

PROTECTION CLASS (IP RATING)











IP67
is

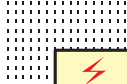

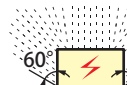
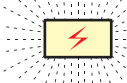
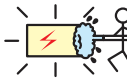



● IEC60529 standard is a system for classifying the degrees of protection provided by the enclosures of electrical equipment, such as against dust and water.

IP

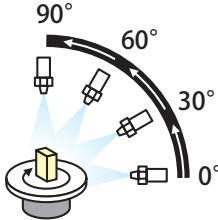
First digit : Solid particle protection

Second digit: Liquid ingress protection

No.	Protection against ingress of solid foreign objects	Protection against access to hazardous parts
0	No Protection	No Protection
1	 Protected against solid objects over 50mm.	 Protected against accidental touch by a large surface of the body, such as by hands. (Tested with a 50mm diameter steel ball.)
2	 Protected against solid objects over 12.5mm.	 Protected against accidental touch by fingers or similar objects (Tested with a 12mm diameter, 80mm long articulated finger)
3	 Protected against solid objects over 2.5mm.	 Protected against accidental touch by tools or thick wires. (Tested with a 2.5mm diameter, 100mm long bar)
4	 Protected against solid objects over 1.0mm.	 1.0 Protected against accidental touch by most wires and screws. (Tested with a 1.0mm diameter, 100mm long wire)
5	 Protected against dust; limited ingress, no harmful deposits.	
6	 Complete protection against dust.	

No.	Protection against ingress of liquid
0	No Protection
1	 Dripping water (vertically falling drops) for 10 minutes.
2	 Vertically dripping water when tilted at 15° for 10 minutes (2.5 minutes per position).
3	 Spraying water (at any angle) of 0.07ℓ/min up to 60° from the vertical for 10 minutes.
4	 Spraying water of 0.07ℓ/min from all directions for 10 minutes.
5	 Jets of water projected by a φ6.3 nozzle of 12.5ℓ / min from all directions at 1 min / 1m ² for at least 3 minutes.
6	 Powerful jets of water projected by a φ12.3 nozzle of 100ℓ / min from all directions at 1 min / 1m ² for at least 3 minutes.
7	 Immersion, up to 1 meter depth (for 30 mins).
8	 Immersion (test depth and duration beyond IPX7 requirements)

69K



80 to 100 barrel steam jets at 80°C (±5°C) from a 0°, 30°, 60°, and 90° angle, at a distance of 100 ~ 150mm for 30 sec x 5 sets

A point of note for Waterproof Boxes

- For outdoor use, direct sunlight will accelerate the degradation of the box. For more information, please see page Outdoor Use - 1.
- For customers planning to attach their own original mounting brackets onto the waterproof boxes, it is recommended to mill larger holes with enough clearance to attach the bracket. If the milled hole and clearance is too small, it may cause irreparable damage to the box.
- Waterproof boxes made of Polycarbonate or ABS plastic material may be damaged if certain types of washing chemicals, solvents, oils, or thread locking adhesives are present on the box. Furthermore, paint not suitable to be used on plastic materials may also cause damage.

WH SERIES

IP67 WATERPROOF HAND-HELD ENCLOSURE



● 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).

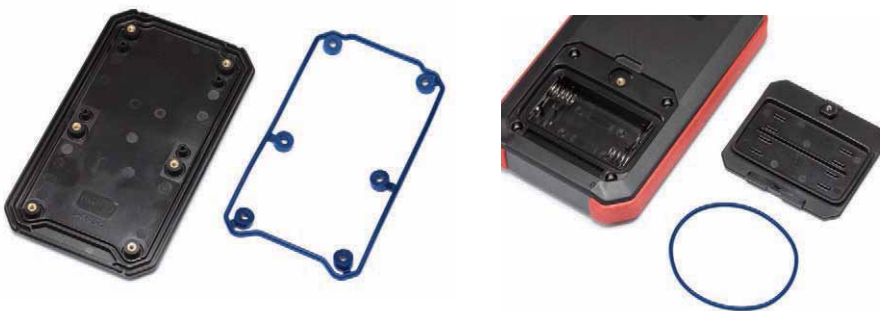
IPx7 : No ingress of water when submerged up to a depth of 1 meter for 30 minutes

High waterproof performance with a silicone gasket

High elasticity and good durability for maintaining waterproofing capability.
Built-in insert nut use for great long lasting water protection even after frequent opening and closing.
Battery compartment is also waterproofed.
Various battery compartment types are available, ranging from AAA x2, to AA x6.

Side grip provides great protection

Elastic TPE grips provides for a more secured hold.
Side grips are designed to be on the sides and corners of the enclosure to minimize drop impact.



Available in 10 different color combinations.



How to Make Waterproof Buttons and Switches



Please utilize a waterproof membrane keypad or membrane switch.

Note that the waterproof ability will be voided if holes are made for buttons or switches on the waterproof enclosures.



APPLICATION EXAMPLE

Suitable for industrial measuring instruments, transceiver, controller, medical equipment and so on.



ULTRASONIC THICKNESS MEASUREMENT GAUGE

Product by NOVOTEST (Ukraine)



SIGFOX NETWORK MEASUREMENT DEVICE

Product by Simple Hardware (Czech Republic)

WIRELESS TEMPERATURE DETECTOR

Product by BRESIMAR AUTOMAÇÃO (Portugal)



※See page 53 for more information on Sigfox network.

