Universal Mate-N-Lok	SS-30	SS-30
"TYCO" Universal Mate-N-Lok	SS-34	SS-34
"TYCO" Commercial Mate-N-Lok	SS-32	SS-34
"JST" ML & EL Series	SS-31	SS-31
"JST" L & LL Series	SS-33	SS-33
"MOLEX" 1545 Series	SS-33	SS-34
"MOLEX" 1625 Series	SS-30	SS-31
"MOLEX" 3191 Series	SS-33	SS-33
"MOLEX" 8980 Series (4-pin connector in PC)	SS-32	SS-34







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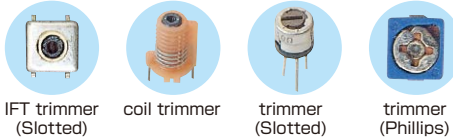
DA-48~52



CERAMIC ALIGNMENT SCREWDRIVER

Four-in-One Slotted Tip & Hex Core Ceramic Alignment Screwdrivers.

- Tips are made of fine, durable zirconia ceramic.
- Perfect non-conductive tip for high frequency trimming.
- Ideal alignment screwdriver for short-circuit prevention
- Four-in-one double ended tool.
- Pen-type design with protective caps and pocket clip.
- $\phi 8 \times 136$ mm long



Item No.	Size	●Core	(mm)
DA-48	$\ominus 0.7 \times 1.3$	2	
	$\ominus 0.4 \times 2.4$	2.5	
DA-50	$\ominus 0.35 \times 0.8$	2	
	$\oplus \#0$	-	
DA-51	$\ominus 0.4 \times 0.9$	2	
	$\ominus 0.4 \times 1.8$	2.5	
DA-52	$\ominus 0.4 \times 1.3$	2	
	$\ominus 0.7 \times 2.5$	2.5	



DK-90



CERAMIC ALIGNMENT SCREWDRIVER SET

◆ Assortment of DA-48~52 (4pcs.)



DA-53~59



CERAMIC ALIGNMENT SCREWDRIVER

Pen type Ceramic Alignment Driver for service and assembly line work

- Two-in-one, slotted tip and hex. core (except DA-58)
- With pen-type cap for protection and portable use
- $\phi 9 \times 135$ mm long



Item No.	Size	●Core	Bottom color	(mm)
DA-53	$\ominus 0.4 \times 0.9$	2.0	Green	
DA-54	$\ominus 0.4 \times 1.3$	2.0	Blue	
DA-55	$\ominus 0.4 \times 1.8$	2.5	Red	
DA-56	$\ominus 0.7 \times 2.5$	2.5	Yellow	
DA-57	$\ominus 0.35 \times 1.95$	2.5	Black	
DA-58	$\oplus \#0$	-	Gray	
DA-59	$\ominus 0.35 \times 0.8$	2.0	Purple	

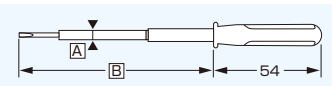
DA-72~79



CERAMIC ALIGNMENT SCREWDRIVER

The DA-70 series ceramic alignment screwdrivers are designed with a long slender shaft for a wider application of alignment in remote areas.

- Fine zirconia ceramic tipped alignment screwdrivers, highly intensive, durable, and perfectly non-conductive
- Slide-in shaft is attachable to other tools & equipment
- Long, slim design for easy access to remote areas
- Two-in-one, slotted tip and hex. core (except DA-78)



Detachable shaft from grip

Item No.	Size	●Core	A Size	B Size	Bottom color	(mm)
DA-72	$\ominus 0.4 \times 2.4$	2.5	$\phi 4$	94	Orange	
DA-73	$\ominus 0.4 \times 0.9$	2.0	$\phi 3.5$	95	Green	
DA-74	$\ominus 0.4 \times 1.3$	2.0	$\phi 3.5$	95	Blue	
DA-75	$\ominus 0.4 \times 1.8$	2.5	$\phi 4$	94	Red	
DA-76	$\ominus 0.7 \times 2.5$	2.5	$\phi 4$	94	Yellow	
DA-77	$\ominus 0.35 \times 1.95$	2.5	$\phi 4$	94	Black	
DA-78	$\oplus \#0$	-	$\phi 3.5$	92	Gray	
DA-79	$\ominus 0.35 \times 0.8$	2.0	$\phi 3.5$	95	Purple	

Service



Driver



Nippers Pliers



Steel



Others



Kits





**DA-81~88**



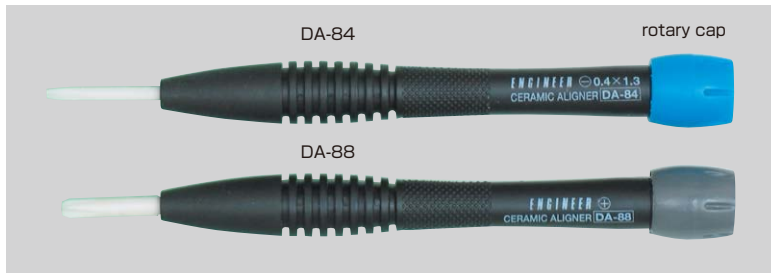
**CERAMIC ALIGNMENT SCREWDRIVER**

Compact designed ceramic alignment drivers. Perfect for assembly line trimming.

- Fine zirconia ceramic tipped alignment screwdrivers, highly intensive, durable, and perfectly non-conductive.
- Two-in-one function with slotted tip and hex core. (except DA-88)
- Ergonomically designed with convenient rotary cap.



IFT trimmer (Slotted) coil trimmer trimmer (Slotted) trimmer (Phillips)



**DK-91**



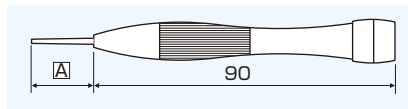
**CERAMIC ALIGNMENT SCREWDRIVER SET**

Assortment of DA-81~88 (8pcs.)



(mm)

Item No.	Size	●Core	ASize	BOTTOM COLOR
DA-81	⊖0.7×1.3	2	18	Purple
DA-82	⊖0.4×2.4	2.5		Orange
DA-83	⊖0.4×0.9	2		Green
DA-84	⊖0.4×1.3	2		Blue
DA-85	⊖0.4×1.8	2.5		Red
DA-86	⊖0.7×2.5	2.5		Yellow
DA-87	⊖0.35×1.95	2.5	15	Black
DA-88	⊕#0	-		Gray

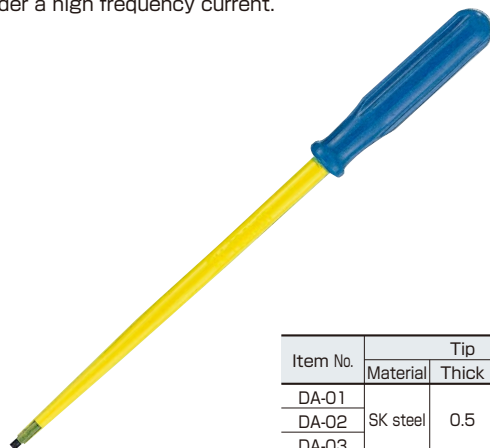


**DA-01~03**



**ALIGNMENT SCREWDRIVER**

- Alignment tool for TV, tuner, trimmer under a high frequency current.



(mm)

Item No.	Tip			Length of Rod	Handle
	Material	Thick	Width		
DA-01	SK steel	0.5	2.0	100	φ12×54
DA-02				150	
DA-03				200	

**DA-40**



**ALIGNMENT SCREWDRIVER**

- E.S.D. free construction (Safe from static discharge)
- Overall length: 125mm
- Tip: ⊖2×0.5 & ⊖2×0.5mm



**DK-13**



**REVERSIBLE PRECISION DRIVER SET**

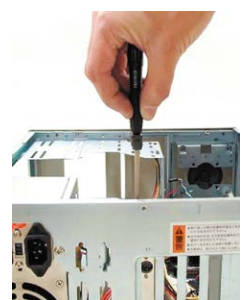
- Driver's shaft length to be adjustable 18~90mm.
- Magnetic point ⊖ for hard-to-reach screws.
- ●4mm slim shaft with double-ended blade (5-in-1)
- Cushioned grip for well-fitting with fingers.
- With rotary cap for quick rotation or precise alignment work



Contents 3 pcs. (Double-ended)

Length: 125mm

# 00	⊖ 2.5mm
# 0	⊖ 3.0mm
# 0	⊖ 4.0mm



Service



Driver



Nippers Pliers



Steel



Others



Kits



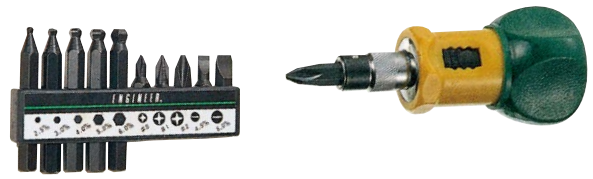
**DR-03**  **RATCHET STUBBY DRIVER**

- Compact 95mm O.A. length with a comfortable grip.
- Built-in ratchet mechanism.
- Replacement bits:  $\oplus$ #2/ $\ominus$ 6mm,  $\oplus$ #1/ $\ominus$ 4.5mm.
- Knurl shaft for quick rotation



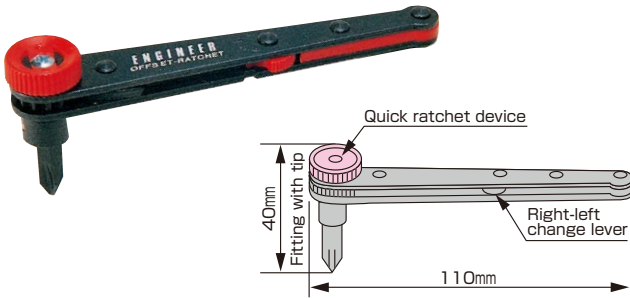
**DR-04**  **RATCHET STUBBY DRIVER SET**

- Versatile driver with common replaceable  $\oplus/\ominus$  point bits.
- Built-in ratchet mechanism.
- Replacement set includes :  $\oplus$ #00, #1, #2,  $\ominus$ 4.5, 6,  $\bullet$ 2.5, 3, 4, 5, 6
- Knurl shaft for quick rotation



**DR-05**  **OFF-SET RATCHET DRIVER**

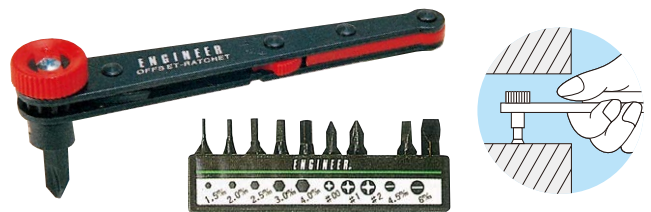
- Built-in quick ratchet mechanism increases work productivity.
- Designed to permit work in close areas that are inaccessible with ordinary drivers.
- Tip :  $\oplus$ #2/ $\ominus$ 6mm



**DR-06**  **OFFSET RATCHET DRIVER WITH BIT SET**

Excellent for working in close areas!

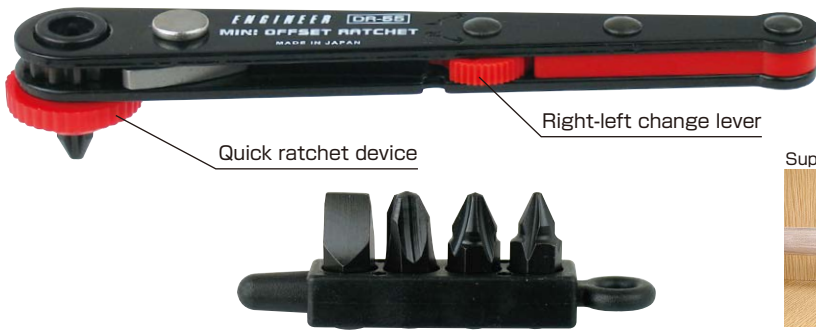
- Versatile driver with most popular  $\oplus/\ominus$  & hex bits.
- Complete with handy bullet holder for carrying.
- Replacement set includes:  $\oplus$ #00, #1, #2,  $\ominus$ 4.5, 6,  $\bullet$ 1.5, 2, 2.5, 3, 4
- Built-in quick ratchet device.



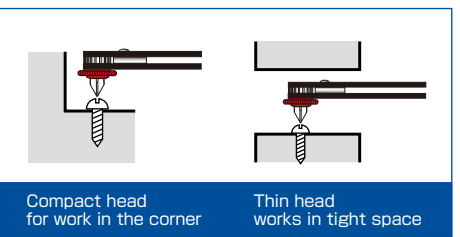
**DR-55**

Only 22mm-high low-profile head accessible to tight space!!

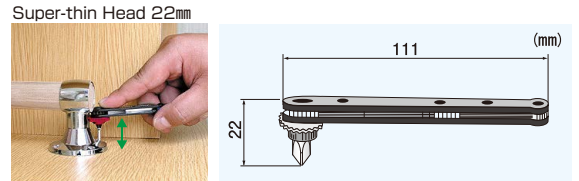
- Built-in quick ratchet device increases work productivity.
- Bit set includes :  $\oplus$ #1, #2, #3 &  $\ominus$ 6mm



 **MINI OFFSET RATCHET**



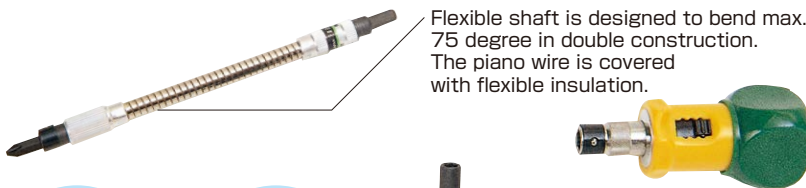
NEW



**DR-08**  **RATCHET STUBBY DRIVER SET WITH FLEXIBLE SHAFT**

Versatile flexible shaft makes difficult jobs easy

- 6-in-1 ratchet stubby type comes with most needed  $\oplus/\ominus$ , hex, box bits and flexible shaft.
- Easy access to tighten screws & nuts at hard-to-reach positions.
- Knurl shaft for quick rotation



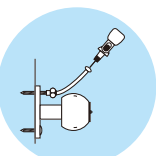
Flexible shaft is designed to bend max. 75 degree in double construction. The piano wire is covered with flexible insulation.



Bullet holder is clipped to belt or tool panel.

**CONTENTS**

- Ratchet stubby O.A.length:80mm
- Flexible shaft O.A.length:182mm
- $\oplus$  $\ominus$ bit  $\oplus$ #2/ $\ominus$ 6,  $\oplus$ #1/ $\ominus$ 4.5
- Hex bit  $\bullet$ 2, 2.5, 3mm
- Box bit  $\bullet$ 0.5mm



For use at hard-to-reach positions.



Flexible shaft is workable with rechargeable driver.

**DR-10~14**  **DRIVER BIT SET**

Perfect for service engineers who need and use a wide selection of driver bits.

- A comprehensive and wide selection of bits to handle any job or application.
- DR-10, 11, 14 just fit to DR-03~08 drivers.



**DR-14 Contents**

- $\bullet$ 5.5mm
- $\oplus$ 2/ $\ominus$ 6
- $\oplus$ 1/ $\ominus$ 4.5
- $\bullet$ 2, 2.5, 3mm

**DR-10 Contents**

- $\oplus$ #00, #1, #2,  $\ominus$ 4.5, 6
- $\bullet$ 2.5, 3, 4, 5, 6 (Ball point)



**DR-11 Contents**

- $\oplus$ #00, #1, #2,  $\ominus$ 4.5, 6
- $\bullet$ 1.5, 2, 2.5, 3, 4 (Hex)

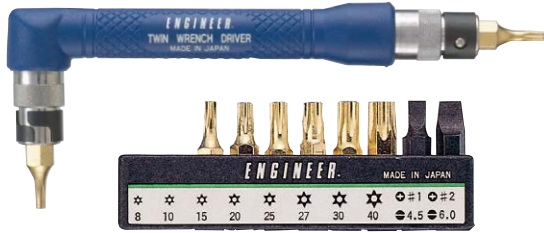




**DR-50**

**TWIN WRENCH DRIVER (For Special Screws)**

Ideal for sure-gripped work in restricted areas.



- Off-set twin wrench driver with 8 Torx bits and 2 ⊕/⊖ bits.
- Non-slip knurled cushion handle.
- Bullet type replaceable bit holder.

CONTENTS (mm)

Shape of Bit	Point	Size
Torx bit		8 10 15 20 25 27 30 40
⊕/⊖ bit	+ -	⊕#1/⊖4.5 ⊕#2/⊖6.0

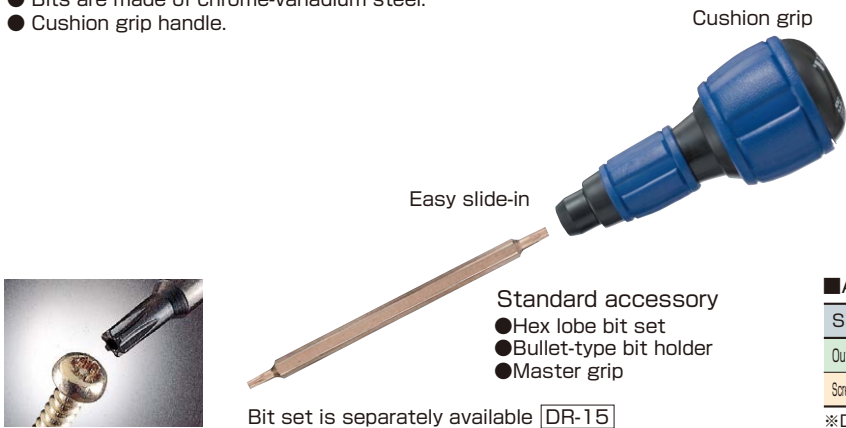
Bit set is separately available **DR-17**

**DR-51**

**MASTER GRIP DRIVER (For Hex-Lobe Screws)**

Accommodates 12 different sized Torx (hex-lobe) screws.

- 6 double ended hex-lobe bits fit 12 different screw sizes from T-5 to T-40.
- Bits are made of chrome-vanadium steel.
- Cushion grip handle.



Cushion grip

Easy slide-in

Standard accessory

- Hex lobe bit set
- Bullet-type bit holder
- Master grip

Bit set is separately available **DR-15**

■ Contents of bit set (12 sizes)

Tip Shape	Tip Size	O.A.Length
	T-5/T-6	110mm
	T-7/T-8	
	T-9/T-10	
	T-15/T-20	
	T-25/T-27	
	T-30/T-40	

■ Applications for hex-lobe screws

Size	T5	T6	T7	T8	T9	T10	T15	T20	T25	T27	T30	T40
Outer diam.	1.4	1.7	2.0	2.3	2.5	2.7	3.3	3.8	4.4	5.0	5.5	6.6
Screw adapted	-	M2	-	M2.5	-	M3	M3.5	M4	M5	M5	M6	M8

※Diameter is just for reference

**DR-52**

**MASTER GRIP DRIVER**

Provides the most useful and popular magnetic bits.

- Tips also fit most rechargeable and electric drivers.
- Chrome-vanadium steel.
- Cushion grip handle.



Cushion grip

Easy slide-in

Bullet-type bit holder for portable use.

Contents

- Bit set (6pcs.)
- Bullet-type bit holder
- Master grip

■ Contents of bit set (6pcs.) (mm)

Shape	Size	O.A.Length
⊕ Step type	# 2	150
⊕ Reversible	#2/#2	110
⊕ Reversible	#2/#2	65
⊕ Step type	# 0	85
⊕ Step type	# 1	100
⊕/⊖ Reversible	#2/-6	135

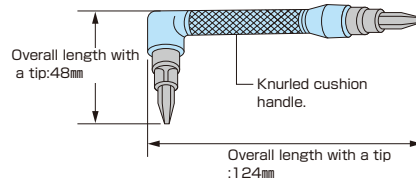
⊕ Bit set is separately available **DR-16**

**DR-07**

**TWIN WRENCH DRIVER SET**

Designed for sure-gripped work in restricted areas.

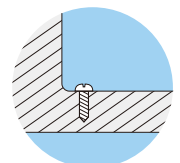
- 10-in-1 combination of the most useful ⊕/⊖ tips.
- Knurled cushion handle fits the hand and the job.
- With portable bullet holder.
- Replacement bit sizes ⊕#00, #1, #2 ⊖4.5, 6
- 1.5, 2, 2.5, 3, 4



Overall length with a tip: 48mm

Knurled cushion handle.

Overall length with a tip : 124mm



Suitable to work in restricted area.

Service

S



Driver

D



Nippers Pliers

N.P



Steel

T



Others

Z



Kits

K



DRIVER SET

**DK-10**  PRECISION DRIVER SET



Item No.	Tip size (mm)
DK-32	⊖1.2×0.25
DK-24	⊕#0
DK-34	⊖2.3×0.35
DK-25	⊕#1
DK-35	⊖3.0×0.4
TP-31	Pick-up tool

**DK-20**  PRECISION DRIVER SET



Item No.	Tip size (mm)	Blade diam. (mm)	OA Length (mm)
DK-21	#0000	1.4	78
DK-22	#000	1.6	88
DK-23	#00	2	95
DK-24	#0	2.3	104
DK-25	#1	3	115
DK-26	#1	3.5	126

**DK-30**  PRECISION DRIVER SET



Item No.	Tip size (mm)	Blade diam. (mm)	OA Length (mm)
DK-31	0.9×0.2	0.9	76
DK-32	1.2×0.25	1.2	88
DK-33	1.8×0.3	1.8	95
DK-34	2.3×0.35	2.3	102
DK-35	3.0×0.4	3	115
DK-36	3.5×0.5	3.5	126

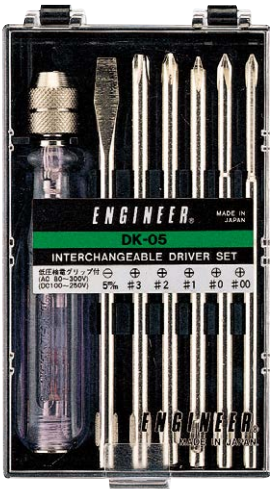
**DK-60**  PRECISION DRIVER SET



Item No.	Tip size (mm)	Blade diam. (mm)	OA Length (mm)
DK-22	#000	1.6	88
DK-24	#0	2.3	104
DK-25	#1	3.0	115
DK-33	1.8×0.3	1.8	95
DK-34	2.3×0.35	2.3	102
DK-35	3.0×0.4	3.0	115

**DK-05**  INTERCHANGEABLE DRIVER SET

With circuit testing driver handle for low voltage.  
(AC80~300V/DC100~250V)  
Contents: ⊖5mm, ⊕#0, #0, #1, #2, #3



**DK-06**  INTERCHANGEABLE DRIVER SET

With circuit testing driver handle for low voltage.  
(AC80~300V/DC100~250V)  
Contents: ⊕#1, #2, ⊖3, 5mm, ⌀5.5mm, awl



**DK-07**  INTERCHANGEABLE DRIVER SET

Contents: ⊕#1, #2, ⊖3, 5mm, ⌀5.5, 7mm



**DK-08**  INTERCHANGEABLE DRIVER SET

Contents: ⌀4, 5.5, 6, 7, 8, 10mm



**DK-05P·06P**

 INTERCHANGEABLE DRIVER SET

- Cost-saving package in Plastic blow-mould case
- Contents exactly same as DK-05 & DK-06 described above





**DNC-55·57·65**

**RoHS NUT CATCHING DRIVER**

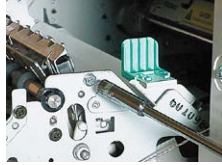
**Magnet hold type**

- Suitable for maintenance service of facsimile machine and photocopying machine.
- Sliding magnet in socket attracts and catches a hex bolt while fitting different heights of the heads.

DNC-55



DNC-65



Item No.	Size	Socket Ext. Size	Shaft Length	O.A. Length
DNC-55	5.5	9	125	225
DNC-65	5.5	9	230	330
DNC-57	7	11	125	225

NEW

**DN-01~12**

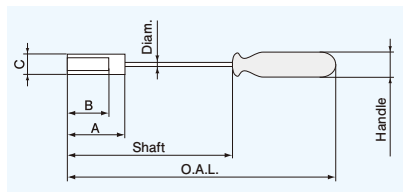
**RoHS NUT DRIVER**

- Plastic handle.
- Anti-abrasive point of special steel.
- Nickel-plated finish.

DN-01



DN-05



Model	Size	A	B	C	Shaft Length	Shaft diam.	Handle diam.	O.A. Length	Screw adapted
DN-01	3	18	9	6	75	3.0	11	130	(1.4)
DN-02	4	18	9	6	75	3.0	11	130	2
DN-03	4.5	18	9	8	75	4.0	13	145	(2.3)
DN-04	5	35	25	7.5	75	4.3	16	150	(2.6)
DN-05	5.5	35	25	9	125	5.5	18	210	3
DN-06	6	35	25	9	125	5.5	18	210	(3)
DN-07	7	35	25	11	125	5.5	18	210	4
DN-08	8	35	25	12	125	5.5	18	210	5
DN-09	9	35	25	13	125	5.5	18	210	(5)
DN-10	10	35	25	14	125	6.3	22	220	6
DN-12	12	36	25	17	125	6.3	22	220	(6)

( ) = old specifications

**DK-04**

**RoHS NUT DRIVER SET**

7-in-1 assortment of Compact-sized Nut Drivers  
Contents:  $\phi$ 3, 3.5, 4, 4.5, 5, 5.5, 6mm



Size	A	B	C	Shaft length	Shaft diam.	Handle diam.	O.A. Length
3	18	9	6	75	3.0	11	130
3.5			6				
4			6				
4.5			8				
5	18	9	8	75	4.0	13	145
5.5			8				
6			9				

**DNP-05~10**

**RoHS PRO NUT DRIVER**

- Large soft-grip handle is shaped to provide a safe, sure grip for excellent tightening power.
- Chrome-plated finish.

Item No.	Size	Shaft length	Shaft diam.	Handle diam.	O.A. Length	Screw adapted
DNP-05	5.5	125	5.5	28	227	3
DNP-07	7	125	5.5	28	227	4
DNP-08	8	125	5.5	28	227	5
DNP-10	10	125	6.3	32	237	6

DNP-05



DNP-10



Service

S

Driver

D

Nippers Pliers

N.P

Steel

T

Others

Z

Kits

K

### DG-01~04 PRO GRIP DRIVER

- Soft grip handle provides excellent tightening power without slipping.
- Chrome-vanadium alloy steel, perfectly heat-treated gives it lasting durability.
- Black magnetic oxide tip.
- Chrome plated.



(mm)

Item No.	Point Size	Shaft Length	Shaft diam.	Handle diam.	O.A. Length
DG-01	⊖5.5×0.7	80	5.5	28	200
DG-02	⊕#1	80	5.5	28	200
DG-03	⊖6.3×0.9	76	6.3	32	214
DG-04	⊕#2	76	6.3	32	214

### DG-05 CUSHION DRIVER

- ⊕/⊖ Two-in-one reversible blade.
- Comfortable soft-grip handle.
- Can also be used with electric and air drivers.



