

# IP67 PORTABLE CASE

## WC SERIES



● IEC60529 standard is a system for classifying the degrees of protection provided by the enclosures of electrical equipment, such as against dust and water.  
**IP6x : No ingress of dust; complete protection against contact (dust tight).**  
**IPx7 : No ingress of water when submerged up to a depth of 1 meter for 30 minutes**

### High waterproof performance with both TPE and silicone gasket

ABS and TPE double-shot molded top & bottom covers allows for a good waterproof seal. The durable silicone gasket maintains the battery lid seal. Insert nut and screw allow the battery compartment to remain durable even after repeated opening/closing.



### Great protection by TPE sides

Side grips in TPE material provides a comfortable grip and protection against drop impact.



### 3 color combinations available



# APPLICATION EXAMPLE

Best for outdoor use as a remote control, RFID tag, compact GPS, wireless device, simplified measurement and so on.



We are able to manufacture embossed or standard overlay sheets with low initial costs.



Note that the waterproof performance will be lost by drilling/milling holes or cutouts for buttons or switches on waterproof enclosures. Use an IP rated overlay sheet or membrane keypad in order to allow the milled area to remain waterproof.



Customized digital print overlay can be ordered from just 1 sheet.

Waterproof double-sided tape for overlay available.

**Advantage 1** Reduce initial cost with digital inkjet printing.

**Advantage 2** Reduce initial tooling cost for cutting die with digital cutting plotter.

**Advantage 3** Reduce initial tooling cost for embossing with in-house mold processing.

**Advantage 4** Shorter lead time made possible by having all production be in-house.

A variety of customization services are available



Contact us with your drawings

E-mail: sales@takachi-el.co.jp

## WC SERIES

## IP67 PORTABLE PLASTIC CASE



- TPE side grip provides not only a comfortable grip, but also protects from drop impact.
- Suitable to be used as a remote controller, key fob, wireless device, RFID tag, and so on.
- Case with a CR2032 coin battery, and no battery compartment types are available.
- Available in 2 different sizes and battery compartment types, with 3 color variations.

## Technical Data

Protection class: IP67  
Operating temperature: -10°C ~ +50°C  
Recommended torque: 0.06 ~ 0.08N · m

WC72-15-N / WC90-15-N No battery compartment type



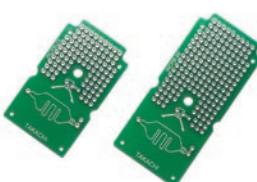
WC72-15-C / WC90-15-C Battery compartment type



## Components

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS UL94HB : Elastomer	Black : Black • Black : Marine • Black : Light gray
2	Bottom cover	1	ABS UL94HB : Elastomer	Black : Black • Black : Marine • Black : Light gray
3	Battery lid	1	ABS UL94HB	Black • White
4	Battery contact	1 set	Stainless steel SUS304	Nickel plated
5	O-ring	1	Silicone	Black
6	Screw	7	Stainless steel SUS304	Unfinished

