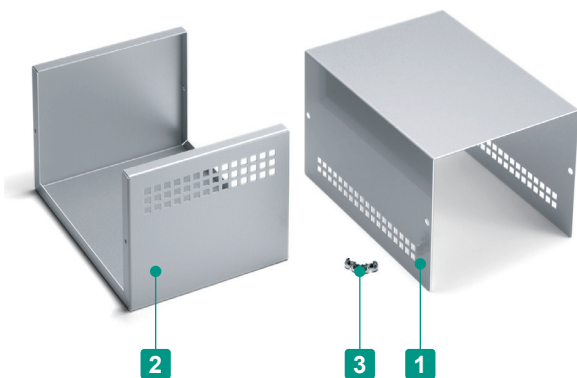
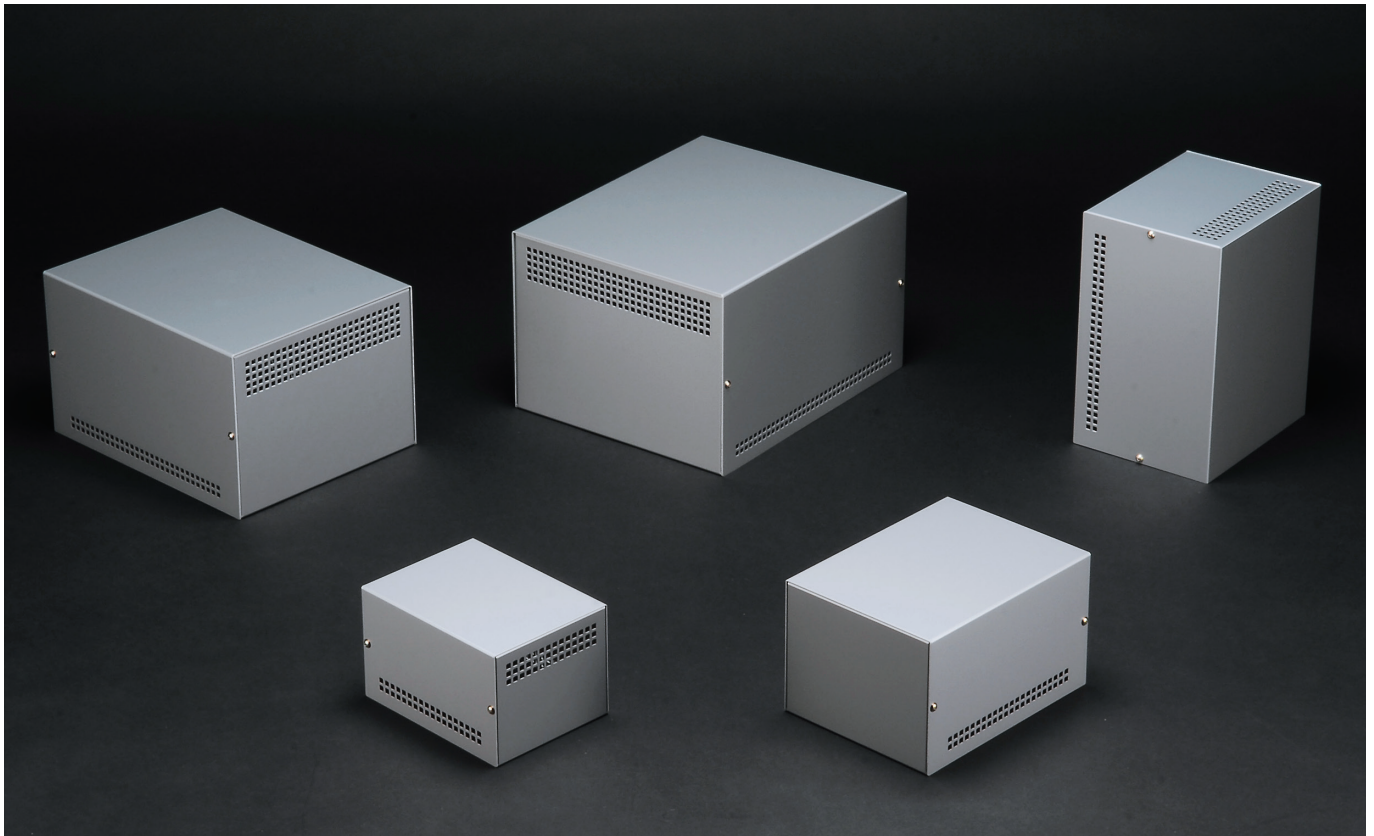


MBH series

VENTILATED ALUMINIUM CASE



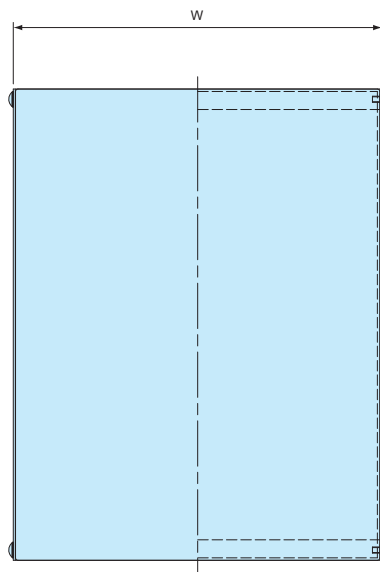
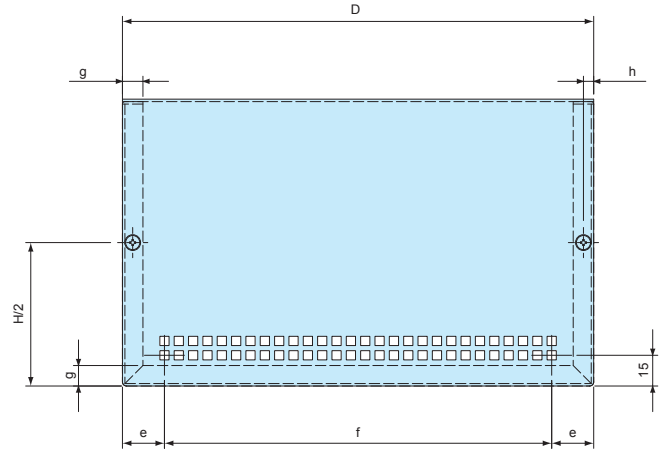
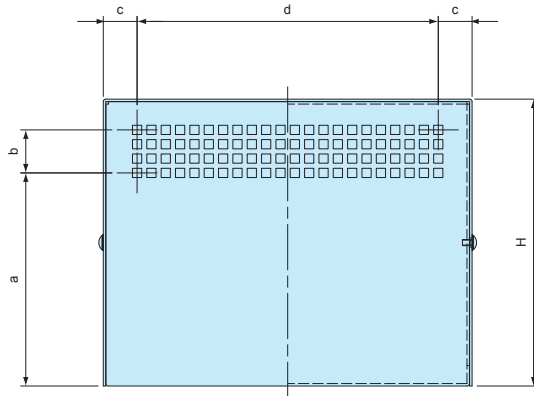
- Ventilation holes are punched on the lower side of the cover (both sides) and the upper side of the base (one side) for enhancing airflow.
- The internal surface is unfinished, making conductive and grounding possible.

Components

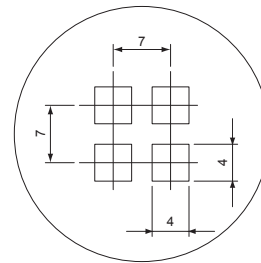
No.	Part name	Pcs	Material	Color / Finish
1	Cover	1	Aluminium A1100P	Metallic silver / Painted : Unfinished internal surface
2	Base	1	Aluminium A1100P	Metallic silver / Painted : Unfinished internal surface
3	Screw (Truss M3-5)	4	Brass	Nickel plated

MBH dimensions

■ Detailed DXF/DWG/PDF drawings available online.



Detail: Ventilation hole



Number of Ventilation Hole

Product no.	Cover	Base
MBH10- 9-12	24×2 faces	36
MBH12-10-16	36×2 faces	42
MBH15-12-20	44×2 faces	72
MBH18-14-23	56×2 faces	88
MBH21-16-26	60×2 faces	130
MBH24-18-29	72×2 faces	150

Product no. / Details

Product no.	W	H	D	a	b	c	d	e	f	g	h	Thickness	Weight (g)
MBH10- 9-12	100	90	120	64.5	14	11.5	77	21.5	77	10	5	1.0	190
MBH12-10-16	120	100	160	71	14	14.5	91	20.5	119	10	5	1.0	265
MBH15-12-20	150	120	200	84	21	15.5	119	26.5	147	10	5	1.2	476
MBH18-14-23	180	140	230	104	21	16.5	147	20.5	189	10	5	1.2	655
MBH21-16-26	210	160	260	117	28	17.5	175	28.5	203	12	6	1.5	1,068
MBH24-18-29	240	180	290	137	28	18.5	203	22.5	245	12	6	1.5	1,354

Accessories (Optional parts)



Rubber feet B series
See page Feet-1



Insert nut adhesive standoff AST series
See page 394



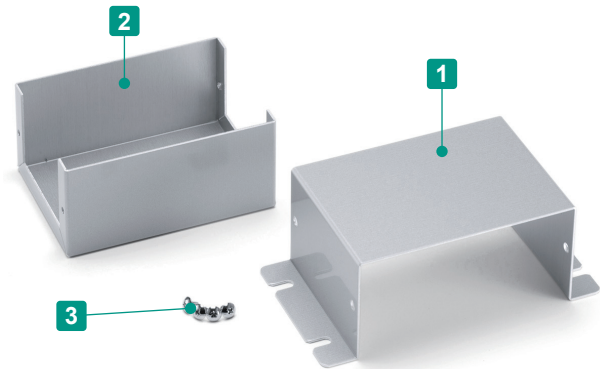
Conductive screw EV3-5S
See page EV-1



TORX screw MR3-5Z
See page MR-1

MBC series

FLANGED ALUMINIUM BOX



- Flanged aluminium case for wall mounting application.
- Suitable for use as a switch box or controller.
- The internal surface is unfinished, making conductive and grounding possible.
- Custom size available.