GPS TRACKER

Product by Averos (Saudi Arabia)



GPS SYNCHRONIZED PIPELINE SURVEY METER

Product by Corrosion Instruments (Australia)



BABY RESPIRATION SENSOR (NURSERY use)

Product by Liquid Design Systems (Japan)



HONEY BEE TRACKER

Product by APIS Technology (Portugal)



INDUSTRIAL TABLET



DIGITAL X-RAY SYSTEM

Product by SmartRayVision (USA)



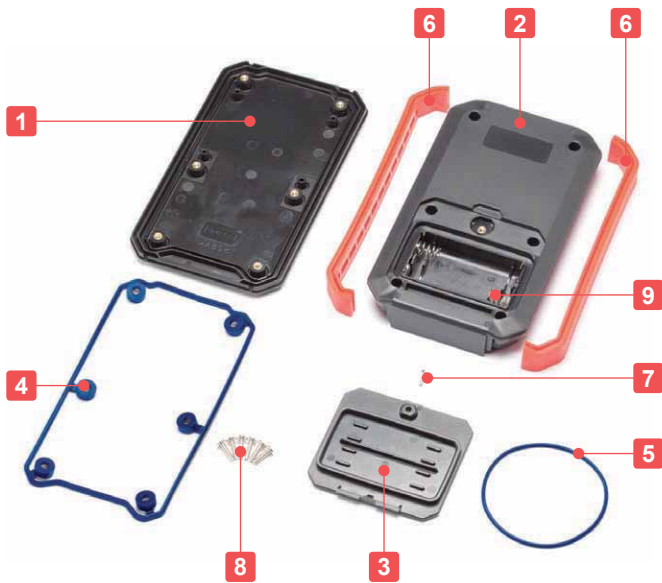
AUTOMATIC VIDEO TIMING TRACKING SYSTEM

Product by FlashTiming (USA)





Technical Data
Protection class : IP67
Operating temperature : -10°C ~ +60°C
Recommended torque:
0.2N • m ~ 0.3N • m
(2kgf • cm ~ 3kgf • cm)



- Stylish and elegantly designed with chamfered edge construction.
- IP67 protection class enclosure.
- Manufactured from flame-resistant ABS UL94V-0 material.
- 8 different internal compartment types are available: AAA x 2, AAA x 3, AAA x 4, AA x 2, AA x 3, AA x 4, AA x 6 and no battery type. Battery compartments have positive (+) / negative (-) pole mark to prevent incorrect insertion.
- The TPE side grips are available in 5 unique colors, and functions as an anti-slip grip pad and drop impact protection.

Components

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS UL94V-0	Off-white • Black
2	Bottom cover	1	ABS UL94V-0	Off-white • Black
3	Battery cover (None for N-type)	1	ABS UL94V-0	Off-white • Black
4	Gasket	1	Silicone	N • F2 • F3 • M4 type : Black
5	O-ring (None for N-type)	1	Silicone	M2 type : Blue
6	Side grip	2	TPE	M3 • F4 • type : Light gray
7	Battery cover screw (None for N-type)	1	Stainless steel M2.5-6	Black • Light gray • Navy • Red • Yellow
8	Screw	6	Stainless steel M2.5-6	Unfinished
9	Battery contact (None for N-type)	1 set	Brass	Unfinished
				Nickel plated

Accessories (Optional parts)



PCB mounting screw EM-2.3
See page EM • MR-1



Tapping standoff TPS series
See page TPS • MT-1



Cable gland
See cable gland pages



Neodymium magnet NMG series
See page NMG-1

Battery Compartment Types

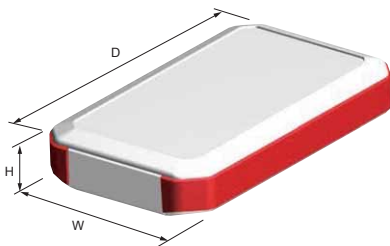
Type	N None	F2 AAA x 2	F3 AAA x 3	F4 AAA x 4	M2 AA x 2	M3 AA x 3	M4 AA x 4	M6 AA x 6
Battery Compartment								

Color Type

Code	B B Black / Black	B L Black / Light gray	B N Black / Navy	B R Black / Red	B Y Black / Yellow
Color					
Code	W B Off-white / Black	W L Off-white / Light gray	W N Off-white / Navy	W R Off-white / Red	W Y Off-white / Yellow
Color					

Product no. / Dimensions

■ Please suffix color code at the end of the product number.

