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# Crimping and Stripping

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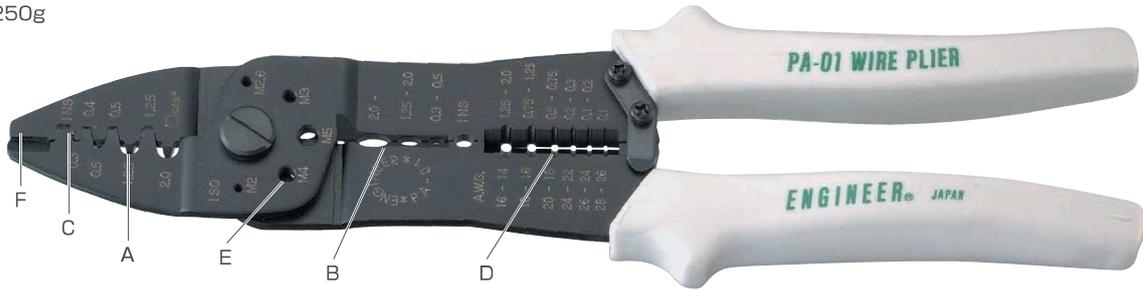
# WIRE PLIERS SERIES

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

## PA-01

**RoHS WIRE PLIERS**

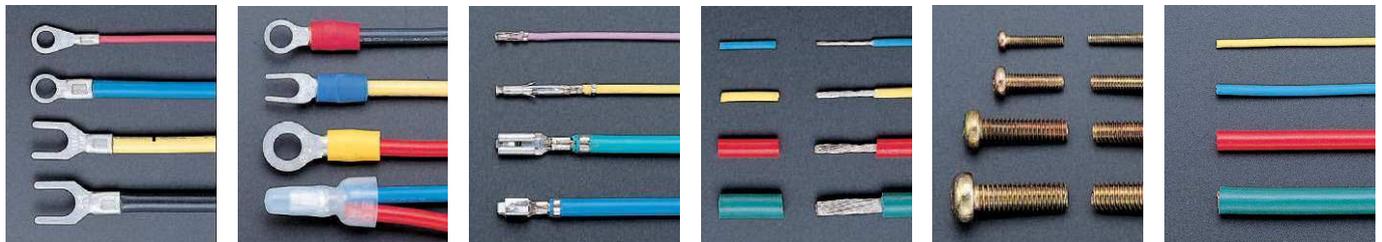
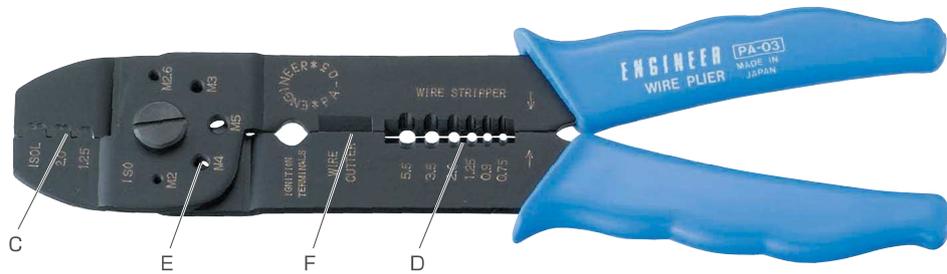
- Six-in-one multipurpose type.
- For bare, insulated terminals & splices (open barrels).
- O.A. length: 245mm.
- Weight: 250g



## PA-03

**RoHS WIRE PLIERS**

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



A. For crimping BARE terminals. B. For crimping INSULATED terminals. C. For crimping OPEN BARREL(SPLICES) D. For stripping insulated WIRES. E. For cutting SCREWS. F. For cutting WIRES.

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-03	-	-	1.25~2.0	0.75~5.5	M2, M2.6, M3, M4, M5	○

### ■ Conversion A.W.G. table

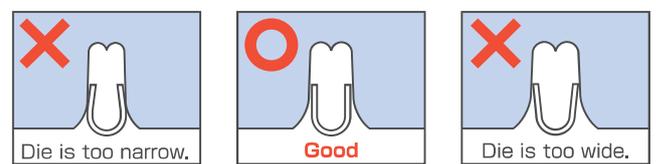
AWG	8	10	12	14	16	18	20	22	24	26	28	30
Sectional area mm <sup>2</sup>	8.37	5.26	3.31	2.08	1.31	0.82	0.52	0.33	0.20	0.13	0.08	0.05
Wire diam mm	3.26	2.59	2.05	1.63	1.29	1.02	0.81	0.64	0.51	0.40	0.32	0.25