Components

No.	Part name	Pcs	Material	Color / Finish
1	Cover	1	Aluminium A1100P	Metallic silver / Painted : Unfinished internal surface
2	Base	1	Aluminium A1100P	Metallic silver / Painted : Unfinished internal surface
3	Screw (Truss M3-5)	4	Brass	Nickel plated

Accessories (Optional parts)



Insert nut adhesive standoff AST series
See page 394



Conductive screw EV3-5S
See page EV-1



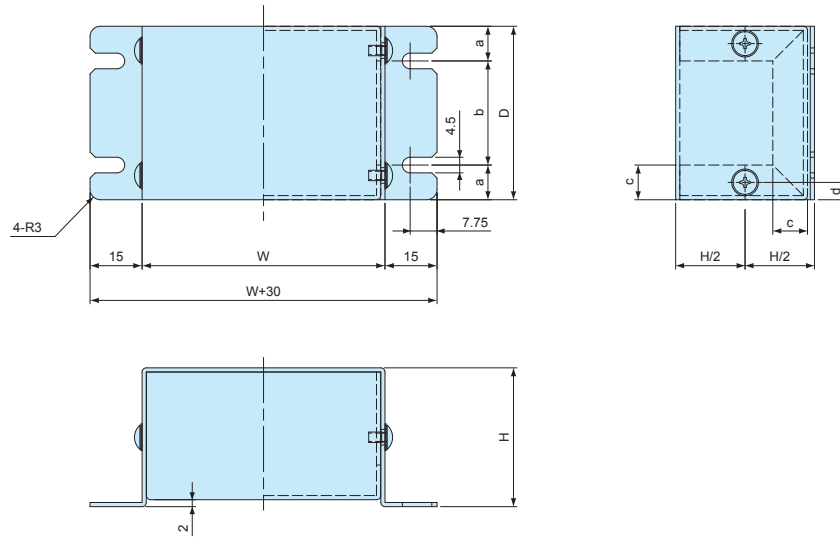
TORX screw MR3-5Z
See page MR-1

MBC dimensions

■ Detailed DXF/DWG drawings available online.

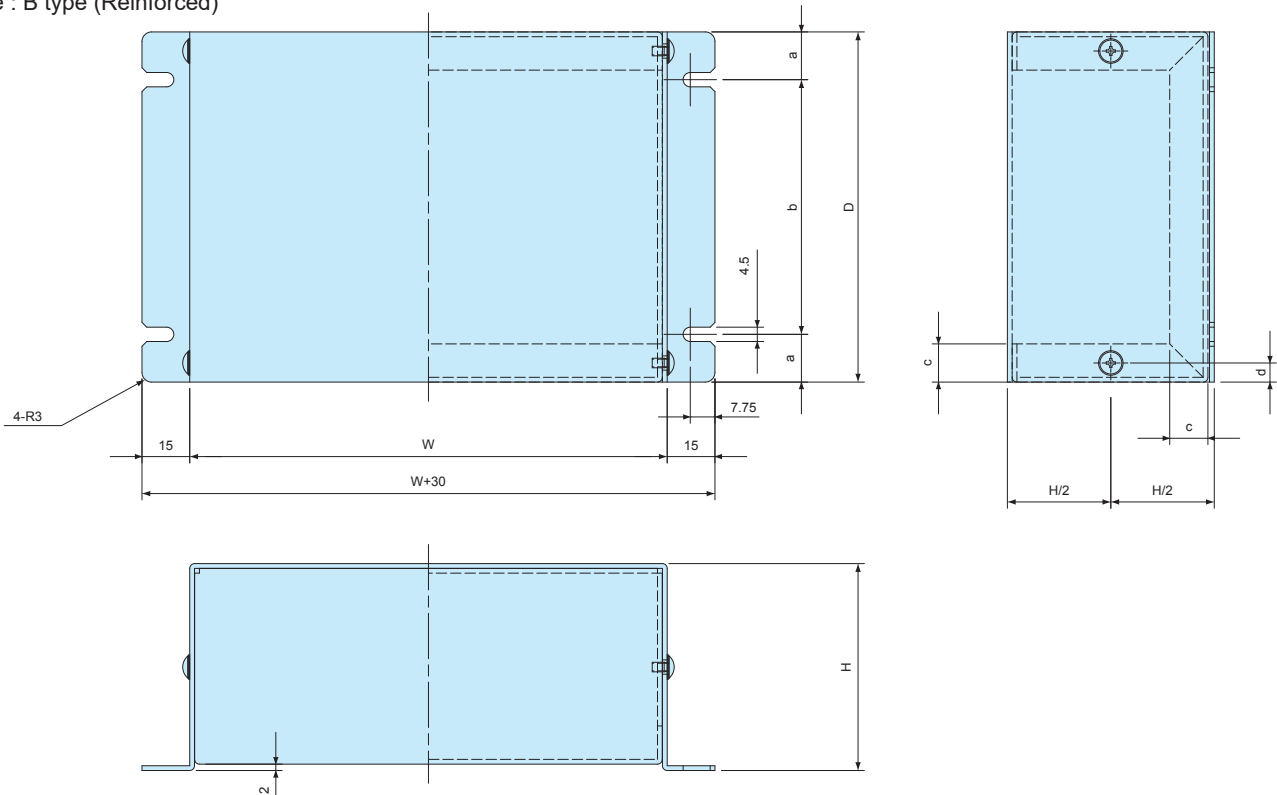
MBC5-4-7~MBC13-6-9

Base : A type (Standard)



MBC14-4-20~MBC20-8-15

Base : B type (Reinforced)

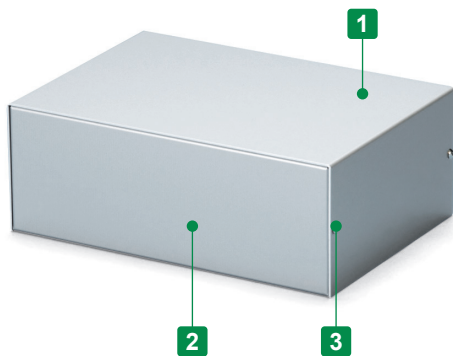
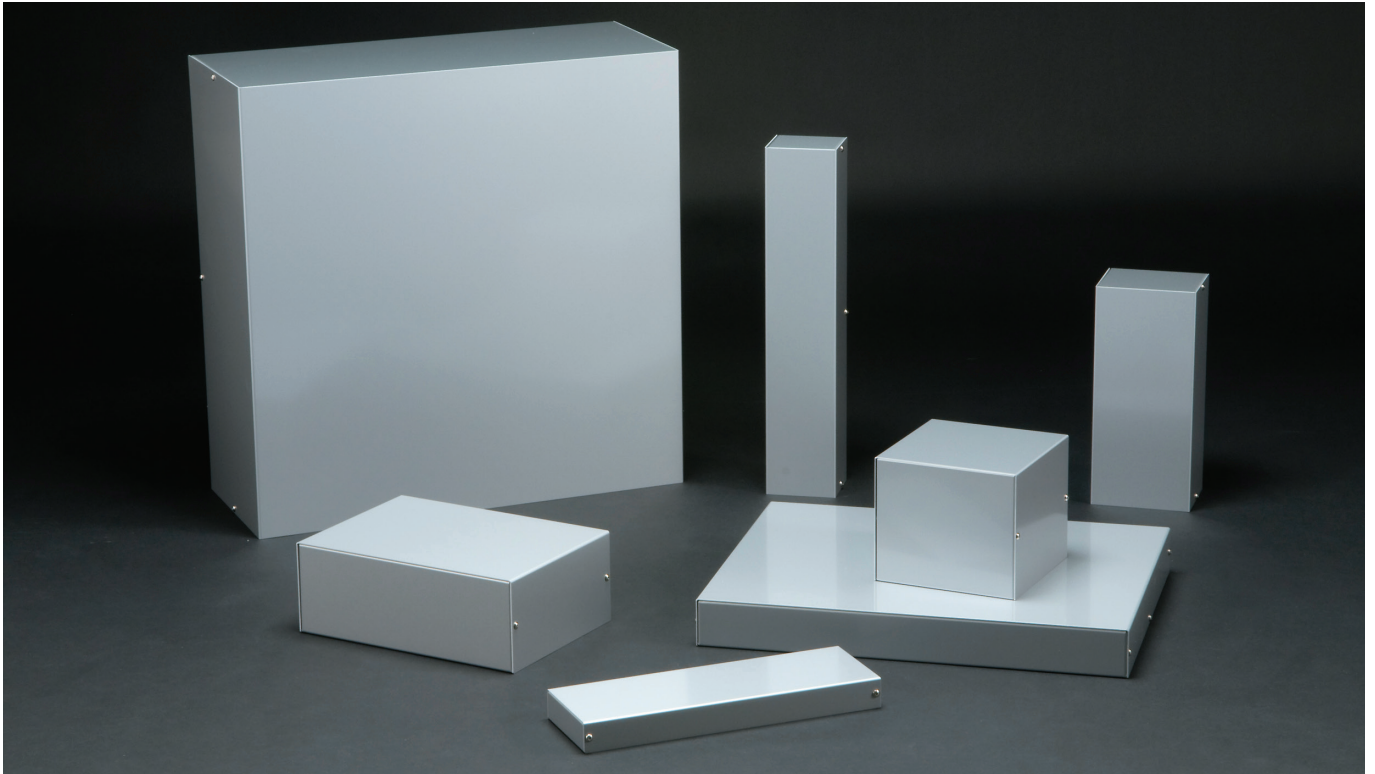


Product no. / Details

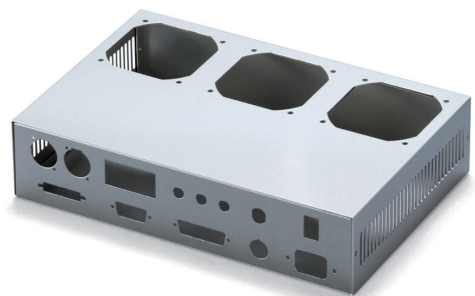
Product no.	W	H	D	a	b	c	d	Thickness	Base type	Weight (g)
MBC 5-4- 7	50	40	70	15	40	10	5	1.2	A	64
MBC 7-4- 5	70	40	50	10	30	10	5	1.2	A	62
MBC 7-4-10	70	40	100	15	70	10	5	1.2	A	102
MBC 8-5-12	80	50	120	15	90	12	6	1.5	A	180
MBC10-4-15	100	40	150	20	110	12	6	1.5	A	224
MBC10-5- 7	100	50	70	15	40	10	5	1.2	A	112
MBC10-7-15	100	65	150	20	110	12	6	1.5	A	280
MBC13-6- 9	125	60	90	15	60	12	6	1.5	A	210
MBC14-4-20	135	40	200	25	150	12	6	1.5	B	367
MBC15-7-11	150	65	110	15	80	12	6	1.5	B	298
MBC17-4-25	170	40	250	30	190	12	6	1.5	B	527
MBC18-7-13	175	70	130	15	100	12	6	1.5	B	389
MBC20-8-15	200	75	150	20	110	12	6	1.5	B	490

MBF series

CUSTOM SIZED ALUMINIUM CASE



CUSTOMIZED EXAMPLE



- Adjustable sizes available in 1mm intervals, with W and D dimensions from 50 ~ 500mm, and H dimension from 20 ~ 250mm.
- A conductive coating is applied onto the internal surface, allowing for easy earthing.
- Customization services are available (relevant drawings and data will be required).
- Standard size MB series is also available. See MB series product pages for more information.