## Accessories (Optional parts)



Exclusive PCB  
WCPB series  
See page 48



Strap  
STPS series  
See page 63

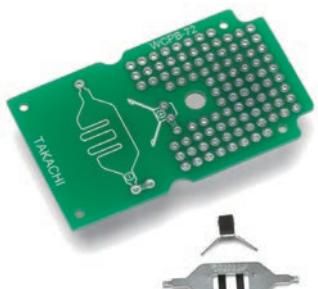


PCB mounting screw  
EM-1.6  
See page 135

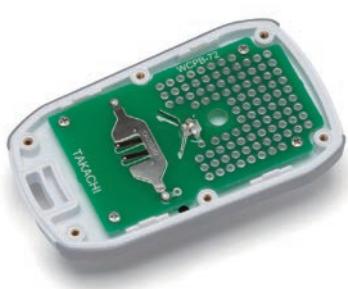


Neodymium magnet  
NMG series  
See page 130

# Coin battery contact installation step



Solder the contacts onto the PCB



Install the PCB in the top cover

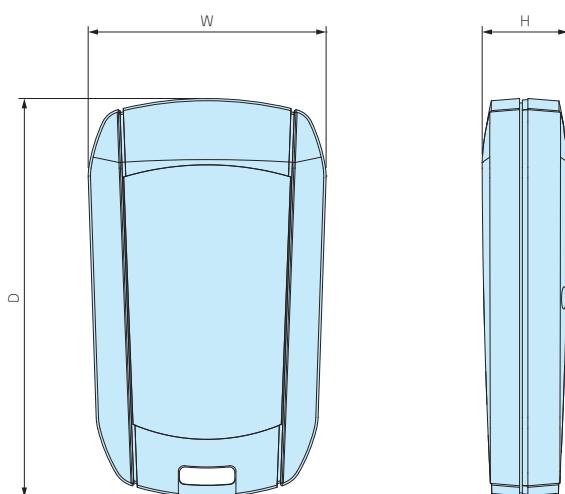
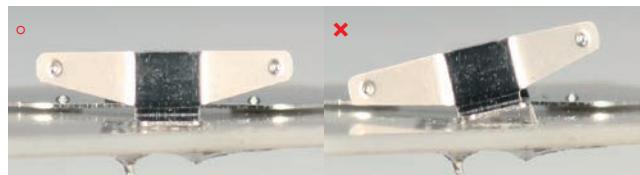


All set!



■ Battery direction is incused on the inner side of the battery lid.

**CAUTION** Use caution when mounting battery contacts.



Battery Compartment Types

Type	N	C
	None	CR2032 x1
Battery compartment		

Color Type

Code	B   B	B   M	W   L
Body	Black	Black	White
Grip	Black	Marine	Light gray
Color			

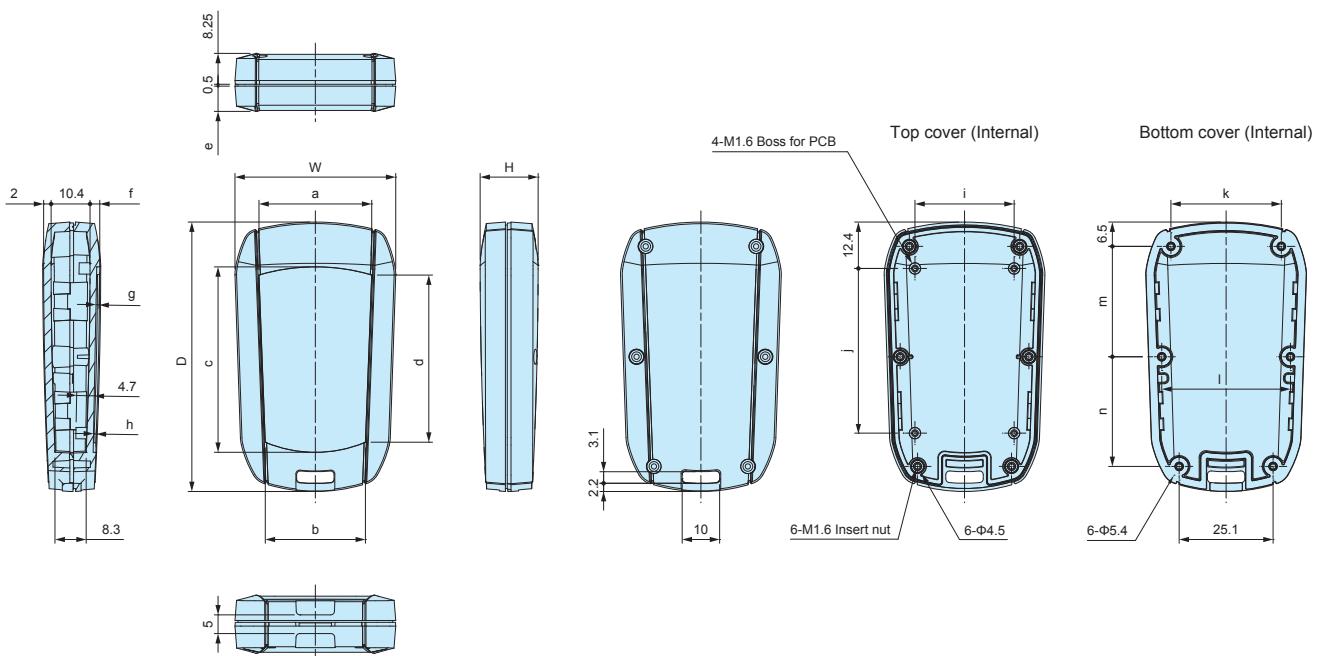
Product no. / Dimensions

Product no.	W	H	D	Battery compartment	Weight (g)
WC72-15-N-□□	43	15.5	72	None	18.5
WC72-15-C-□□	43	15.5	72	CR2032 x1	22
WC90-15-N-□□	44.2	15.7	90	None	23
WC90-15-C-□□	44.2	15.7	90	CR2032 x1	26.5