### ■ 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.

Turn to page 26 for Crimping Pliers →

SCREW REMOVAL

SCISSORS

NIPPERS

PLIERS

CRIMPING STRIPPING

TWEEZERS

SCREW DRIVERS

SPECIAL DRIVERS

WRENCHES

CUTTING PROCESSING

SETS CASES

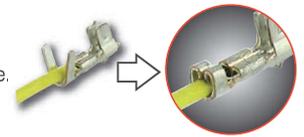
SOLDERING EQUIPMENT

ESD CHEMICALS

# 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



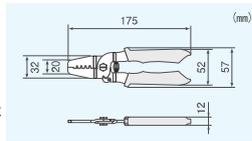
## MICRO CONNECTOR PLIERS

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



AWG32 wire in microscopic die



Dies Width Height

**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	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

## PA-20



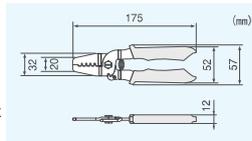
## UNIVERSAL CRIMPING PLIERS

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



Precise crimping of wire or insulation



Dies Width Height

**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	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

## PA-21



## UNIVERSAL CRIMPING PLIERS

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

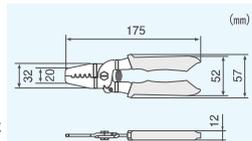
- 4 different crimping dies, 1.6, 1.9, 2.2 & 2.5mm(W)
- Crimping AWG #26~18 contacts of different connector makers
- Weight: 145 g



Long wing type is also adaptable.



Excellent curling of wire and insulation barrels individually



Dies Width Height

**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	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

# PRECISE CRIMPING SERIES - Tool Frame and Die Set

## PAD-11~13

### IRoHS 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)



### 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

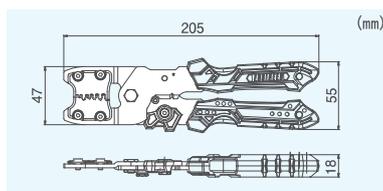
JST NH	Molex New Mini Fit	Tyco D-3000
SHF-001T-0,8BS	5556T	175217-2
JST VH	Molex New Mini Fit	Tyco D-3000
SVH-21T-P1,1	5558T	175288-2

### 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					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	3.0	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	3.0	3.0	3.5				
Die thickness	1.0			1.5			2.0					2.5			3.0						

## PAD-11S~13S

### IRoHS 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					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	3.0	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	3.0	3.0	3.5				
Die thickness	1.0			1.5			2.0					2.5			3.0						

**PAD-02**  **HANDY CRIMP TOOL COMPLETE SET**

- Comes with 3 different interchangeable Die Sets
- Tool Frame & Parts Boxes in a stylish carrying case



■ Set Content

Item No.	Description	
PAD-11	Handy Crimp Tool	
PAD-12S	Interchangeable Die Set (M Size)	
PAD-13S	Interchangeable Die Set (L Size)	
	2.5mm Hex. key wrench	
	Connectable parts box (6 pcs.) Ext. size:20×29×16mm	
	Carrying case (HDPE)	
(mm)		
Item No.	Case Size	Wgt.(g)
PAD-02	300×200×63mm	910g approx.

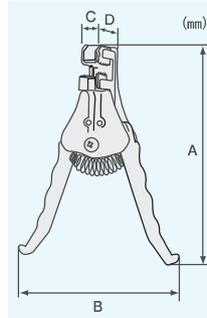
**PA-11**

 **WIRE STRIPPER**

- Super-Light weight wire stripper
- Accurate wire stripping with single squeeze action.
- Fatigue-free owing to spring action
- Made of durable plastic



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



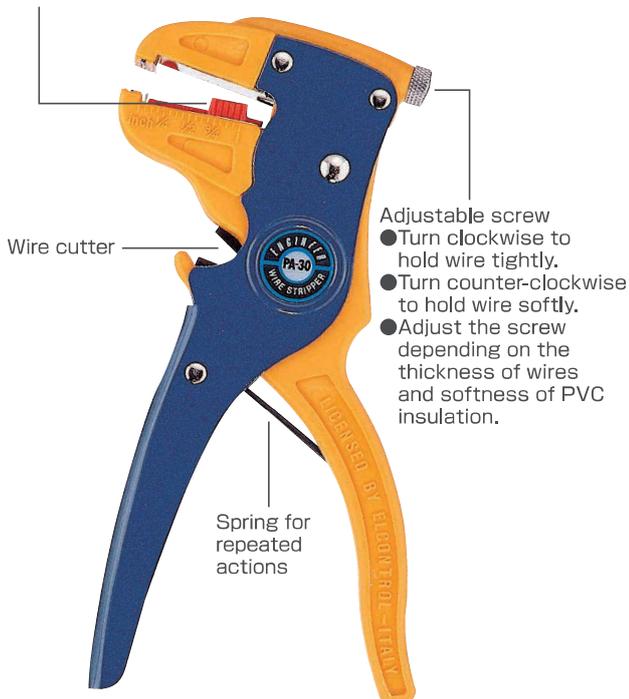
■ Size applicable

Hole diameter mm	0.5	1.2	1.6	2.0	
Stranded wire(AWG)	26	18	16	14	
Solid wire AWG	24	16	14	12	
(mm)					
Item No.	A	B	C	D	Wgt.(g)
PA-11	165	128	20	30	140