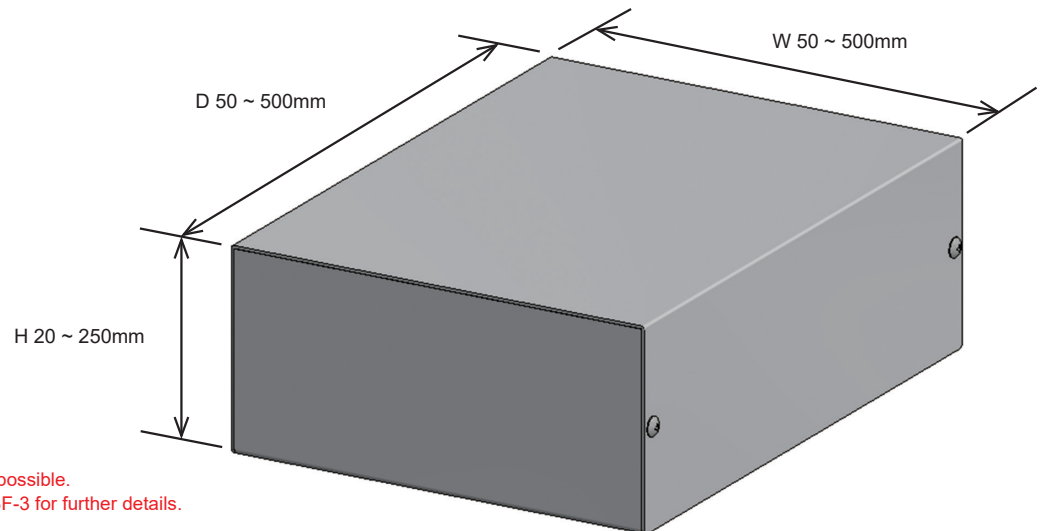
Components

No.	Part name	Pcs	Material	Color / Finish
1	Cover	1	Aluminium A1100P	Metallic silver / Painted : Conductive coated internal surface
2	Base	1	Aluminium A1100P	Metallic silver / Painted : Conductive coated internal surface
3	Screw (Truss head M3-5)	4 or 6	Steel	Nickel plated

- Cover • Base are covered with a protective film on one side.

1 Dimensions

To select D, W and H dimensions in 1mm intervals.



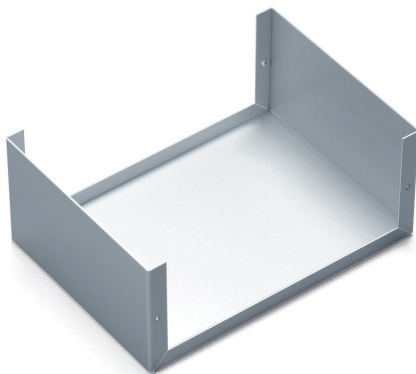
Caution : Not all size combinations are possible.
Refer to the table on page MBF-3 for further details.

- To select base type (thickness and structure) from the table below based on W / H / D dimensions specified.
Refer to the table on page MBF-3 for A10, B12 or B15 type selection based on W, H & D dimensions.

Base Type A (Standard)

[A10] Type

W : 200 • H : 100 • D : 500 or smaller
Type A : Standard • Panel thickness : 1.0mm



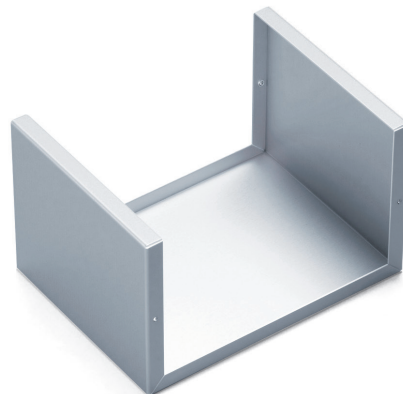
Base Type B (Reinforced)

[B12] Type

W : 400 • H : 225 • D : 400 or smaller
Type B : Reinforced • Panel thickness : 1.2mm

[B15] Type

W : 500 • H : 250 • D : 500 or smaller
Type B : Reinforced • Panel thickness : 1.5mm



Product No.

To determine a product number, fill W, H, D and select Base type in the following blank boxes.

Product no. MBF - -

W H D Base type Panel thickness

Numbering example: W:122 x H:70 x D:130 and A base type in panel thickness of 1.0mm

➔ **MBF122-70-130A10**

Lead Time

Custom Size Only
Custom Size + Hole Milling

5 business days (1 ~ 10 pcs)
8 business days (1 ~ 10 pcs)

Order Inquiry

For more information, contact us here at sales@takachi-el.co.jp

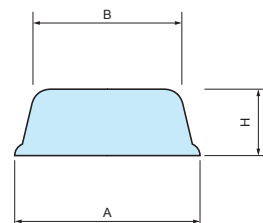
B series**ADHESIVE RUBBER FEET**

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



■ Injection molded type.

■ Please note color may be transferred from the synthetic rubber material after an extended period of time.

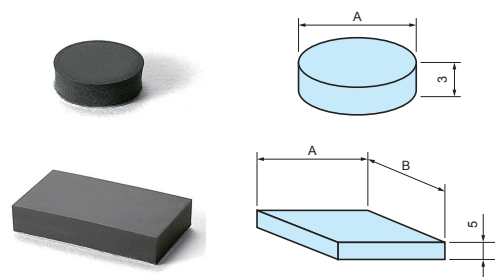
**Product no. / Details**

■ Material / Color : Synthetic rubber / Black

Product no.	A	B	H	Weight(g)	Pack of
B 6-2	6	5	1.8	0.1 (1pc)	10
B 8-4	8	7.7	3.5	0.2 (1pc)	10
B10-4	10	9.2	4.2	0.3 (1pc)	10
B11-3	10.8	10.2	3	0.4 (1pc)	10
B11-5	11	9.6	5	0.6 (1pc)	10
B12-4	12.7	10	3.8	0.6 (1pc)	10
B15-5	15.4	14.8	5.1	1.3 (1pc)	10
B16-7	16	13	7	1.5 (1pc)	10
B19-4	19	15.8	4.2	1.5 (1pc)	10
B21-7	21	17	7	2.6 (1pc)	10
B23-5	22.8	22.4	5	2.5 (1pc)	10
B26-11	26	20	11	5.9 (1pc)	10

B-P series**ADHESIVE RUBBER FEET**

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



■ Press-punched type.

■ Please note color may be transferred from the synthetic rubber material after an extended period of time.

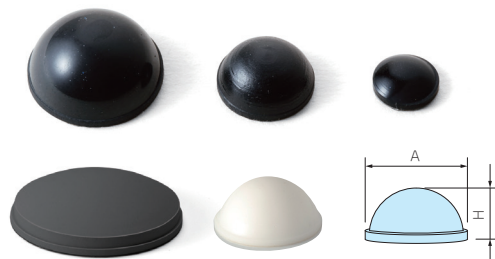
Product no. / Details

■ Material / Color : Synthetic rubber / Black

Product no.	A	B	Weight(g)	Pack of
B-P21	10	—	0.4 (1pc)	10
B-P22	20	—	1.6 (1pc)	10
B-P23	15	—	0.9 (1pc)	10
B-P31	28	16	3.4 (1pc)	10
B-P32	46	26	9.4 (1pc)	10

TB series**ROUNDED ADHESIVE RUBBER FEET**

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



■ Hemispherical rubber feet with adhesive tape.

■ Please note color may be transferred from the synthetic rubber material after an extended period of time.

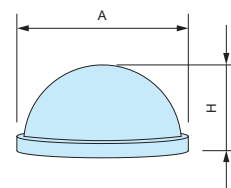
Product no. / Details

■ Material : Synthetic rubber

Product no.		A	H	Weight(g)	Pack of
● Black	● White (W)				
TB- 7	—	6.7	4.2	0.2 (1pc)	10
TB- 8	TB- 8W	8	2.6	0.3 (1pc)	10
TB-10	—	10	2.8	0.3 (1pc)	10
TB-12	TB-12W	11.3	5.6	1 (1pc)	10
TB-14	—	14	8	1.2 (1pc)	10
TB-16	TB-16W	15.9	8	1.9 (1pc)	10
TB-21	—	21.6	8.5	2.6 (1pc)	10
TB-27	—	27.8	7.4	4.9 (1pc)	10

SCR series**SELF-ADHESIVE CLEAR RUBBER FEET**

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



- Hemispherical semi-transparent type rubber feet with adhesive tape.
- Please note synthetic rubber may leave stains on the touching surface after an extended period of time.

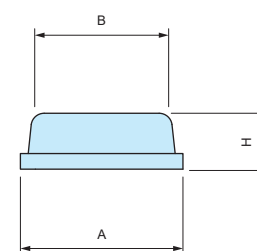
Product No. / Details

■ Material / Color: Synthetic rubber / Semi-clear

Product No.	A	H	Weight (g)	Pack of
SCR 8- 3	8	3	0.1 (1 pc)	10 pcs
SCR11- 5	11	5	0.4 (1 pc)	10 pcs
SCR12- 8	12	8	0.8 (1 pc)	10 pcs
SCR16- 8	16	8	1.2 (1 pc)	10 pcs
SRC19-10	19	10	2.3 (1 pc)	10 pcs

SCRC series**SELF-ADHESIVE CLEAR RUBBER FEET, CYLINDRICAL SHAPE**

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



- Cylindrical semi-transparent type rubber feet with adhesive tape.
- Please note synthetic rubber may leave stains on the touching surface after an extended period of time.