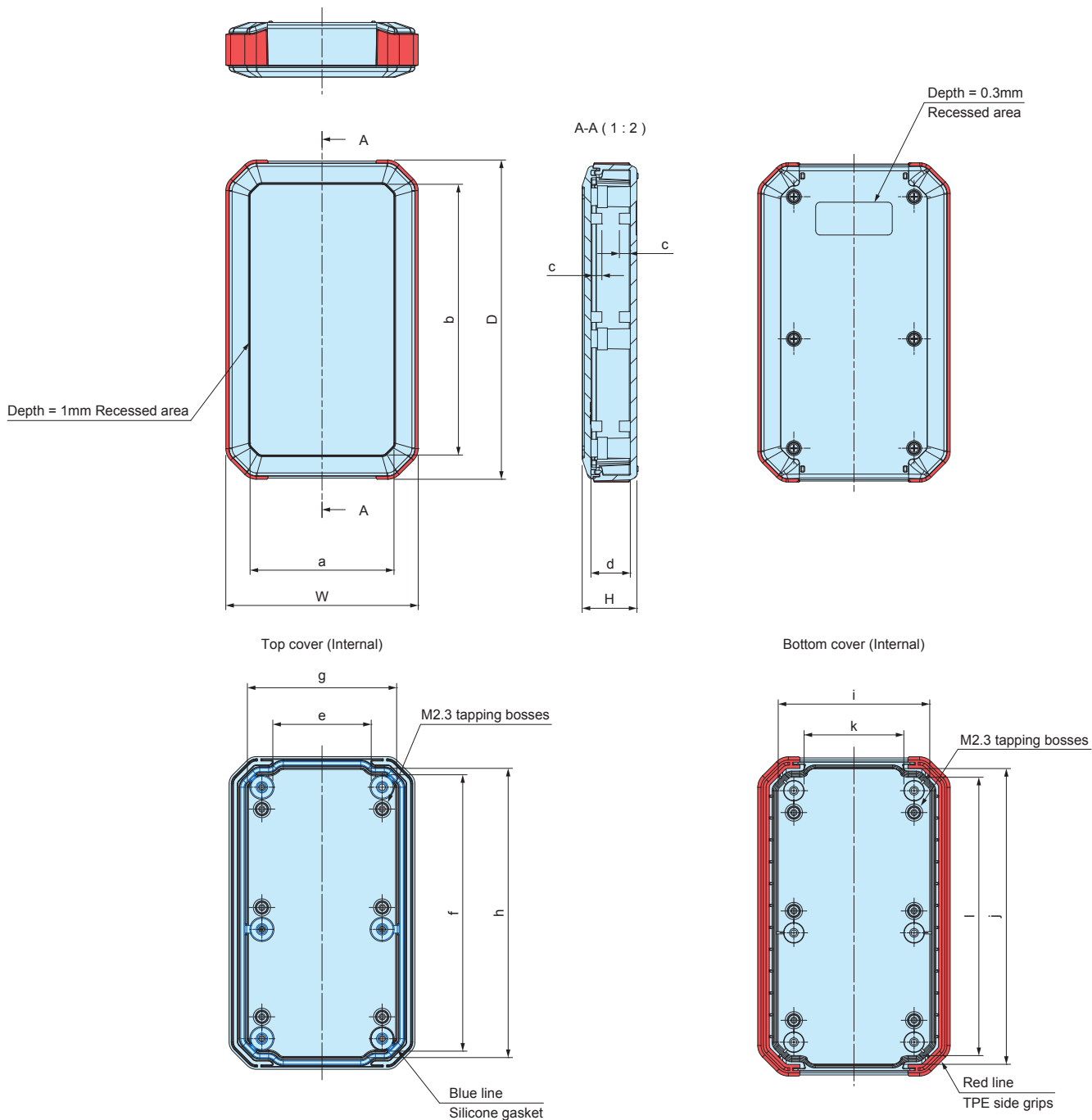


Product no.	W	H	D	Battery compartment	Weight (g)
WH125-20-N -□□	79	20	126	None	101.0
WH125-20-F2 -□□	79	20	126	AAA x 2	102.0
WH125-20-F3 -□□	79	20	126	AAA x 3	109.0
WH125-28-N -□□	79	28	126	None	119.0
WH125-28-F2 -□□	79	28	126	AAA x 2	121.0
WH125-28-F3 -□□	79	28	126	AAA x 3	127.0
WH145-20-N -□□	88	20	146	None	125.5
WH145-20-F4 -□□	88	20	146	AAA x 4	129.5
WH145-25-N -□□	88	25	146	None	137.5
WH145-25-M2 -□□	88	25	146	AA x 2	161.5
WH145-25-M3 -□□	88	25	146	AA x 3	159.5
WH145-33-N -□□	88	33	146	None	162.0
WH145-33-M2 -□□	88	33	146	AA x 2	180.5
WH145-33-M3 -□□	88	33	146	AA x 3	181.5
WH170-25-N -□□	95	25	171	None	169.0
WH170-25-M4 -□□	95	25	171	AA x 4	195.0
WH170-33-N -□□	95	33	171	None	191.0
WH170-33-M4 -□□	95	33	171	AA x 4	220.0
NEW WH190-25-N -□□	126	25	191	None	226.0
NEW WH190-25-M6 -□□	126	25	191	AA x 6	276.0
NEW WH190-33-N -□□	126	33	191	None	252.0
NEW WH190-33-M6 -□□	126	33	191	AA x 6	307.0

WH dimensions

■ Drawings below are reference examples only.
DXF/DWG/PDF drawings available on our website.