## WC dimensions

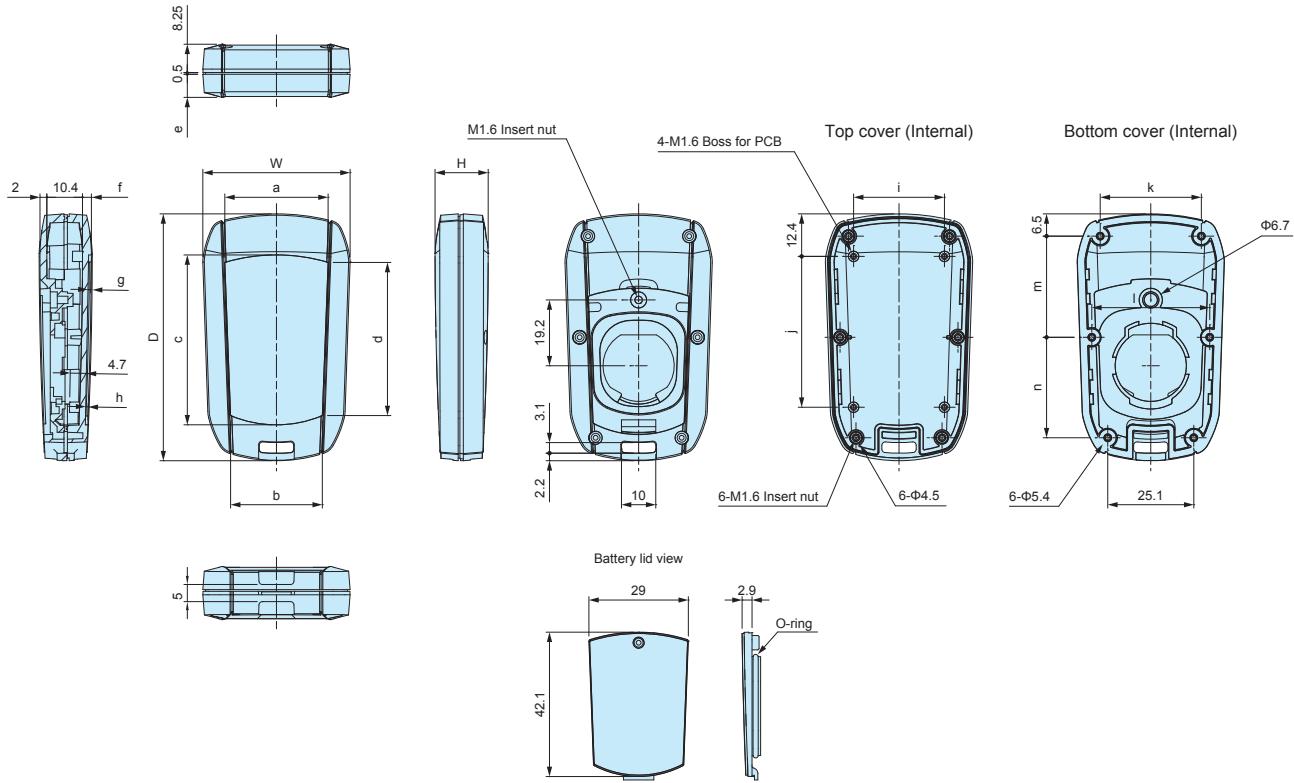
■ DXF/DWG/PDF drawings available on our website.

WC72-15-N / WC90-15-N



Product no.	W	H	D	a	b	c	d	e	f	g	h	i	j	k	l	m	n
WC72-15-N-□□	43	15.5	72	30.1	26.8	49.5	44.7	6.75	2.6	0.8	0.7	26.5	44	29.5	34.4	29.5	29.3
WC90-15-N-□□	44.2	15.7	90	31.5	26.7	67.5	62.7	6.95	2.8	0.7	1	26.9	62	30.9	34.9	38.5	38.3