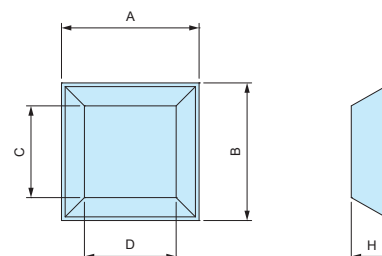
Product No. / Details

■ Material / Color: Synthetic rubber / Semi-clear

Product No.	A	B	H	Weight (g)	Pack of
SCRC 8-2	8.2	7.9	2.2	0.1 (1 pc)	10 pcs
SCRC10-4	10.3	8	4	0.3 (1 pc)	10 pcs
SCRC11-3	11.1	10.3	3.4	0.3 (1 pc)	10 pcs
SCRC13-4	12.5	10.3	4.4	0.4 (1 pc)	10 pcs
SCRC15-4	15	14	4.2	0.7 (1 pc)	10 pcs
SCRC18-6	17.6	16.6	5.6	1.3 (1 pc)	10 pcs

SCRS series**SELF-ADHESIVE CLEAR RUBBER FEET, SQUARE SHAPE**

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



- Square shape semi-transparent type rubber feet with adhesive tape.
- Please note synthetic rubber may leave stains on the touching surface after an extended period of time.

Product No. / Details

■ Material / Color: Synthetic rubber / Semi-clear

Product No.	A	B	H	C	D	Weight (g)	Pack of
SCRS11-3	10.5	10.5	2.7	8	8	0.2 (1 pc)	10 pcs
SCRS11-4	10.5	10.5	4.2	8	8	0.4 (1 pc)	10 pcs
SCRS13-3	12.7	12.7	3.4	9	9	0.4 (1 pc)	10 pcs
SCRS13-6	12.7	12.7	6.3	7	7	0.7 (1 pc)	10 pcs

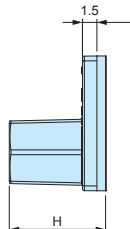
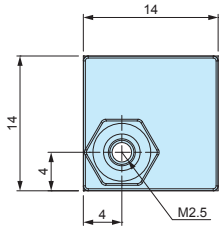
AST series**INSERT NUT ADHESIVE STANDOFF**

- Double-sided adhesive tape allows the standoff to be mounted quickly and easily; allows PCB mounting in non-boss enclosures.
- Convenient for installing PCBs into enclosures without the need for customization.
- Please ensure that surface is cleaned and grease-free before adhering.
- Once removed, it cannot be adhered on again.

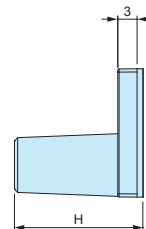
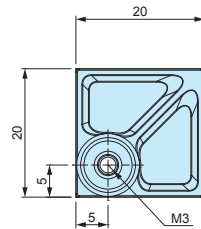
AST dimensions

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

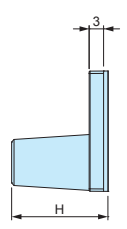
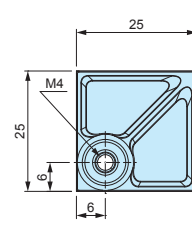
AST2.5-□



AST3-□



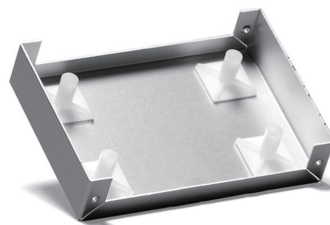
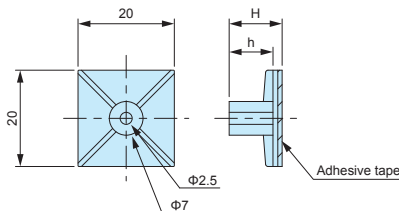
AST4-□

**Product no. / Details****Bulk package**

Product no	H dimension	Included screw	Recommended PCB thickness (mm)	Recommended torque (N · m)	Weight (g)	Pack of	Product no	Pack of
AST2.5-5B	5	M2.5-5 pan head	1.0 ~ 2.0	0.3	0.6 (1 piece)	4	AST2.5-5B-P	100
AST2.5-10B	10	M2.5-5 pan head	1.0 ~ 2.0	0.3	0.8 (1 piece)	4	AST2.5-10B-P	100
AST3-6B	6	M3-6 pan head	1.0 ~ 3.0	0.4	1.5 (1 piece)	4	AST3-6B-P	100
AST3-10B	10	M3-6 pan head	1.0 ~ 3.0	0.4	1.6 (1 piece)	4	AST3-10B-P	100
AST3-15B	15	M3-6 pan head	1.0 ~ 3.0	0.4	1.8 (1 piece)	4	AST3-15B-P	100
AST3-20B	20	M3-6 pan head	1.0 ~ 3.0	0.4	2.1 (1 piece)	4	AST3-20B-P	100
AST4-10.5B	10.5	M4-8 pan head	1.0 ~ 3.5	0.8	2.6 (1 piece)	4	AST4-10.5B-P	50
AST4-20B	20	M4-8 pan head	1.0 ~ 3.5	0.8	3.2 (1 piece)	4	AST4-20B-P	50

- Base material / color : Nylon 66 (UL94V-2) / Black
- Nut • screw material / finish : Steel / Trivalent chromate

- Bulk packaging is available. See "Bulk package" column above.
- Screws are not included for bulk packages.

ASR series**ADHESIVE PCB STANDOFF****ASR dimensions**

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

Technical Data

Recommended torque : 0.4N · m

- M3 tapping screw use adhesive standoff.
Recommended to be used with EM-3 or EM-3-6 self-tapping screws (See page 398).
- Please ensure that surface is cleaned and grease-free before adhering.
- Once removed, it cannot be adhered on again.

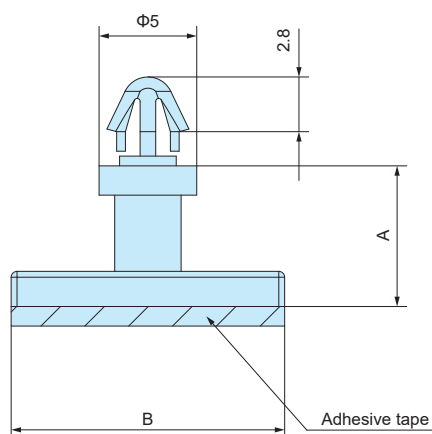
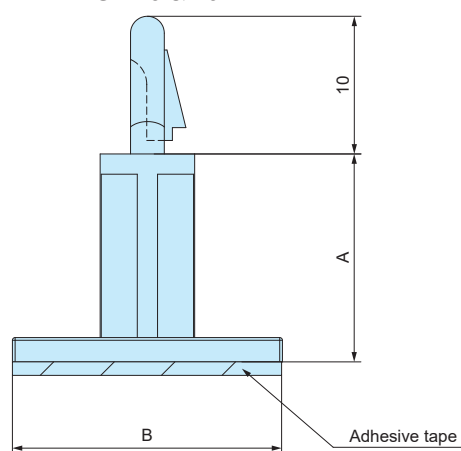
Product no. / Details

- Material / Color: Nylon 66 (UL94V-2) / Natural

Product no	H	h	Weight (g)	Pack of
ASR- 5	5.1	3.1	0.9 (1 piece)	10
ASR- 6	6.4	4.4	1.0 (1 piece)	10
ASR- 7	7.2	5.1	0.9 (1 piece)	10
ASR- 8	8.1	6.3	0.9 (1 piece)	10
ASR- 9	9	7	1.0 (1 piece)	10
ASR-11	11	9	1.0 (1 piece)	10
ASR-13	12.7	10.7	1.2 (1 piece)	10
ASR-14.5	14.7	12.8	1.1 (1 piece)	10
ASR-16	15.9	13.9	1.3 (1 piece)	10
ASR-19	19.1	17.1	1.4 (1 piece)	10

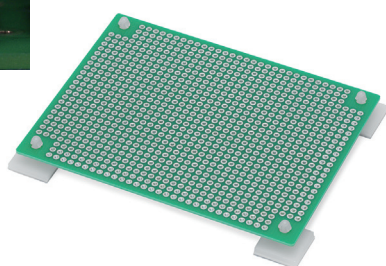
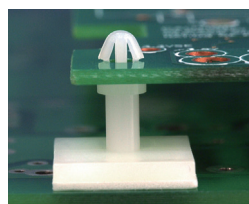
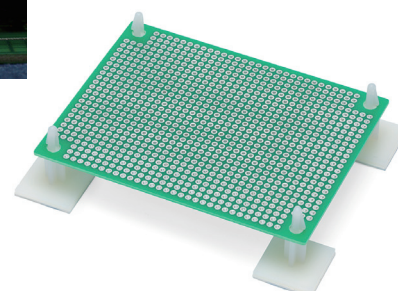
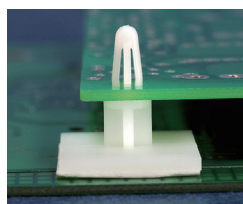
ASL series**LOCKING PCB ADHESIVE STANDOFF**

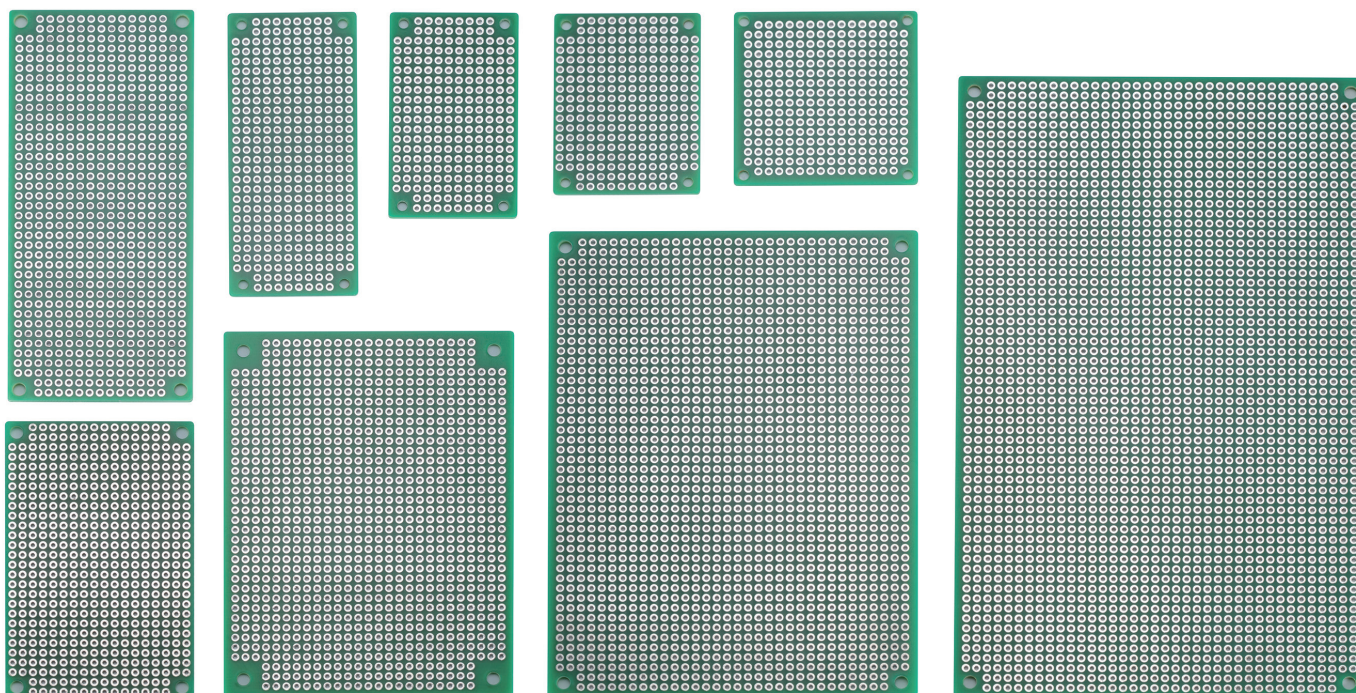
- Standoff for securing PCB by simply snapping it in.
- Adhesive standoff can be freely and easily affixed on.
- Once removed, it cannot be adhered on again.