WH125-20-N / WH125-28-N
WH145-20-N / WH145-25-N / WH145-33-N
WH170-25-N / WH170-33-N / WH190-25-N / WH190-33-N

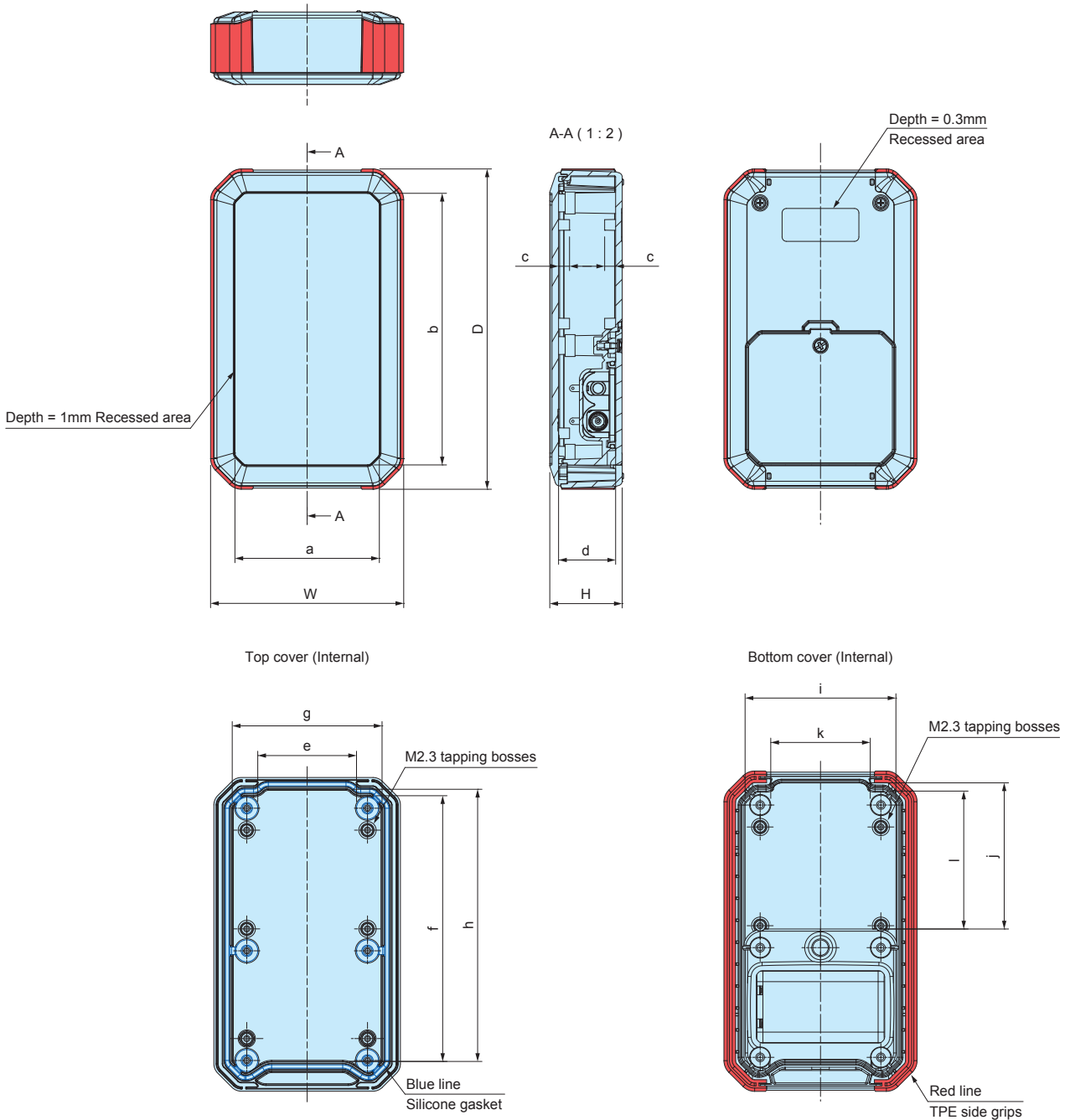


Product no.	W	H	D	a	b	c	d	e	f	g	h	i	j	k	l
WH125-20-N-□□	79	20	126	58.8	105.8	4	13	39	107	60	112.6	61.6	115.8	39	108
WH125-28-N-□□	79	28	126	58.8	105.8	4	21	39	107	60	112.6	61.1	115.8	39	108
WH145-20-N-□□	88	20	146	65.8	123.8	5	13	45	125.2	68.3	132.3	69.6	135.2	45	127.6
WH145-25-N-□□	88	25	146	65.8	123.8	5	18	45	125.2	68.3	132.3	69.3	135.2	45	127.2
WH145-33-N-□□	88	33	146	65.8	123.8	5	26	45	125.2	68.3	132.3	68.7	135.2	45	126.7
WH170-25-N-□□	95	25	171	69.6	145.6	5	18	51	150	74.4	156	77.3	159.8	50.6	152
WH170-33-N-□□	95	33	171	69.6	145.6	5	26	51	150	74.4	156	76.7	159.8	50.3	151
WH190-25-N-□□	126	25	191	96	161	5	18	81	170.3	105.4	176.4	107.6	180.2	80.2	172.3
WH190-33-N-□□	126	33	191	96	161	5	26	81	170.3	105.4	176.4	107.1	180.3	79.6	171.8

WH dimensions

■ Drawings below are reference examples only.
DXF/DWG/PDF drawings available on our website.

WH125-20-F2 / WH125-20-F3 / WH125-28-F2 / WH125-28-F3
 WH145-20-F4 / WH145-25-M2 / WH145-25-M3 / WH145-33-M2 / WH145-33-M3
 WH170-25-M4 / WH170-33-M4 / WH190-25-M6 / WH190-33-M6



Product no.	W	H	D	a	b	c	d	e	f	g	h	i	j	k	l
WH125-20-F2-□□	79	20	126	58.8	105.8	4	13	39	104	60	107	61.6	60.4	39	56.7
WH125-20-F3-□□	79	20	126	58.8	105.8	4	13	39	104	60	107	61.6	49.9	39	46.2
WH125-28-F2-□□	79	28	126	58.8	105.8	4	21	39	104	60	107	61.1	60.4	39	56.4
WH125-28-F3-□□	79	28	126	58.8	105.8	4	21	39	104	60	107	61.1	49.9	39	46.0
WH145-20-F4-□□	88	20	146	65.8	123.8	5	13	45	120	68.3	124.1	69.6	51.7	45	47.8
WH145-25-M2-□□	88	25	146	65.8	123.8	5	18	45	120	68.3	124.1	69.3	66.6	45	62.6
WH145-25-M3-□□	88	25	146	65.8	123.8	5	18	45	120	68.3	124.1	69.3	51.6	45	47.6
WH145-33-M2-□□	88	33	146	65.8	123.8	5	26	45	120	68.3	124.1	68.7	66.6	45	62.3
WH145-33-M3-□□	88	33	146	65.8	123.8	5	26	45	120	68.3	124.1	68.7	51.6	45	47.3
WH170-25-M4-□□	95	25	171	69.6	145.6	5	18	51	147.6	74.4	150.4	77.3	71.3	50.6	67.4
WH170-33-M4-□□	95	33	171	69.6	145.6	5	26	51	147.6	74.4	150.4	76.7	71.3	50.3	67.2
WH190-25-M6-□□	126	25	191	96	161	5	18	81	167.3	105.4	170.3	107.6	89.2	80.2	85.2
WH190-33-M6-□□	126	33	191	96	161	5	26	81	167.3	105.4	170.3	107.1	89.1	79.6	84.9

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 gadget and so on.

Structure AI Inspection Noise Detector System

Product by AIST (Japan)
Website : aist.go.jp



Emergency Call Receiver / Transmitter

Product by Knop Elektronik A/S (Denmark)
Website : knop.dk



GPS Transmit Trigger

Product by Tokyo Denki Gijyutsu Co., Ltd. (Japan)
Website : tdg-net.co.jp/



LPWA (Low Power, Wide Area) Transmitter



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

Waterproof performance may be lost by drilling/milling holes or cut-outs 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.



- 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.