WC72-15-C / WC90-15-C



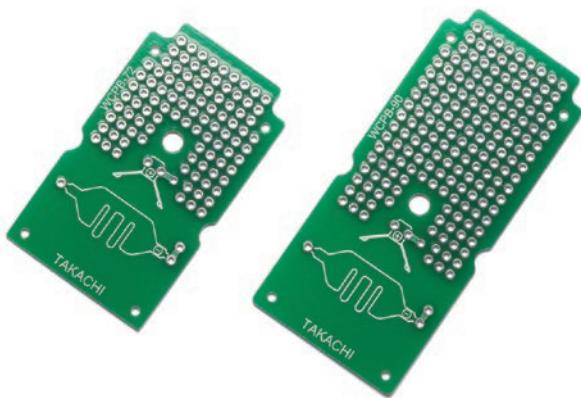
Product no.	W	H	D	a	b	c	d	e	f	g	h	i	j	k	l	m	n
WC72-15-C-□□	43	15.5	72	30.1	26.8	49.5	44.7	6.75	2.6	0.8	0.7	26.5	44	29.5	34.4	29.5	29.3
WC90-15-C-□□	44.2	15.7	90	31.5	26.7	67.5	62.7	6.95	2.9	0.7	1	26.9	62	30.9	34.9	38.5	38.3

# WCPB SERIES

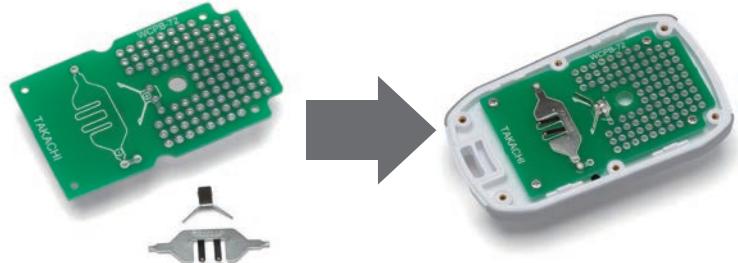
# EXCLUSIVE PCB for WC



- Exclusive PCB for WC series.
- Glass epoxy board (FR-4), through-holes on both sides, 2.54mm hole pitch.
- Designed with a battery contact hole. Battery contact position and direction are printed onto the pcb.

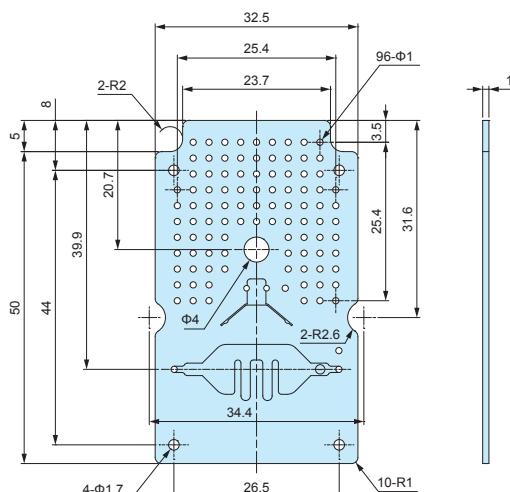


Please use battery contacts included with WC case.

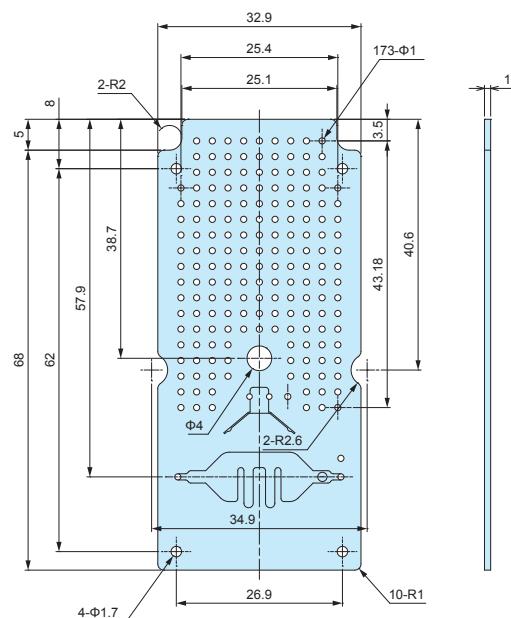


- DXF/DWG/PDF drawings available on our website.

WCPB-72



WCPB-90



Note : Holes (4-Φ1.7) for PCB mounting bosses are un-soldered.