ASL-3 ~ 12**ASL-15 & 19****Product no. / Details**

■ Material / Color : PA66 / Natural

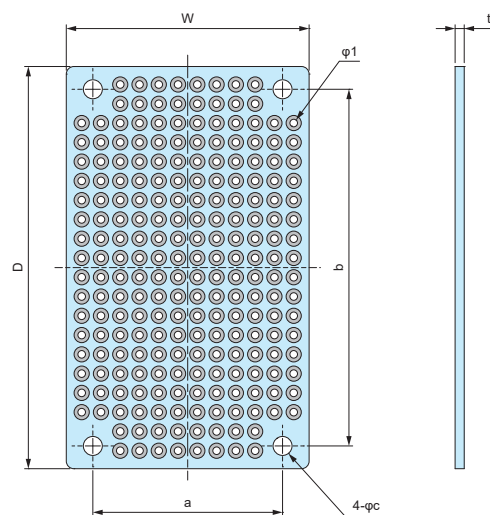
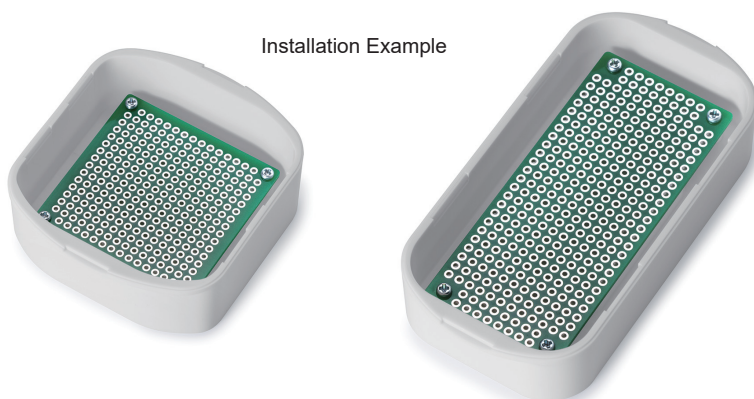
Product no.	A	B	Mounting hole	Mounting thickness	Weight (g)	Pack of
ASL- 3	2.7	□14	Φ3	1.2 ~ 1.6	0.5 (1 piece)	10
ASL- 4	4	□14	Φ3	1.2 ~ 1.6	0.5 (1 piece)	10
ASL- 6	5.6	□14	Φ3	1.2 ~ 1.6	0.6 (1 piece)	10
ASL- 7	7.2	□14	Φ3	1.2 ~ 1.6	0.6 (1 piece)	10
ASL- 9	9.2	□14	Φ3	1.2 ~ 1.6	0.6 (1 piece)	10
ASL-10	9.7	□14	Φ3	1.2 ~ 1.6	0.6 (1 piece)	10
ASL-12	11.9	□14	Φ3	1.2 ~ 1.6	0.6 (1 piece)	10
ASL-15	15.4	□20	Φ4	1.2 ~ 1.7	1.3 (1 piece)	10
ASL-19	18.5	□18	Φ4	1.2 ~ 2.0	1.4 (1 piece)	10

APPLICATION EXAMPLE : ASL-3 ~ 12**APPLICATION EXAMPLE : ASL-15 & 19**



- Plated Through Hole (PTH) type PCB with a 2.54mm hole-to-hole pitch.
Inexpensive and economical PCB made with robust, heat-resistant and non-conductive glass epoxy material.
- Easily mounted onto bosses or standoffs with the mounting holes at each corner.
- Made with environmentally friendly lead-free solder. RoHS3 compliant.
- 4 new sizes added to extend the lineup to a total of 9 sizes. PCB100-160 is Eurocard (3U) format size.
- 3 new SIC and SIM plastic case series compatible sizes have been released, now with 4 compatible sizes available.
- DXF/DWG/PDF drawings available on our website.

Installation Example



Material / Finish : Glass epoxy (FR-4) / Through-hole - Lead-free solder resist

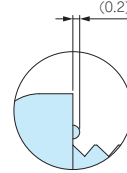
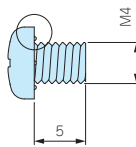
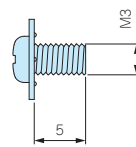
*When installing PCB46-101 with M2 mounting screws, use EM-B2 (see page 398).

Product no. / Details

Product no.	W	D	a	b	c	t	Mounting screw	Weight (g)	Compatible SIC & SIM size
PCB 32- 53	32	53	25	47	2.5	1.2	M2 / M2.5	3.9	SIC • SIM5- 7-□
NEW PCB 32- 73	32	73	25	67	2.5	1.2	M2 / M2.5	5.2	SIC • SIM5- 9-□
NEW PCB 36- 47	36	47	30	41	2.5	1.2	M2 / M2.5	3.7	—
NEW PCB 45- 45	45	45	40	40	2.5	1.2	M2 / M2.5	4.6	SIC • SIM6- 7-□
NEW PCB 46-101	46	101	40	95	3.2	1.6	M2 / M2.5 / M3	13.2	SIC • SIM6-12-□
PCB 47- 72	47	72	41	66	3.2	1.2	M3	7.4	—
PCB 72- 95	72	95	62	85	3.2	1.2	M3	15.7	—
PCB 90-120	90	120	82	112	3.2	1.6	M3	32.5	—
PCB100-160	100	160	92	152	3.2	1.6	M3	49.2	—

EV series**CONDUCTIVE SCREW**

Conductive



Base material exposed after being shaved.



Example: Internal grounding use.



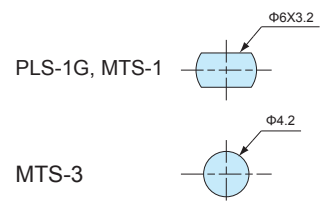
- When tightened, protrusions on the underside of the screw head will shave away at the painted or anodized surface to expose the base material for achieving conductivity.

Product no. / Dimensions

Product no.	M	L	Material	Finish	Suitable series	Pack of
EV3-5S	3	5	Steel	Nickel plated	YM • MB • others	20
NEW EV-4S	4	5	Steel	Nickel plated	BDN • others	20

PLS • MTS • PM series**CAPTIVE FASTENER • CAPTIVE SCREW**PLS-1G
Plastic fastenerMTS-1
Metal fastenerMTS-3
Metal fastener

Hole layout for mounting

**Product no. / Dimensions Fastener**

Product no.	M	Material	Color / Finish	Pack of
PLS-1G	2.5	POM	White gray	50
MTS-1	2.5	Steel	Zinc plated	8
NEW MTS-3	2.5	Steel	Nickel plated	10

Conductive

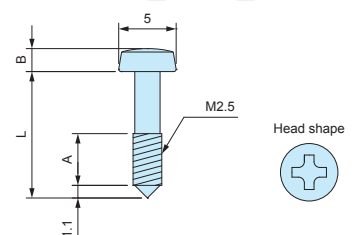
PM-1□

PM-2□

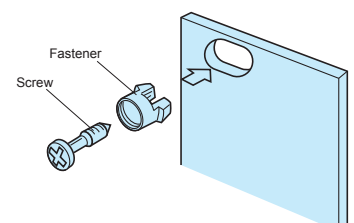
PM-3

**PM dimensions**

PM-1□ • PM-2□

**Product no. / Dimensions Screw**

Product no.	Material	Finish	L	A	B	Suitable screw driver	Pack of
PM-1B	Steel	Black trivalent chromate	10	4	1.5	#1	50
PM-1S	Steel	Chrome plated	10	4	1.5	#1	50
PM-2B	Steel	Black trivalent chromate	11	5	2	#2	50
PM-2S	Steel	Nickel plated	11	5	2	#2	50
NEW PM-3	Steel	Nickel plated	7	2.5	2	#2	50