- Double shot injection molded TPE Grip and ABS Body.
- New AAA x 2 battery compartment model added. Case with a CR2032 coin battery, and no battery compartment types are also available. Solder battery contacts on PCB for CR2032 models.
- 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.
- See page WC-4 for coin battery contact installation step.

Technical Data
Protection class : IP67
Operating temperature : -10°C ~ +50°C
Recommended torque :
WC72 • WC90 : 0.06 ~ 0.08N • m
WC105 : 0.13 ~ 0.15N • m

WC72-□, WC90-□

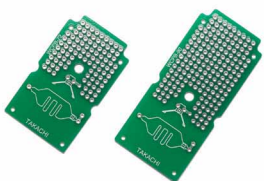
WC105-28



Components

No.	Part name	Pcs	Material	Color / Finish
1	Top cover	1	ABS UL94HB : Elastomer	Black & Black • Black & Marine • White & Light gray
2	Bottom Cover	1	ABS UL94HB : Elastomer	Black & Black • Black & Marine • White & Light gray
3	Battery lid	1	ABS UL94HB	Black • White
4	Battery contact	1 set	WC72 • WC90 : Stainless steel SUS304 WC105 : Brass • Hard steel wire	Nickel plated
5	O-ring	1	Silicone	Black
6	Screw	7	Stainless steel SUS304	Unfinished

Accessories (Optional parts)



Exclusive PCB WCPB series
See page WCPB-1



Strap STPS series
See page STPS-1

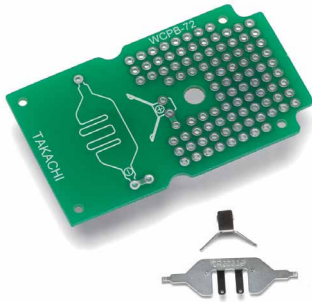


PCB mounting screw EM-1.6
See page EM • MR-1



Neodymium magnet NMG series
See page NMG-1

Coin battery contact installation step



Solder the contacts onto the PCB



Install the PCB in the top cover

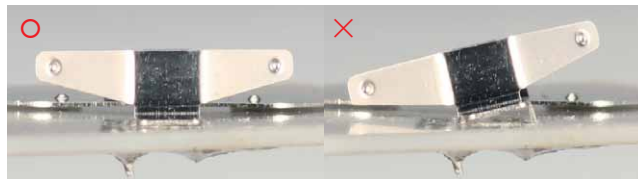


All set!

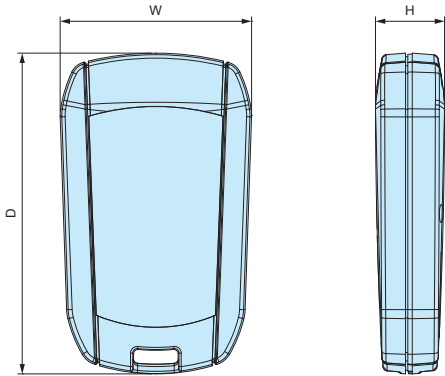
CAUTION ■ Use caution when mounting battery contacts.



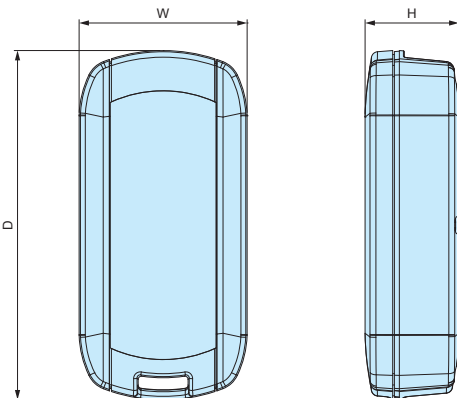
■ Battery direction is incused on the inner side of the battery lid.



WC72-□, WC90-□



WC105-28



Battery Compartment Types

Type	N	C	F2
	None	CR2032 x 1	AAA x 2
Battery Compartment			

Color Type

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

Product no. / Dimensions

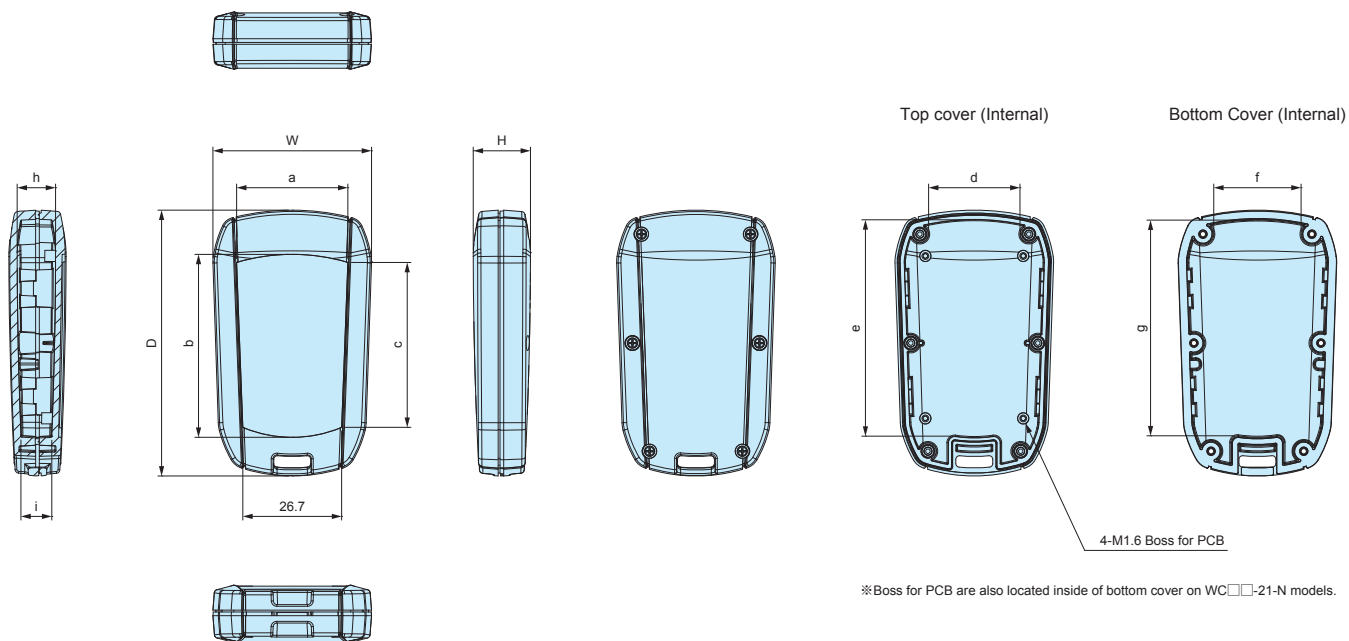
■ Please suffix color code at the end of the product number.