(mm)

Item No.	Point Size	Shaft Length	Shaft diam.	Handle diam.	O.A. Length
DG-05	⊕#2/⊖6	95	6.3	34	210

### DP-03~64 PRO-USE DRIVER

- Chrome Vanadium alloy steel & complete heat treated blade.
- Black oxide finish blade.
- Knurl shaft for quick rotation



Size table (mm)

Item No.	Blade size	Shaft length	Shaft diam.	Handle diam.	O.A. Length
DP-03	#00	75	3	15	146
DP-24	#0	100	4.3	18	183
DP-44	#1	100	5.5	25	200
DP-64	#2	100	6.3	27	213
DP-13	⊖3.0×0.35	75	3	15	146
DP-34	⊖4.3×0.5	100	4.3	18	183
DP-54	⊖5.5×0.7	100	5.5	25	200

(Blade size=width×thickness)

### DG-08·09 MASTER GRIP DRIVER

- Master Cushion grip assures powerful fastening power.
- Bottom marking & color distinguish phillips from slotted tip.
- Special alloy steel blade, tempered & plated for lasting durability.
- Precision black-point finish, magnetic point.



(mm)

Item No.	Point Size	Shaft Length	Shaft diam.	Handle diam.	O.A. Length
DG-08	⊕#2	70	6.3	40	195
DG-09	⊖6×1.0	70	6.3	40	195

### DG-11~14 EXTRA LONG GRIP DRIVER

- Cushion grip handle which fits perfect in the hand provides excellent tightening power.
- Shafts are made of chrome vanadium alloy steel, entirely heat treated with black magnetic oxide tip.
- Chrome plated finish.



(mm)

Item No.	Point Size	Shaft Length	Shaft diam.	Handle diam.	O.A. Length
DG-11	⊖6.0×0.8	225	6.3	32	362
DG-12	⊕#2	225	6.3	32	362
DG-13	⊖6.0×0.8	275	6.3	32	412
DG-14	⊕#2	275	6.3	32	412

### DS-03~85 STANDARD DRIVER



Size table for ⊕ driver

(mm)

Item No.	⊕Blade size	Shaft length	Shaft diam.	Handle diam.	O.A. Length
DS-03	#00	75	3	11	128
DS-23	#0	75	4.3	16	151
DS-24	#0	100	4.3	16	176
DS-44	#1	100	5.5	18	185
DS-46	#1	150	5.5	18	235
DS-64	#2	100	6.3	22	193
DS-85	#3	125	8	28	232

Size table for ⊖ driver

(mm)

Item No.	⊖Blade size	Shaft length	Shaft diam.	Handle diam.	O.A. Length
DS-12	2.6×0.35	50	3	11	103
DS-13	2.6×0.35	75	3	11	129
DS-14	2.6×0.35	100	3	11	154
DS-16	2.6×0.35	150	3	11	204
DS-33	4.0×0.5	75	4.3	16	150
DS-34	4.0×0.5	100	4.3	16	175
DS-54	5.5×0.7	100	5.5	18	184
DS-76	6.0×0.8	150	6.3	22	243



**DG-21~24**  **MINI SOFT DRIVER**

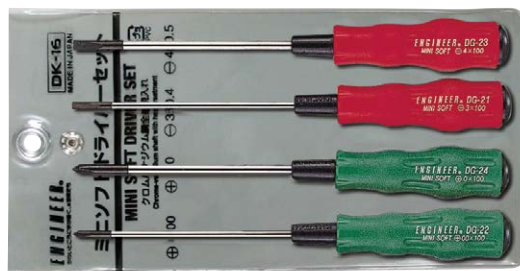
- Comfortable soft-grip handle.
- Chrome-vanadium steel & perfectly heat-treated blade.
- Black oxide point.
- Chrome plated finish.



(mm)

Item No.	Blade size	Shaft length	Shaft diam.	Handle diam.	O.A. Length
DG-21	⊖3×0.4	80	3	21	167
DG-22	⊕#00	80	3	21	167
DG-23	⊖4×0.5	80	4	21	167
DG-24	⊕#0	80	4	21	167

**DK-16**  **MINI SOFT DRIVER SET**



Contents

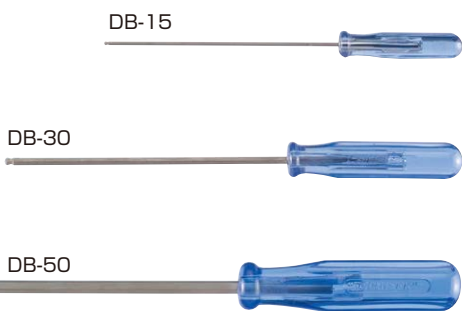
- DG-22
- DG-24
- DG-21
- DG-23

**DB-13~60**  **BALL POINT DRIVER**

- Ball head will work from an angle up to 30° off axis.
- Heat-treated alloy steel with electroless nickel plating
- Magnetized point



Ball Ended Point.



(mm)

Item No.	Size	Shaft length	Shaft diam.	Handle diam.	O.A. Length
DB-15	1.5	70	1.5	11	124
DB-20	2	70	2	11	124
DB-25	2.5	70	2.5	16	143
DB-30	3	100	3	16	173
DB-40	4	120	4	18	204
DB-50	5	140	5	22	233

**DH-15~60**  **HEX DRIVER**

- Heat-treated, chrome-molybdenum alloy steel blade.



(mm)

Item No.	Size	Shaft length	Handle diam.	O.A. Length
DH-15	1.5	90	11	144
DH-20	2	90	11	144
DH-25	2.5	90	11	144
DH-30	3	90	16	163
DH-40	4	90	16	163
DH-50	5	90	18	175
* DH-60	6	90	18	175

\* DH-60 subject to being unsold

**DK-03**  **BALL DRIVER SET**

- Set of 5 most popular ball drivers in a vinyl pouch.



DK-03(5pcs)

- DB-15
- DB-20
- DB-25
- DB-30
- DB-40



**DK-01·02**

- Set of 4 (DK-01) and 6 (DK-02) most popular hex drivers in a vinyl pouch.



DK-01 (4pcs)

- DH-15
- DH-20
- DH-25
- DH-30



DK-02 (6pcs)

- DH-15
- DH-20
- DH-25
- DH-30
- DH-40
- DH-50

Screw adapted (mm)

Size	Cap screw	Set screw
1.27	M1.4	
1.5	M1.6,M2	M3
2.0	M2.5,M2.6	M4
2.5	M3	M5
3.0	M4	M6
4.0	M5	M8
5.0	M6	M10
6.0	M8	M12,M14



**DST-01·02**

**STUBBY DRIVER**

DST-01



DST-02

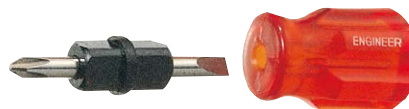


(mm)					
Item No.	Tip size	Shaft length	Shaft diam.	Handle diam.	O.A. Length
DST-01	⊖ 6.3×0.9	38	6.3	30	86
DST-02	⊕ #2	38	6.3	30	86

**DST-05**

**COMBINATION REVERSIBLE STUBBY DRIVER**

- 2-in-1 ⊕/⊖ reversible in single hand.
- Extra compact 85mm O.A. length.



(mm)					
Item No.	Tip size	Blade length	Blade diam.	Handle diam.	O.A. Length
DST-05	⊕#2/⊖6.3	23	6.3	30	85

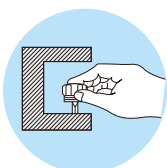
**DST-06·07**

**MINIATURE REVERSIBLE DRIVER**

- 2-in-1 ⊕/⊖ reversible in single hand.
- Specially compact design in 42mm O.A. length.



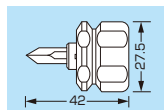
DST-06



Fluted design handle assures perfect thumb and finger grip.



DST-07



(mm)				
Item No.	Tip size	Bit length	Bit diam.	Handle diam.
DST-06	⊕#1/⊖4.5	16	6.3	27.5
DST-07	⊕#2/⊖6	16	6.3	27.5

**DK-50**

**REVERSIBLE DRIVER SET**

- ⊕/⊖ Reversible type, 3pcs. set
- Contents: DK-51 ⊕#00/⊖2.6  
DK-52 ⊕#1/⊖4.5  
DK-53 ⊕#2/⊖6



**DK-51~53**

**REVERSIBLE DRIVER**

- ⊕/⊖ Two-in-one

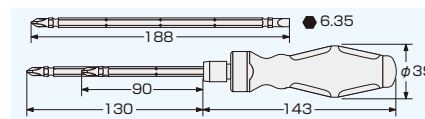


(mm)					
Item No.	Tip size	Blade length	Blade diam.	Handle diam.	O.A. Length
DK-51	⊕#00/⊖2.6	67	3	18	164
DK-52	⊕#1 /⊖4.5	82	5	24	195
DK-53	⊕ #2/⊖6	89	6.3	26	216

**DR-53**

**CUSHIONED GRIP RATCHET DRIVER**

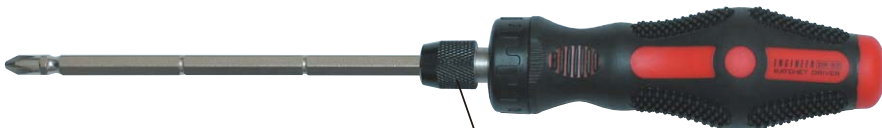
- Shaft length adjustable at 90mm or 130mm with self-locking stopper inside handle
- ⊕#2/⊖6mm Two-in-one magnetized blade
- High torque ratchet mechanism
- Ergonomically-designed 2-tone cushioned handle (φ39mm)
- Overall length : 233mm or 273mm



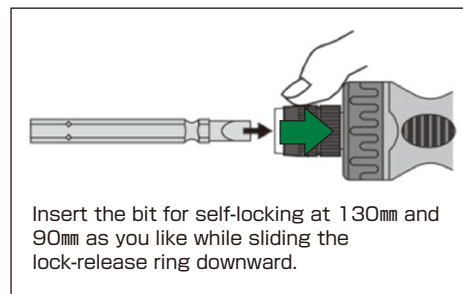
R&L Ratchet shuttle



Extendable ↻ ↻ ⊕/⊖ Reversible



Self-locking Ring/Releaser





**DT/DTC/DTH/DTP/DTY SERIES**



**MOBILE PHONE DRIVER**

Made for special screws, ideal for maintenance work of cordless phones, cellular phones, etc.



**Torx (Hex-lobe) screws**

There may be a projection in the center of screw hole for prevention of theft and tampering. Torx (Hex-lobe) screws are used for cordless phone, transceiver, precision instruments, etc.

DTC-27



Point size (mm)

Item No.	Point size	Shaft Length	Shaft diam.	Handle diam.	O.A. Length	Main Use	
DTC-20	3.6	90	4.5	7.0	25	190	Game console/Soft
DTC-27	4.6	90	5.9	7.0	25	190	Game console

DTH-03



Point size Hole diameter: 1.8mm (mm)

Item No.	Point size	Shaft Length	Across flats	Handle diam.	O.A. Length	Main Use
DTH-03	3.0	75	3	15	146	Car telephone, etc

DAP-01

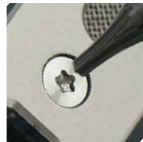


DTP-05



Point size (mm)

Item No.	Point size	Shaft Length	Shaft diam.	Handle diam.	O.A. Length	Main Use
DAP-01	0.9	23	3.0	10	113	Smart phone
DTP-03	1.3	75	3.0	15	146	Mobile phone, etc
DTP-05	1.7	100	5.5	25	200	Mobile phone, etc



Applicable to tampering-proof screws (T6~T20) (mm)

Item No.	Point size	Shaft length	Shaft diam.	Handle diam.	O.A. Length	Main Use
DT-02	★ 0.9 T2	75	3.0	15	146	Game console
DTX-04	★ 1.2 TX4	75	3.0	15	146	Smart phone/Mobile phone
DT-04	★ 1.3 T4	75	3.0	15	146	Smart phone/Mobile phone
DT-05	★ 1.4 T5	75	3.0	15	146	
DT-06	★ 1.7 T6	75	3.0	15	146	
DTX-08	★ 2.0 TX8	75	3.0	15	146	Smart phone/Mobile phone
DT-08	★ 2.3 T8	75	3.0	15	146	
DT-10	★ 2.7 T10	100	5.5	25	200	
DT-15	★ 3.3 T15	100	5.5	25	200	
DT-20	★ 3.8 T20	100	5.5	25	200	

DAT-02



Point size (mm)

Item No.	Point size	Shaft Length	Shaft diam.	Handle diam.	O.A. Length	Main Use
DAT-02	★ 0.9 T2	23	3.0	10	113	Game console

DTY-03



Point size (mm)

Item No.	Point size	Shaft Length	Shaft diam.	Handle diam.	O.A. Length	Main Use
DTY-02	1.7	75	3.0	15	146	Game/Mobile phone
DTY-03	2.4	75	3.0	15	146	Game/Mobile phone

**DK-80·81·82**

**DRIVER SET**



- DK-80 10pcs. set
- DT-06 ● DTX-08 ● DT-10 ● DT-15
- DT-20 ● DTC-20 ● DTC-27 ● DTH-03
- DTY-03 ● DP-64



- DK-81 11pcs. set
- DTX-04 ● DT-04 ● DT-05 ● DT-06
- DTX-08 ● DT-10 ● DTC-20 ● DTP-03
- DTP-05 ● DTY-03 ● DP-64



- DK-82 16 pcs. set
- DTX-04 ● DT-04 ● DT-05 ● DT-06
- DTX-08 ● DTP-03 ● DTY-03 ● DT-10
- DTC-20 ● DTP-05 ● DP-64 ● DK-24
- TP-31 ● PT-06 ● Housing Opener ● Pick

**DR-18·186**



**BIT SET FOR MOBILE PHONE**

**10-in-1 special driver bit set**

- Easy to distinguish different color band.
- Magnet point attracting a tiny screw.



**6-in-1 bit set with plastic handle**

- 6 different bits assorted according to customer's choice.
- Economical pack including compact handle.



Service



Driver



Nippers Pliers



Steel



Others



Kits



**DZ-01·02**  **MINIATURE DRIVER**



(mm)					
Item No.	Point Size	Shaft Length	Shaft diam.	Grip diam.	O.A. Length
DZ-01	⊖1.6×0.3	30	2	6.3	55
DZ-02	⊕#000	30	2	6.3	55

**DZ-03~05**  **CROSS DRIVER**

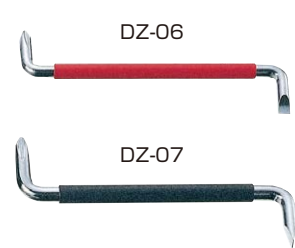
- Powerful tightening and multi-function



(mm)		
Item No.	Size(Across flats)	O.A. Length
DZ-03	⊙ 4, 5, 5.5, 6	82
DZ-04	⊙ 7, 8, 9, 10	103
DZ-05	DZ-03,DZ-04set	

**DZ-06~08**  **OFFSET DRIVER**

- Ideal for work in narrow areas.



(mm)			
Item No.	Point Size	O.A. Length	Blade
DZ-06	⊕#1/⊖5	108	23
DZ-07	⊕#2/⊖6	108	30
DZ-08	DZ-06,DZ-07set		

**DZ-11·12**  **FLEXIBLE SHAFT DRIVER**

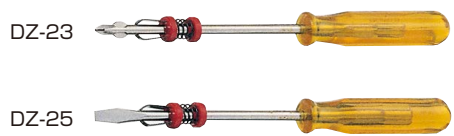
- Flexible shaft is suited for use in narrow areas.



(mm)				
Item No.	Point Size	Shaft Length	Grip diam.	O.A. Length
DZ-11	⊖5×0.6	135	18	220
DZ-12	⊕ #2	135	18	220

**DZ-21~25**  **SCREW-HOLDING DRIVER**

- Clipping screw at the point especially for remote and narrow areas

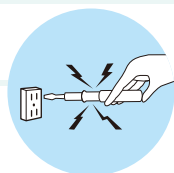


(mm)					
Item No.	Point Size	Shaft Length	Shaft diam.	Grip diam.	O.A. Length
DZ-21	⊕ #00	100	3	11	154
DZ-23	⊕ #0	100	4.3	16	175
DZ-24	⊕ #0	200	4.3	16	275
DZ-25	⊖ 4.0×0.5	100	4.3	16	175

**DKD-01·02**  **CIRCUIT TESTING DRIVER**

DKD-01 (For low voltage)

- AC80~300V, DC100~250V
- For continuity & transmitting test
- O.A. Length: 129mm



DKD-02 (For automobile use only)

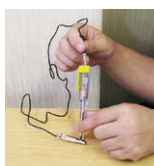
- For sparking plug & discharge testing.
- O.A. Length: 129mm



**DKD-03**  **LED CIRCUIT TESTER**

- AC100-250V (Low voltage use)
- High brightness LED built-in
- Continuity check of circuit
- Polarity check of electric outlet
- Blade (3.0 x 0.4mm) with protective cap
- O.A. Length : 120mm

**NEW**



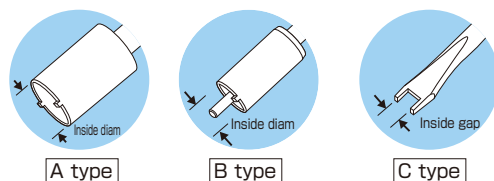
Continuity check



**DJ-01~05**

Ideal for use with radio microphone jacks.

 **PLUG JACK DRIVER**



Item No.	Tip shape & size			Shaft length	Shaft diam.	Handle diam.	O.A. Length
	A	B	C				
DJ-01	-	4.5	-	75	4.3	16	150
DJ-02	-	6	-	75	4.3	16	150
DJ-03	-	-	4	75	4.3	16	150
DJ-04	-	-	6	75	4.3	16	150
DJ-05	15.8	-	-	53	8	28	150



DJ-01 [B type] DJ-02 [B type] DJ-03 [C type] DJ-04 [C type] DJ-05 [A type]

Service  
**S**

Driver  
**D**

Nippers Pliers  
**N.P**

Steel  
**T**

Others  
**Z**

Kits  
**K**





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## ■Cutting Capacity Comparison Table (Reference only)

(mm)

Model	Commodity	Size	Copper wire		Steel wire(φ)	Others	Page
			Solid(φ)	Stranded(mm)			
NS-03	Micro Nippers	125	1.4	2			34
NS-04	Micro Nippers	115	1.2	2			34
NSX-04	Micro Nippers	115	1.2	2			34
NS-06	Micro Nippers	105	0.8				34
NZ-03	Chip Cutter	125	0.6				35
NZ-05	Chip Cutter	125	0.6			also applicable to plastic gate	35
NZ-12	Parallel Nippers	125	0.6				35
NZ-13	Parallel Nippers	125	0.6				35
NP-03	Plastic Nippers	125				Injection molding gate φ3mm	37
NP-04	Plastic Nippers	150				Injection molding gate φ3mm	37
NP-05	Plastic Nippers	120	0.8			Injection molding gate φ2.5mm	37
NK-15	Diagonal Nippers	125	2.6	2	1.5		36
NK-16	Diagonal Nippers	150	3	2	1.9		36
NK-25	Diagonal Nippers	125	2.6	2	1.5	Stripping hole φ 1.2 & 1.6mm	36
NK-26	Diagonal Nippers	150	3	2	1.9	Stripping hole φ 1.2 & 1.6mm	36
NK-36	Diagonal Nippers	150	3.2		2	Vinyl insulated cable φ 1.6mm	36
NN-45	Slant Edge Nippers	125	2	2	1.2	Stripping hole φ 1.2 & 1.6mm	37
NN-46	Slant Edge Nippers	150	2.6	2	1.4	Stripping hole φ 1.2 & 1.6mm	37
NN-56	Slant Edge Nippers	150	2.6	2	1.4		37
PD-06	Side Cutting Pliers	150	3.2		1.6	Vinyl insulated cable φ 1.6mm	47
PD-07	Side Cutting Pliers	175	3.6		1.8	Vinyl insulated cable φ 1.6mm	47
PD-08	Side Cutting Pliers	200	4.0		2.0	Vinyl insulated cable φ 2.0mm	47
PS-01	Long Nose Pliers	125	2		1.2		46
PR-15	Long Nose Pliers	125	2.0	2	1.5		46
PR-16	Long Nose Pliers	150	2.6	2	1.5		46
PR-26	Long Nose Pliers	150	2.6	2	1.5		46
PR-36	Long Nose Pliers	150	2.6	2	1.5	Stripping hole φ 1.2	46
PR-46	Needle Nose Pliers	160	2.6	2	1.2		46
PH-50	Combi. Scissors	170	1.5			Insulated cord	53
PZ-58	Screw Removal Pliers	160	1.2		1.0		39

## ■Wire Stripper AWG Conversion (Reference only)

AWG	36	34	32	30	28	26	24	22	20	18	16	14	12	10	8
Conductor diameter (mm)	0.13	0.16	0.2	0.25	0.32	0.41	0.51	0.64	0.81	1.02	1.29	1.63	2.05	2.59	3.26
Sectional area (mm <sup>2</sup> )	0.014	0.025	0.035	0.05	0.08	0.13	0.2	0.33	0.52	0.82	1.31	2.08	3.31	5.26	8.37
Outside diameter (mm)	0.15	0.195 0.2	0.24 0.25	0.3	0.38	0.5	0.64 0.8	0.76 0.8	0.95 1	1.2 1.3	1.6	1.9	2.4 2.5	2.6 3.1	3.9 4.4
Stripping hole φ (mm)	PA-05			0.4	0.5	0.65	0.8	0.95	1.15	1.45					
	PA-06				0.4	0.5	0.65	0.8	0.95	1.15	1.45				
	PA-07							0.8	0.95	1.15	1.45	1.8	2.1	2.5	
	PA-14		0.25	0.3	0.4	0.5	0.65	0.8	0.95						

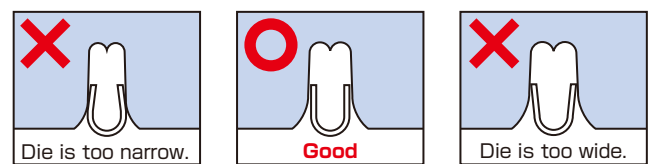
( ) : Reference

## ■How to select the proper dies for crimping an open-barrel contact

1. Measure the width of conductor barrel with a caliper while both barrel wings are in parallel.



2. Select the die width which is close to the width of barrel wings measured.



For example: 1.5mm measured → Select 1.6mm dies.

※ If the length of barrel is longer than or smaller than the thickness of dies, crimping may be failed.  
You are requested to refer to Contact Pin Application Chart first on our website (PA-09, PA-20, PA-21 & PAR-20)

Service



Driver



Nippers Pliers



Steel



Others



Kits



# NS & NZ SERIES

**Features**

- Our micro nippers are ideal for precise PCB work.
- Made of special steel and specially heat treated for excellent cutting capacity and durability.
- Full-flush cutting edge recommended for cutting copper and soft lead wires.
- Soft touch grip insulation and spring ensure long comfortable work.

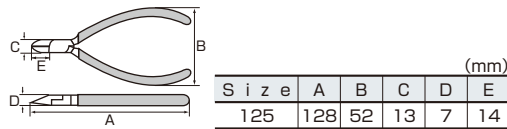


- With opening angle adjuster or stopper

## NS-03

### RoHS MICRO NIPPERS

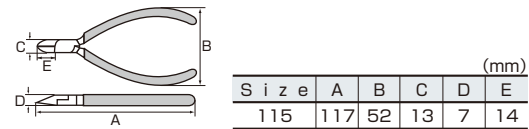
- Ideal for small PCB related work
- With opening angle adjuster
- Material: S58C
- Hardness: HRC 58±4
- Capacity: copper wire  $\phi$  1.4mm



## NS-04

### RoHS MICRO NIPPERS

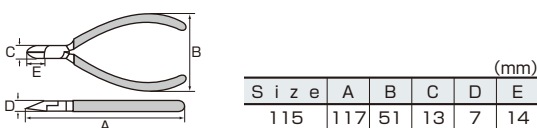
- Ideal for small PCB related work
- With opening angle adjuster
- Material: S58C
- Hardness: HRC 58±4
- Capacity: copper wire  $\phi$  1.2mm



## NSX-04

### RoHS MICRO NIPPERS

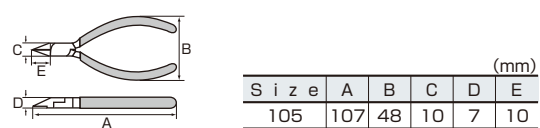
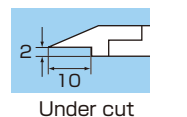
- Cost-saving simple structure
- With side stopper
- Material: S58C
- Hardness: HRC 58±4
- Capacity: copper wire  $\phi$  1.2mm
- Especially for production line owing to economical and ecology package in poly bag



## NS-06

### RoHS MICRO NIPPERS

- Undercut design featuring thin blade
- Ideal for precise PCB related work
- With opening angle adjuster
- Material: S58C
- Hardness: HRC 58±4
- Capacity: copper wire  $\phi$  0.8mm



Service

S

Driver

D

Nippers Pliers

N.P

Steel

T

Others

Z

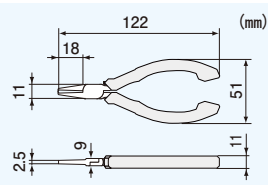
Kits

K



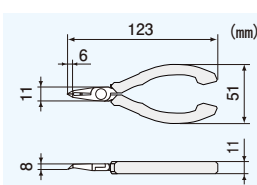
**NZ-03**  **CHIP CUTTER**

- Opening angle adjuster (Max. 5mm) with 1.5mm hex key wrench included
- Sharp & slender design of jaws for work on dense circuit board
- Material: S58C
- Hardness: HRC 58±4
- Capacity: copper wire  $\phi 0.6\text{mm}$
- Applications: Removal of chip resistance, IC, etc. on SMD



**NZ-05**  **CHIP CUTTER**

- Opening angle adjuster (Max. 5mm) with 1.5mm hex key wrench included
- Sharp & slender design of jaws for work on dense circuit board
- Material: S58C
- Hardness: HRC 58±4
- Capacity: copper wire  $\phi 0.6\text{mm}$
- Applications: Leads of Dual In-line Package or Single In-line Package IC on SMD

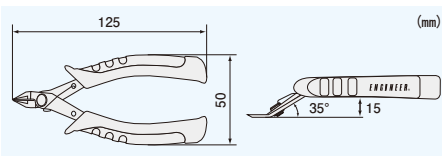
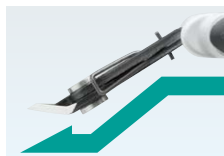


**NZ-12·13**

 **PARALLEL NIPPERS**

**Full flush & super-fine cutting edge**

- Ideal to cut an IC lead of a narrow-pitch QFP or SOP with slender shears (0.3mm+0.3mm width at top)
- Ergonomic elastomer handle for comfort gripping
- Cutting capacity : Copper wire  $\phi 0.6\text{mm}$
- Light weight of 45g only