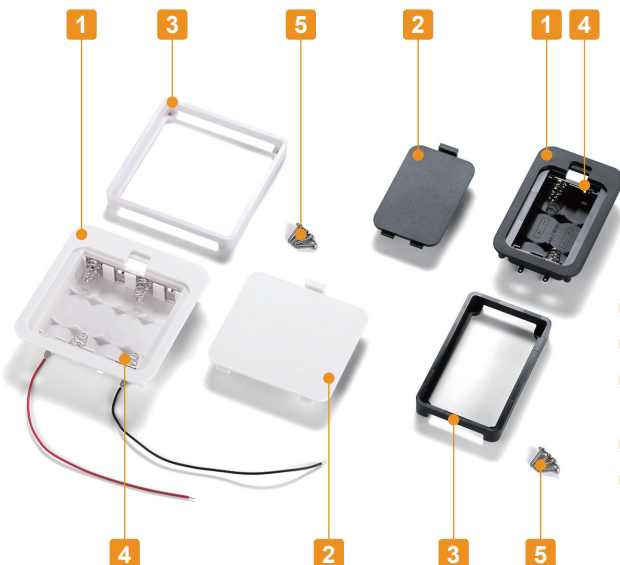




Technical Data

Operating temperature: -10°C ~ +60°C

Mount Example



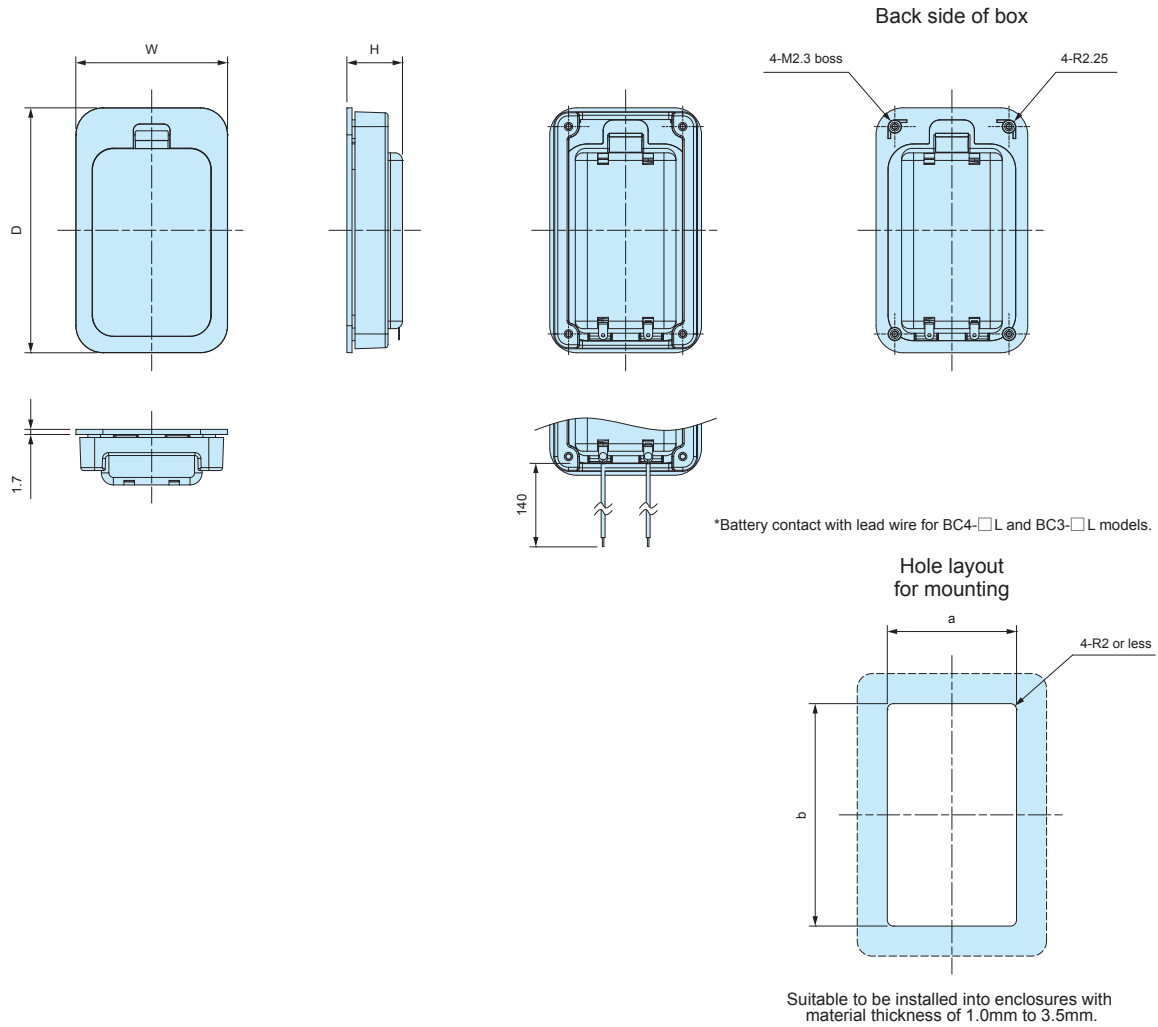
- Suitable to be installed into enclosures with material thickness of 1.0mm to 3.5mm.
- Cover can be opened/closed without any tool for easy battery replacement.
- 5 different battery layouts are available as AA x 2, AA x 3, AA x 4, AAA x 2 and AAA x4. Each layout comes in 2 models: with lead-wire, and without lead-wire.
- ⊕ ⊖ markings prevents incorrect placement of battery.
- The dimensions of alkaline or manganese batteries may vary depending on country and brand. Use optional battery cushion sponge to preventing rattling.

Components

No.	Part name	Pcs	Material	Color / Finish
1	Box	1	ABS UL94V-0	Black • Off-white
2	Cover	1	ABS UL94V-0	Black • Off-white
3	Frame	1	ABS UL94V-0	Black • Off-white
4	Battery contact Lead wire (BC-L models)	1 set	Battery contact : Brass & steel wire Lead wire : PVC + Copper wire (UL1007 AWG26)	Nickel plated Black • Red
5	Self-tapping screw	4	Steel	Nickel plated

BC dimensions

- DXF/DWG/PDF/STP drawings available on our website.
- The shape and position of battery contacts vary by models.



Type: Without Lead Wire

Product no. / Dimensions

Product no.		Dimensions					Battery layout	Weight (g)
● Black	● Off-white	W	H	D	a	b		
BC4-2-B	BC4-2-W	40	14.8	78.5	32.5	71	*AAA x 2	24.5
BC4-4-B	BC4-4-W	62	14.8	78.5	54.5	71	*AAA x 4	34.5
BC3-2-B	BC3-2-W	50.5	18.5	81.5	43	74	*AA x 2	31.5
BC3-3-B	BC3-3-W	65.5	18.5	81.5	58	74	*AA x 3	39
BC3-4-B	BC3-4-W	80.5	18.5	81.5	73	74	*AA x 4	46

*Alkaline or manganese batteries

Type: With Lead Wire

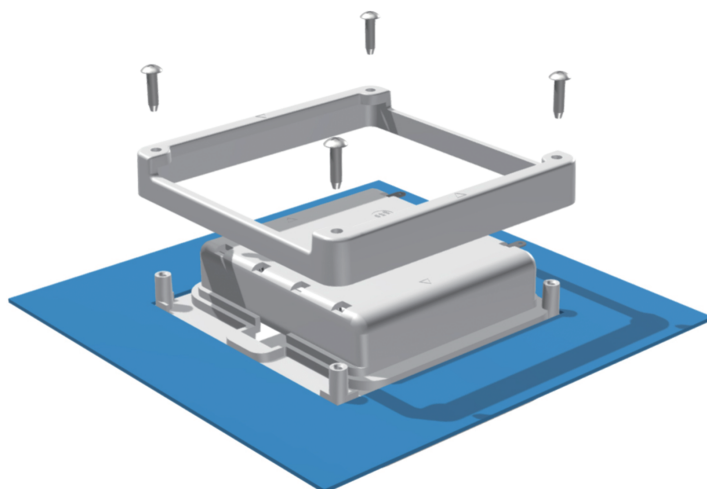
Product no. / Dimensions

Product no.		Dimensions					Battery layout	Weight (g)
● Black	● Off-white	W	H	D	a	b		
BC4-2L-B	BC4-2L-W	40	14.8	78.5	32.5	71	*AAA x 2	25.5
BC4-4L-B	BC4-4L-W	62	14.8	78.5	54.5	71	*AAA x 4	35.5
BC3-2L-B	BC3-2L-W	50.5	18.5	81.5	43	74	*AA x 2	32.5
BC3-3L-B	BC3-3L-W	65.5	18.5	81.5	58	74	*AA x 3	40
BC3-4L-B	BC3-4L-W	80.5	18.5	81.5	73	74	*AA x 4	47

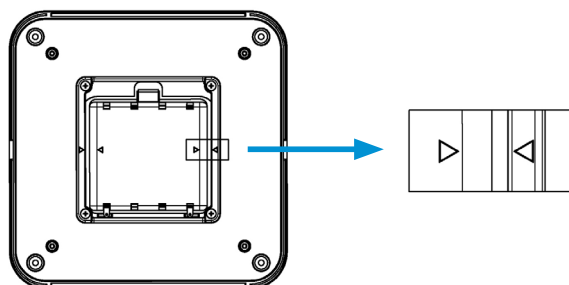
*Alkaline or manganese batteries

How to mount on the enclosures

- Insert battery box into the milled hole first, and fit the frame on the back side. Once mounted, secure the frame with screws.



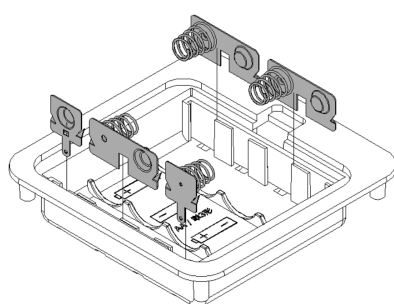
- For BC3-4□ models, ▷ markings are shown on the frame. Install by matching the markings.



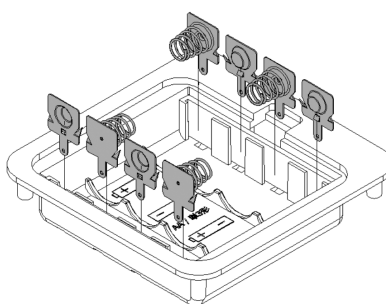
Parallel circuit conversion on BC series battery box

- BC-3□ models can be converted from a series to a parallel circuit. See below illustration for further details.
- IT series (IT-3 models) optional battery contacts can be used for parallel circuit conversion. (See website for more information)
- Use caution when installing or replacing the terminals to avoid the damage to the material.
- Parallel series conversion is available via our customization services.