Product no.	W	H	D	Battery Compartment	Weight(g)
WC 72-15-N -□□	43	15.5	72	None	18.5
WC 72-15-C -□□	43	15.5	72	CR2032	22
WC 72-21-N -□□	43	21.5	72	None	22
WC 72-21-C -□□	43	21.5	72	CR2032	25.5
WC 90-15-N -□□	44.2	15.7	90	None	23
WC 90-15-C -□□	44.2	15.7	90	CR2032	26.5
WC 90-21-N -□□	44.2	21.7	90	None	27
NEW WC105-28-N -□□	50.5	28.2	105	None	47
NEW WC105-28-F2-□□	50.5	28.2	105	AAA x 2	58.5

WC dimensions

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DXF/DWG/PDF drawings available on our website.

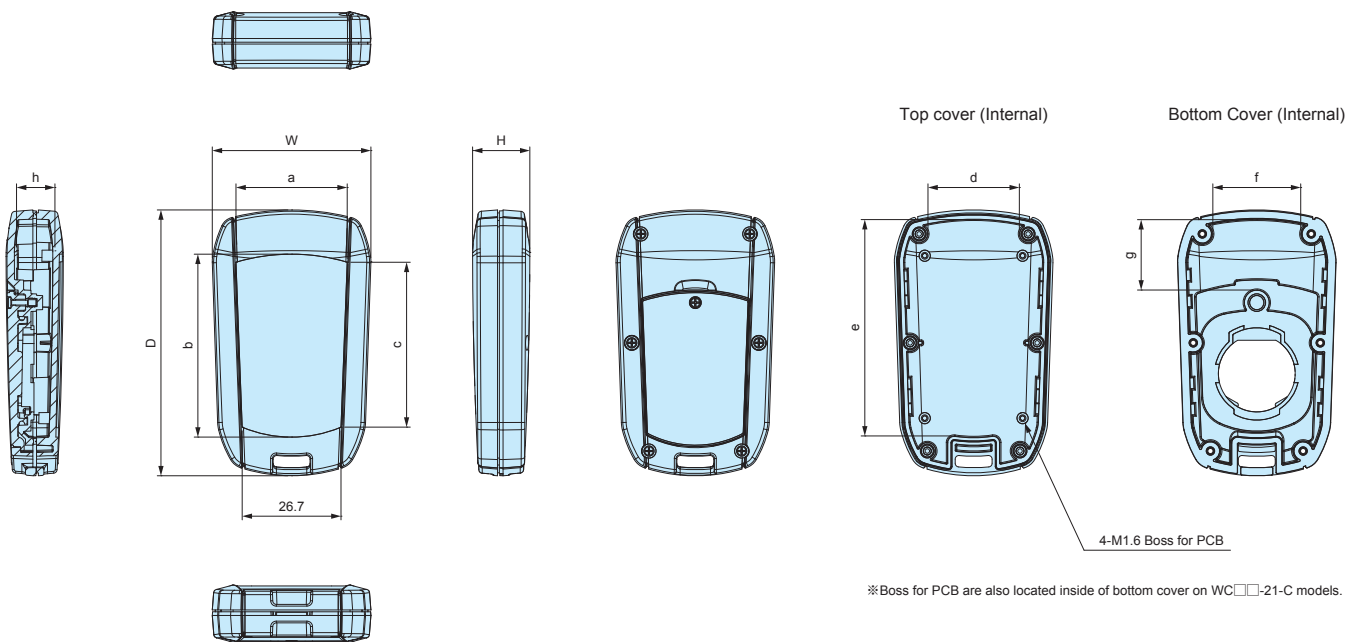
WC72-15-N / WC72-21-N
WC90-15-N / WC90-21-N



※Boss for PCB are also located inside of bottom cover on WC□□-21-N models.

Product no.	W	H	D	a	b	c	d	e	f	g	h	i
WC72-15-N-□□	43	15.5	72	30.1	49.5	44.7	24.7	58.6	23.6	58.4	10.4	8.3
WC72-21-N-□□	43	21.5	72	30.1	49.5	44.7	24.7	58.6	23	56.3	16.3	14.3
WC90-15-N-□□	44.2	15.7	90	31.4	67.5	62.7	26.1	76.6	25	76.4	10.4	8.3
WC90-21-N-□□	44.2	21.7	90	31.4	67.5	62.7	26.1	76.6	24.4	74.3	16.4	14.3