**PA-30**  **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: AWG20~10

- Sliding stopper to adjust length of stripping.



**PA-91~93**  **TERMINAL SET**

- Popular crimping terminals and connectors in compact plastic case.



■ 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 	Y	1,25	4
		2	5
		5,5	6



■ 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
		2	5



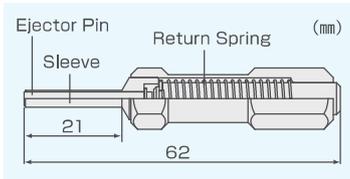
■ PA-93 Set

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

**PAS-30~34**

**CONNECTOR EXTRACTOR (Spring Loaded Type)**

- Perfect and simple work for extracting pin & socket contacts
- Newly designed construction with built-in return spring
- Owing to built-in spring, ejector pin retracts in the sleeve after work. It prevents the ejector pin from being damaged while carrying or not in use.



Item No.	Inner Diam of Sleeve	Outer Diam of Sleeve	Material
PAS-30	1.9	2.5	SUS303 Stainless Steel
PAS-31	2.1	2.7	
PAS-32	2.4	2.9	
PAS-33	3.1	3.6	
PAS-34	2.7	3.2	

■ Reference for extracting typical connectors

Brand/Connector	Pin Housing	Socket Housing
"TE" Mini Universal Mate-N-Lok	PAS-30	SS-30
"TE" Universal Mate-N-Lok	PAS-34	PAS-34
"TE" Commercial Mate-N-Lok	PAS-32	PAS-34
"JST" ML & EL Series	PAS-31	PAS-31
"JST" L & LL Series	PAS-33	PAS-33
"MOLEX" 1545 Series	PAS-33	PAS-34
"MOLEX" 1625 Series	PAS-30	PAS-31
"MOLEX" 3191 Series	PAS-33	PAS-33

**SS-30~34**

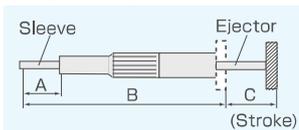
**PIN EXTRACTOR**

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.



(Shape sizes)



Item No.	Outer Diam of Sleeve	Inner Diam of Sleeve	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

SCREW REMOVAL

SCISSORS

NIPPERS

PLIERS

CRIMPING STRIPPING

TWEEZERS

SCREW DRIVERS

SPECIAL DRIVERS

WRENCHES

CUTTING PROCESSING

SETS CASES

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**PH-01~04**

**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

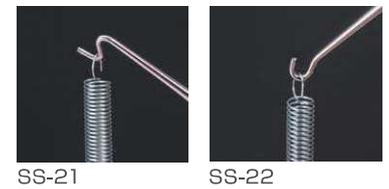


Item No.	Length	Point shape
PH-01	125	Straight
PH-02		Curved
PH-03	150	Straight
PH-04		Curved