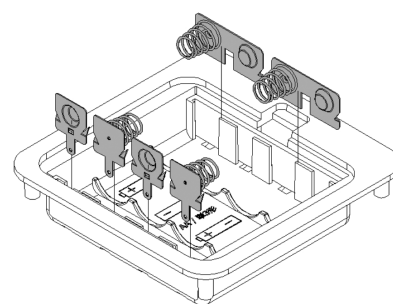
Conversion Example



Series Circuit (Standard)

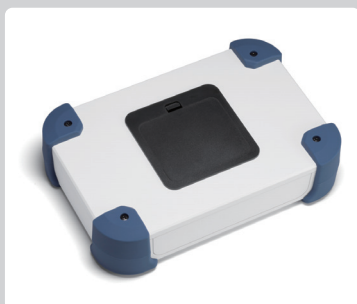


Parallel Circuit (4 batteries)



Parallel Circuit (2 batteries x 2)

Customization Available



For more information, contact us here:

Online form: https://www.takachi-enclosure.com/custom/form_custom
E-mail : sales@takachi-el.co.jp

Mount Example



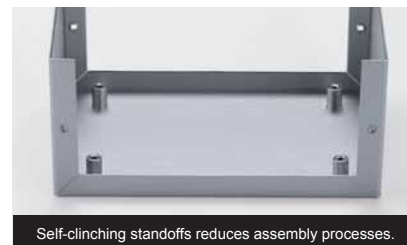
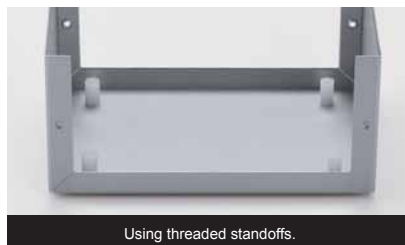
■ BC series battery boxes can also be mounted on aluminium enclosures.

Clinching Fastener

Self-clinching Standoff / Stud / Nut

Easy attaching of self-clinching fasteners into simple through-holes.

Need standoffs for mounting PCB/ Components in metallic enclosures.



Need studs in/on aluminium enclosures.



Need tough thread hole(s) on 1.0mm thick aluminium.



● A wide variety of self-clinching fasteners are available for selection.

**ST · STS series**

Self-clinching Standoffs
(Through-hole type)

**SB · SBS series**

Self-clinching Standoffs
(Blind type)

**NM · NS series**

Self-clinching nuts
(Round type)

**NR series**

Self-clinching nuts
(Hex type)

**CS series**

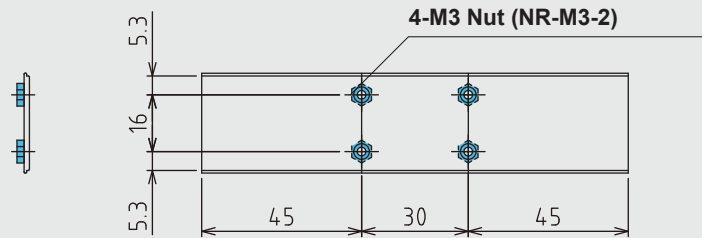
Self-clinching studs

**BN series**

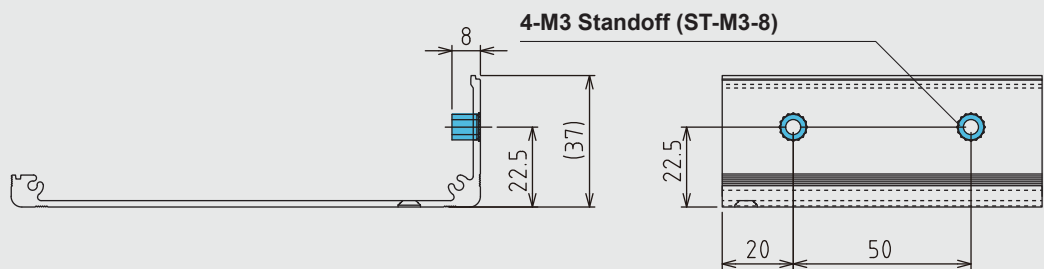
Self-clinching nuts
(Blind type)

- See "Thread and length size chart" on page clinching-3 to clinching-6. Kindly specify and put the relevant "Part #" in your drawings.

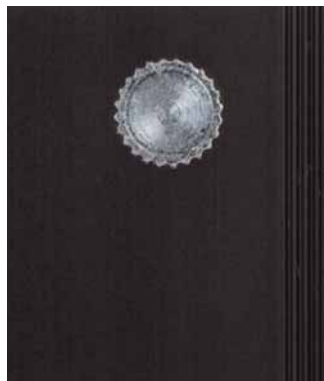
Example



Example



EXAMPLE



ST • STS Through-hole type

SB • SBS Blind type



Thread and length size chart

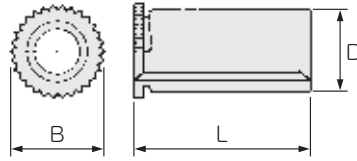


ST·STS series

Standoffs (Through-hole type)



Drawing



Material : Steel / Trivalent zinc plated
Stainless steel / Passivated

For length (L) up to 12mm, it will be fully threaded.
For length (L) 13mm or longer, threading is only up to 10mm.

Stainless steel models are BTO (built-to-order) . New sizes.

All dimensions are in mm

Part # (Steel)	Part # (Stainless steel) for use with panel thickness t=1.0mm+	Part # (Stainless steel) for use with panel thickness t=0.8mm	Thread code	Thread pitch	D -0.08	B +/-0.2	L +/-0.1	Minimum sheet thickness	Hole size +0.08 / -0	*Minimum distance
ST-M2-6			M2	0.4	4.18	5.2	6	1.0	4.2	6.0
ST-M2-8							8			
ST-M2-10							10			
ST-M2-12							12			
ST-M2.5-6			M2.5	0.45	4.18	5.2	6	1.0	4.2	6.0
ST-M2.5-8							8			
ST-M2.5-10							10			
ST-M2.5-12							12			
ST-M3-3	STS-M3-3		M3	0.5	6.18	7.2	3	0.8-1.0	6.2	7.0
ST-M3-4	STS-M3-4						4			
ST-M3-5	STS-M3-5						5			
ST-M3-6	STS-M3-6	STS-M3-6-0.8					6			
ST-M3-7	STS-M3-7						7			
ST-M3-8	STS-M3-8	STS-M3-8-0.8					8			
ST-M3-9	STS-M3-9						9			
ST-M3-10	STS-M3-10	STS-M3-10-0.8					10			
ST-M3-11	STS-M3-11						11			
ST-M3-12	STS-M3-12	STS-M3-12-0.8					12			
ST-M3-13							13			
ST-M3-14							14			
ST-M3-15							15			
ST-M3-16							16			
ST-M3-17							17			
ST-M3-18							18			
ST-M3-20							20			
ST-M4-6	STS-M4-6		M4	0.7	7.18	8.2	6	1.0	7.2	8.0
ST-M4-7							7			
ST-M4-8	STS-M4-8						8			
ST-M4-9	STS-M4-9						9			
ST-M4-10	STS-M4-10						10			
ST-M4-12							12			
ST-M4-14							14			
ST-M4-16							16			
ST-M5-6			M5	0.8	7.18	8.2	6	1.0	7.2	8.0
ST-M5-8							8			
ST-M5-10							10			
ST-M5-12							12			

*Minimum distance = Minimum distance from hole center to edge. Installation requirements vary.
Only available together with installation services. Not available separately.

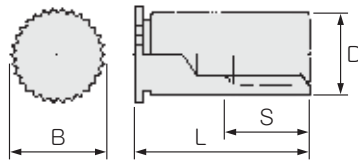
Thread and length size chart

SB·SBS series

Standoffs (Blind type)



Drawing



Material : Steel / Trivalent zinc plated
Stainless steel / Passivated

All dimensions are in mm

Part # (Steel)	Part # (Stainless steel)	Thread code	Thread pitch	D -0.08	B +/-0.2	L +/-0.1	Minimum S	Min. sheet thickness	Hole size +0.08 / -0	*Minimum distance
SB-M2-6		M2	0.4	4.18	5.2	6	3	1.0	4.2	6.0
SB-M2-8						8	4			
SB-M2-10						10	4			
SB-M2-12						12	5			
SB-M2.5-6		M2.5	0.45	4.18	5.2	6	3	1.0	4.2	6.0
SB-M2.5-8						8	4			
SB-M2.5-10						10	4			
SB-M2.5-12						12	5			
SB-M3-6	SBS-M3-6	M3	0.5	6.18	7.2	6	3	1.0	6.2	7.0
SB-M3-7	SBS-M3-7					7	3			
SB-M3-8	SBS-M3-8					8	4			
SB-M3-9	SBS-M3-9					9	4			
SB-M3-10	SBS-M3-10					10	4			
SB-M3-11						11	4			
SB-M3-12	SBS-M3-12					12	5			
SB-M3-13						13	5			
SB-M3-14	SBS-M3-14					14	6.5			
SB-M3-15						15	6.5			
SB-M3-16	SBS-M3-16					16	6.5			
SB-M3-17						17	6.5			
SB-M3-18						18	9.5			
SB-M3-20						20	9.5			
SB-M4-6	SBS-M4-6	M4	0.7	7.18	8.2	6	3	1.0	7.2	8.0
SB-M4-7						7	3			
SB-M4-8	SBS-M4-8					8	4			
SB-M4-9						9	4			
SB-M4-10	SBS-M4-10					10	4			
SB-M4-12						12	5			
SB-M4-14						14	6.5			
SB-M4-16						16	6.5			
SB-M5-8		M5	0.8	7.18	8.2	8	4	1.0	7.2	8.0
SB-M5-10						10	4			
SB-M5-12						12	5			

*Minimum distance = Minimum distance from hole center to edge. Installation requirements vary.
Only available together with installation services. Not available separately.

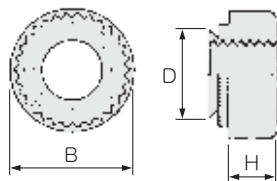
Thread and length size chart

NM·NS series

Nuts (Round through-hole type)



Drawing



Material : Steel / Trivalent zinc plated
Stainless steel / Passivated

All dimensions are in mm

Part # (Steel)	Part # (Stainless steel)	Thread code	Thread pitch	Maximum D	B +/-0.2	H +/-0.1	Min. sheet thickness	Hole size +0.08 / -0	*Minimum distance
NM-M2-1		M2	0.4	4.22	6.3	1.5	1.0	4.25	4.8
NM-M2.5-1		M 2.5	0.45	4.22	6.3	1.5	1.0	4.25	4.8
NM-M2.5-2							1.4		
NM-M3-1	NS-M3-1	M3	0.5	4.22	6.3	1.5	1.0	4.25	4.8
NM-M3-2							1.4		
NM-M4-1	NS-M4-1	M4	0.7	5.38	7.9	2.0	1.0	5.4	6.9
NM-M4-2							1.4		
NM-M5-1	NS-M5-1	M5	0.8	6.38	8.7	2.0	1.0	6.4	7.1
NM-M5-2							1.4		

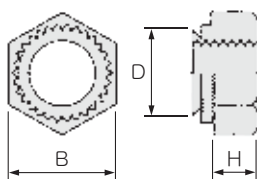
*Minimum distance = Minimum distance from hole center to edge. Installation requirements vary.
Only available together with installation services. Not available separately.