WC72-15-C / WC72-21-C
WC90-15-C



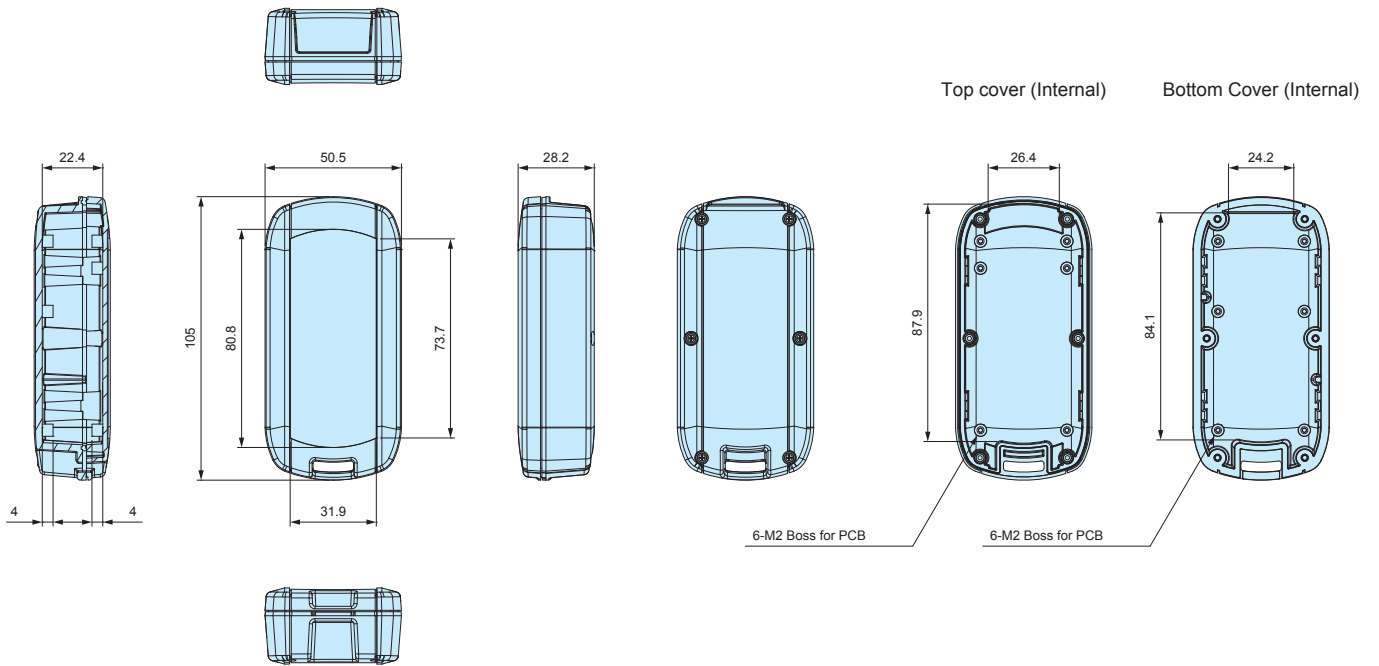
※Boss for PCB are also located inside of bottom cover on WC□□-21-C models.

Product no.	W	H	D	a	b	c	d	e	f	g	h
WC72-15-C-□□	43	15.5	72	30.1	49.5	44.7	24.7	58.6	23.8	19	10.4
WC72-21-C-□□	43	21.5	72	30.1	49.5	44.7	24.7	58.6	23	17.3	16.3
WC90-15-C-□□	44.2	15.7	90	31.4	67.5	62.7	26.1	76.6	25	36.9	10.4

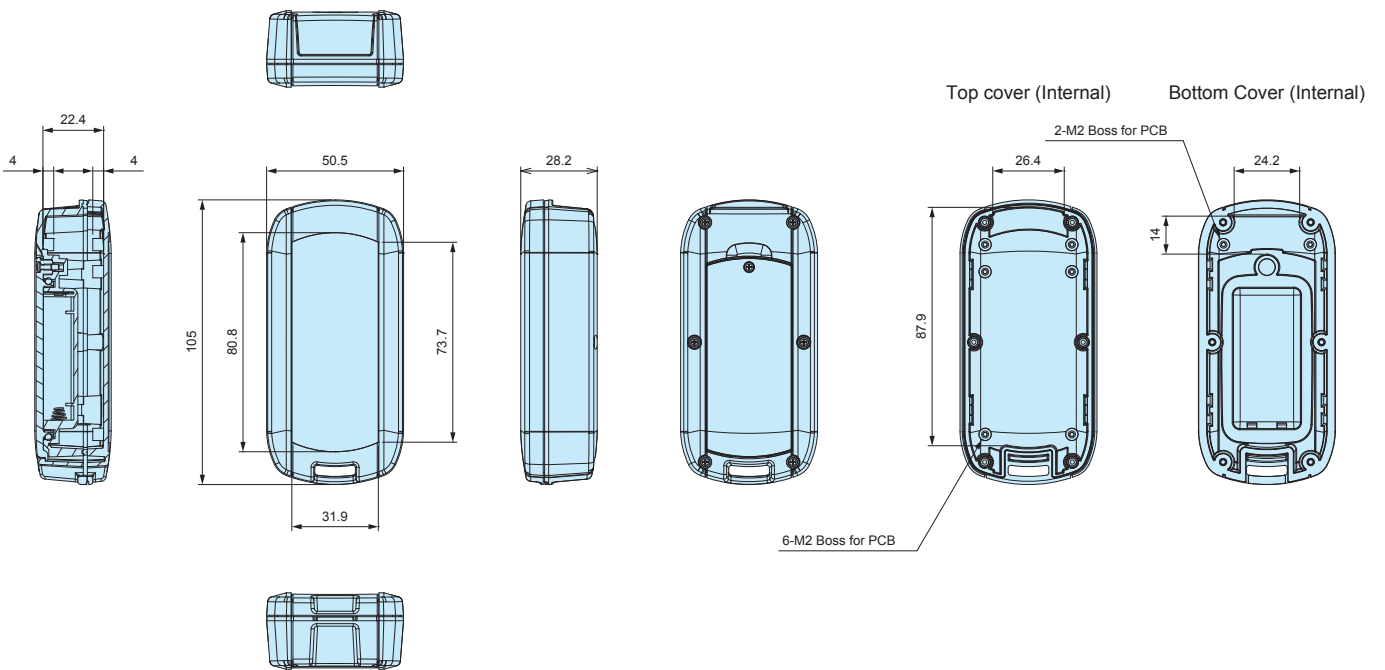
WC dimensions

■ Drawings below are reference examples only.
DXF/DWG/PDF drawings available on our website.