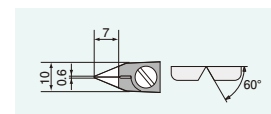
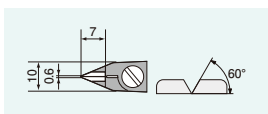
**SHEARS & GRIP IN PARALLEL**



NZ-12



NZ-13



NZ-12

NZ-12 : Normal Blade  
Enables you to make flush cut of a lead easily so as to prevent resist stripping or solder crack on the circuit board



NZ-13

NZ-13 : Reverse Blade  
Enables you to cut IC lead in front of user with the best view while holding nippers vertically against circuit board

Service

S



Driver

D



Nippers Pliers

N.P



Steel

T



Others

Z



Kits

K



**NK-15·16**



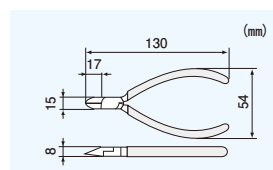
**DIAGONAL NIPPERS**

Sharp & durable cutting for precision wiring work

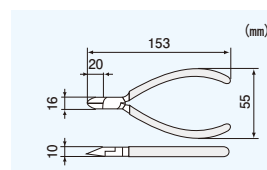
- With opening angle adjuster & coiled spring
- Material: S55C
- Hardness: HRC 58±4
- Capacity (copper wire) : NK-15  $\phi$  2.6mm  
NK-16  $\phi$  3mm



NK-15



NK-16



**NK-25·26**



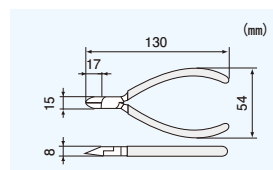
**DIAGONAL NIPPERS**

Precision cutter with wire stripper

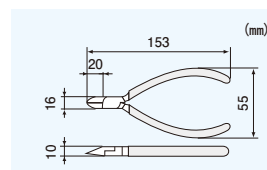
- With opening angle adjuster & coiled spring
- Stripping holes:  $\phi$  1.2 & 1.6mm
- Material: S55C
- Hardness: HRC 58±4
- Capacity (copper wire) : NK-25  $\phi$  2.6mm  
NK-26  $\phi$  3mm



NK-25



NK-26



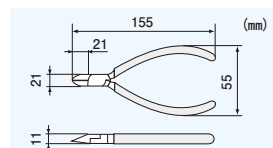
**NK-36**



**HEAVY DUTY DIAGONAL NIPPERS**

Heavy-duty durable cutter

- Material: S58C
- Hardness: HRC 60±4
- Capacity: copper wire  $\phi$  3.2mm



Service



Driver



Nippers Pliers



Steel



Others



Kits



**NN-45·46**  **SLANT EDGE NIPPERS**

Professional type for sharp & easy use 

- Stripping holes:  $\phi$  1.2 & 1.6mm
- Material: S58C
- Hardness: HRC 58 $\pm$ 4



NN-45



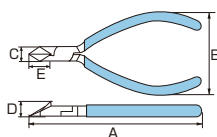
Item No.	Size	A	B	C	D	E	Capacity
NN-45	125	133	51	14	10	23	copper wire $\phi$ 2mm
NN-46	150	159	51	16	11	26	copper wire $\phi$ 2.6mm

(mm)

**NN-56**  **SLANT EDGE NIPPERS**

Sharp cutting & easy handling 

- Material : S58C
- Hardness : HRC 58 $\pm$ 4
- Capacity : copper wire  $\phi$ 2.6mm



Size	A	B	C	D	E
150	159	51	16	11	26

(mm)

Service

**S**



Driver

**D**



Nippers Pliers

**N.P**



**NP-03·04**  **PLASTIC NIPPERS**

- Ideal for cutting plastic mold gates & burns
- With opening angle adjuster & coiled spring
- Material: S58C
- Hardness: HRC 58 $\pm$ 4



NP-03



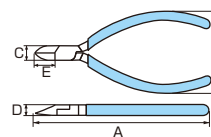
**NP-05**  **PLASTIC NIPPERS**

Tapered and slender head for work in restricted area

- Ideal for cutting and trimming various gates of injection molding
- Also capable of cutting thin copper wire ( $\phi$ 0.8mm max.)
- With side stopper & coiled spring
- Material: S58C
- Hardness: HRC 58 $\pm$ 4



NP-05



Item No.	Size	A	B	C	D	E
NP-03	125	130	54	14	8	17
NP-04	150	152	55	16	10	20
NP-05	120	120	50	11	7	12

(mm)

Steel

**T**



Others

**Z**



Kits

**K**





SCREW REMOVAL PLIERS LINE-UP

Damaged Screws Impossible to Remove?  
Remove Stripped, Rusted or Stuck screw easily!!



PZ-55

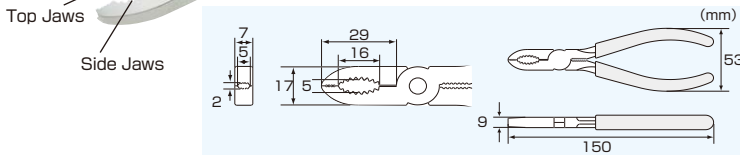
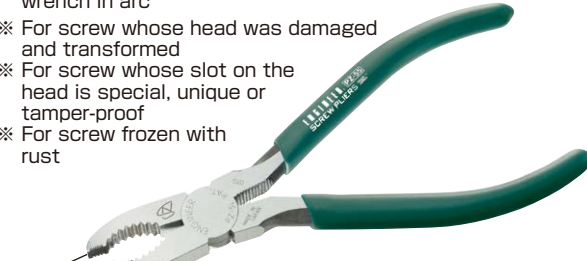
SCREW REMOVAL PLIERS

Make best use of PZ-55 while screwdriver being no use !

- Serrated jaw inside bites screw head firm and unfastens it with no slip.
- More powerful torque than screwdriver toward screw & nut
- Also ideal for rotating nut in case of no space to drive wrench in arc
- ※ For screw whose head was damaged and transformed
- ※ For screw whose slot on the head is special, unique or tamper-proof
- ※ For screw frozen with rust

Both vertical and horizontal serration for anti-slipping

PAT.



Item No.	Material	Hardness	Wgt. (g)
PZ-55	S58C	HRC56±2	125

■ Screws adaptable

Top Jaws		Side Jaws	
	Screw head size: $\phi 3 \sim \phi 8 \text{mm}$		Screw head size: $\phi 5.5 \sim \phi 10 \text{mm}$

PZ-56

SCREW REMOVAL PLIERS XP Cross

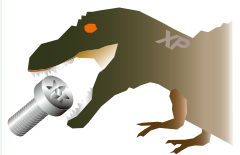
Feel the powerful and extensive work !!

- Slip joint function makes it possible to select two points of opening jaws.
- Reverse cross-jointed structure to reduce the load which is imposed at joint bolt while unfastening work.

SLIP JOINT

REVERSE X-JOINT

PAT.

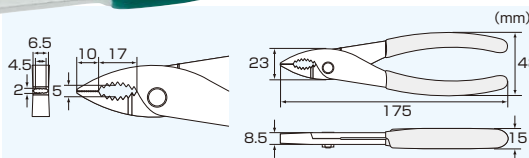


LARGE SCREW HEAD

Capable of holding M6 screw at maximum

SLENDER TOP

Ideal for work even at narrow space owing to slender design of jaws



Item No.	Material	Hardness	Wgt. (g)
PZ-56	Cr-V	HRC56±2	187

■ Screws adaptable

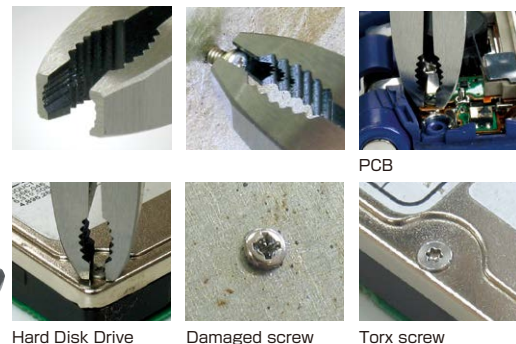
Top Jaws		Side Jaws	
	Screw head size: $\phi 3 \sim \phi 10 \text{mm}$		Screw head size: $\phi 5.5 \sim \phi 14 \text{mm}$

PZ-57

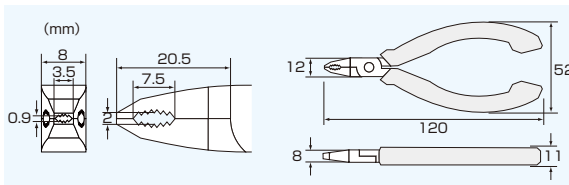
SCREW REMOVAL PLIERS M2

Slender jaws and pocket-sized body

- Ideal for unfastening frozen or special screws of tiny size
- ESD-Safe handle made of thermoplastic Elastomer (TPR) featuring comfortable grip



PAT.



Item No.	Material	Hardness	Wgt.(g)
PZ-57	S58C	HRC56±2	100

■ Screws adaptable

Top Jaws		Side Jaws	
	Screw head size: $\phi 2 \sim \phi 3.5 \text{mm}$		Screw head size: $\phi 3.5 \sim \phi 5.5 \text{mm}$



MULTI-PURPOSE SCREW REMOVING TOOL



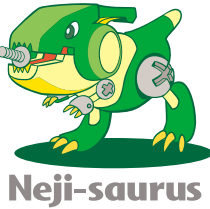
PZ-58

SCREW REMOVAL PLIERS GT

Stuck Screws Impossible to Remove?  
Just Grip and Turn with PZ-58!!

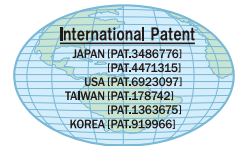
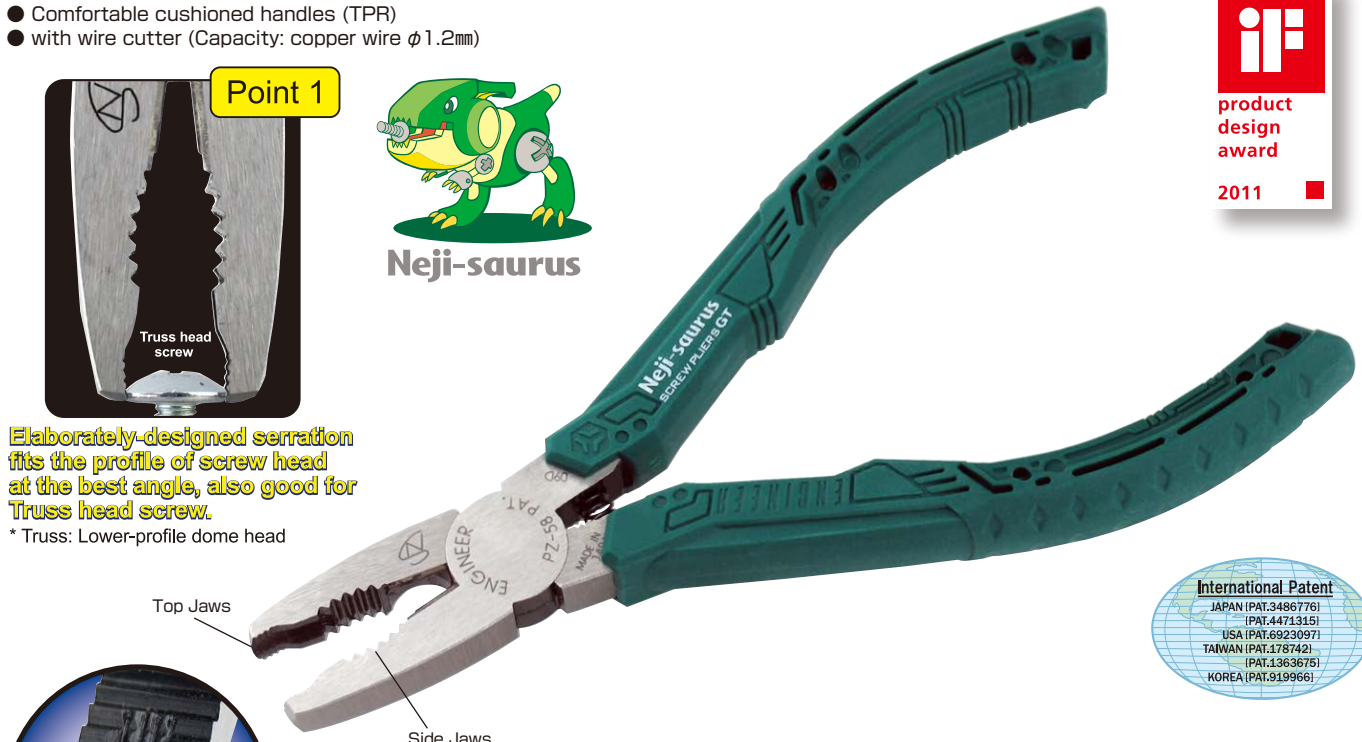


- Elaborately-designed serration fits the profile of screw head at the best angle.
- Also good for Truss head screw \*Truss: Lower-profile dome head
- Comfortable cushioned handles (TPR)
- with wire cutter (Capacity: copper wire  $\phi$ 1.2mm)



Elaborately-designed serration fits the profile of screw head at the best angle, also good for Truss head screw.

\* Truss: Lower-profile dome head

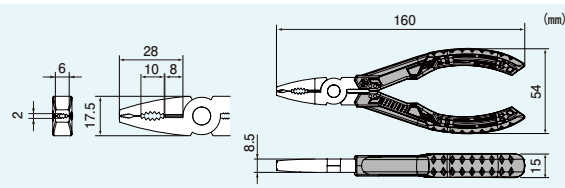
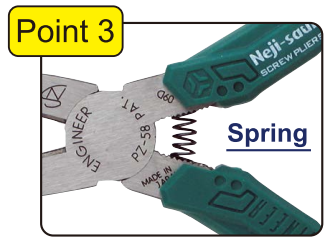
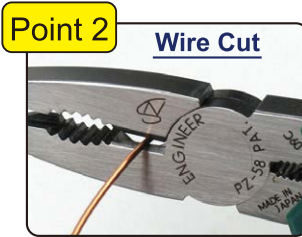
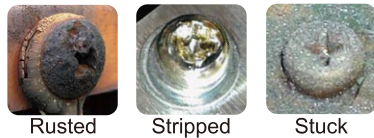


Top Jaws

Side Jaws

PAT.

Advanced design of Vertical and Horizontal serrations



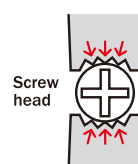
**Q. How does Neji-saurus work?**  
**A. Both vertical and horizontal serrations grasp a screw head with no slip.**

Case of ordinary pliers



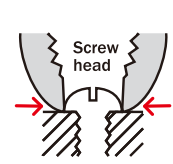
Ordinary plier jaws are lined with horizontal serrations. When you grasp and turn a screw head with ordinary pliers, the jaws slip and the screw remains stuck.

1. Vertical serration



Neji-saurus' specially-designed jaws generate gripping power.

2. Maximizes the friction



Neji-saurus' perfectly-fit serration maximizes the friction with no slip.

\* The tool may not remove specially-hardened, heat-treated or glued screws.  
\* Be sure to apply this tool to a screw head, but not to screw thread.

Item No.	Material	Hardness	Wgt. (g)
PZ-58	Carbon Steel	HRC58±2	130

■ Screws adaptable

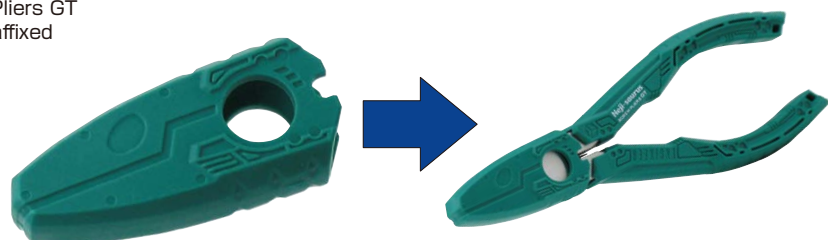
Top Jaws		Side Jaws	
	Screw head size: $\phi$ 3~ $\phi$ 9.5mm		Screw head size: $\phi$ 5.5~ $\phi$ 10mm

PZM-58

PLIER'S MASK FOR PZ-58

- Stylish and fancy mask for Screw Removal Pliers GT
- Keep the pliers jaws closed with this mask affixed
- Material : Elastomer (TPR)

NEW





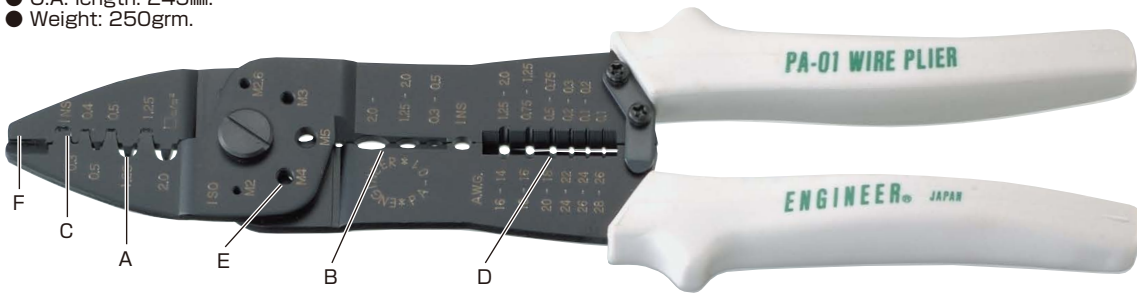
# WIRE PLIERS SERIES

Features ● General purpose & compact wire pliers used for crimping, stripping & cutting for precision wiring work.

## PA-01

**RoHS WIRE PLIERS**

- Six-in-one multipurpose type.
- For bare, insulated terminals & splices (open barrels).
- O.A. length: 245mm.
- Weight: 250gmm.



A. For crimping BARE terminals.



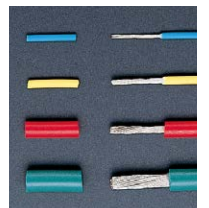
B. For crimping INSULATED terminals.



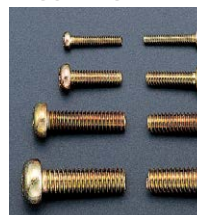
C. For crimping OPEN BARREL (SPICES)



D. For stripping insulated WIRES.



E. For cutting SCREWS.



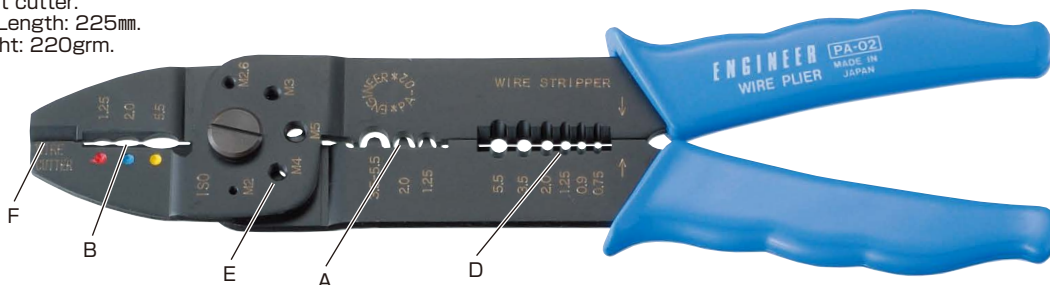
F. For cutting WIRES.



## PA-02

**RoHS WIRE PLIERS**

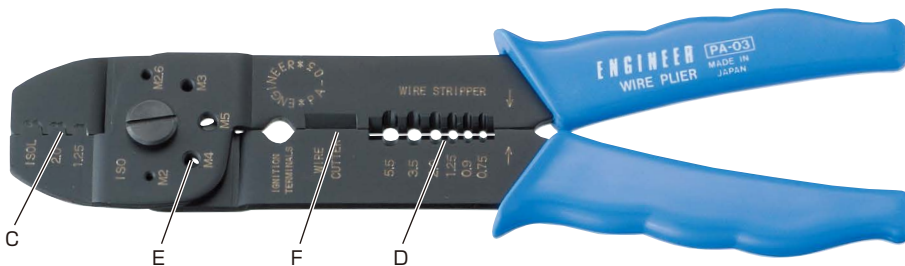
- For bare, insulated terminals, with wire stripper & bolt cutter.
- O.A. Length: 225mm.
- Weight: 220gmm.



## PA-03

**RoHS WIRE PLIERS**

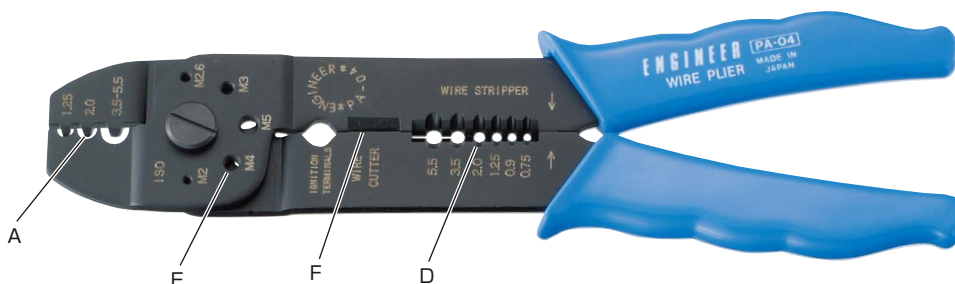
- For splices (open barrel terminals) with wire stripper & bolt cutter.
- O.A. Length: 210mm.
- Weight: 205gmm.



## PA-04

**RoHS WIRE PLIERS**

- For bare terminals with wire stripper & bolt cutter
- O.A. Length: 210mm.
- Weight: 205gmm.



Comparison table for PA series

Item No.	(mm <sup>2</sup> )					
	A	B	C	D	E	F
PA-01	Bare terminals' crimping 0.5 ~2.0	Insulated terminals' crimping 0.3 ~2.0	Splices' crimping 0.3 ~1.25	Wires' stripping 0.1 ~2.0	Small screw's cutter(iso) M2, M2.6, M3, M4, M5	Wires' cutting ○
PA-02	1.25~5.5	1.25~5.5	-	0.75~5.5	M2, M2.6, M3, M4, M5	○
PA-03	-	-	1.25~2.0	0.75~5.5	M2, M2.6, M3, M4, M5	○
PA-04	1.25~5.5	-	-	0.75~5.5	M2, M2.6, M3, M4, M5	○

Conversion A.W.G. table

AWG	8	10	12	14	16	18	20	22	24	26	28	30
Sectional area $mm^2$	8.37	5.26	3.31	2.08	1.31	0.82	0.52	0.33	0.20	0.13	0.08	0.05
Wire diam $mm$	3.26	2.59	2.05	1.63	1.29	1.02	0.81	0.64	0.51	0.41	0.32	0.25

Service

S

Driver

D

Nippers Pliers

N.P

Steel

T

Others

Z

Kits

K

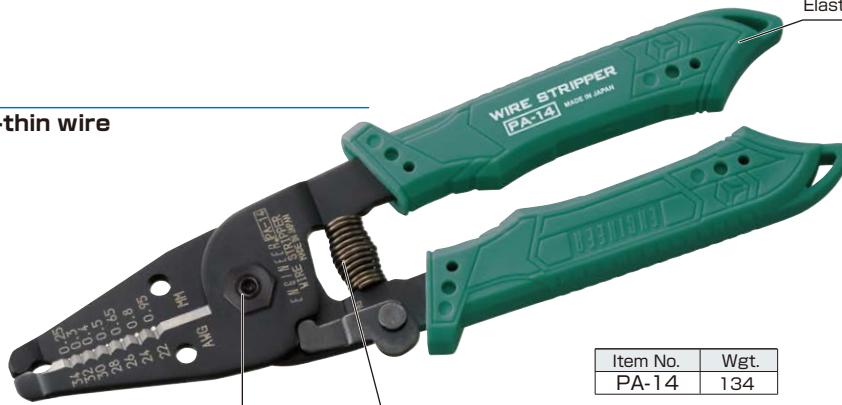


PA-05·06·07·14

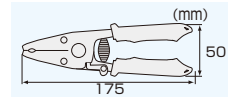


- Giving a very round finish of wires after stripping by sharp and precise edge
- Made of carbon steel alloy withstanding abrasions
- Oil-resistant Elastomer (TPR) handle

Environment-friendly Elastomer handle



with strap hole

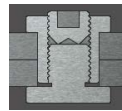


Item No.	Wgt.
PA-14	134

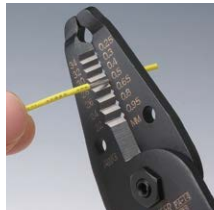
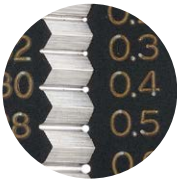
Applicable Sizes Table

Stripper's Hole Diam (mm)		0.25	0.3	0.4	0.5	0.65	0.8	0.95
Applicable wire	Outside diam. (mm)	0.2	0.25	0.3	0.38	0.5	0.64	0.8
	Sectional area (mm <sup>2</sup> )	0.025	0.035	0.05	0.08	0.13	0.2	0.33
AWG conversion	Stranded	34	32	30	28	26	24	22
	Solid wire	32	30	28	26	24	22	20

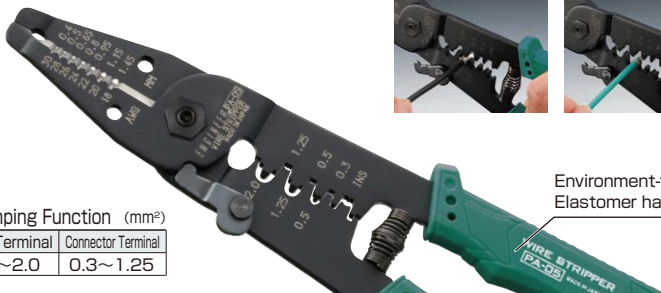
"ENGINEER" original Joint-Screw prevents the joint from being loose and offer you easy maintenance.



PA-14 for micro-thin wire



PA-05 for thin wire



Environment-friendly Elastomer handle

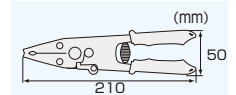
■ Crimping Function (mm<sup>2</sup>)

Bare Terminal	Connector Terminal
0.5~2.0	0.3~1.25

Item No.	Wgt.
PA-05	166

Applicable Sizes Table

Stripper's Hole Diam (mm)		0.4	0.5	0.65	0.8	0.95	1.15	1.45
Applicable wire	Outside diam. (mm)	0.3	0.38	0.5	0.64	0.8	1.0	1.3
	Sectional area (mm <sup>2</sup> )	0.05	0.08	0.13	0.2	0.33	0.52	0.82
AWG conversion	Stranded	30	28	26	24	22	20	18
	Solid wire	28	26	24	22	20	18	16



PA-06 for thin wire

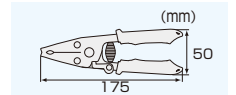


Environment-friendly Elastomer handle

Item No.	Wgt.
PA-06	134

Applicable Sizes Table

Stripper's Hole Diam (mm)		0.4	0.5	0.65	0.8	0.95	1.15	1.45
Applicable wire	Outside diam. (mm)	0.3	0.38	0.5	0.64	0.8	1.0	1.3
	Sectional area (mm <sup>2</sup> )	0.05	0.08	0.13	0.2	0.33	0.52	0.82
AWG conversion	Stranded	30	28	26	24	22	20	18
	Solid wire	28	26	24	22	20	18	16



PA-07 for thick wire



Environment-friendly Elastomer handle

Item No.	Wgt.
PA-07	134

Applicable Sizes Table

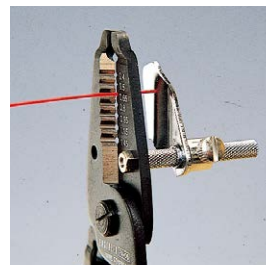
Stripper's Hole Diam (mm)		0.8	0.95	1.15	1.45	1.8	2.1	2.5
Applicable wire	Outside diam. (mm)	0.64	0.8	1.0	1.3	1.5	1.9	2.4
	Sectional area (mm <sup>2</sup> )	0.2	0.33	0.52	0.82	1.31	2.08	3.31
AWG conversion	Stranded	24	22	20	18	16	14	12
	Solid wire	22	20	18	16	14	(12)	(10)

( ) Reference

PA-90

Min. stripping length 1mm!