NR series

Nuts (Hex through-hole type)



Drawing



Material : Steel / Trivalent zinc plated

All dimensions are in mm

Part #	Thread code	Thread pitch	Maximum D	B -0.2	H +/-0.1	Min. sheet thickness	Hole size +0.08 / -0	*Minimum distance
NR-M2-1	M2	0.4	4.45	5.5	2.0	1.0	4.5	4.5
NR-M2.5-1	M 2.5	0.45	4.45	5.5	2.0	1.0	4.5	4.5
NR-M3-1	M3	0.5	4.45	5.5	2.0	1.0	4.5	4.5
NR-M3-2						1.4		
NR-M4-1	M4	0.7	5.45	7.0	2.2	1.0	5.5	5.5
NR-M4-2						1.4		
NR-M5-1	M5	0.8	6.45	8.0	3.0	1.0	6.5	6.5
NR-M5-2						1.4		

*Minimum distance = Minimum distance from hole center to edge. Installation requirements vary.
Only available together with installation services. Not available separately.

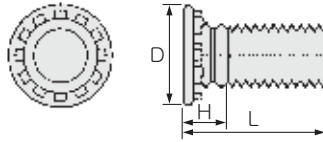
Thread and length size chart

CS series

Studs (Flush-head type)



Drawing



Material : Steel / Trivalent zinc plated

All dimensions are in mm

Part #	Thread code	Thread pitch	D +/-0.4	Maximum H	L +/-0.4	Min. sheet thickness	Hole size +0.08 / -0	*Minimum distance
CS-M3-8	M3	0.5	4.6	2.1	8	t1.0	3.0	5.6
CS-M3-10					10			
CS-M3-12					12			
CS-M3-15					15			
CS-M4-8	M4	0.7	5.9	2.4	8	t1.0	4.0	7.2
CS-M4-10					10			
CS-M4-12					12			
CS-M4-15					15			

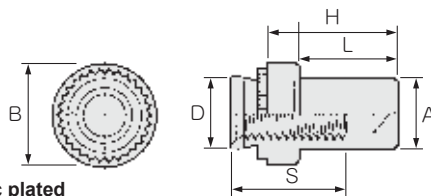
*Minimum distance = Minimum distance from hole center to edge. Installation requirements vary.
Only available together with installation services. Not available separately.

BN series

Nuts (Blind type)



Drawing



Material : Steel / Trivalent zinc plated



A specialized press machine for clinching is utilized to ensure that the standoffs / studs / nuts are securely attached.

All dimensions are in mm

Part #	Thread code	Thread pitch	Maximum D	Maximum A	B +/-0.25	Minimum S	H +/-0.25	Min. sheet thickness	Hole size +0.08 / -0	*Minimum distance
BN-M3-1	M3	0.5	4.22	3.8	6.35	5.3	9.6	1.0	4.25	4.8
BN-M3-2								1.4		
BN-M4-1	M4	0.7	5.38	5.2	7.95	6.8	11.2	1.0	5.4	6.9
BN-M4-2								1.4		

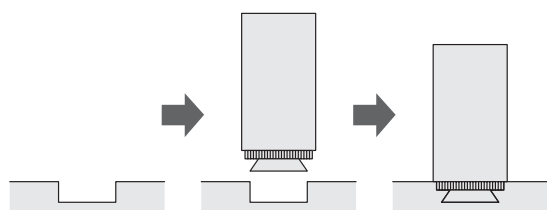
*Minimum distance = Minimum distance from hole center to edge. Installation requirements vary.
Only available together with installation services. Not available separately.

Clinching fastener

Concealed-head Self-clinching Standoffs (Non-through-hole type)

Installed into recessed pockets so that one side of the panel remains unmarred. Standoffs can be mounted onto 1.5mm or thicker material without requiring a through-hole to be milled.

Concealed-head standoffs/studs ensure that the IP rating (if the enclosure is a waterproof series) is maintained.



Concealed-head standoffs/studs give an aesthetically better finish on the enclosure. A recess cut is made on the internal side, and the standoffs are press-inserted in.

● Mounting Mark Visibility

板厚	取付跡	
	M3	M4
1.5mm	△	×
2.0mm	○	○
2.5mm	○	○
3.0mm~	○	○



Example : Clinching M4 standoff on 1.5mm thick material.
Mounting is possible on 1.5mm thick material. Mounting mark would be almost invisible on 2.5mm or thicker material.

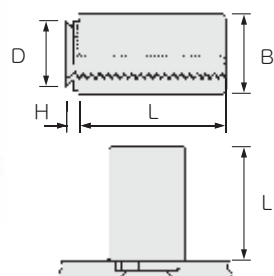
○ Almost invisible
○ Barely visible
△ Somewhat visible
× Very visible

All dimensions are in mm

MK series

Concealed-head Clinching Standoffs

Drawing



Material : Steel / Nickel plated

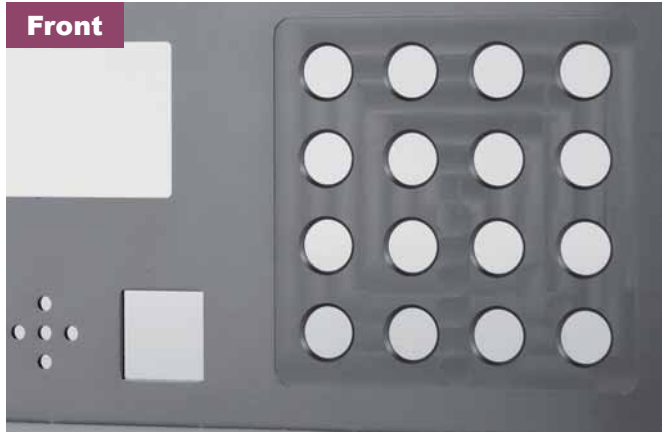
Part #	Thread code	Thread pitch	Maximum D	B +/-0.1	H +0 -0.1	L +/-0.1	Min. sheet thickness	Hole size +0.08 / -0	*Minimum distance
MK-M3-3	M 3	0.5	4.45	6.0	0.95	3	1.5	4.5	4.5
MK-M3-4						4			
MK-M3-5						5			
MK-M3-6						6			
MK-M3-7						7			
MK-M3-8						8			
MK-M3-9						9			
MK-M3-10						10			
MK-M3-11						11			
MK-M3-12						12			
MK-M4-3	M 4	0.7	5.45	8.0	0.95	3	1.5	5.5	5.5
MK-M4-4						4			
MK-M4-5						5			
MK-M4-6						6			
MK-M4-7						7			
MK-M4-8						8			
MK-M4-10						10			
MK-M4-12						12			
MK-M4-14						14			

*Minimum distance = Minimum distance from hole center to edge. Installation requirements vary. Only available together with installation services. Not available separately.

Aluminium stud welding

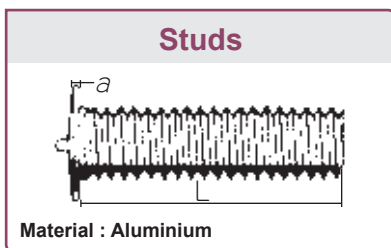
Welded Fasteners

Welded fasteners on aluminium objects.
Standoffs and studs with little surface weld marks can be achieved.



Weld marks may be more visible on plates thinner than 2.0mm.

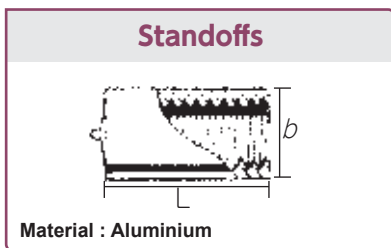
All dimensions are in mm



Part #	Thread code	Thread pitch	a	L +/-0.2	*Minimum distance
AMS-M3-8	M3	0.5	0.8 ± 0.1	8	7.0
AMS-M3-10				10	
AMS-M3-12				12	
AMS-M3-15				15	
AMS-M4-8	M4	0.7	0.8 ± 0.1	8	7.0
AMS-M4-10				10	
AMS-M4-12				12	
AMS-M4-15				15	

*Minimum distance = Minimum distance from hole center to edge. Installation requirements vary.

All dimensions are in mm



Part #	Thread code	Thread pitch	b	L +/-0.2	Available screw length	*Minimum distance
AFS-M3-5	M3	0.5	6	5	2.0	7.0
AFS-M3-6				6	2.5	
AFS-M3-7				7	3.5	
AFS-M3-8				8	4.5	
AFS-M3-9				9	5.5	
AFS-M4-8	M4	0.7	8	8	3.5	7.0
AFS-M4-10				10	5.5	
AFS-M4-12				12	7.5	

*Minimum distance = Minimum distance from hole center to edge. Installation requirements vary.

Welding

Example



Stainless steel and steel weld fasteners are also available. Please inquire for more details.

Only available together with installation services. Not available separately.

Insert Nuts and Heliserts (for plastic)

Inserts for plastic

Simple and easy way for stable fastening.
Simply insert the nuts into the bosses, and it will be refastenable.

LINE-UP

Press-in inserts



Material : Brass / Unfinished

Part #	Size	Hole size in bosses	Length (mm)
SP-M3	M3×0.5P	8 ~ 10	5.3
SP-M4	M4×0.7P	9.5 ~ 12	7.4
SP-M5	M5×0.8P	12 ~ 14	8.3

Threaded inserts



Material : Brass / Nickel plated

Part #	Size	Hole size in bosses	Length (mm)
IRB-2603S	M2.6×0.45P	5.5 ~ 6	3.0
IRB-304S	M3×0.5P	5.5 ~ 6	4.0
IRB-404S	M4×0.7P	6 ~ 10	4.0

Heliserts



Material : Stainless steel / Unfinished

Part #	Size	Hole size in bosses	Length (mm)
2TNM-M2	M2×0.4P	4 ~ 5	2.0
2TMN-M2.6	M2.6×0.45P	4.8 ~ 6	2.6
2TMN-M3	M3×0.5P	4.8 ~ 6	3.0

Comparison chart

Point \ Method	Press-in inserts	Threaded inserts	Heliserts
Strength	○	◎	◎
Cost	◎	▲	▲
Boss size	▲	○	◎

◎ : Excellent ○ : Good ▲ : Average

EXAMPLE

Press-in inserts



Threaded inserts



Heliserts