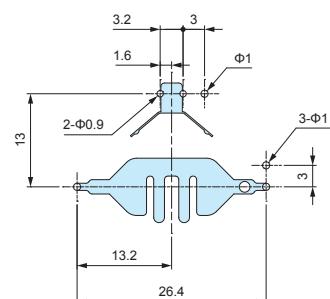
## Components

Part name	Pcs	Material	Color / Finish
PCB	1	Glass epoxy (FR-4) t=1.0	Through-hole • Lead-free solder • Solder resist
Screw	4	Steel M1.6	Trivalent chromate

## Product no. / Dimensions

Product no.	Suitable case
WCPB- 72	WC72-15-C
WCPB- 90	WC90-15-C

## Battery contact position details



## STPS SERIES

## STRAP



Wrist strap (STPS-140P)



Neck strap (STPS-450Y)



- Colorful and sturdy straps best used with CSS, CS and PS series.
- Wrist and Neck straps are available in 6 unique colors.
- Neck strap comes with a quick-release joint, making removal or attachment quick and easy.

## Color Type

Code	P Pink	Y Yellow	G Green	C Cyan	L Light gray	B Black
Color						

Quick-release joint  
(Neck strap only)

## Components

No.	Part name	Material	Color
1	String	Polyester	Black
2	Strap	Polyester	Pink • Yellow • Green • Cyan • Light gray • Black
3	Cap (wrist strap only)	Nylon	Black
4	Clamp (neck strap only)	Elastomer	Black
5	Joint (neck strap only)	Polyacetal	Black

## Product no. / Dimensions

Product no.						Strap width	Strap length
Pink	Yellow	Green	Cyan	Light gray	Black		
STPS-140P	STPS-140Y	STPS-140G	STPS-140C	STPS-140L	STPS-140B	8	140
STPS-450P	STPS-450Y	STPS-450G	STPS-450C	STPS-450L	STPS-450B	10	450



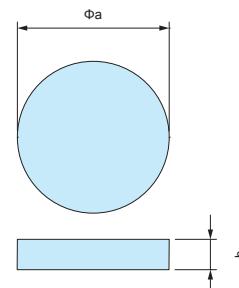
## NMG SERIES

## NEODYMIUM MAGNET

## Round magnet



- Material / Finish: Neodymium / Nickel plated
- Please attach using a strong adhesive.



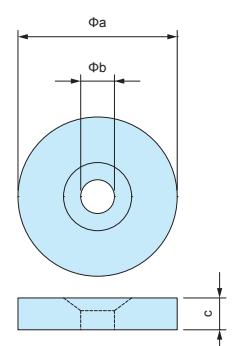
## Components

Product no.	a	b	Weight (g)
NMG3-15N	15	3	4
NMG3-20N	20	3	7.1
NMG5-22N	22	5	11.4
NMG5-25N	25	5	18.4

## Round magnet with countersunk hole



- Please fasten with a screw.



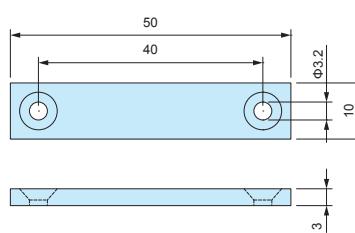
## Components

Product no.	a	b	c	Countersunk size	Weight (g)
NMG3-15M3	15	3.2	3	M3	3.8
NMG3-20M3	20	3.2	3	M3	6.9
NMG5-22M4	22	4.3	5	M4	13.7
NMG5-25M5	25	5.3	5	M5	17.6

## Rectangular magnet with countersunk holes



- Please fasten with a screw.



## Components

Product no.	a	b	c	Countersunk size	Weight (g)
NMG3-50M3	50	10	3	M3	11.3

**Example 1** The magnetic force remains strong even through plastic.



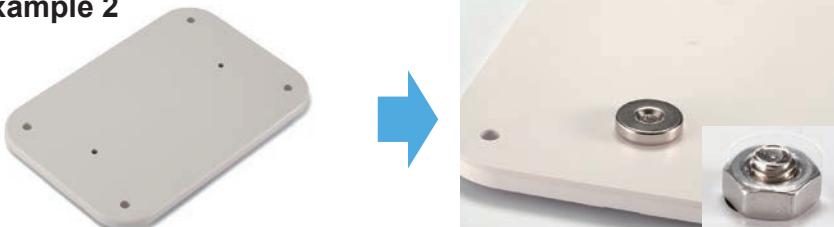
Make recessed pocket on the inside wall.

Glue on.



Attach onto a metallic surface.

**Example 2**



Make holes

Fasten with a screw and nut.