- Saving time and giving you perfect stripping length every time
- Adjustable stripping length let you work more efficiently and reduces faults.



Service



Driver



Nippers Pliers



Steel



Others



Kits



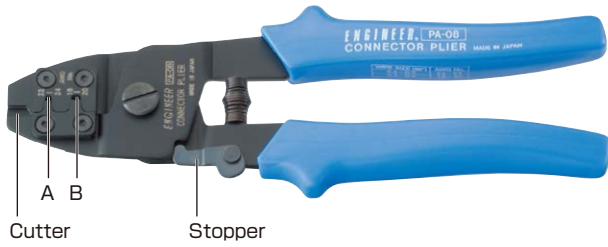
PA-08·15

CONNECTOR PLIERS

DOUBLE ACTION MECHANISM

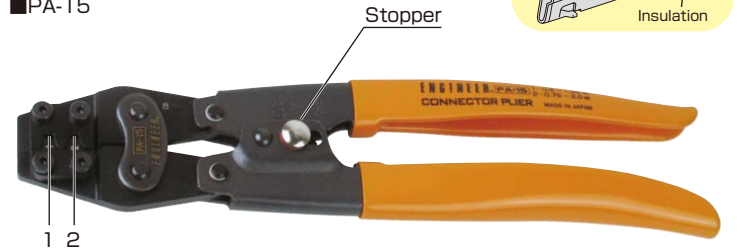
- It enables you to crimp lead wire portion and insulation by a simple one-squeeze operation.

■PA-08



▲PA-08

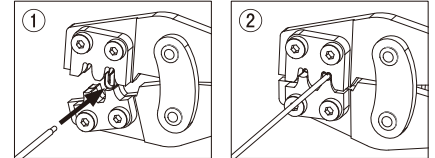
■PA-15



▲PA-15  
Flat blade terminal and Bullet terminal adaptable



Simple one-squeeze operation!!  
Conductor's portion  
Insulation



- ① Put a contact on to an adaptable die and close jaws just to hold the contact. Then, insert the lead wire into the barrel of contact.
- ② Grip the handles steadily. You may adjust crimping force slightly depending on grip strength.

■Applicable wire size

Item No.	Die No.	Die Width (mm)	Die Height (mm)	Die Thickness (mm)	Wire applicable (Reference only)		Net Weight	O.A. Length
					Cross section(mm)	AWG No.		
PA-15	1	2.9	0.8	3.5	0.5~1.25	20~16	385g	250mm
		3.1	1.5	4.5				
	2	3.1	0.8	3.5	0.75~2.0	18~14		
3.3		1.6	4.5					

■Applicable wire size

Item No.	Die No.	Conductors' cross section (mm)	AWG No.	Net Weight	O.A. Length
PA-08	A	0.21~0.33	24~22	215g	195mm
	B	0.52~0.82	20~18		

PAR-20

RATCHET CRIMPING CONNECTOR PLIERS

- Crimping wire and insulation simultaneously by a single gripping
- Ratchet mechanism ensures uniform and precise crimping.
- Handle sleeve made of PP, good for insulation and chemical resistance.
- Overall length : 265mm
- Weight: 450g

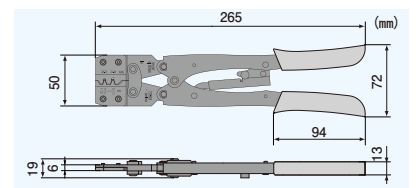


High accurate dies for fine crimping finish



Ratchet releaser

Twin crimping of both conductor and insulation at the same time



■How to use



① Put a contact pin to hold.



② Insert wire into barrel of contact.



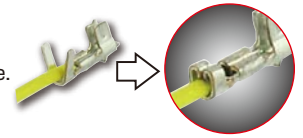
③ Grip the handles steadily until ratchet is released.

■Applicable wire size

Item No.	Die No.	Die			Wire applicable (Reference only)		
		W(mm)	H(mm)	T(mm)	φ mm	mm	AWG(Cconductor)
PAR-20	W3	Conductor 1.6	0.7	1.5	0.41~0.64	0.13~0.33	26~22
		Insulation 1.7	1.7	2.5			-
	W4	Conductor 1.9	0.9	1.5	0.64~0.81	0.33~0.52	22~20
		Insulation 2.3	2.5	2.5			-

CONNECTOR CRIMPING PLIERS

- Features
- Our line-up offers you very precise and perfect crimp finish of open-barrel contacts.
  - ENGINEER original joint-screw prevents the joint from being loose and realizes easy maintenance.
  - Pliers made of S55C high carbon steel for durability
  - With locking latch and coiled spring, Light weight for fatigue-free work



PA-09

Crimp AWG #32 to #20 wires in micro connectors of different makers!!

- 4 different crimping dies, 1.0, 1.4, 1.6 & 1.9mm(W)
- Makes it possible to crimp 1.25 to 2.5mm pitch connector pin (Narrow pitch)
- D-sub connector contacts also adaptable
- Weight: 145 g



MICRO CONNECTOR PLIERS



Typical terminals applicable

PH Series(JST)	ZH Series(JST)	Molex 170363(Molex)
EH Series(JST)	NH Series(JST)	Molex 170365(Molex)

Specifications

Item No.	Die Width (mm)	Die Height (mm)	Die Thickness (mm)	Wires applicable (Reference only)		
				φ mm	mm <sup>2</sup>	AWG (conductor)
PA-09	1.0	0.50	1.7	0.20~0.32	0.031~0.08	#32~#28
	1.4	0.55		0.32~0.51	0.08~0.21	#28~#24
	1.6	0.8	2.0	0.51~0.64	0.21~0.33	#24~#22
	1.9	0.9		0.51~0.81	0.21~0.52	#24~#20



AWG32 wire in microscopic die

PA-20

Crimp AWG #28 to #18 wires in micro connectors of different makers!!

- 4 different crimping dies, 1.6, 1.9, 2.0 & 2.3mm(W)
- Makes it possible to crimp 2.5 to 5mm pitch connector pin (Universal type)
- Weight: 145 g



UNIVERSAL CRIMPING PLIERS

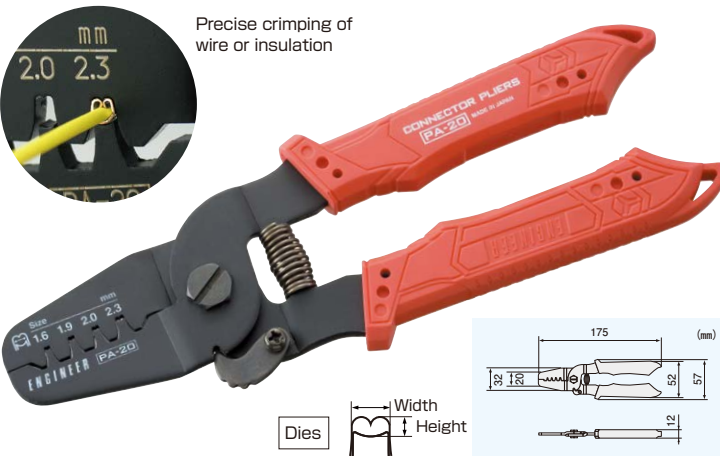


Typical terminals applicable

VH Series(JST)	NH Series(JST)	PH Series(JST)
EL Series(JST)	3191 Series(Molex)	MATE-N-LOK(Tyco)

Specifications

Item No.	Die Width (mm)	Die Height (mm)	Die Thickness (mm)	Wires applicable (Reference only)		
				φ mm	mm <sup>2</sup>	AWG (conductor)
PA-20	1.6	0.7	2.5	0.32~0.64	0.08~0.33	#28~#22
	1.9	0.8		0.51~0.81	0.21~0.52	#24~#20
	2.0	0.9		0.64~1.02	0.33~0.82	#22~#18
	2.3	1.0		0.81~1.02	0.52~0.82	#20~#18



Precise crimping of wire or insulation

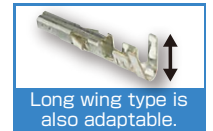
PA-21

Precise crimpers for wide range of open-barrel contacts including long barrel wing type

- 4 different crimping dies, 1.6, 1.9, 2.2 & 2.5mm(W)
- Crimping AWG #26~18 contacts of different connector makers
- Weight: 145 g



UNIVERSAL CRIMPING PLIERS



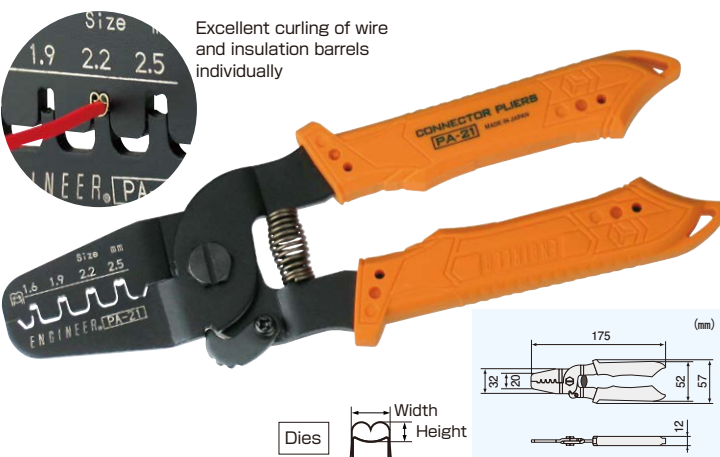
Long wing type is also adaptable.

Typical terminals applicable

XH Series(JST)	NH Series(JST)	VH Series(JST)
PA Series(JST)	Mini Fit(Molex)	Universal MATE-N-LOK(Tyco)

Specifications

Item No.	Die Width (mm)	Die Height (mm)	Die Thickness (mm)	Wires applicable (Reference only)		
				φ mm	mm <sup>2</sup>	AWG (conductor)
PA-21	1.6	0.8	1.8	0.41~0.51	0.13~0.21	#26~#24
	1.9	1.0		0.41~0.64	0.13~0.33	#26~#22
	2.2	1.2		0.51~0.81	0.21~0.52	#24~#20
	2.5	1.4		0.64~1.02	0.33~0.82	#22~#18



Excellent curling of wire and insulation barrels individually

Service



Driver



Nippers Pliers



Steel



Others



Kits





PRECISE CRIMPING SERIES - Tool Frame and Die Set



PAD-11~13

**RoHS** HANDY CRIMP TOOL

Ultra-precise crimper forming excellent crimping finish

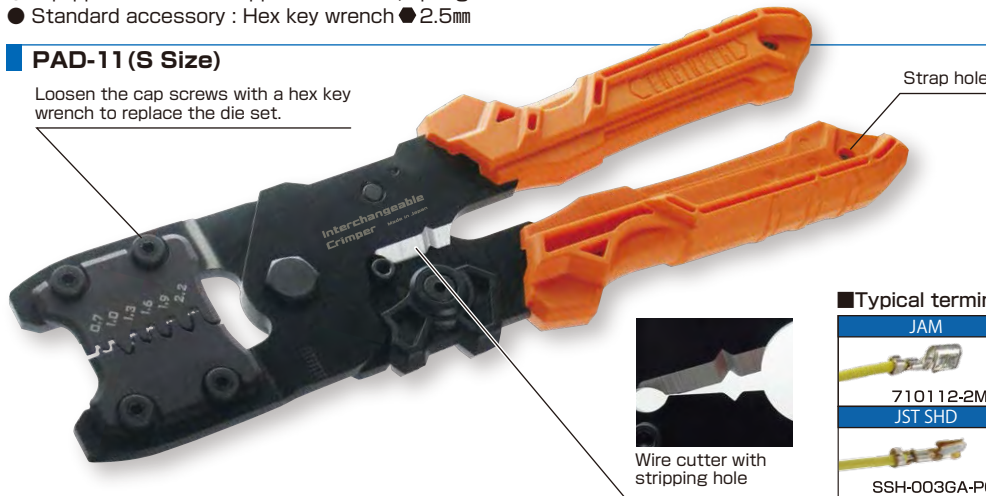
- Interchangeable die set for open-barrel contacts. Easy replacement and perfect fitting to the frame
- Ergonomically-designed handles with strap hole
- Equipped with wire stripper and cutter, spring loaded
- Standard accessory : Hex key wrench ● 2.5mm
- Material :  
Frame & Die set – Special alloy steel  
Handles – Elastomer (TPR)



Easy fitting. No need to adjust positioning [PAT.P]

PAD-11 (S Size)

Loosen the cap screws with a hex key wrench to replace the die set.



Typical terminals applicable

JAM	Molex CLIK-Mate	Tyco D-1000
710112-2MAC	502381	1827586-2
JST SHD	Molex PicoBlade	Tyco D-1000
SSH-003GA-P0.2	50079	1827587-2

PAD-12 (M Size)



Typical terminals applicable

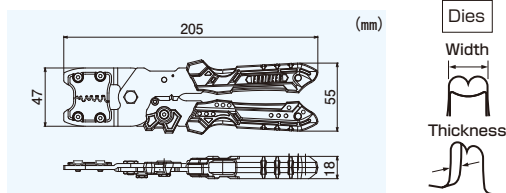
JST NH	Molex New Mini Fit	Tyco D-3000
SHF-001T-0.8BS	5556T	175217-2
JST VH	Molex New Mini Fit	Tyco D-3000
SVH-21T-P1.1	5558T	175288-2

PAD-13 (L Size)



Typical terminals applicable

JST VL	Molex 3191	Tyco D-3000
BVF-42T-P2.0	1189T	175218-2
JST VL	Molex 3191	Tyco D-3000
BVF-61T-P2.0	1190T	175289-2



Crimper size

Item No.	PAD-11											PAD-12					PAD-13				
	PAD-11						PAD-12					PAD-13									
	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	2.5	2.8	3.0	3.5						
Die width	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	2.5	2.8	3.0	3.5						
Die thickness	1.0		1.5		2.0		2.5		3.0		3.5										

PAD-11S~13S

**RoHS** INTERCHANGEABLE DIE SET

PAD-11S (S Size)

- Over 90 different terminals applicable



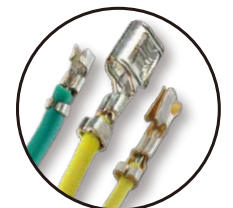
PAD-12S (M Size)

- Over 110 different terminals applicable



PAD-13S (L Size)

- Over 100 different terminals applicable



Frame & Dies Combination

Item No.	Frame	Die set
PAD-11	PAD-10	+ PAD-11S
PAD-12	PAD-10	+ PAD-12S
PAD-13	PAD-10	+ PAD-13S

Crimper size

Item No.	PAD-11S											PAD-12S					PAD-13S				
	PAD-11S						PAD-12S					PAD-13S									
	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	2.5	2.8	3.0	3.5						
Die width	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	2.5	2.8	3.0	3.5						
Die thickness	1.0		1.5		2.0		2.5		3.0		3.5										

PA-11~13

RoHS WIRE STRIPPER

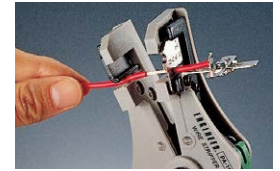
Super-Light weight wire stripper... 140g!

- Accurate wire stripping with single squeeze action.
- Made of durable plastic.
- Stripping AWG #32 to 10, stranded wire
- Unique grip designed to fit the human hand.

《Super-Light grip for repeated action》



1. Insert wire into the hole applicable.



2. Grip handles to strip applicable.



■ PA-13  
Grip color: Yellow  
For thin wires

■ Size applicable

Hole diam mm	0.25	0.3	0.4	0.5	0.65
Stranded wire(AWG)	32	30	28	26	24
Solid wire AWG	30	28	26	24	22



■ PA-11  
Grip color: Green

■ Size applicable

Hole diam. mm	0.5	1.2	1.6	2.0
Stranded wire(AWG)	26	18	16	14
Solid wire AWG	24	16	14	12



■ PA-12  
Grip color: Red

■ Size applicable

Hole diam. mm	1.0	1.6	2.0	2.6	3.2
Stranded wire(AWG)	20	16	14	12	10
Solid wire AWG	18	14	12	10	8

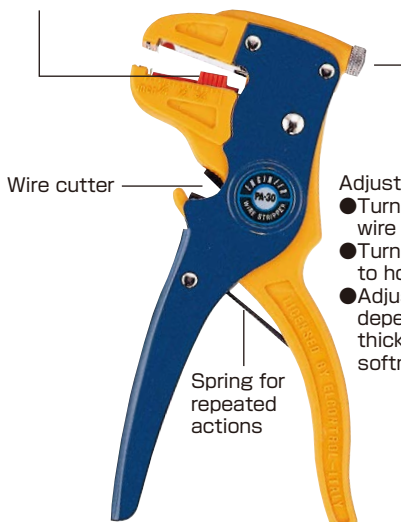


■ With strip gauge  
Length of wire is adjustable using strip gauge.

PA-30 RoHS WIRE STRIPPER

- One-Squeeze operation for easy stripping of applicable flat cables, 12mm width max.
- With stopper for adjustment of stripping length, 2~20mm.
- Applicable sectional area: 0.5~5.5mm<sup>2</sup>. (AWG20~10)

- Sliding stopper to adjust length of stripping.



- Adjustable screw
- Turn clockwise to hold wire tightly.
  - Turn counter-clockwise to hold wire softly.
  - Adjust the screw depending on the thickness of wires and softness of PVC insulation.

PA-91~93 RoHS TERMINAL SET

- Popular crimping terminals and connectors in compact plastic case.

PA-91



■ PA-91 Set

Terminal	Sectional area (mm <sup>2</sup> )	Screw diam (mm)	Contents
Bare Terminal	R	0.5	3
		1.25	3
		1.25	4
		2	5
		5.5	6
Y	1.25	4	5
	2	5	10
	5.5	6	5

PA-92



■ PA-92 Set

Terminal	Sectional area (mm <sup>2</sup> )	Screw diam (mm)	Contents
Insulated terminal	RV	1.25	3
		1.25	4
		2	5
		1.25	3
		1.25	4
YV	2	5	10

PA-93



■ PA-93 Set

Terminal	Sectional area (mm <sup>2</sup> )	Screw diam (mm)	Contents
Insulated terminal	RV	5.5	6
	YV	5.5	6
Splice terminal	BC	1.25	8
		2	8
Twist connector	TC	1.25~2	10
		1.5~4	8

Service

S



Driver

D



Nippers Pliers

N.P



Steel

T



Others

Z



Kits

K



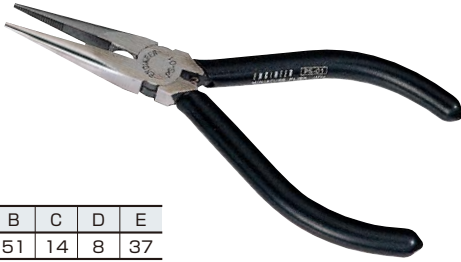
**PS-01**  **MINIATURE LONG NOSE PLIERS**

Ideal for precision work

- Jaws with inside serration
- Material: S58C
- Hardness: HRC 58±4
- Capacity: copper wire  $\phi$ 2mm



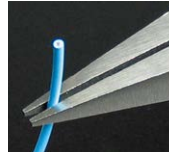
Point section



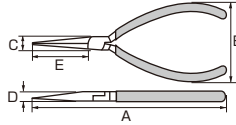
SIZE	A	B	C	D	E
125	132	51	14	8	37

**PS-04**  **MINIATURE FLAT NOSE PLIERS**

- Jaws without serration
- Material: S58C
- Hardness: HRC 46±4



Point section



SIZE	A	B	C	D	E
125	123	50	12	8	29

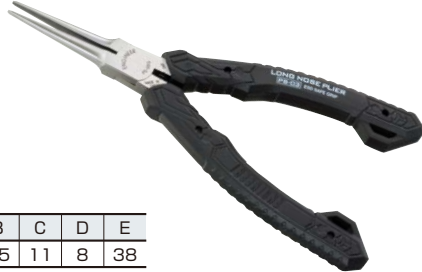
**PS-03**  **MINIATURE NEEDLE NOSE PLIERS**

Ideal for forming work

- Jaws without serration
- ESD-Safe handle made of Elastomer (TPR)
- Material: S58C
- Hardness: HRC 46±4



Point section



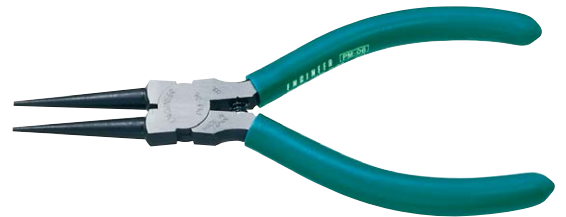
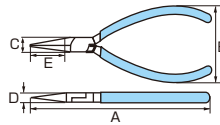
SIZE	A	B	C	D	E
125	141	55	11	8	38

**PM-06**  **ROUND NOSE PLIERS**

Ideal for looping & coiling of steel wires

- Material: SCM440H

Point section

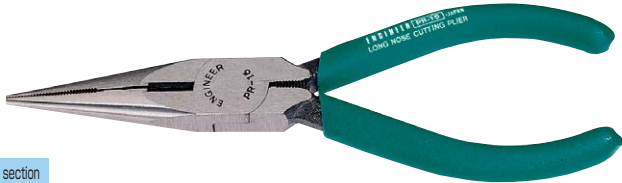


SIZE	A	B	C	D	E
150	145	53	15	8	35

**PR-15·16**  **LONG NOSE PLIERS**

General purpose pliers

- Material: S58C
- Hardness: HRC 58±4



Point section



PR-16

(mm)

Item No.	SIZE	A	B	C	D	E	Capacity
PR-15	125	142	51	17	10	43	Copper wire $\phi$ 2.0mm
PR-16	150	160	55	17	10	49	Copper wire $\phi$ 2.6mm

**PR-26**  **LONG NOSE PLIERS**

Professional type pliers

- Material: S58C
- Hardness: HRC 58±4
- Capacity: copper wire  $\phi$ 2.6mm



Point section



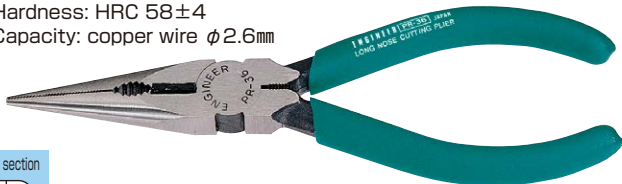
(mm)

SIZE	A	B	C	D	E
150	160	52	17	10	50

**PR-36**  **LONG NOSE PLIERS**

Multipurpose pliers with gripping jaws, cutter & wire stripper

- Stripping Hole:  $\phi$  1.2mm
- Material: S58C
- Hardness: HRC 58±4
- Capacity: copper wire  $\phi$ 2.6mm



Point section



(mm)

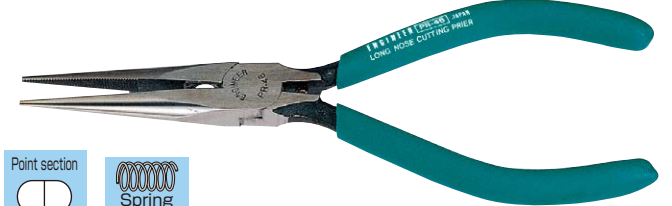
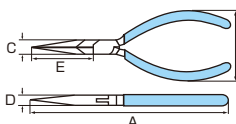
SIZE	A	B	C	D	E
150	160	51	17	10	50

**PR-46**  **NEEDLE NOSE PLIERS**

50mm-long slender nose ideal for work in deep area

- Material: S58C
- Hardness: HRC 58±4
- Capacity: copper wire  $\phi$ 2.6mm

Point section



(mm)

SIZE	A	B	C	D	E
160	160	51	13	8	50

Service



Driver



Nippers Pliers



Steel



Others



Kits





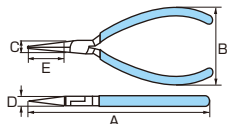
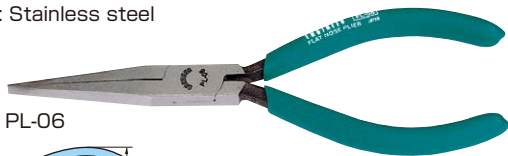
### STAINLESS STEEL PLIERS SERIES

- Features
- Anti-corrosive stainless steel body
  - Ideal for precision work
  - Long-life box joint structure to avoid loosening

#### PL-05·06 LONG FLAT NOSE PLIERS

Thin and flat edge for efficient work

- Jaws without serration
- Long-life box joint structure to avoid loosening
- Material: Stainless steel



Item No.	SIZE	A	B	C	D	E
PL-05	125	143	50	11	7	40
PL-06	150	164	53	15	10	43

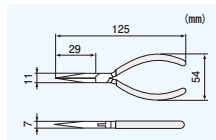


Box joint(3pcs. joint)

#### PSS-01

STAINLESS STEEL LONG NOSE PLIERS

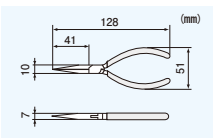
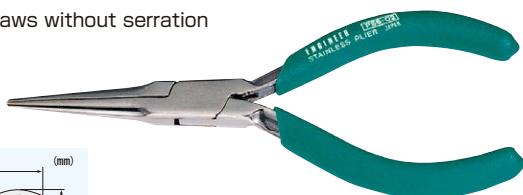
- Point section
- Serrated jaws



#### PSS-02

STAINLESS STEEL NEEDLE NOSE PLIERS

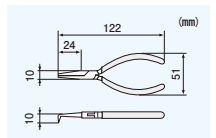
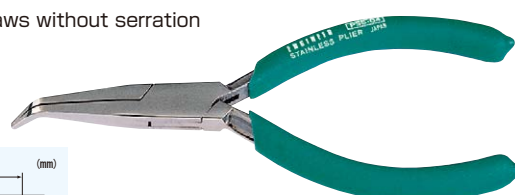
- Point section
- Jaws without serration



#### PSS-04

STAINLESS STEEL FLAT NOSE PLIERS (CURVED TYPE)

- Point section
- Jaws without serration



### PD SERIES

- Features
- Durably constructed Electrician's Pliers

#### PD-06~08

SIDE CUTTING PLIERS

PD-06

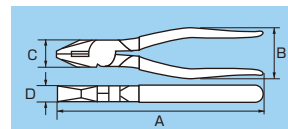


PD-08



Heavy duty professional-use pliers

- Material: S58C
- Hardness: HRC 60±4



Item No.	Size	A	B	C	D	Capacity
PD-06	150	165	50	22	12	steel wire $\phi$ 1.6mm
PD-07	175	185	52	24	13	steel wire $\phi$ 1.8mm
PD-08	200	210	53	27	14	steel wire $\phi$ 2.0mm

### PC & PW SERIES

- Features
- Slip Joint Pliers and Groove Joint Pliers for maintenance and general purpose

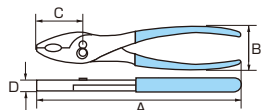
#### PC-06·08 COMBINATION PLIERS

- Slip joint for wide-open jaws
- Material: S55C

PC-06



PC-08



Item No.	Size	A	B	C	D
PC-06	150	165	45	42	9
PC-08	200	203	48	46	11

#### PW-05~10

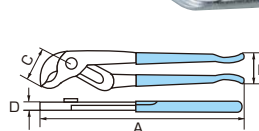
WATER PUMP PLIERS

- Groove-joint leverage for heavy duty work
- Serrated jaws with soft-touch grip
- Material: S55C

PW-05



PW-08



Item No.	Size	A	B	C	D	Max. Opening
PW-05	125	127	34	25	5.5	15
PW-08	200	200	37	38	8	33
PW-10	250	250	38	50	11	45

**PZ-01·02**

**E-RING PLIERS**

Ideal and smart pliers to remove and fasten E-ring!!