**SS-21·22**

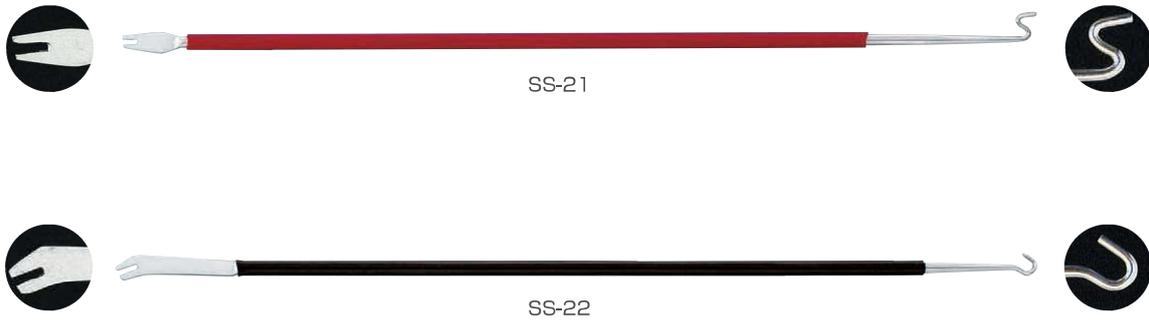
**SPRING HOOK**

- 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-21

SS-22



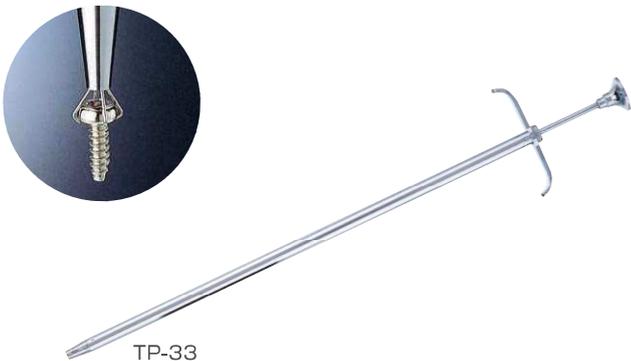
SS-21

SS-22

**TP-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.



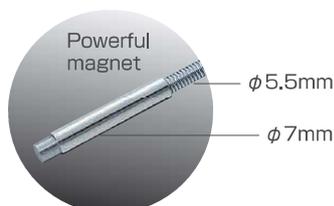
TP-33

Item No.	Housing	O.A. Length
TP-33	φ6.2	250
TP-34	φ6.2	350

**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



Powerful magnet

φ5.5mm

φ7mm

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

PA-05·06·07·14

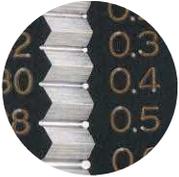
**WIRE STRIPPER**

- 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

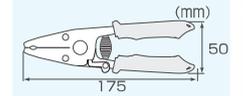


Environment-friendly Elastomer handle

**PA-14 for micro-thin wire**



with strap hole



Item No.	Wgt.
PA-14	134g

Applicable Sizes Table

Stripper's Hole Diam(mm)		0,25	0,3	0,4	0,5	0,65	0,8	0,95	
Applicable wire	A WG conversion	Stranded	34	32	28~30	26	24	22~24	20~22
	Solid wire	32	30	28	26	24	22	20	

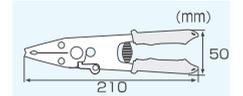
( ) Reference

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

**PA-05 for thin wire**



Item No.	Wgt.
PA-05	166g



Applicable Sizes Table

Stripper's Hole Diam(mm)		0,4	0,5	0,65	0,8	0,95	1,15	1,45
Applicable wire	A WG conversion	Stranded	28~30	26~28	24	22~24	20~22	20 (18)
	Solid wire	28	26	24	22	20	18	16

( ) Reference

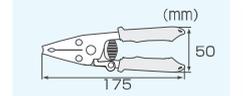
■ Crimping Function (mm<sup>2</sup>)

Bare Terminal	Connector Terminal
0,5~2,0	0,3~1,25

**PA-06 for thin wire**



Item No.	Wgt.
PA-06	134g



Applicable Sizes Table

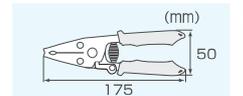
Stripper's Hole Diam(mm)		0,4	0,5	0,65	0,8	0,95	1,15	1,45
Applicable wire	A WG conversion	Stranded	28~30	26	24	22~24	20~22	20 (18)
	Solid wire	28	26	24	22	20	18	16

( ) Reference

**PA-07 for thick wire**



Item No.	Wgt.
PA-07	134g



Applicable Sizes Table

Stripper's Hole Diam(mm)		0,8	0,95	1,15	1,45	1,8	2,1	2,5
Applicable wire	A WG conversion	Stranded	22~24	20~22	20 (18)	(16)	14	12
	Solid wire	22	20	18	16	14	(12)	(10)

( ) Reference

■ Wire Stripper AWG Conversion (Reference only)

AWG	34	32	30	28	26	24	22	20	18	16	14	12
Stranded wire diameter(mm)	0.19	0.23	0.29	0.37	0.47	0.59	0.74	0.94	1.18	1.49	1.88	2.37
Conductor diameter(mm)	0.16	0.2	0.25	0.32	0.40	0.51	0.64	0.81	1.02	1.29	1.63	2.05
Sectional area(ml)	0.025	0.032	0.05	0.08	0.13	0.2	0.33	0.52	0.82	1.31	2.08	3.31
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				

**PA-90 STRIP GAUGE**

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.



SCREW REMOVAL

SCISSORS

NIPPERS

PLIERS

CRIMPING STRIPPING

TWEEZERS

SCREW DRIVERS

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