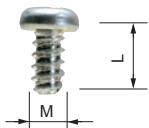


Attach onto a metallic surface.

**CAUTION:** Handle with care to avoid personal injury or damage to the magnet.

## EM SERIES

## PCB MOUNTING SCREW



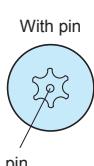
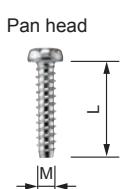
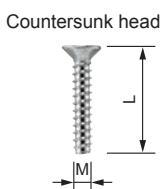
- Self-tapping screws for mounting PCB on bosses or standoffs.
- EM-3-6 self-tapping screws are suitable for mounting 1.6mm or thicker PCB.

## Product no. / Dimensions

Product no.	M	L	Material	Finish	Suitable enclosures	Pack of
EM-1.6	1.6	4	Steel	Trivalent chromate	CSS • CS • PS • WC	50
EM-2	2	5	Steel	Trivalent chromate	TW • TWN • TWF • WP (M2 size)	50
EM-2.3	2.3	6	Steel	Trivalent chromate	LCT • LCS • LC • WH PF • PFF (M2.3 size) TW • TWN • TWF (M2.3 size) WP (M2.3 size)	50
NEW EM-2.6	2.6	6	Steel	Trivalent chromate	PF • PFF (M2.6 size)	50
EM-3	3	5	Steel	Trivalent chromate	TW • TWN • TWF (M3 size) • SU	50
EM-3-6	3	6	Steel	Trivalent chromate		50

## MR SERIES

## TORX SCREW



★ : MR2.6-10□, MR3-14□, and MR1.6-6S are without pin.