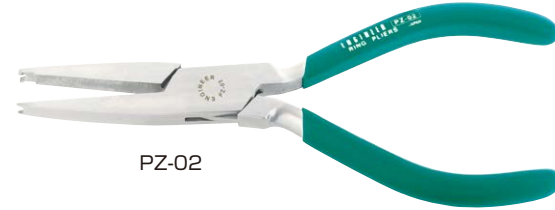
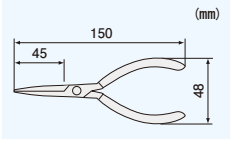
- Place the corner of E-ring into the recess of pliers' jaw for removal, fastening and replacement work.
- Magnetized point for convenient holding
- Long-life box joint structure to avoid loose joint
- Material : Stainless steel



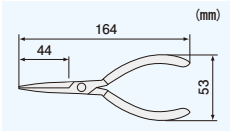
Box joint



PZ-01



PZ-02



Item No.	Ring Size	O.A. Length
PZ-01	φ3~4mm	150mm
PZ-02	φ5~9mm	164mm



Ring Size

The Ring Size shown above is the diameter of grooved shaft to which E-ring retains.

**PZ-10**

**SNAP RING PLIERS**

Convertible pliers for use with both internal & external rings.

- Main body coming with 4 different tips
- Oil-resistant Elastomer (TPR) handle
- Overall length: 195mm
- Weight (with PZ-11) : 162g

Environment-friendly Elastomer handle with strap hole



Setting for internal rings



Change the setting position and fix one of 4 basic tips depending on work to Internal ring or External ring

- How to convert setting from internal to external
- ① Unscrew & move setting position at the cross joint hole.
  - ② Unscrew & alternate the right and left tips each other.

Setting for external rings



- Body with 4 bit set



Tip's Shape and Rings Applied (mm)

Item No.	Tip Diam.	Shape	Rings applied		
			For Internal Ring C type	For Internal Ring Grip type	For External Ring
PZ-11	0.7	Straight	3~11	2~5	6~13
PZ-12		Curved			
PZ-13	1.4	Straight	10~30	6~9	12~30
PZ-14		Curved			

**PH-01~06**

**LOCK HOLDER**

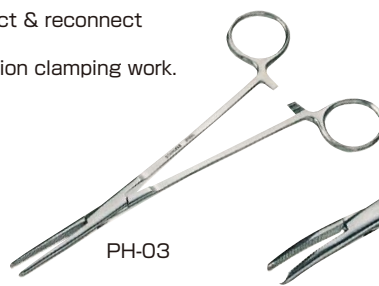
- Serrated ratchet allows quick disconnect & reconnect for temporary connection.
- Ideal for assembling, soldering & precision clamping work.
- Material: Stainless Steel



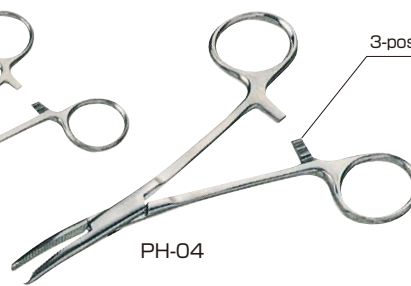
Holding component



Clipping oil hose



PH-03



PH-04

3-position Snap Lock

Item No.	Length	Point shape
		PH-01
PH-02		Curved
PH-03	150	Straight
PH-04		Curved
PH-05	200	Straight
PH-06		Curved

**PH-31·32**

**ELECTRONIC SNIPS**

- Ideal for PCB related work.
- PH-31 (straight)
- PH-32 (curved)
- Length: 115mm
- Material: Stainless Steel



PH-31

PH-32

**PH-33·34**

**ELECTRONIC SNIPS**

- Ideal for delicate cutting for PCB related work.
- PH-33 (straight)
- PH-34 (curved)
- Length: 145mm
- Material: Stainless Steel
- Serrated shears for anti-slipping



PH-33

PH-34

Service

S

Driver

D

Nippers Pliers

N.P

Steel

T

Others

Z

Kits

K

**PT SERIES** (AISI 304 Stainless Steel)

- Features**
- Standardized stainless steel (AISI 304), anti-magnetic, anti-acid & anti-corrosive alloy
  - Hardened points are finished accurately and tensionized body to provide correct spring action & eliminate strain of fingers.
  - Indicates spring action with
- ★ Soft   ★★ Middle   ★★★ Hard

**PT-02**  **TWEEZERS (RR)**

- Length : 150mm
- ★★



**PT-04**  **TWEEZERS (I)**

- Length : 120mm
- ★



**PT-06**  **TWEEZERS (J)**

- Length : 120mm
- ★



**PT-08**  **TWEEZERS**

- Length : 145mm
- ★



**PT-10**  **TWEEZERS**

- Serrated inside point
  - Length : 150mm
- ★★



**PT-01**  **TWEEZERS (AA)**

- Length: 125mm
- ★



**PT-03**  **TWEEZERS (MM)**

- Length : 125mm
- ★



**PT-05**  **TWEEZERS (GG)**

- Length : 120mm
- ★



**PT-07**  **TWEEZERS (TS)**

- Serrated inside point
  - Length : 125mm
- ★★



**PT-09**  **TWEEZERS**

- Serrated inside point
  - Length : 130mm
- ★★



**PT-11**  **TWEEZERS**

- Serrated inside point
  - Length : 230mm
- ★★





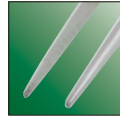
**PT-12**  **TWEEZERS (BS)**

●Length : 165mm



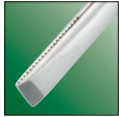
**PT-13**  **TWEEZERS**

●Length : 190mm



**PT-14**  **REVERSE ACTION TWEEZERS**

- Handles are squeezed to open points.
- Serrated inside points
- Length : 175mm



**PT-15**  **TWEEZERS**

- Inside polished points for picking up small sheets.
- Length : 105mm



**SOLID ARM TWEEZERS SERIES**

- Features
- 2.2mm thickly-designed arms hold IC chip more steadily than conventional tweezers.
  - Stiff arms can not bend easily and hold a small component very steadily.
  - AISI 304 anti-magnetic stainless steel

Arm Thickness: 1.5 times!!

PT-16

Conventional tweezers



**PT-16·17·31**

 **SOLID ARM TWEEZERS**

- 0.5mm Fine tip
- Length:125mm



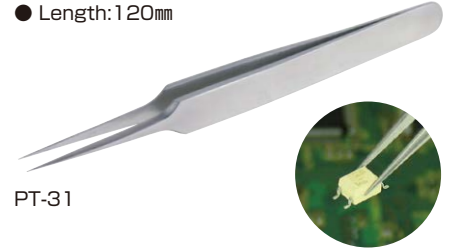
PT-16

- 1.3mm Squared tip
- Length:125mm



PT-17

- 0.3mm Fine tip (GG)
- Length:120mm



PT-31

**TITANIUM TWEEZERS SERIES (100% ANTI-MAGNETIC)**

- Features
- Perfect anti-magnetic titanium, safety in work of electronics and computer device. No solder residue left.
  - No corrosion, No rusting and Anti-ionization, ideal for chemical & biological fields

- Light weight, 40% less than ordinary stainless steel tweezers, for fatigue-free work

Soft Middle Hard

**PTN-01 AA TYPE** 

- Length : 125mm
- with soft case



General use tweezers with strong sharply pointed type.

with Soft Case **PTK-90**

**PTN-02 GG TYPE** 

- Length : 120mm
- with soft case



Needle-like, very thin tips for handling microscopic parts.

with Soft Case **PTK-90**

**PTN-03 J TYPE** 

- Length : 120mm
- with soft case



very thin and curved tips for working on microminiature assemblies.

with Soft Case **PTK-90**

**PTN-04 TS TYPE** 

- Length : 125mm
- with soft case



Serrated inside points.

with Soft Case **PTK-90**

Service

S



Driver

D



Nippers Pliers

N.P



Steel

T



Others

Z



Kits

K



## SMD TWEEZERS SERIES

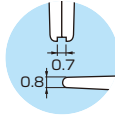
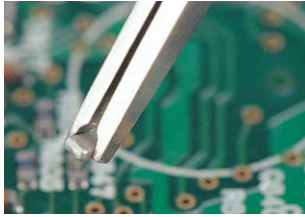
- Features
- Ideal for handling highly complex SMD chip parts.
  - Free selection according to shape of chip parts.
  - Made of AISI 304, anti-magnetic, non-corrosive, less wear for long time.

## PT-28

RoHS SMD TWEEZERS

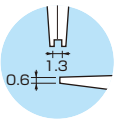
Especially designed for handling tiny SMD.

- Long needle-like nose
- Reverse action type
- Length : 138mm



## PT-19

RoHS

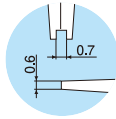


●Length : 115mm



## PT-20

RoHS

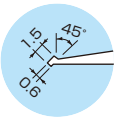


●Length : 115mm



## PT-21

RoHS

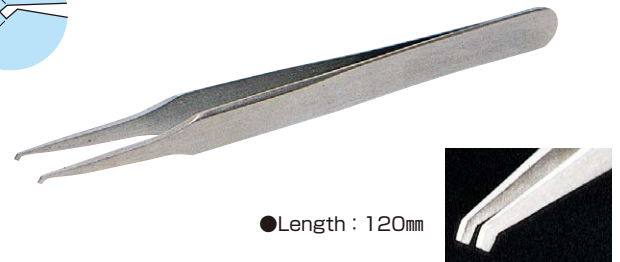
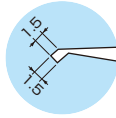


●Length : 120mm



## PT-22

RoHS

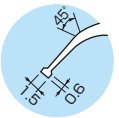


●Length : 120mm



## PT-23

RoHS

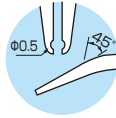


●Length : 120mm



## PT-24

RoHS

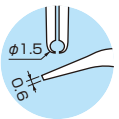


●Length : 125mm



## PT-25

RoHS

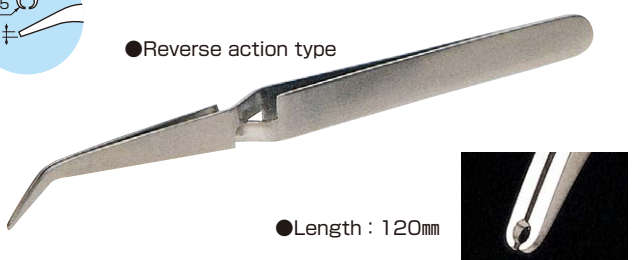
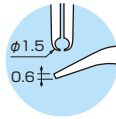


●Length : 115mm



## PT-26

RoHS



●Reverse action type

●Length : 120mm



Service

S



Driver

D



Nippers Pliers

N.P



Steel

T



Others

Z



Kits

K



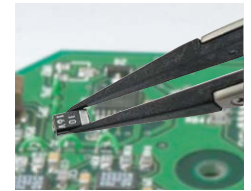
**PTZ-41·42·43**

**ESD PLASTIC-TIPPED TWEEZERS**

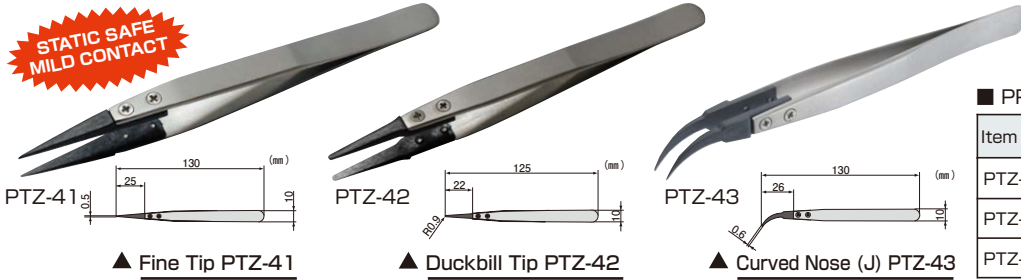
**ENGINEERING PLASTIC, PPS (Polyphenylenesulfide) TIP**

- ESD-Free tip ideal for handling static sensitive components
- Holding the object softly without any possibility of damage like metal tweezers
- Totally anti-magnetic body including stainless steel shank
- Anti-acid chemical resistance
- High wear-resistant and replaceable tip
- Heat resistance up to 270°C (ASTM D648)
- ※ The above is Deflection temperature and is not to guarantee performance of tip against heated object.

SOFT SPRING ACTION



STATIC SAFE MILD CONTACT



■ PPS-TIPPED STAINLESS TWEEZERS

Item No.	Overall Length	Tip	Shank Width	Weight
PTZ-41	130mm	0.5mm Fine Tip	10mm	16g
PTZ-42	125mm	RO.9mm Duckbill	10mm	16g
PTZ-43	130mm	0.6mm Fine Tip	10mm	16g

**PTZ-91**

SPARE TIP FOR PTZ-41



■ Contents : tip 2 pcs. & screw 4 pcs./set

Item No.	Material	Surface Resistivity
PTZ-91	PPS	$1 \times 10^5 \sim 10^7 \Omega$

**PTZ-92**

SPARE TIP FOR PTZ-42



■ Contents : tip 2 pcs. & screw 4 pcs./set

Item No.	Material	Surface Resistivity
PTZ-92	PPS	$1 \times 10^5 \sim 10^7 \Omega$

**PTZ-93**

SPARE TIP FOR PTZ-43



■ Contents : tip 2 pcs. & screw 4 pcs./set

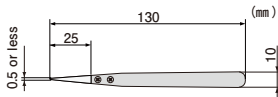
Item No.	Material	Surface Resistivity
PTZ-93	PPS	$1 \times 10^5 \sim 10^7 \Omega$

**PTZ-51**

**CERAMIC-TIPPED TWEEZERS**

High-temperature resistant ceramic tip featuring less solder adhesive

- Heat resistance : 1,000 °C (Tip)
- High wear-resistant and anti-acid tip
- Excellent electrical insulation
- Material : Anti-Magnetic stainless body with zirconia ceramic fine tip



**PTZ-94**

SPARE TIP FOR PTZ-51



■ Contents : tip 2 pcs. & screw 4 pcs./set

**PTZ-01**

**WAFER HANDLING TWEEZERS**

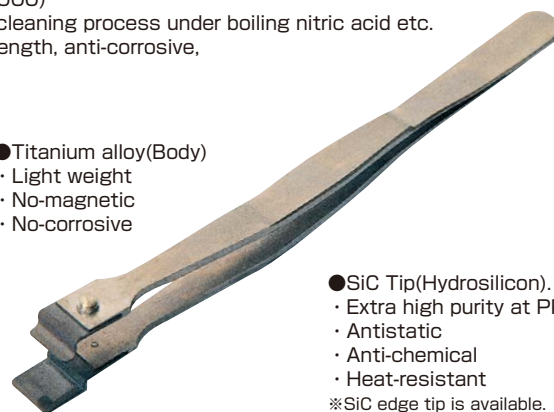
Purest Silicon Carbide (SiC) tipped tweezers, protect wafer completely from metallic pollution

- Cleanroom package (Class 100 ~ 1000)
- Anti-chemicals, heat-resistant allow cleaning process under boiling nitric acid etc.
- Made of the titanium alloy in 150mm length, anti-corrosive, anti-magnetic & light weight.

● Holds max. 6inch diam. wafers



● Titanium alloy(Body)  
· Light weight  
· No-magnetic  
· No-corrosive



- SiC Tip(Hydrosilicon).  
· Extra high purity at PPb level.  
· Antistatic  
· Anti-chemical  
· Heat-resistant
- ※ SiC edge tip is available.

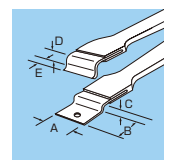
■ Features

Item	Features
Density	(kg/M <sup>3</sup> ) 3.21 × 10 <sup>3</sup>
Bending moment*	(kgf/mm <sup>2</sup> ) 80
Tensile stress*	(kgf/mm <sup>2</sup> ) 60
Young's modules	(kgf/mm <sup>2</sup> ) 50,000
hardness	(kgf/mm <sup>2</sup> ) HK:3,500
Coefficient of linear expansion	(1/°C) 4.5 × 10 <sup>-6</sup>
Heat conductivity*	(cal/cm·s·°C) 0.16
Specific resistance*	(Ω·m) 10 <sup>2</sup>

(※) Figures at room temp.

● Edge shape

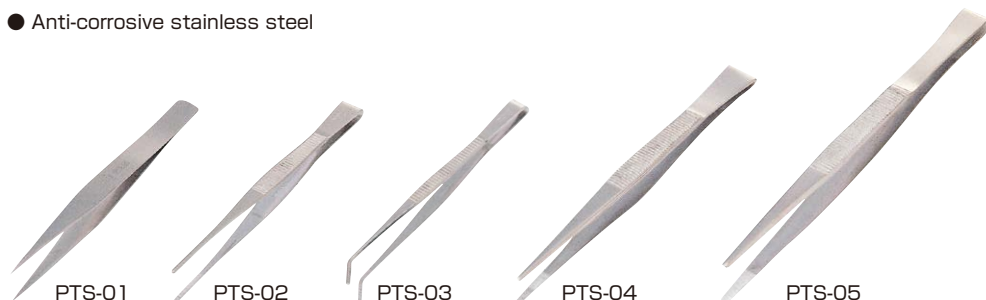
- A : 11mm
- B : 9mm
- C : 2mm
- D : 3.6mm
- E : 2.4mm



**PTS-01~08**

**TWEEZERS**

● Anti-corrosive stainless steel



Item No.	Shape	Length
PTS-01	Straight AA type	126mm
PTS-02	Straight with serrated inside	124mm
PTS-03	Curved with serrated inside	122mm
PTS-04	Straight with serrated inside	152mm
PTS-05	Straight with serrated inside	180mm
PTS-06	Straight with serrated inside	210mm
PTS-07	Straight with serrated inside	240mm
PTS-08	Straight with serrated inside	300mm



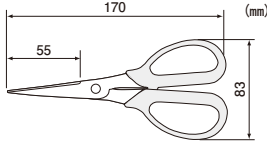
PH-50 · 51

RoHS COMBINATION SCISSORS

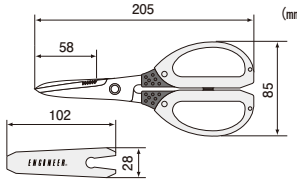
2-in-1 Unique cutting blade

- Trimming various objects which you could not cut with ordinary scissors such as nylon fiber, cabtire cord, etc.
- Fine and flush cut in finish even compared with cut with cutting pliers
- Ideal for professional electricians as well as for hobby use.

PH-50



PH-51



Notched Blade



Trimming Nylon or Kevlar fiber without slipping

Notched blades prevent the object from slipping



Copper braided flat wire

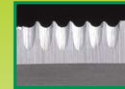


Aluminum sheet

PH-50 Notched Blade Cutting Capacity

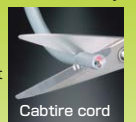
Nylon/Kevlar fiber	Various types
Copper braided wire	0.5mm max.
Aluminum/Copper sheet	1.0mm max.
Plastic plate / PET	

U-type Blade



Sharp cut against insulated cord with rubber or cotton braided

U-type notches hold cord firmly



Cabtire cord



Copper wire



Insulated cord

PH-50 U-type Blade Cutting Capacity

Copper wire	φ1.5mm max.
Cabtire cord	Various types
Cotton braided cord	
Cotton insulated cord	

※Do not use U-type blade for cutting Aluminum or Copper sheet, which may damage the blade.

PH-51



Item No.	Size	Blade (Hardness)	Handles	Weight
PH-50	170	Stainless Steel (HRC54±2)	PE	58g
PH-51	205	Stainless Steel (HRC58±2)	TPR+ABS	125g

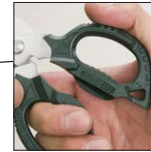
PH-55

4-in-1 Blade combination, Compact Body to Generate More Force!!

- Cut various materials cleanly
- Safely-designed and comfortable handles
- Blade cap with vent & drain holes
- Rust proof stainless steel body
- Applicable to professional users and hobbyist

RoHS COMBINATION SCISSORS GT

Anti-slip Handle



You can grasp the outer rim of the handles safely when the work requires a strong grip.



Micro-serration



Holds the object without slipping

Finger Pinch Guard



The overlapping guard prevents your fingers being pinched in the handles. **[PAT.]**

Flat Blade



Smooth cutting not only of cloth but also of paper

Safety Box Opener



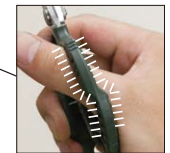
Convenient to open carton boxes with ease

Wire Cutter



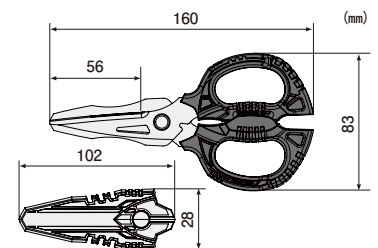
Handy cutting blades for copper or steel wire

S-shaped Design



The unique form transmits gripping power efficiently to the shears.

Cutting Capacity (Reference)			
Micro-serration		Wire Cutter	
Rope	Cabtire cord	Cotton insulated	Copper wire
φ10mm	φ9mm	φ8mm	φ1.6mm
Leather belt	CD-Card	Carpet	Wire
4mm thick	1.2mm thick	5mm thick	φ1.2mm



Item No.	Size	Blade (Hardness)	Handles	Weight
PH-55	160	Stainless Steel (HRC58±2)	PBT	120g

※Do not apply Copper or Steel wire to the Micro-serration to keep the life of main blades.  
 ※Heat-treated or specially-hardened wire is not applicable for cutting. It may damage the blades.

Service



Driver



Nippers Pliers



Steel



Others



Kits





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# SMART MONKEY WRENCH

- Features**
- Only 2mm-thick jaws fit into narrow gap of a thin nut
  - Ideal for fastening coaxial (BNC) connectors, double nut, etc.
  - No damage given to housing of BNC connectors
  - Accurately machined finish of thin edge
  - Made of Chrome Vanadium steel
  - Extra long jaws and wide opening type (TWM-07 & TWM-08)

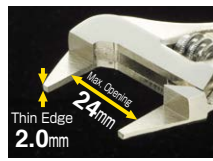


## TWM-03·07·08

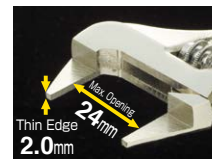
## SMART MONKEY WRENCH



150mm size with soft handle



150mm size



100mm size Stubby with cushioned handle (TPR)



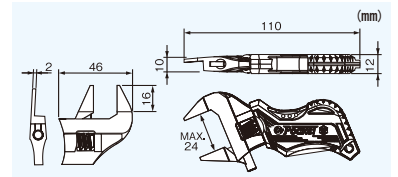
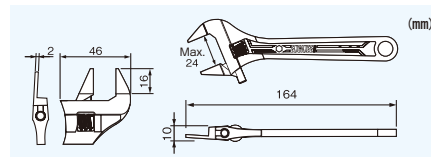
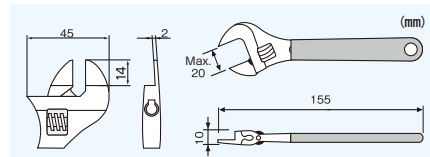
TWM-03



TWM-07



TWM-08



## TWM-01·02·04·05

## ADJUSTABLE ANGLE WRENCH

- Heavy duty adjustable wrench
- Soft grip for easy handling.



TWM-04



TWM-02



TWM-01



TWM-05

Item No.	Nominal Size	A	B	C	D
TWM-04	100	100	32	13	8
TWM-01	150	155	45	20	10
TWM-02	200	210	57	25	14
TWM-05	250	260	68	30	15

## TP-20~28

## PIN VISE

- Used for various applications to drilling, tapping, piercing (handy reamer) grinding, etc.
- Featuring precision clamping chuck (collet)
- Material: Body-Brass Collet-Steel with plating

**Single end shank (Through-hole body)** with 2 pcs. of Single head collets **TP-21**

Built-in collet

**Double ended shank (Through-hole body)** with 2 pcs. of Single head collets **TP-22**

**Double ended shank (Through-hole body)** with 2 pcs. of Double-head collets **TP-23**

**Single end with swivel head** with 2 pcs. of Double-head collets **TP-24**

Remove the swivel head to put a collet inside.

**Fitting to electric driver** with 2 pcs. of Single head collets **TP-20**

**Fitting to drilling machine** with 1 pcs. of Double-head collet **TP-25**

**Fitting to mini motor** with 2 pcs. of Double-head collets **TP-26-28**

Item No.	Collet Type	Diameter of Drill Bit	Shank	Joint	O.A. Length	Weight (g)
TP-21	Single Head	⌀ 0~1.6	ϕ9	-	100	40
		⌀ 1.6~2.8				
TP-22	Single Head	⌀ 0~1.6	ϕ8	-	110	35
		⌀ 1.6~2.5				
TP-23	Double Head	⌀ 0~1.1    1.9~2.6	ϕ8	-	105	35
		⌀ 1.1~1.9    2.6~3.2				
TP-24	Double Head	⌀ 0~1.1    1.9~2.6	ϕ8	-	95	40
		⌀ 1.1~1.9    2.6~3.2				
TP-25	Double Head	⌀ 0~1.1    1.1~1.6	-	ϕ6	67	20
TP-26	Double Head	⌀ 0~1.1    1.9~2.6	-	ϕ2	50	20
		⌀ 1.1~1.9    2.6~3.2				
TP-28	Double Head	⌀ 0.7~1.9	-	ϕ6.3	50	20
		⌀ 1.9~3.0				

\* TP-26 comes with a pin adaptor (dia. 2mm) to fix a mini motor  
 \* TP-28 comes with a pin adaptor (dia. 3mm) to fix a mini motor





**TWB-01·02·04·05**

**IRoHS BALL POINT HEX WRENCH SET**

Ball head (magnetized) works from an angle up to 30° off axis.

- Heat treated special alloy with electroless nickel plating
- Hardness : HRC57±2

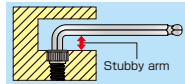


**TWB-01** 8-in-1 Standard Long Shank



**TWB-02** 8-in-1 Stubby Arm, Long Shank

- Stubby arm accessible to restricted area where overhead space is tight



	TWB-01 (8 pcs./set) (Individual model)	TWB-02 (8 pcs./set)	TWB-04 (8 pcs./set)	TWB-05 (8 pcs./set)
Across Flat ● I (mm)	A×B (mm)	A x B (mm)	A x B (mm)	A x B (mm)
● 1.5	81×14 (TWB-15)	81×4	51×14	51×4
● 2.0	96×16 (TWB-20)	96×5	58×16	58×5
● 2.5	111×18 (TWB-25)	111×6	65×18	65×6
● 3.0	127×20 (TWB-30)	127×8	74×20	74×8
● 4.0	142×25 (TWB-40)	142×9	78×25	78×9
● 5.0	160×28 (TWB-50)	160×11	89×28	89×11
● 6.0	180×32 (TWB-60)	180×13	101×32	101×13
● 8.0	198×36 (TWB-80)	198×16	112×36	112×16

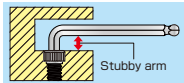
**TWB-04** 8-in-1 Standard Arm, Short Shank

- Hand-held compact sized body in bullet holder



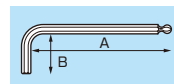
**TWB-05** 8-in-1 Stubby, Short Shank

- Stubby arm accessible to restricted area where overhead space is tight
- Hand-held compact sized body in bullet holder



**TWB-13~00** IRoHS BALL POINT HEX WRENCH

- Electroless nickel plated



Item No.	Across Flats ● mm	A×B mm
TWB-13	1.27	70×13
TWB-15	1.5	81×14
TWB-20	2.0	96×16
TWB-25	2.5	111×18
TWB-30	3.0	127×20
TWB-40	4.0	142×25
TWB-50	5.0	160×28
TWB-60	6.0	180×32
TWB-80	8.0	198×36
TWB-00	10	224×40

**TWH-01·02·04** IRoHS HEX KEY WRENCH SET

METRIC SIZE



TWH-01



TWH-04

Item No.	pcs.	Set(mm)
TWH-01	7	0.89, 1.27, 1.5, 2.0, 2.5, 3.0, 4.0
TWH-04	8	1.5, 2.0, 2.5, 3.0, 4.0, 5.0, 6.0, 8.0

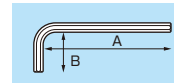
INCH SIZE



TWH-02

Item No.	pcs.	Set(inch)
TWH-02	7	0.71mm, 0.89mm, 0.05", 1/16", 5/64", 3/32", 7/64"

**TWH-11~26** IRoHS HEX KEY WRENCH



Hex Key Wrench in metric size

Item No.	Across Flats ● mm	L Size
TWH-11	1.5	45×14
TWH-12	2.0	50×16
TWH-13	2.5	56×18
TWH-14	3.0	63×20
TWH-15	4.0	70×25
TWH-16	5.0	80×28
TWH-17	6.0	90×32
TWH-18	8.0	100×36

Hex Key Wrench in inch size (mm)

Item No.	Across Flats	L Size
TWH-20	(0.71)	35×10
TWH-21	(0.89)	38×10
TWH-22	0.05"(1.27)	40×11.5
TWH-23	1/16"(1.59)	42.5×12.5
TWH-24	5/64"(1.98)	45.5×13.5
TWH-25	3/32"(2.38)	48.5×14.5
TWH-26	7/64"(2.79)	52×16

Applicable Sizes Chart

Hex Across Flats	Cap Screw Diam.	Set Screw Diam.
1.27	M1.4	M2.5
1.5	M1.6, M2	M3
2.0	M2.5, M2.6	M4
2.5	M3	M5
3.0	M4	M6
4.0	M5	M8
5.0	M6	M10
6.0	M8	M12, M14
8.0	M10	M16, M18

Service



Driver



Nippers Pliers



Steel



Others



Kits



**TS-01 · 02**  **MINI SPANNER SET/Flat Head • Inclined Head**

- Thickness: 3.2mm
- Material: S50C
- Hardness: HRC43±2

◆ This item is individually available.



TS-01  
(Flat heads set)  
TS-11~15(5 pcs.)



TS-02  
(24° inclined heads set)  
TS-21~25(5 pcs.)

**Flat heads** (mm)

Item No.	Sizes	Length
TS-11	3.2×3.5	71
TS-12	4×5	82
TS-13	5.5×6	91
TS-14	6.5×7	102
TS-15	8×9	113

**Inclined heads** (mm)

Item No.	Sizes	Length
TS-21	3.2×3.5	70
TS-22	4×5	81
TS-23	5.5×6	90
TS-24	6.5×7	100
TS-25	8×9	111

**TS-04**  **MINI COMBINATION SPANNER SET**

- 8-in-1 Combination spanner set with key chain
- Box-end inclined (30°)
- Thickness: 1.5mm
- Material: Stainless steel
- Hardness: HRC52±2



◆ This item is individually available.

Item No.	Sizes		Thick	Length
	Box	Open		
TS-41	4.0	3.5	1.5	100
TS-42	4.5	4.0		
TS-43	5.0	4.5		
TS-44	5.5	5.0	1.5	106
TS-45	6.0	5.5		
TS-46	6.5	6.0		
TS-47	7.0	6.5	1.5	114
TS-48	8.0	7.0		

**TWS-01~05**

- Socket wrench sets contain the complete combination of most needed sockets.
- Chrome molybdenum steel sockets and chrome vanadium ratchet handles.

 **SOCKET WRENCH SET**



TWS-05 Contents : 52pcs. per set

Contents	Size/Length(mm)
Sockets $\varnothing$ 6.3(1/4")	4, 4.5, 5, 5.5, 6, 7, 8, 9, 10, 11, 13
Sockets $\varnothing$ 12.7(1/2")	10, 11, 12, 13, 14, 15, 17, 19, 22, 24, 27, 30, 32
Socket for 21mm plug	21 Across flats
Hex. Wrenches	1.5, 2, 2.5
Hex. Bits	3, 4, 5, 6, 7, 8
Phillips Bits	#1, #2, #3
Slotted Bits	4, 5.5, 7
Plastic Spinner Handle	200
Ratchet Handles	125, 300
Extension Shafts	100, 125, 250
T Type Sliding Handles	115, 300
Universal Joints	35, 70
Bit Adapters	25, 30
Steel Case	450×200×55

TWS-01  
TWS-02



TWS-01 · 02 Contents : 16pcs. per set

Contents	Size/Length(mm)
Sockets $\varnothing$ 6.3(1/4")	<b>TWS-01</b> 5/32, 3/16, 7/32, 1/4, 9/32, 5/16, 11/32, 3/8, 13/32, 7/16, 1/2 (inch)
	<b>TWS-02</b> 4, 4.5, 5, 5.5, 6, 7, 8, 9, 10, 11, 13 (mm)
Ratchet Handles	125
Extension Shafts	50, 150
Universal Handle	125
Cross Bar	115
Steel Case	180×120×30

TWS-03



TWS-03 Contents : 20pcs. per set

Contents	Size/Length (mm)
Sockets $\varnothing$ 6.3(1/4")	4, 4.5, 5, 5.5, 6, 7, 8
	$\varnothing$ 9.5(3/8") 9, 10, 12, 13, 14, 17, 19
Adaptor 3/8"→1/4"	25
Plastic Spinner Handle	150
Ratchet Handle	200
Extension Shaft	75, 150
Socket for 21 mm Plug	21 Across flats
Steel Case	292×145×35


TWS-04



- with quick drive ring

TWS-04 Contents : 34pcs. per set

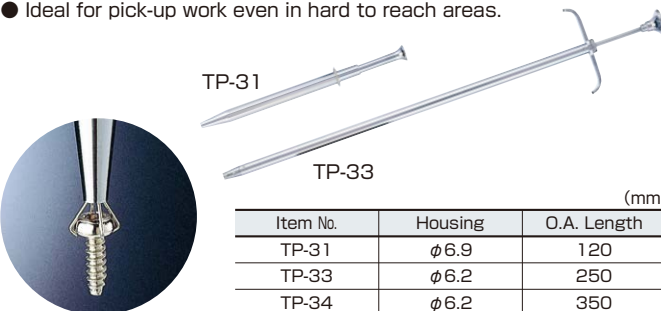
Contents	Size/Length(mm)
Sockets $\varnothing$ 6.3(1/4")	4, 4.5, 5, 5.5, 6, 7, 8, 9, 10, 11, 13
	3, 4, 5, 6, 8, 10
Phillips Bits	#1, #2, #3, #4
Slotted Bits	4, 5.5, 7
Hex Wrenches	1.5, 2, 2.5
Plastic Spinner Handle	150
Ratchet Handle	125
Extension Shaft	50, 100
T Type Sliding Handle	115
Universal Joint	35
Steel Case	200×110×30

**TP-31 · 33 · 34**  **PICK-UP TOOL**

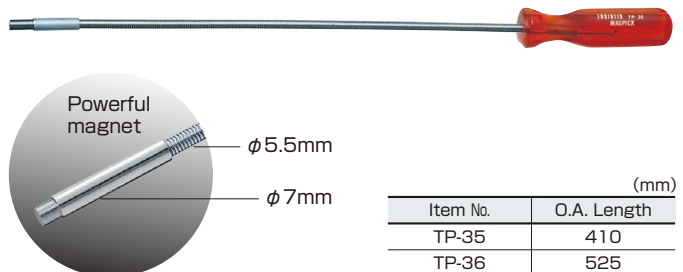
- 4 spring jaws pick up small and ball bearing type parts easily and firmly.
- Suitable for assembly work of precision instruments.
- Ideal for pick-up work even in hard to reach areas.

**TP-35 · 36**  **MAGNETIC PICK-UP TOOL**

- Ideal for part retrieval in hard to reach areas
- Flexible shaft conforms to any shape
- Alnico magnet tip



Item No.	Housing	O.A. Length
TP-31	$\varnothing$ 6.9	120
TP-33	$\varnothing$ 6.2	250
TP-34	$\varnothing$ 6.2	350



Item No.	O.A. Length
TP-35	410
TP-36	525

Service

S



Driver

D



Nippers Pliers

N.P



Steel

T



Others

Z



Kits

K



TR-01~04

**RoHS** TAPER REAMER

- For reaming holes in sheet metal, aluminum and similar material
- Material : Carbon steel



Item No.	Size	Blade	Length (mm)
TR-01	φ3.0~12	81	113
TR-02	φ4.0~16	85	118
TR-03	φ5.0~20	95	130
TR-04	φ6.0~30	107	145

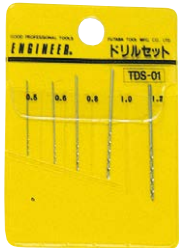
※Hardness: HRC 55±3

TDS-01·02·03

**RoHS** TWIST DRILL SET

TD-03~60

**RoHS** DRILL



TDS-01



TDS-02



TDS-03

Item No.	Contents	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.5	2.0	2.5
TDS-01	5			●	●		●		●	●			
TDS-02	6					●		●	●	●	●	●	●
TDS-03	8	●	●	●	●	●	●	●	●				



Item No.	Size (mm)
TD-03	0.3
TD-04	0.4
TD-05	0.5
TD-06	0.6
TD-07	0.7
TD-08	0.8
TD-09	0.9
TD-10	1.0
TD-12	1.2
TD-15	1.5

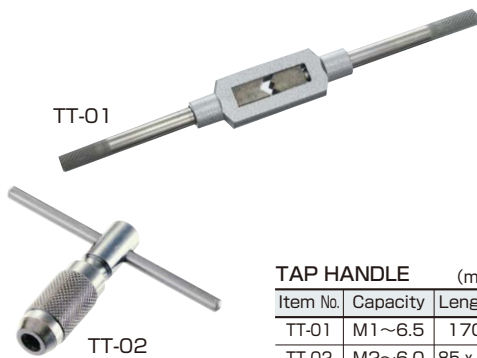
Item No.	Size (mm)
TD-16	1.6
TD-18	1.8
TD-20	2.0
TD-25	2.5
TD-30	3.0
TD-32	3.2
TD-35	3.5
TD-40	4.0
TD-50	5.0
TD-60	6.0

TT-01·02

**RoHS** TAP HANDLE

TT-03·10~16

**RoHS** TAP/TAP SET



TAP HANDLE (mm)		
Item No.	Capacity	Length
TT-01	M1~6.5	170
TT-02	M2~6.0	85 x 60



- Primary, Second & Finishing Taps (3pcs./set)



TAP (mm)		
Item No.	Size	Pitch
TT-10	1.4	0.3
TT-11	1.7	0.35
TT-12	2.0	0.4
TT-13	3.0	0.5
TT-14	4.0	0.7
TT-15	5.0	0.8
TT-16	6.0	1.0

- ◀ TT-03 CONTENTS
- Tap, 4pcs(2, 3, 4, 5mm)
  - Tap Handle(TT-02)

TF-01~10

**RoHS** FILE

TFS-01~06

**RoHS** FILE SET



Item No.	Shape	Length (mm)	Grip
TF-01	□	265	Wood
TF-02	○		
TF-03	□		
TF-04	△		
TF-05	△	200	Rubber
TF-06	□		
TF-07	○		
TF-10	△		

NORMAL TYPE

PRECISE TYPE



TFS-01



TFS-02 (TF-06~10)



TFS-03



TFS-04



TFS-06

Item No.	Contents	□	△	○	□	△	○	□	△	○	□	△	○	Length (mm)
TFS-01	5	●	●	●	●	●								180
TFS-02	5	●	●	●	●	●								200
TFS-03	5	●	●	●	●	●								260
TFS-04	8	●	●	●	●	●	●	●	●					180
TFS-06	12	●	●	●	●	●	●	●	●	●	●	●	●	140

Service

S

Driver

Nippers Pliers

N.P

Steel

T

Others

Z

Kits

K



TV-01~34



TV-04



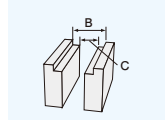
TV-14



TV-26



TV-32



YANKEE VISE (mm)

Item No.	Size	Max. Opening	
		B	C
TV-25	50	61	55
TV-26	65	76	70
TV-27	75	84	78

BENCH VISE (mm)

Item No.	Size	Max. Opening	Clamp
TV-01	38	35	0~21
TV-02	50	35	0~32
TV-03	63	50	5~33
TV-04	75	50	18~40

ANVIL VISE (mm)

Item No.	Size	Max. Opening	Clamp
TV-11	38	35	0~25
TV-12	50	35	0~34
TV-13	63	55	20~45
TV-14	75	55	20~45

CLAMP (mm)

Item No.	Max. Opening
TV-31	25
TV-32	50
TV-34	75

- With special clasp ideal for thin plate, round bar and square lumber.
- The reverse of the clasp to be used as a flat clasp.

TN-01~05

JEWELLER'S SAW

- Light weight, durable and well-balanced frame design.
- Plastic handles are shaped for perfect grip without slip.
- Saw frame is designed to be adjustable in length and capable of using even broken pieces of saw blades. (TN-04/05)

- Blade contained TN-17 (standard) TN-13&15 (spare)
- The ideal saw blades made of SKS special steel alloy with the technological know-how.
- Entirely heat treated, best quality saw blades available.

Item No.	Frame's Depth(mm)	Weight(g)
TN-01	125×75	170
TN-02	120×125	190
TN-03	110×280	240
*TN-04	~150×75	200
*TN-05	~150×125	220



TN-01



TN-02



TN-05

<※Frame length adjustable(TN-04/05)>

TN-11~18 SAW BLADES



TN-17

Item No.	Nominal Size	Blade Thick (mm)	Notches/25mm	Applications
TN-11	#3/0	0.24	61	Noble metals
TN-12	#2/0	0.26	56	Noble metals
TN-13	#0	0.28	53.5	Brass & thin Iron Sheet
TN-14	#1	0.30	51	Brass & thin Iron Sheet
TN-15	#2	0.34	43	Copper, Shell
TN-16	#3	0.36	40.5	Copper, Shell
TN-17	#4	0.38	38	Iron Sheet, Wood, Plastic
TN-18	#5	0.40	35.5	Iron Sheet, Wood, Plastic

TM-04·05

STEEL RULE

TM-04



Item No.	Scale
TM-04	15cm
TM-05	30cm

TH-01·02·05

HAMMER



TH-01



TH-05

Item No.	Head	Size
TH-01	Plastic	#1/2
TH-02		#1
TH-05	Tapering	21mm

TZ-02·03 HANDY SAW, HACK SAW

TZ-02 Adjustable blade



TZ-03



Item No.	Blade Size	Shape	Length
TZ-02	250mm24notches	Plastic Grip	260mm
TZ-03		Piping Frame	400mm

Die casting Aluminum handle

- Replacement blade **TZ-04** (12pcs/dozen)

TZ-05~08 SCRIBER/PUNCH/ANVIL

SCRIBER  
TZ-05  
●220mm

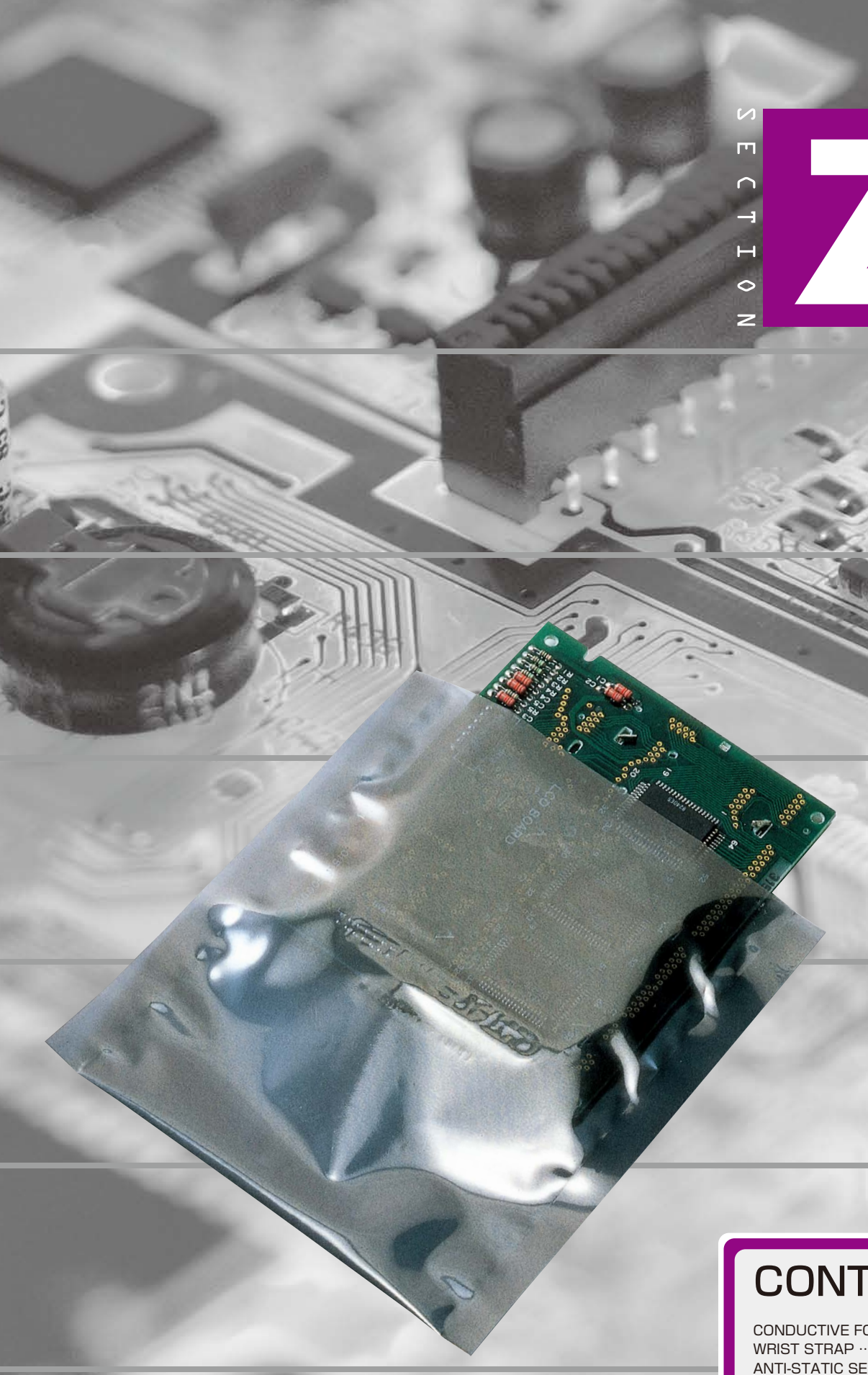


PUNCH  
TZ-07  
●100mm



ANVIL  
TZ-08

- Weight : 1kg
- Length : 152mm
- Height : 78mm



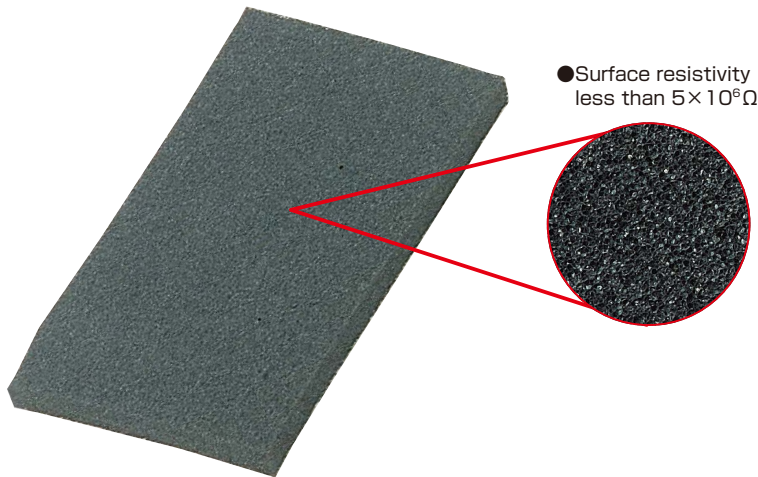
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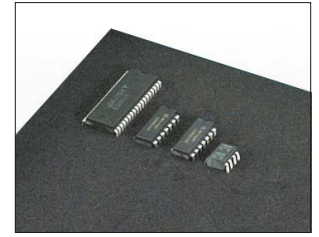
## ZC-01~03

## iRoHS CONDUCTIVE FOAM

- Conductive urethane foam with high density in 10mm thickness.
- Protects CMOS IC and other static-sensitive components during storage, in transit and in hand.
- Material: Polyethylene



● Surface resistivity less than  $5 \times 10^9 \Omega$



Item No.	Size(mm)
ZC-01	75×130×10
ZC-02	100×290×10
ZC-03	250×300×10

## ZC-50

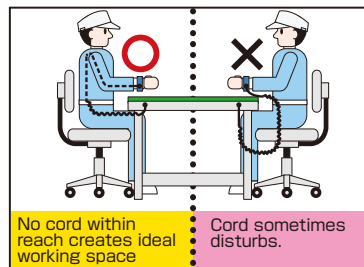
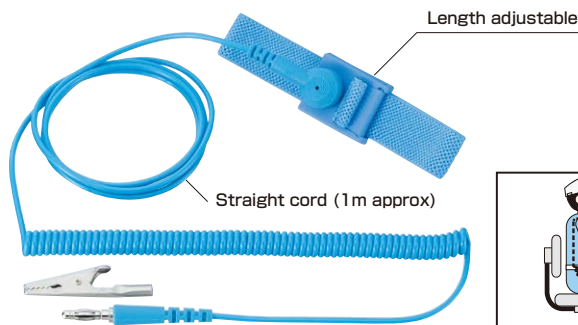
## iRoHS WRIST STRAP

- Conveniently-designed earth cord to improve precise work efficiently
- Curving-shaped & wide plastic body (30×20mm) featuring higher conductivity around wrist
- Silver filaments in elastic band ideal for high conductivity & anti-metallic allergy



## ■ Applications

Assembly or repair of electronics and precise instrument for anti-static electricity



## ■ Specifications :

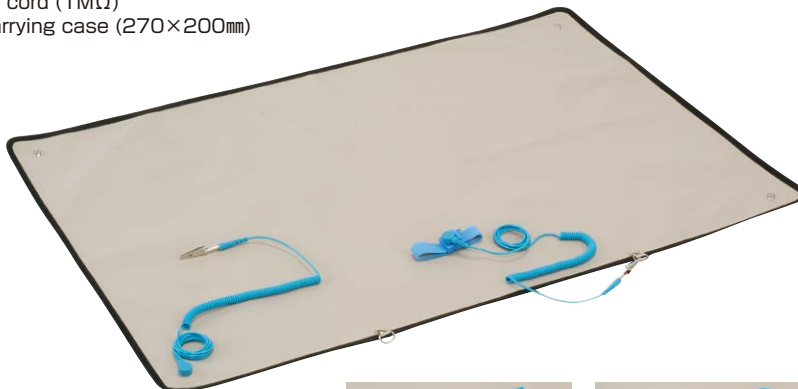
- Adjustable type wrist band
- Built-in 1MΩ resistor for safety
- Alligator clip included
- Polyester elastic band woven with silver filaments

If anyone who is charged with static electricity through clothes touches IC's and electronic components, he discharges electricity through his fingers and gives a damage to IC's and electronic components. Wrist Strap can eliminate static electricity through his wrist to prevent them from being damaged.