## Product no. / Dimensions

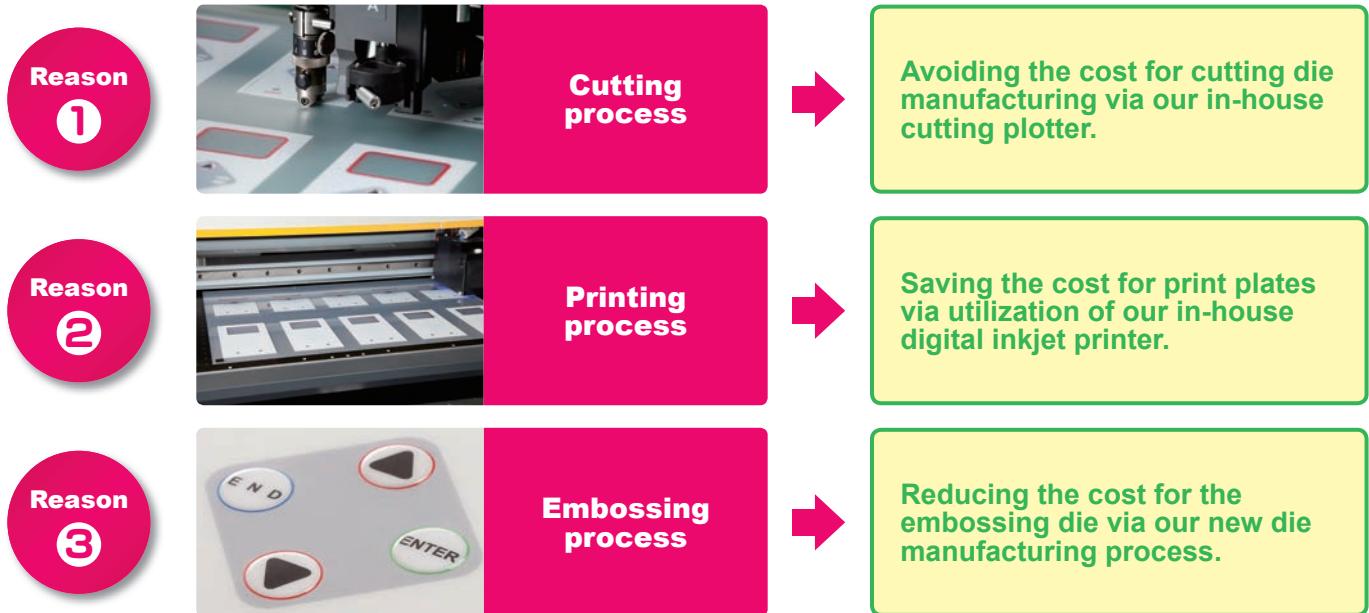
★ Mark = Without pin

Product no.	M	L	head no.	Head style	Material	Finish	Suitable enclosures	Pack of
MR1.6-6S★	1.6	6	T3	Pan	Steel	Nickel plated	CS • CSS	20
MR2.5-8PS	2.5	8	T8	Pan	Steel	Nickel plated	PF • PFF (M2.5 size)	20
MR2.6-10S★	2.6	10	T8	Countersunk	Steel	Nickel plated	TW5-2-5 / 5-3-5 TW • TWN4-2-5 / 4-2-6 / 4-2-8 / 5-2-7	20
MR2.6-10B★	2.6	10	T8	Countersunk	Steel	Black trivalent chromate	TW • TWN5-3-7 / 5-4-7 / 8-2-8 / 8-4-8 TWF5-2-7 / 5-3-7 / 5-4-7	20
MR2.6-12PS	2.6	12	T8	Pan	Steel	Nickel plated	LCT • LCS • LC115-F2 / F3 LCT • LCS • LC145S-F6	20
MR2.6-14PS	2.6	14	T8	Pan	Steel	Nickel plated	LCT • LCS • LC115H-F2 / F3 / M2 / 9V LCT • LCS • LC135-F4 / M2 / M3 / 9V LCT • LCS • LC135H-F4 / M2 / M3 / 9V LCT • LCS • LC145-F6 / M2 / M4 LCT • LCS • LC145H-F6 / M2 / M4 LCT • LCS • LC165-M4 LCT • LCS • LC165H-M4	20
MR2.6-14S	2.6	14	T8	Countersunk	Steel	Nickel plated	LCT • LCS • LC115-F2 / F3 LCT • LCS • LC145S-F6 TW • TWN7-2-11 / 7-4-11 / 7-5-11	20
MR2.6-18S	2.6	18	T8	Countersunk	Steel	Nickel plated	LCT • LCS • LC115H-N / F2 / F3 / M2 / 9V LCT • LCS • LC135-N / F4 / M2 / M3 / 9V LCT • LCS • LC135H-N / F4 / M2 / M3 / 9V LCT • LCS • LC145-N / F6 / M2 / M4 LCT • LCS • LC145H-N / F6 / M2 / M4 LCT • LCS • LC165-N / M4 LCT • LCS • LC165H-N / M4	20
MR3-8PS	3	8	T10	Pan	Steel	Nickel plated	PF • PFF (M3 size)	20
MR3-14S★	3	14	T10	Countersunk	Steel	Nickel plated	TW5-3-10	20
MR3-14B★	3	14	T10	Countersunk	Steel	Black trivalent chromate	TW • TWN5-3-9 / 7-3-13 / 7-5-13 / 9-4-17 / 9-6-17 TWF7-3-13 / 7-5-13 / 9-4-17 / 9-6-17	20
MR-1S	3	5	T10	Countersunk	Steel	Nickel plated	UC	20
MR-1B	3	5	T10	Countersunk	Steel	Black trivalent chromate	UC • UCY • US	20
MR-2S	3	10	T10	Countersunk	Steel	Nickel plated	HEN	20