## ZC-80

## iRoHS ANTI-STATIC SERVICE KIT

- Mat size : 900×600mm (Thickness 0.7mm)
- Contents : Wrist strap with cord (1MΩ)  
Spare earth cord (1MΩ)  
Zippered carrying case (270×200mm)

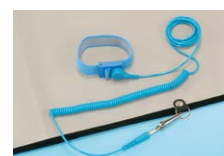


Rayon backing with stud

Layer	Color	Material	Thickness	Surface Resistivity
Top	Beige	PVC	0.35mm	$7.3 \times 10^9 \Omega$
Bottom	Gray	Rayon	0.3mm	$1.5 \times 10^9 \Omega$



Earth cord



Wrist strap



Service

S



Driver

D



Nippers Pliers

N.P



Steel

T



Others

Z



Kits

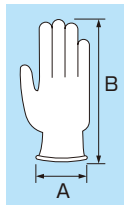
K





**ZC-44~49**  **STATIC CONDUCTIVE GLOVES**

- Surface resistivity :  $10^5 \sim 10^6 \Omega$  sq.(Finger)  $10^7 \Omega$  sq.(Palm)
- Ideal for clean room, assembly of electronic devices, handling of plastic products, etc.
- Copper sulfide mixed with acryl/nylon creates an excellent conductive effect (Finger Part)
- Seamless and dust-free mono-filament
- Chemical dyeing of conductive element features less reduction of conductivity withstanding repeated washing
- Material : Fabric - Nylon 90% Acryl 10%  
: Coating - Polyurethane Resin



■Fingertip Coating (mm)

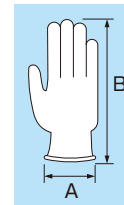
Item No.	Size	A×B
ZC-44	S	72×185
ZC-45	M	83×190
ZC-46	L	85×200

■Palm Coating (mm)

Item No.	Size	A×B
ZC-47	S	80×210
ZC-48	M	85×220
ZC-49	L	90×230

**ZC-51~56**  **ANTI-STATIC GLOVES**

- Surface resistivity :  $10^6 \sim 10^9 \Omega$  sq.
- Ideal for any work in the facility where anti-static should be controlled
- Seamless and dust-free mono-filament
- Washable with ordinary detergent
- Material : Fabric - Nylon 75% Acryl 25%  
: Coating - Polyurethane Resin



■Fingertip Coating (mm)

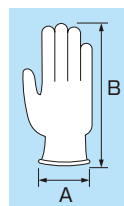
Item No.	Size	A×B
ZC-51	S	75×190
ZC-52	M	88×200
ZC-53	L	89×215

■Palm Coating (mm)

Item No.	Size	A×B
ZC-54	S	77×210
ZC-55	M	90×220
ZC-56	L	95×230

**ZC-38~43**  **DUST-FREE GLOVES**

- Flexible & comfortable gloves made of elastic and breathable nylon fiber
- Ideal for use in clean room and handling of C.R.T., electric bulb, compact disc, glass, etc.
- Seamless and dust-free mono-filament
- Non-slip coating for accurate assembly work
- Washable with ordinary detergent
- Material : Fabric - Wooly Nylon  
: Coating - Polyurethane Resin



■Fingertip Coating (mm)

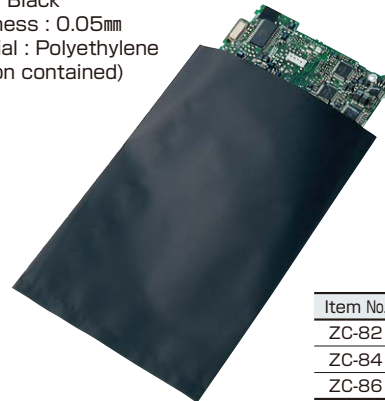
Item No.	Size	A×B
ZC-38	S	77×185
ZC-39	M	90×190
ZC-40	L	90×200

■Palm Coating (mm)

Item No.	Size	A×B
ZC-41	S	80×210
ZC-42	M	90×220
ZC-43	L	95×230

**ZC-82·84·86**  **STATIC CONDUCTIVE BAG**

- Surface resistivity :  $10^4 \Omega$  or less
- Color : Black
- Thickness : 0.05mm
- Material : Polyethylene (Carbon contained)



Item No.	Size(mm)	Package
ZC-82	100×150	100pcs.
ZC-84	200×300	100pcs.
ZC-86	300×450	100pcs.

**ZC-92·94·96**  **ANTI-STATIC BAG**

- Surface resistivity :  $10^{11} \Omega$  or less
- Color : Blue Transparent
- Thickness : 0.05mm
- Material : Polyethylene



Item No.	Size(mm)	Package
ZC-92	100×150	100pcs.
ZC-94	200×300	100pcs.
ZC-96	300×450	100pcs.

Service

S

Driver

D

Nippers Pliers

N.P

Steel

T

Others

Z

Others

K

Others

K

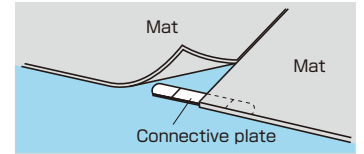
ZCM-01~04

- Static-Dissipative mat maintains an ESD-Safe working surface.
- Anti-Fatigue rubber material that provides cushioning comfort.
- Available in pre-cut mats or rolls.

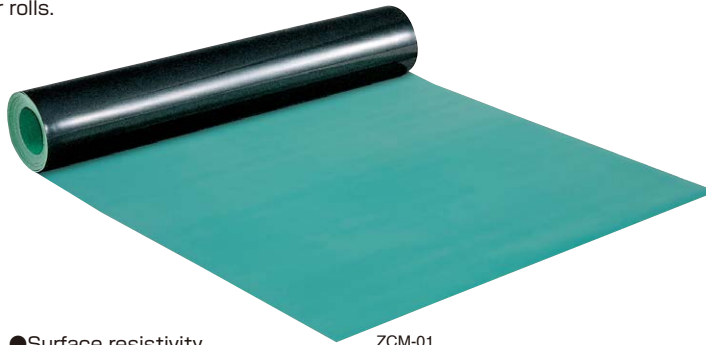
RoHS CONDUCTIVE COLORED MAT



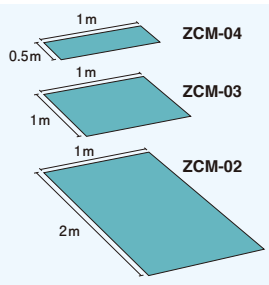
■ Usage  
Put ZC-62 on the reverse of the mat for grounding.  
Use ZC-63 in connection of mat.



Item No.	Size
ZCM-01	1m×10m×2mm
ZCM-02	1m×2m×2mm
ZCM-03	1m×1m×2mm
ZCM-04	1m×0.5m×2mm

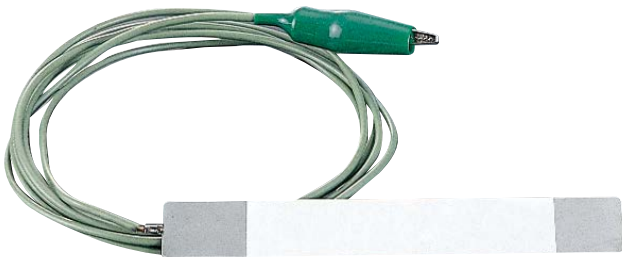


● Surface resistivity  
Top Layer (Green) :  $10^8 \sim 10^{10} \Omega$   
Bottom Layer (Black) :  $10^3 \sim 10^5 \Omega$



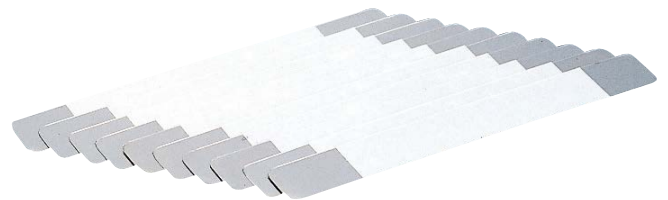
ZC-62 RoHS GROUND CORD

- For ZCM-01~04
- Size : Cord.....2m Plate...15cm×2cm



ZC-63 RoHS CONNECTIVE PLATE

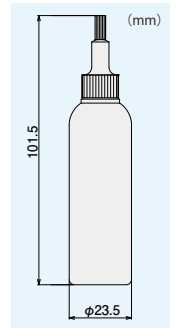
- For ZCM-01~04
- Contents : 10pcs.
- Size : 15cm×2cm



ZC-19

RoHS OILER

- Compact-sized and handy oiler
- Nozzle extendable (60mm-long approx.) for oiling at hard-to-reach area
- Capacity: 20cc
- Material: PE (Bottle/Cap), Brass (Nozzle)
- Usage: Oil, Water, Cleaning fluid, etc.



How to use

- ① Extend nozzle upward.
  - ② Unscrew plastic cap.
  - ③ Remove packing inside.
  - ④ Pour oil in bottle.
  - ⑤ Fasten the packing and the cap with nozzle in order.
- ※ Keep the bottle upright in storage.



Machinery maintenance



Lubrication

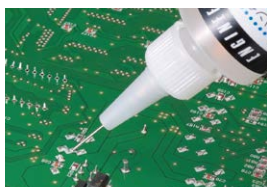
ZC-70·71 RoHS FLUX/DISPENSER

Ideal for rework of SMD solders.

- Pin-point accuracy with no spillage

- ZC-70
- FLUX 50cc
  - FLUX DISPENSER
  - NEEDLE (Hole diam. 0.25/0.5mm) 1pce. each
  - CLEANING PIN 1pce. each

- ZC-71
- FLUX DISPENSER (BOTTLE)
  - NEEDLE (Hole diam. 0.25/0.5mm) 1pce. each
  - CLEANING PIN 1pce. each



ZC-13~18 CHEMICALS



Item No.	Name	Applications	Capacity
ZC-13	Silicon Oil	Lubrication, insulation	50ml
ZC-14	Oil	Lubrication & anticorrosion(metallic)	65ml
ZC-15	Tap & Drill Oil	Easy removal of chip & cooling	300ml
ZC-16	Rust Preventive	Remove rust	110g
ZC-17	Silicon Grease	Lubrication between metal, rubber & plastic	20g
ZC-18	Super Grease	Lubrication & anticorrosion of outdoor equipment	200g







## CONTENTS

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**KS-01**



- Pocketable & reasonable kit for daily use



■ Set of 7 items

NSX-04	Micro nippers	115mm
PS-04	Miniature pliers	115mm
PTS-01	Tweezers	125mm
DK-22	⊕Precision driver	#3/0
DK-33	⊖Precision driver	1.8mm

DS-03	⊕Screwdriver	#00
DS-13	⊖Screwdriver	2.6×75

● Case : 135×90×30mm  
● Weight : 0.25kg

**KS-02**



- Simple & basic tool kit



■ Set of 11 items

NS-03	Micro nippers	125mm
PS-01	Miniature long nose pliers	125mm
PTS-01	Tweezers	125mm
DS-03	⊕Screwdriver	#00
DS-23	⊕Screwdriver	#0
DS-33	⊖Screwdriver	4×75

DH-15	Hex driver	1.5mm
DH-20	Hex driver	2.0mm
DH-25	Hex driver	2.5mm
	File(Half-round)	
	Cutter knife, S	

● Case : 215×145×30mm  
● Weight : 0.45kg

**KS-20**



- Pocket-sized and functional tool kit
- with Circuit testing driver handle



■ Set of 12 items

NN-45	Slant edge nippers	125mm
PR-15	Long nose pliers	125mm
PTS-01	Tweezers	125mm
	Phillips bit	⊕#00
	Phillips bit	⊕#1
	Phillips bit	⊕#2
	Slotted bit	⊖2.5mm
	Slotted bit	⊖3.5mm
	Slotted bit	⊖5.5mm
	Hex nut bit	⊖5.5mm
	Awl (square)	
	Cutter knife (S)	



Circuit testing handle (AC80~300V/DC100~250V)

● Case : 160×90×35mm  
● Weight : 0.5kg

**KS-27**



- Pocket-sized tool kit, ideal for electronics
- with Penlight & Circuit testing driver



■ Set of 13 items

NS-03	Micro nippers	125mm
PS-01	Miniature long nose pliers	125mm
PT-06	Tweezers (J)	120mm
	Phillips bit	⊕#1
	Phillips bit	⊕#2
	Slotted bit	⊖3.5mm
	Slotted bit	⊖5.5mm
DK-22	⊕Precision driver	#000
DK-24	⊕Precision driver	#0
DK-32	⊖Precision driver	1.2mm
DK-34	⊖Precision driver	2.3mm
TWH-01	Hex key wrench set	
	Mini penlight (AAA type)	



Circuit testing handle (AC80~300V/DC100~250V)

● Case : 160×90×35mm  
● Weight : 0.6kg

Service

S



Driver

D



Nippers Pliers

N.P



Steel

T



Others

Z



Kits

K



**KS-05 MAINTENANCE KIT**

- For field maintenance service
- Environment-friendly polyester-made case (Lining: made of nylon)



■ Set of 13 items

NK-15	Diagonal nippers	125mm	PTS-01	Tweezers	125mm
PR-16	Long nose pliers	150mm	TWH-01	Hex key wrench set	
PC-06	Combination pliers	150mm	SKC-30	Soldering iron	26W
DS-03	⊕Screwdriver	#00	SW-30	Solder	20g
DS-23	⊕Screwdriver	#0		File (flat)	
DS-64	⊕Screwdriver	#2			
DS-33	⊖Screwdriver	4×75			
DA-02	Alignment screwdriver	150mm			

● Case : 255×150×50mm  
● Weight : 1kg

⚡ Soldering Iron [220V~240V] available by assortment of SKC-30 as per Page 12

**KSC-05 MAINTENANCE KIT**

Cordless soldering iron (with Multi-holder) expands the utility of traditional tool kits.

- For field maintenance service
- Environment-friendly polyester-made case (Lining: made of nylon)



■ Set of 14 items

NK-15	Diagonal nippers	125mm	PTS-01	Tweezers	125mm
PR-16	Long nose pliers	150mm	TWH-01	Hex key wrench set	
PC-06	Combination pliers	150mm	SK-60	Cordless soldering iron(w/cap)	
DS-03	⊕Screwdriver	#00	SK-66	Hot blow tip	
DS-23	⊕Screwdriver	#0	SW-30	Solder	20g
DS-64	⊕Screwdriver	#2		File (flat)	
DS-33	⊖Screwdriver	4×75			
DA-02	Alignment screwdriver	150mm			

● Case : 255×150×50mm  
● Weight : 1kg

**KS-06 MAINTENANCE KIT**

- For field maintenance service (Complete Set)



■ Set of 20 items

NN-46	Slant edge nippers	150mm	SKC-40	Soldering iron	32W
PR-16	Long nose pliers	150mm	SW-30	Solder	20g
PD-06	Side cutting pliers	150mm	TWM-02	Adjustable angle wrench	200mm
PC-06	Combination pliers	150mm		File (flat)	
PTS-02	Tweezers	125mm		File (round)	
DS-03	⊕Screwdriver	#00	TM-04	Steel rule	150mm
DS-23	⊕Screwdriver	#0	TWH-04	Hex key wrench set (8 pcs.)	
DS-64	⊕Screwdriver	#2		Cutter knife (S)	
DS-13	⊖Screwdriver	2.6×75			
DS-54	⊖Screwdriver	5.5×100			
DN-05	Nut driver	5.5mm			
DA-02	Alignment screwdriver	150mm			

● Case : 305×220×45mm  
● Weight : 2kg

⊕ KSE-06 Case only

⚡ Soldering Iron [220V~240V] available by assortment of SKC-30 as per Page 12

**KSC-06 MAINTENANCE KIT**

Cordless soldering iron (with Multi-holder) expands the utility of traditional tool kits.

- For field maintenance service (Complete Set)



■ Set of 21 items

NN-46	Slant edge nippers	150mm	SK-60	Cordless soldering iron(w/cap)	
PR-16	Long nose pliers	150mm	SK-66	Hot blow tip	
PD-06	Side cutting pliers	150mm	SW-30	Solder	20g
PC-06	Combination pliers	150mm	TWM-02	Adjustable angle wrench	200mm
PTS-02	Tweezers	125mm		File (flat)	
DS-03	⊕Screwdriver	#00		File (round)	
DS-23	⊕Screwdriver	#0	TM-04	Steel rule	150mm
DS-64	⊕Screwdriver	#2	TWH-04	Hex key wrench set (8 pcs.)	
DS-13	⊖Screwdriver	2.6×75		Cutter knife (S)	
DS-54	⊖Screwdriver	5.5×100			
DN-05	Nut driver	5.5mm			
DA-02	Alignment screwdriver	150mm			

● Case : 305×220×45mm  
● Weight : 2kg

Service

S

Driver

D

Nippers Pliers

N.P

Steel

T

Others

Z

Kits

K



**KS-08 ELECTRONICS KIT**

- For electronics, PC maintenance, PC modification, etc.
- Environment-friendly polyester-made case (Lining: made of nylon)

NEW



**Set of 21 items**

NS-03 Micro nippers 125mm	SL-02 Inspection mirror	Phillips bit ⊕#00
PS-01 Miniature long nose pliers 125mm	SWU-04 Solder wick 2.8mm	Phillips bit ⊕#0
PTS-01 Tweezers 125mm	Solder (1m)	Phillips bit ⊕#1
SS-01 Solder sucker	TWH-01 Hex key wrench set	Phillips bit ⊕#2
SS-08 IC extractor	DN-05 Nut driver 5.5mm	Slotted bit ⊖3.5mm
SS-22 Spring hook	DK-22 ⊕Precision driver #000	Cutter knife (S)
Soldering iron 30W	DK-33 ⊖Precision driver 1.8mm	File (half-round)

● Case : 255×150×50mm ● Weight : 1.0kg

**KS-14 ELECTRONICS KIT**



- For electronics, office automation maintenance, etc.
- Environment-friendly polyester-made case (Lining: made of nylon)

NEW



**Set of 18 items**

NS-03 Micro nippers 125mm	DP-64 Pro-use driver ⊕#2	TZ-05 Scriber 220mm
PR-16 Long nose pliers 150mm	DP-34 Pro-use driver ⊖4.3mm	TWH-01 Hex key wrench set
PTS-01 Tweezers 125mm	DN-05 Nut driver 5.5mm	TWH-03 Smart monkey wrench 150mm
PZ-56 Screw removal pliers 175mm	TS-23 Mini spanner 5.5×6	SL-02 Inspection mirror
DP-03 Pro-use driver ⊕#00	TS-25 Mini spanner 8×9	Cutter knife (S)
DP-24 Pro-use driver ⊕#0	TM-04 Steel rule 150mm	File (half-round)

● Case : 250×180×50mm ● Weight : 1.3kg

**KS-03 TOOL KIT**

- General electronic & job training use



**Set of 12 items**

NN-45 Slant edge nippers 125mm
PR-16 Long nose pliers 150mm
DS-03 ⊕Screwdriver #00
DS-23 ⊕Screwdriver #0
DS-64 ⊕Screwdriver #2
DS-33 ⊖Screwdriver 4×75
DA-01 Alignment screwdriver 100mm
PTS-01 Tweezers 125mm
Soldering iron 30W
Solder
Solder paste
Soldering stand

● Case : 240×115×45mm ● Weight : 0.8kg

⊕ [KSE-03] Case only

Soldering Iron [220V~240V] available by assortment of SK-14 as per Page 12

**KS-06R MAINTENANCE KIT**

- Basic & cost-saving assortment (Order-made)



**Set of 18 items**

NN-45 Slant edge nippers 125mm
PR-15 Long nose pliers 125mm
PD-06 Side cutting pliers 150mm
PC-06 Combination pliers 150mm
PTS-02 Tweezers 125mm
DS-03 ⊕Screwdriver #00x75
DS-23 ⊕Screwdriver #0x75
DS-64 ⊕Screwdriver #2x100
DS-13 ⊖Screwdriver 2.6×75
DS-54 ⊖Screwdriver 5.5×100
DN-05 Nut driver 5.5mm
DA-01 Alignment screwdriver 100mm
SK-14 Soldering iron (mica) 30W
TWM-01 Adjustable angle wrench 150mm
TWH-01 Hex key wrench set
File (half-round)
Solder
Cutter knife (S)

● Case : 305×220×45mm ● Weight : 1.6kg

**KS-04 TOOL KIT**

- General electronic & job training use
- Environment-friendly polyester-made case (Lining: made of nylon)



with strap (detachable)

Elastic band

**Set of 14 items**

NN-45 Slant edge nippers 125mm	PTS-02 Tweezers 125mm
PR-16 Long nose pliers 150mm	SKC-30 Soldering iron 26W
PD-06 Side cutting pliers 150mm	Solder
DS-03 ⊕Screwdriver #00	Solder Paste
DS-23 ⊕Screwdriver #0	Soldering stand
DS-64 ⊕Screwdriver #2	Cutter knife (S)
DS-33 ⊖Screwdriver 4×75	
DN-05 Nut driver 5.5mm	

● Case : 255×150×50mm ● Weight : 1.1kg

⊕ [KSE-04] Case only

⚡ Soldering Iron [220V~240V] available by assortment of SKC-30 as per Page 12

**KSC-04 TOOL KIT**

**Cordless soldering iron (with Multi-holder) expands the utility of traditional tool kits.**

- General electronic & job training use
- Environment-friendly polyester-made case (Lining: made of nylon)



Iron stand, hanger & magnet, 3-in-1

with strap (detachable)

Elastic band

**Set of 15 items**

NN-45 Slant edge nippers 125mm	SK-60 Cordless soldering iron(w/cap)
PD-06 Side cutting pliers 150mm	SK-66 Hot blow tip
PR-16 Long nose pliers 150mm	Solder
PTS-02 Tweezers 125mm	Solder Paste
DN-05 Nut driver 5.5mm	Soldering stand
DS-03 ⊕Screwdriver #00	Cutter knife (S)
DS-23 ⊕Screwdriver #0	
DS-64 ⊕Screwdriver #2	
DS-33 ⊖Screwdriver 4×75	

● Case : 255×150×50mm ● Weight : 1.1kg

Service

S

Driver

D

Nippers

Pliers

Steel

T

Others

Z

Kits

K

Others

Z

Others

Z

Others

Z

Others

Z

Others

Z

Others

Z

Others

Z



**KS-09·10**

- Compact ABS plastic case with shoulder strap  
KS-09 (Tool kit)  
KSE-09 (Case and panel only) - Net 1.3 kg

- Compact ABS plastic case with shoulder strap  
KS-10 (Tool kit)  
KSE-10 (Case and panel only) - Net 1.3 kg



KS-09



KS-10

**TOOL KIT**

■KS-09 Set of 17 items

NN-46	Slant edge nippers 150mm	TWM-02	Adjustable angle wrench 200mm
PR-16	Long nose pliers 150mm	TWH-01	Hex key wrench set File (half-round)
PD-06	Side cutting pliers 150mm	TM-04	Steel rule 150mm
PC-06	Combination pliers 150mm	SKC-30	Soldering iron 26W
DS-03	⊕Screwdriver #00	SW-30	Solder 20g
DS-64	⊕Screwdriver #2		Cutter knife (S)
DS-13	⊕Screwdriver 2.6×75		
DS-54	⊕Screwdriver 5.5×100		
DA-02	Alignment driver 150mm		
PTS-01	Tweezers 125mm		

- Case : 305×305×76 (Ext.)  
290×290×70 (Int.)
- Weight : 3kg

⚡ Soldering Iron [220V~240V] available by assortment of SKC-30 as per Page 12

■KS-10 Set of 29 items

NN-46	Slant edge nippers 150mm	TS-01	Mini spanner set (5 pcs.)
PR-36	Long nose pliers 150mm	TP-23	Pin vise
PD-06	Side cutting pliers 150mm	TR-03	Taper reamer 20mm
PC-06	Combination pliers 150mm	TH-05	Hammer 21mm
PW-10	Pump pliers 250mm		Measuring tape 2m
PT-01	Tweezers 125mm	TWH-01	Hex key wrench set File (half-round)
DS-03	⊕Screwdriver #00	SKC-40	Soldering iron 32W
DS-64	⊕Screwdriver #2	SW-30	Solder 20g
DS-13	⊕Screwdriver 2.6×75	SS-05	Tip cleaner w/stand
DS-54	⊕Screwdriver 5.5×100		Cutter knife (L)
DN-05	Nut driver 5.5mm		Vinyl tape
DN-07	Nut driver 7mm		Solder paste
DA-01	Alignment driver 100mm		
DKD-01	Circuit testing driver		
DZ-24	Screw-holding driver #0		
TWM-02	Adjustable angle wrench 200mm		

- Case : 305×305×76(Ext.)  
290×290×70(Int.)
- Weight : 4kg

⚡ Soldering Iron [220V~240V] available by assortment of SKC-30 as per Page 12

**KS-11**

**Field service and maintenance of production lines & machinery**

- KS-11(Tool kit)
- KSE-11(Case and panel only) - Net 5 kg



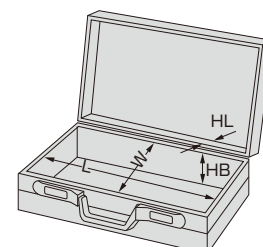
**TOOL KIT**

■Set of 61 items

NS-03	Micro nippers 125mm	TWM-02	Adjustable angle wrench 200mm
NN-46	Slant edge nippers 150mm	TS-01	Mini spanner set (5 pcs.)
PS-01	Miniature pliers 125mm	TR-03	Taper reamer 20mm
PR-46	Needle nose pliers 150mm	TH-05	Hammer 21mm
PD-06	Side cutting pliers 150mm		Measuring tape 2m
PC-06	Combination pliers 150mm	TWS-02	Socket wrench set
PW-10	Pump pliers 250mm	TFS-02	File set
PA-01	Wire pliers	TZ-02	Handy saw
PT-01	Tweezers 125mm	SKC-40	Soldering iron 32W
PH-03	Lock holder 150mm	SW-31	Solder 150g
PH-31	Electronic snips 115mm	SS-09	Soldering box
DS-03	⊕Screwdriver #00	SS-02	Solder sucker
DS-24	⊕Screwdriver #0	SS-08	IC Extractor
DS-44	⊕Screwdriver #1	SS-21	Spring hook
DS-64	⊕Screwdriver #2	SS-22	Spring hook
DS-13	⊕Screwdriver 2.6×75	SL-03	Inspection mirror
DS-34	⊕Screwdriver 4×100	TP-35	Magnetic pick-up tool
DS-76	⊕Screwdriver 6×150	KP-03K	Parts box
DA-02	Alignment driver 150mm	SWU-04	Solder wick 2.8mm
DK-22	⊕Precision driver #3/0		Vinyl tape
DK-23	⊕Precision driver #00		Pen light
DK-33	⊕Precision driver 1.8mm		Cutter knife (L)
DK-34	⊕Precision driver 2.3mm	ZC-19	Oiler 20cc
DZ-24	Screw-holding driver #0		Flat brush
DG-12	Long pre-grip driver #2×250mm		Poly bottle 50cc/2pcs.
DN-02	Nut driver 4mm		Poly bottle 100cc/2pcs.
DN-04	Nut driver 5mm		Silicon cloth
DN-05	Nut driver 5.5mm	SD-06	Multimeter
DN-07	Nut driver 7mm		
DN-08	Nut driver 8mm		
DR-04	Ratchet stubby driver set		
DZ-08	Offset driver set		

- Aluminum Case :  
440×315×168 (Ext.)  
440×315×168 (Int.)
- Weight : 12kg

⚡ Soldering Iron [220V~240V] available by assortment of SKC-30 as per Page 12



H=HL+HB

Service



Driver



Nippers Pliers



Steel



Others



Kits



**KS-12**

Stylish and functional tool kit



**ATTACHE TOOL KIT**

■ Set of 26 items

NS-03	Micro nippers	125mm
PS-01	Miniature pliers	125mm
PD-06	Side cutting pliers	150mm
PTS-01	Tweezers	125mm
DA-51	Ceramic alignment driver	
DG-21	⊖Mini soft driver	3×0.4
DG-22	⊕Mini soft driver	#00
DG-24	⊕Mini soft driver	#0
DG-01	⊖Pro grip driver	5.5×0.7
DG-04	⊕Pro grip driver	#2
DST-05	⊕/⊖Reversible stubby driver	#2/⊖6.3
SD-06	Digital multimeter	
SKC-30	Soldering iron	26W
SS-02	Solder sucker	
SS-09	Soldering box	
SS-08	IC extractor	
SS-10	PCB connector extractor	
SW-30	Solder	20g
TWM-03	Smart monkey wrench	150mm
TWH-04	Hex key wrench set	
TS-01	Mini spanner set (5 pcs.)	
TM-04	Steel rule	150mm
PA-06	Wire stripper	
SWU-04	Solder wick	2.8mm
SL-50	Pocket loupe	
	Cutter knife (S)	

● Dividing plate for soldering box & tester

Item No.	L	W	H	HL	HB	Weight(kg)	Color
KS-12	465 (450)	345 (320)	129 (105)	(35)	(70)	6	Black

( ) : Internal size

⚡ Soldering Iron [220V~240V] available by assortment of SKC-30 as per Page 12

**KSE-12**

- Neatly designed for a stylish appearance
- Incorporating empty tool panel and document pocket



**ATTACHE CASE WITH EMPTY PANEL**

Dividing panel is easily detachable with Velcro.



● Speedy and easy attachment of empty panel

Item No.	L	W	H	HL	HB	Weight(kg)	Color
KSE-12	465 (450)	345 (320)	129 (105)	(35)	(70)	3.3	Black

( ) : Internal size

**KS-28 • KSE-28**

Basic assortment of general purpose tools and free space in mesh pocket for your own use

- Soft touch EVA plastic case with double panel
- A4 size pocket is provided on the reverse of upper panel which is capable of documents, measuring instrument or notebook P.C. (max. 40mm thick)
- Tool panel is easily detachable with hook, which is convenient for field work.



● Free space in mesh pocket

● Clear pocket (detachable)

**TOOL KIT**



330mm wide pocket on the reverse

■ KS-28 Set of 22 items

NN-46	Slant edge nippers	150mm
PR-16	Long nose pliers	150mm
PD-06	Side cutting pliers	150mm
PZ-55	Screw removal pliers	150mm
PW-08	Pump pliers	200mm
PTS-01	Tweezers	125mm
DA-01	Alignment driver	100mm
DKD-01	Circuit testing driver	
DN-05	Nut driver	5.5mm
DG-05	⊕/⊖Cushion driver	#2/⊖6
DG-21	⊖Mini soft driver	3×100mm
DG-24	⊕Mini soft driver	#0×100mm

SKC-30	Soldering iron	26W
SS-05	Tip cleaner with stand	
SW-30	Solder	20g
	File (half-round)	
	Measuring tape	2m
TS-01	Mini spanner set	
TWH-01	Hex key wrench set	
TWM-02	Adjustable angle wrench	200mm
	Cutter knife (S)	
	Vinyl tape	

- Case : 405×306×100mm (Ext.)  
380×276×73mm (Int.)
- Weight : 3.7kg

◆ [KSE-28] Case and panel 1.8kg

⚡ Soldering Iron [220V~240V] available by assortment of SKC-30 as per Page 12

OPTION Cordless Soldering Iron can be assorted instead of SKC-30 at customer's option.



**KS-30·31**

**ATTACHE TOOL KIT**

**ABS attache case with complete assortment of tools**

- Ideal for maintenance of copying and fax machines
- Tool panel is easily detachable with Velcro tape, which is more convenient for field work.
- Document pocket on the reverse side of tool panel
- Case inside can be divided by 2 pcs. of partitions freely.

KS-30



**KS-30 Set of 37 items**

NS-03	Micro nippers	125mm
PS-01	Miniature pliers	125mm
PTS-06	Tweezers (long)	210mm
PZ-10	Snap ring pliers	
DA-02	Alignment driver	150mm
DP-13	⊕Screwdriver	3×75
DP-34	⊕Screwdriver	4.3×100
	⊕Screwdriver	#0×75
	⊕Screwdriver	#1×100
	⊕Screwdriver	#2×100
DK-22	⊕Precision driver	#000
DK-23	⊕Precision driver	#00
DST-05	⊕Reversible stubby driver #2/⊕6	
	File (half-round)	
TS-13	Mini spanner	5.5×6
TS-14	Mini spanner	6.5×7
TS-15	Mini spanner	8.0×9
TM-04	Steel rule	150mm
TWH-04	Hex key wrench set	
TWM-01	Adjustable angle wrench	150mm

SKC-30	Soldering iron	26W
SS-05	Tip cleaner with stand	
SS-22	Spring hook	
SW-30	Solder	20g
KP-04	Parts box	
	Mini spanner	10×12
SWU-04	Solder wick	2.8mm
	Cutter knife (S)	
	Pen light	
	Plastic bottle (spray)	100cc
ZC-19	Oiler	20cc
	Blower brush	
	Copying machine brush	
	Non-woven cloth	3 pcs.
	Lens paper	80 pcs.
	A4-sized paper holder (clear)	
	Vinyl tape	
	(Partition: 2 pcs.)	

- Case : 377×264×120mm (Ext.)  
362×249×107mm (Int.)
- Weight : 3.7kg

⚠ Soldering Iron [220V~240V] available by assortment of SKC-30 as per Page 12

KS-31



**KS-31 Set of 46 items**

NS-03	Micro nippers	125mm
PC-06	Combination pliers	150mm
PS-01	Miniature pliers	125mm
PTS-06	Tweezers (long)	210mm
PTS-01	Tweezers	125mm
PZ-10	Snap ring pliers	
DA-02	Alignment driver	150mm
DP-13	⊕Screwdriver	3×75
DP-34	⊕Screwdriver	4.3×100
	⊕Screwdriver	#0×75
	⊕Screwdriver	#1×100
	⊕Screwdriver	#2×100
DG-12	Long pro grip driver	#2×250
DK-22	⊕Precision driver	#000
DK-23	⊕Precision driver	#00
DKD-01	Circuit testing driver	
DST-05	⊕Reversible stubby driver #2/⊕6	
DZ-07	⊕Offset driver	#2/⊕6
	File (flat)	
	File (round)	
TM-04	Steel rule	150mm
TS-01	Mini spanner set	
TWH-04	Hex key wrench set	
TWM-01	Adjustable angle wrench	150mm
SD-06	Digital multimeter	

SKC-30	Soldering iron	26W
SL-02	Inspection mirror	
SS-01	Solder sucker	
SS-05	Tip cleaner with stand	
SS-21	Spring hook	
SS-22	Spring hook	
SW-30	Solder	20g
KP-01	Parts box	
	Mini spanner	10×12
SWU-04	Solder wick	2.8mm
	Cutter knife (S)	
	Pen light	
	Thickness gauge	
	Plastic bottle (spray)	100cc
ZC-19	Oiler	20cc
	Blower brush	
	Copying machine brush	
	Non-woven cloth	3 pcs.
	Lens paper	80 pcs.
	A4-sized paper holder (clear)	
	Vinyl tape	
	(partition: 2 pcs.)	

- Case : 413×306×122mm (Ext.)  
399×292×109mm (Int.)
- Weight : 5.2kg

⚠ Soldering Iron [220V~240V] available by assortment of SKC-30 as per Page 12

**KSE-30·31**

**ATTACHE CASE WITH EMPTY PANEL**

- Compact attache case equipped with 2 panels
- Tool panel is easily detachable with Velcro tape, which is more convenient for field work.
- Document pocket on the reverse side of tool panel
- Case inside can be divided by 2 pcs. of partitions freely.



Tool Panel detachable from the case with Velcro



Partition (2 pcs.)

Document pocket on the reverse

H=HL+HB

(mm)

Item No.	L	W	H	HL	HB	PANEL	Wgt.(kg)
KSE-30	377 (362)	264 (249)	120 (107)	(42)	(65)	for KS-30	2.3
KSE-31	413 (399)	306 (292)	122 (109)	(43)	(66)	for KS-31	2.7

( ): Internal size

Service

S



Driver

D



Nippers Pliers

N.P



Steel

T



Others

Z



Kits

K





# PANEL KITS FOR FIELD MAINTENANCE & ELECTRONICS

**Features**

- Basic panel provides standard tools. Panel A & B provide special tools necessary for each specific work.
- Each panel kit is adaptable to KA-50/51/91 & KAC-30 cases at your option.
- Please specify as follows to order a case equipped with panel(s).

KA-□□ / KD-□□ / KD-□□  
Case Panel assorted

- Panel size : 400×300
- KDE-01~06(Panels only)

Sample combination KD-01 & KD-02 in KA-51 case



**KD-01 Basic panel kit for maintenance service**

**KD-02 Panel A for maintenance service**

**KD-03 Panel B for maintenance service**



**■KD-01: Set of 24 items**

NN-46 Slant edge nippers 150mm	DST-02 ⊕Stubby driver #2
PR-16 Long nose pliers 150mm	TS-01 Mini spanner set
PC-06 Combination pliers 150mm	TWH-04 Hex key wrench set
PTS-02 Tweezers 125mm	Measuring tape 2m
DS-03 ⊕Screwdriver #00	SKC-40 Soldering iron 32W
DS-23 ⊕Screwdriver #0	SW-30 Solder 20g
DS-44 ⊕Screwdriver #1	SS-05 Tip cleaner w/stand
DS-64 ⊕Screwdriver #2	ZC-19 Vinyl tape
DS-14 ⊕Screwdriver 2.6×100	Oiler
DS-34 ⊕Screwdriver 4×100	Cutter knife (L)
DS-54 ⊕Screwdriver 5.5×100	Silicon cloth
DG-12 ⊕Long pro grip driver #2×250mm	
DST-01 ⊕Stubby driver 6×35	

●Weight : 2.1kg

**■KD-02: Set of 14 items**

PD-06 Side cutting pliers 150mm	SWU-04 Solder wick 2.8mm
PA-03 Wire pliers	
PH-03 Lock holder 150mm	
DK-22 ⊕Precision driver #3/0	●Weight : 1.2kg
DK-23 ⊕Precision driver #00	
DK-33 ⊕Precision driver 1.8mm	
DK-34 ⊕Precision driver 2.3mm	
DZ-24 ⊕Screw-holding driver #0	
DKD-01 Circuit testing driver	
TWH-01 Hex key wrench set	
SS-22 Spring hook	
Pen light	
Blower brush	

**■KD-03: Set of 23 items**

PD-06 Side cutting pliers 150mm	DKD-01 Circuit testing driver
PA-03 Wire pliers	SS-21 Spring hook
PH-03 Lock holder 150mm	SS-22 Spring hook
PZ-10 Snap ring pliers	SL-02 Inspection mirror
DK-22 ⊕Precision driver #3/0	ZC-14 Oil
DK-23 ⊕Precision driver #00	SWU-04 Solder wick 2.8mm
DK-33 ⊕Precision driver 1.8mm	KP-03K Parts box
DK-34 ⊕Precision driver 2.3mm	Blower brush
DZ-24 ⊕Screw-holding driver #0	Flat brush
TWH-01 Hex key wrench set	Pen light
TP-35 Magnetic pick-up tool	●Weight : 2.2kg
File (flat)	
File (round)	

⚠ Soldering Iron [220V~240V] available by assortment of SKC-30 as per Page 12

**KD-04 Basic panel kit for electronics**

**KD-05 Panel A for electronics**

**KD-06 Panel B for electronics**



**■KD-04: Set of 25 items**

NS-03 Micro nippers 125mm	TS-01 Mini spanner set
PR-26 Long nose pliers 150mm	TWH-01 Hex key wrench set
PC-06 Combination pliers 150mm	Measuring tape 2m
PTS-01 Tweezers 125mm	File (flat)
DS-03 ⊕Screwdriver #00	File (round)
DS-64 ⊕Screwdriver #2	SKC-30 Soldering iron 26W
DS-13 ⊕Screwdriver 2.6×75	SW-30 Solder 20g
DS-54 ⊕Screwdriver 5.5×100	SS-05 Tip cleaner w/stand
DA-02 Alignment driver 150mm	SWU-04 Solder wick 2.8mm
DN-05 Nut driver 5.5mm	Vinyl tape
DK-22 ⊕Precision driver #3/0	Cutter knife (L)
DK-23 ⊕Precision driver #00	●Weight : 1.7kg
DK-33 ⊕Precision driver 1.8mm	
DK-34 ⊕Precision driver 2.3mm	

**■KD-05: Set of 14 items**

NN-46 Slant edge nippers 150mm	●Weight : 1.8kg
PD-06 Side cutting pliers 150mm	
PA-01 Wire pliers	
DS-23 ⊕Screwdriver #0	
DS-34 ⊕Screwdriver 4×100	
DST-01 ⊕Stubby driver 6×35	
DST-02 ⊕Stubby driver #2	
DN-07 Nut driver 7mm	
DA-40 Alignment driver	
DKD-01 Circuit testing driver	
DZ-24 Screw-holding driver #0	
TWH-04 Hex key wrench set	
SS-01 Solder sucker	
KP-52 IC Storage case	

**■KD-06: Set of 17 items**

NN-46 Slant edge nippers 150mm	DKD-01 Circuit testing driver
PD-06 Side cutting pliers 150mm	KP-51 IC Storage case
PA-01 Wire pliers	KP-03K Parts box
DS-23 ⊕Screwdriver #0	●Weight : 3.1kg
DS-34 ⊕Screwdriver 4×100	
DN-07 Nut driver 7mm	
DR-03 Ratchet driver	
DZ-24 Screw-holding driver #0	
DA-40 Alignment driver	
TWM-02 Adjustable angle wrench 200mm	
TR-03 Taper reamer 20mm	
TH-05 Hammer 21mm	
SS-01 Solder sucker	
SS-08 IC Extractor	

⚠ Soldering Iron [220V~240V] available by assortment of SKC-30 as per Page 12



**KA-22**

**ATTACHE CASE(WIDE TYPE)**

**Attractive and functional multipurpose case**

- Light-weighted & durable case made of ABS resin
- Nylon 100% (Hypalon) interior finish for more than just business
- Tool panel (option) can be hidden from free space by dividing plate.
- Comes with multipurpose pockets

**BODY**

This handsome case is molded of ABS plastic with simple form line, lightweight and durable construction. Suggest a new field of use and produce the joy in possession of the case.

**DIAL LOCK**

Add security with combination dial lock and two pushing locks. Open easily by sliding outside the 2 buttons.



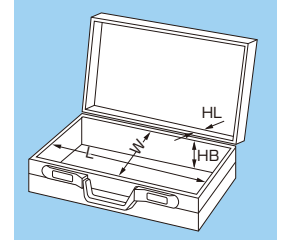
**HANDLE**

Designed to fit the hand and reduce hand fatigue.



**INSIDE**

Besides business use, add functional and fashionable pockets and storage pouch to meet multipurpose requirements. Offer clear see-through mesh type pocket at the back of dividing plate.



**(Remark)**

The dimensions indicate the internal sizes but subject to within a tolerance allowed. H=HL+HB

Item No.	L	W	H	HL	HB	Weight(kg)	Color
KA-22	450	320	105	35	70	2.4	Black

**KA-50·51**

**ALUMINIUM CASE**

- Featuring a matt surface in silver color
- Streamline appearance



KA-50



KA-51



● Durable handle

Item	Internal Size (mm)					
	L	W	H	HL	HB	Weight(kg)
KA-50	440	320	105	40	65	2.6
KA-51	440	320	130	50	80	2.8

**KA-57**

**ALUMINIUM CASE**

**Stylish case coming with shock-proof sponges and tool panel**

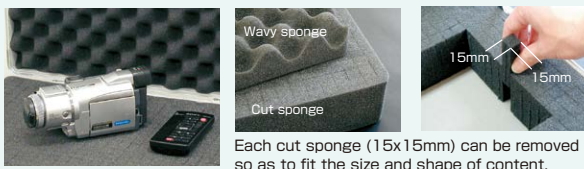


Stylish round corner



Tool panel affixed to shell with Velcro and detachable

Wavy formed urethane (upper shell) and cut sponges (body) protect contents such as camera, camcorder, etc.



Each cut sponge (15x15mm) can be removed so as to fit the size and shape of content.

Item No.	External dimensions (Internal dimensions) (mm)						Tool Panel (single)	Weight(kg)
	L	W	H	HL	HB			
KA-57	450(435)	330(314)	135(120)	(52)	(68)	420×300	4.1	





**KA-30~44**

**ALUMINIUM CASE**

- Heavy-duty type
- Made of 1.5mm-thick rugged aluminium of anodized finish
- All the corners reinforced with aluminum frame and rivets
- Case inside in melton finish



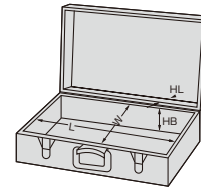
Water-repellent, anti-static or cleanroom type is available at option.



KA-44 is originally equipped. Other models can be equipped with casters at option.



●Durable handle



(Remark)  
The dimensions indicate the internal sizes but subject to within a tolerance allowed.  
H = HL+HB

Item No.	Internal Size (mm)					(kg)	
	L	W	H	HL	HB	Wgt.	Max.Load
KA-30	440	315	165	55	110	4.3	15
KA-42	540	320	160	50	110	4.6	
KA-43	590	410	205	50	155	6.2	20
KA-44	650	450	197	60	137	7.4	

**KAC-30·42**

**ALUMINIUM CASE FOR CLEANROOM**

- Constructed of aluminum sheets without any accessories nor material generating dust
- KAC-30 can be equipped with KD-01~06 (option).
- KAC-42 is ideal for storage of precision instruments in cleanroom



●Durable handle

Item No.	Internal Size (mm)					(kg)	
	L	W	H	HL	HB	Wgt.	Max.Load
KAC-30	440	315	165	55	110	4	15
KAC-42	540	320	160	50	110	4.7	

**KA-91**

**ALUMINIUM CASE**

- Featuring a smooth surface owing to ribbed structure without using rivet nor angle bracket
- Made of 0.8mm aluminum sheet with clear coating
- Tool panel KD-01~06 adaptable



Item No.	External dimensions (Internal dimensions)					(mm)	
	L	W	H	HL	HB	Weight(kg)	
KA-91	487(468)	332(311)	150(134)	(27)	(107)	3.5	





## KP-01~03

## PARTS BOX

Durable transparent box, ideal for transporting, classification and storage of small parts.

- Lightweight, compact and durable component box made of polypropylene
- Interchangeable dividing plates can be configured to create storage space
- See-through, transparent box.
- With article labels.
- ◇ Optional dividing plate set
  - KP-95 : 6 pcs./set adaptable to KP-01
  - KP-96 : 6 pcs./set adaptable to KP-02
  - KP-97 : 6 pcs./set adaptable to KP-03



- KP-01
- Ext. Size : 157×102×42mm
- 4 pcs. of dividing plates included



- KP-02
- Ext. Size : 207×145×40mm
- 12 pcs. of dividing plates included



- KP-03
- Ext. Size : 255×190×40mm
- 16 pcs. of dividing plates included

## KP-02K·03K

## PARTS BOX (HEAVY DUTY TYPE)

Heavy duty transparent parts box, ideal for classification and storage

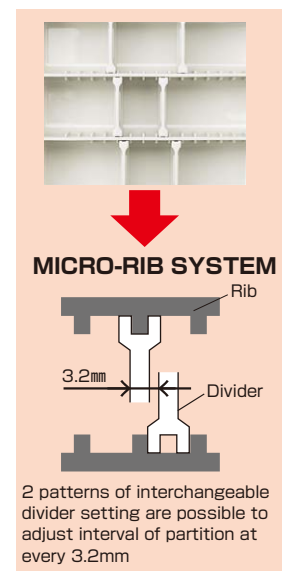
- Super clear transparent lid owing to shock-proof polycarbonate resin
- Micro-rib system of divider setting
- Material: Lid - Polycarbonate  
Body & Divider - Polypropylene  
Latch - ABS resin
- ◇ Optional dividing plate set
  - KP-96 : 6 pcs./set adaptable to KP-02K
  - KP-97 : 6 pcs./set adaptable to KP-03K



- KP-02K
- Ext. Size : 205×145×40mm
- 18 pcs. of dividers included



- KP-03K
- Ext. Size : 255×190×40mm
- 32 pcs. of dividers included



## KP-04 MINIATURE BOX



- Most suitable for electronic parts and other small components.
- Compact, lightweight and portable.
- Material: Styrene resin(lid), Polypropylene (body).
- External Size: 120×92×25mm



## KP-51·52



## IC STORAGE BOX

- Compact IC storage box made of anti-static plastic body
- Comes with 10mm-thick high density conductive foam (Surface resistivity less than  $5 \times 10^6 \Omega$ )



- KP-51
- External Size : 80×135×25
- Internal Size : 75×130×19



- KP-52
- External Size : 230×145×28
- Internal Size : 219×134×22

Service

S



Driver

D



Nippers Pliers

N.P



Steel

T



Others

Z



Kits

K



## S

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SL-03	5803	INSPECTION MIRROR	10
SL-04	5804	DESK-TOP LOUPE	10
SL-06	Discon	POCKET MICROSCOPE	×
SL-07	5807	DESK-TOP LOUPE	10
SL-08	Discon	STAND LOUPE	×
SL-11	5811	INSPECTION MIRROR	10
SL-12	5812	INSPECTION LOUPE	9
SL-21	Discon	BOOSTER LENS	×
SL-22	5822	LED LIGHT LOUPE	10
SL-23	5823	LED STAND LOUPE	10
SL-30	Discon	LIGHT LOUPE	×
SL-50	5850	POCKET LOUPE	9
SL-51	5851	POCKET LOUPE	9
SL-52	5852	POCKET LOUPE	9
SL-53	5853	POCKET LOUPE	9
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SL-66	5866	EYEPIECE WITH MICRO SCALE	7
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SS-07	Discon	HEAT STOPPER	×
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SS-32	5532	PIN EXTRACTOR	19
SS-33	5533	PIN EXTRACTOR	19
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ST-12	5212	REPLACEMENT TIP FOR SK-30	11
ST-13	5213	REPLACEMENT TIP FOR SK-30	11
ST-14	5214	REPLACEMENT TIP FOR SK-30	11
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ST-17	Discon	REPLACEMENT TIP FOR SK-01	×
ST-18	Discon	REPLACEMENT TIP FOR SK-01	×
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SW-31	5631	SOLDER	17
SW-32	5632	SOLDER	17
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SW-42	5642	SOLDER	17
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## D

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DA-51	1051	CERAMIC ALIGNMENT SCREWDRIVER	21
DA-52	1052	CERAMIC ALIGNMENT SCREWDRIVER	21
DA-53	1053	CERAMIC ALIGNMENT SCREWDRIVER	21
DA-54	1054	CERAMIC ALIGNMENT SCREWDRIVER	21
DA-55	1055	CERAMIC ALIGNMENT SCREWDRIVER	21
DA-56	1056	CERAMIC ALIGNMENT SCREWDRIVER	21
DA-57	1057	CERAMIC ALIGNMENT SCREWDRIVER	21
DA-58	1058	CERAMIC ALIGNMENT SCREWDRIVER	21
DA-59	1059	CERAMIC ALIGNMENT SCREWDRIVER	21
DA-72	1072	CERAMIC ALIGNMENT SCREWDRIVER	21
DA-73	1073	CERAMIC ALIGNMENT SCREWDRIVER	21
DA-74	1074	CERAMIC ALIGNMENT SCREWDRIVER	21
DA-75	1075	CERAMIC ALIGNMENT SCREWDRIVER	21
DA-76	1076	CERAMIC ALIGNMENT SCREWDRIVER	21
DA-77	1077	CERAMIC ALIGNMENT SCREWDRIVER	21
DA-78	1078	CERAMIC ALIGNMENT SCREWDRIVER	21
DA-79	1079	CERAMIC ALIGNMENT SCREWDRIVER	21
DA-81	1081	CERAMIC ALIGNMENT SCREWDRIVER	22
DA-82	1082	CERAMIC ALIGNMENT SCREWDRIVER	22
DA-83	1083	CERAMIC ALIGNMENT SCREWDRIVER	22
DA-84	1084	CERAMIC ALIGNMENT SCREWDRIVER	22
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DN-07	1707	NUT DRIVER	26
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DTC-27	0577	MOBILE PHONE DRIVER	30
DTH-03	0553	MOBILE PHONE DRIVER	30
DTP-03	0543	PENTALOBE DRIVER	30
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DTY-02	0582	MOBILE PHONE DRIVER	30
DTY-03	0583	MOBILE PHONE DRIVER	30
DW-14	Discon	WOODEN HANDLE DRIVER	×
DW-24	Discon	WOODEN HANDLE DRIVER	×
DW-44	Discon	WOODEN HANDLE DRIVER	×
DW-80	Discon	WOODEN HANDLE DRIVER(EXTRA LONG)	×
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DZ-02	0902	MINIATURE DRIVER	31
DZ-03	0903	CROSS NUT DRIVER	31
DZ-04	0904	CROSS NUT DRIVER	31
DZ-05	0905	CROSS NUT DRIVER SET	31
DZ-06	0906	OFFSET DRIVER	31
DZ-07	0907	OFFSET DRIVER	31
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PA-20	3520	UNIVERSAL CRIMPING PLIERS	43
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PA-30	3530	WIRE STRIPPER	45
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PA-92	3592	TERMINAL SET	45
PA-93	3593	TERMINAL SET	45
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PT-16	3616	SOLID ARM TWEEZERS	50
PT-17	3617	SOLID ARM TWEEZERS	50
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PT-26	3626	SMD TWEEZERS	51
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PTS-03	3673	TWEEZERS	52
PTS-04	3674	TWEEZERS	52
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PTS-06	3676	TWEEZERS	52
PTS-07	3677	TWEEZERS	52
PTS-08	3678	TWEEZERS	52
PTW-01	Discon	WINGED TWEEZERS	×
PTW-02	Discon	WINGED TWEEZERS	×
PTW-11	Discon	WINGED TWEEZERS w/coating	×
PTW-12	Discon	WINGED TWEEZERS w/coating	×
PTW-21	Discon	WINGED TWEEZERS	×
PTW-22	Discon	WINGED TWEEZERS	×
PTW-31	Discon	WINGED TWEEZERS w/coating	×
PTW-32	Discon	WINGED TWEEZERS w/coating	×
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PTZ-40	Discon	BAKELITE TIPPED TWEEZERS	×
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TM-01	Discon	STEEL MEASURING TAPE	×
TM-02	Discon	STEEL MEASURING TAPE	×
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TS-32	Discon	COMBINATION SPANNER	×
TS-33	Discon	COMBINATION SPANNER	×
TS-34	Discon	COMBINATION SPANNER	×
TS-35	Discon	COMBINATION SPANNER	×
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TT-21	Discon	DIE	×
TT-22	Discon	DIE	×
TT-23	Discon	DIE	×
TT-24	Discon	DIE	×
TT-25	Discon	DIE	×
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TWH-13	6313	HEX KEY WRENCH	56
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TWH-16	6316	HEX KEY WRENCH	56
TWH-17	6317	HEX KEY WRENCH	56
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TWH-20	6320	HEX KEY WRENCH	56
TWH-21	6321	HEX KEY WRENCH	56
TWH-22	6322	HEX KEY WRENCH	56
TWH-23	6323	HEX KEY WRENCH	56
TWH-24	6324	HEX KEY WRENCH	56
TWH-25	6325	HEX KEY WRENCH	56
TWH-26	6326	HEX KEY WRENCH	56
TWH-27	Discon	HEX KEY WRENCH	×
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