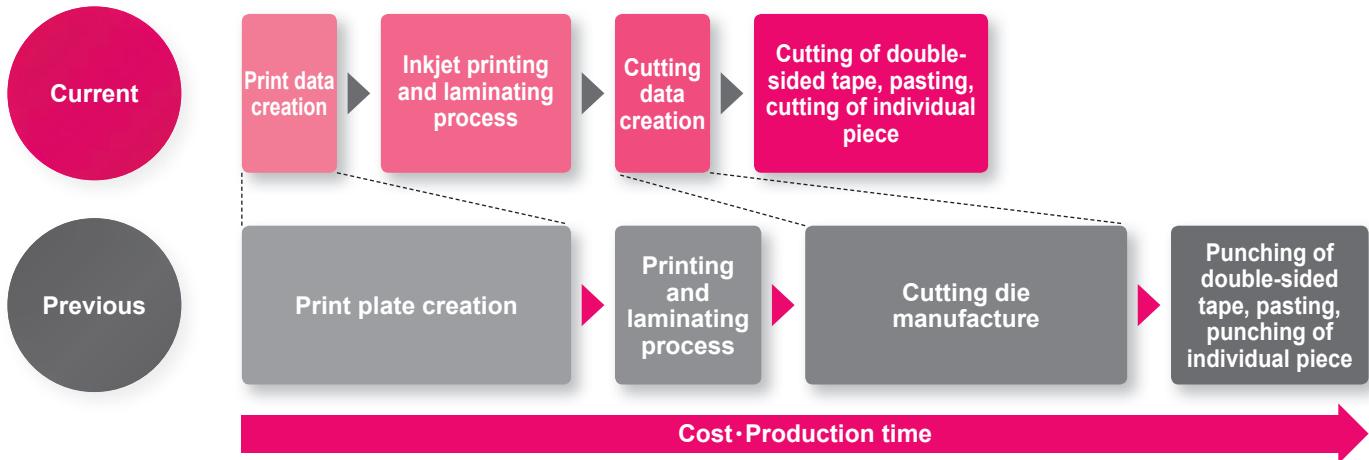
# DIGITAL PRINTED OVERLAY



## ● 3 reasons for low initial costs



## ● Comparison of current and previous manufacturing methods



# PRODUCTION PROCESS



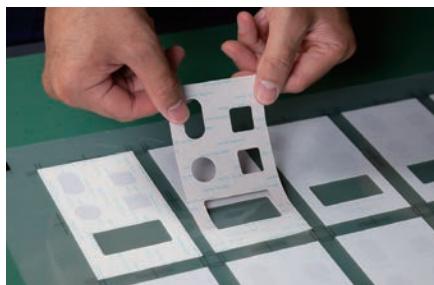
1. Inkjet printing on film



2. Laminating



3. Cutting double-sided tape



4. Sticking double-sided tape on printed film



5. Cutting the sheet to size



6. Embossing



7. Machining on enclosure



8. Sticking overlay sheet onto enclosure



9. Complete

## CUSTOMIZATION EXAMPLE

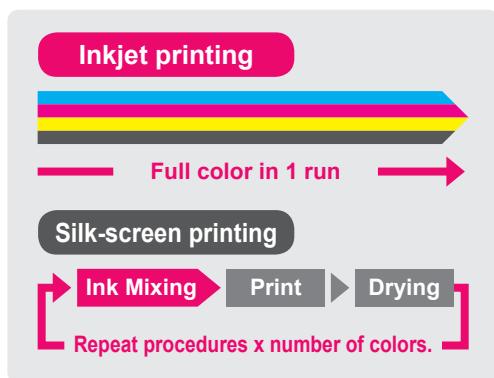


# INKJET PRINTING



Full color digitally designed image can be printed in 1 run.

No cost difference regardless of the number of colors used.



**Low printing cost**  
**Full color print possible in small quantities**



# High quality printing of photo image and color gradation.

Print photo images in maximum 1,800 x 1,800 dpi quality.

Pictures, logos and unique designs with color gradation can be recreated in a high quality print.



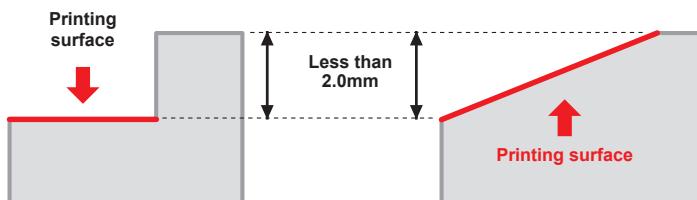
## Maximum printable enclosure size



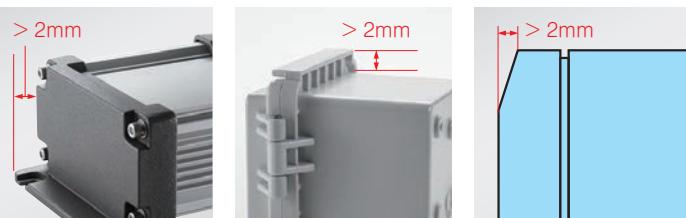
## Printable on surfaces with height differential

Printing is possible on recessed, sloped and rounded sections.

Gap difference is less than 2.0mm.



\*Not suitable if height difference is more than 2.0mm.



Printed example



# CNC MACHINING

CNC milling is a form of computer controlled machining. Similar in operation to drilling and cutting, it is able to create various hole styles and shapes by using a rotating cutting tool to bore into the object.



- Mainly used for plastic, aluminium die-cast, and aluminium extrusion material types.
- Able to perform milling for various shapes and sizes.
- Recommended for small quantity customization.