WC105-28-N



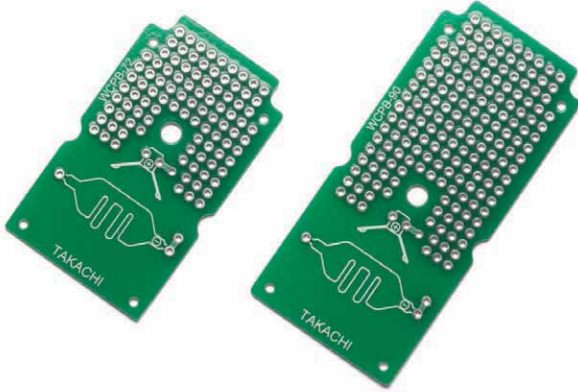
WC105-28-F2



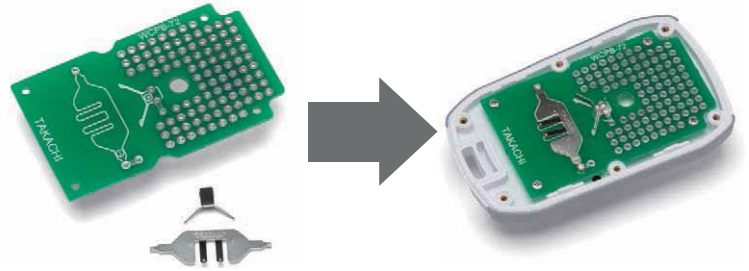
WCPB SERIES

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.

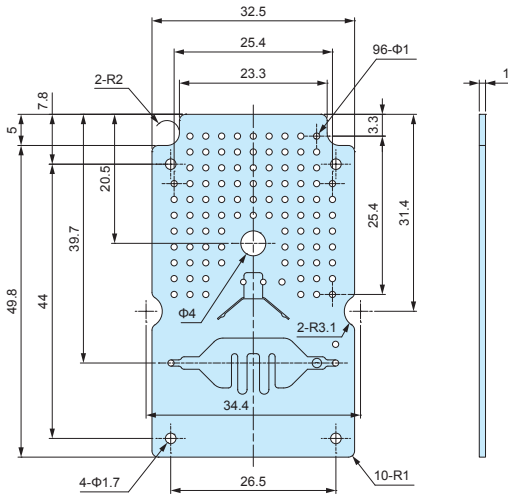


Please use battery contacts included with WC case.

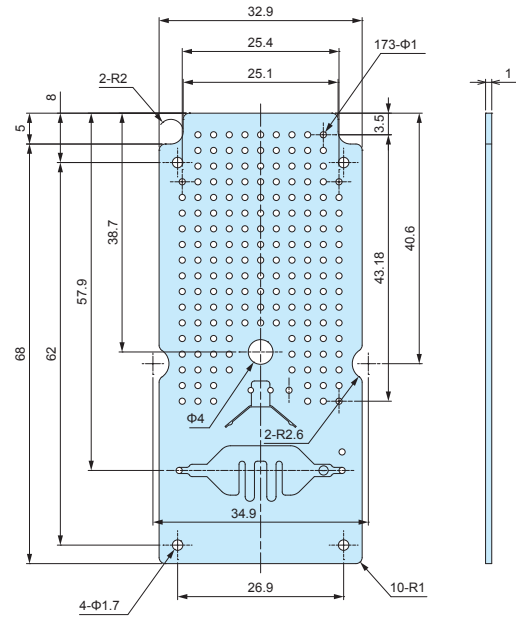


- DXF/DWG/PDF drawings available on our website.

WCPB-72



WCPB-90



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

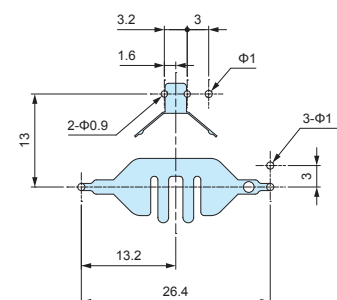
Components

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 (Tapping M1.6-4)	Trivalent chromate

Product no. / Dimensions

Product no.	Suitable case
WCPB- 72	WC72-15-C WC72-21-C
WCPB- 90	WC90-15-C

Battery contact position details



WSC SERIES IP67 SLOPED PLASTIC CASE



Ergonomic design and streamlined shape.

Best suited for desktop operation with its sloped surface.
2 different inclined angles, 13° and 18° are available to select for various operating environments.
Streamlined shape enables the unit to be gripped better when used as a handheld instrument.



2 angles : 13° and 18°

Photo : 13° type



Best suited for desktop operation with its sloped surface.

High elasticity and good durability for maintaining waterproofing capability.
Built-in insert nut use for long-lasting protection even after frequent opening and closing.



APPLICATION EXAMPLE

Medical Measurement Device · Medical Controller



Digital Card Reader



Transmitter · Network Equipment



How to make waterproof buttons and switches

Please utilize a waterproof membrane keypad, membrane switch or overlay.
Note that the waterproof performance will be lost by drilling/milling holes or cutouts for buttons or switches on waterproof enclosures.



How to make waterproof cable hole

Please utilize a cable gland from our available range of cable gland accessories.





Technical Data
Protection class : IP67
Operating temperature : -10°C ~ +60°C
Recommended torque : 0.2 ~ 0.3N · m

- Suitable as a desktop controller or measurement instrument with its ergonomic design.
- Streamlined shape enables the unit to be gripped better when used as a handheld instrument.
- IP67 protection class allows the unit to be used outdoors or under environments with water splashes, such as medical, research or measurement equipments.

Components

No.	Part name	Pcs	Material	Color / Finish
1	Top Cover	1	Flame-resistant ABS UL94V-0	Off white • Black
2	Bottom base	1	Flame-resistant ABS UL94V-0	Off white • Black
3	Gasket	1	Silicone	Black
4	Screw	4	Stainless steel binding head screw M2.5-8	Unfinished
5	Rubber feet	4	Polyurethane	Transparent

Accessories (Optional parts)



PCB mounting screw EM series
See page EM • MR-1



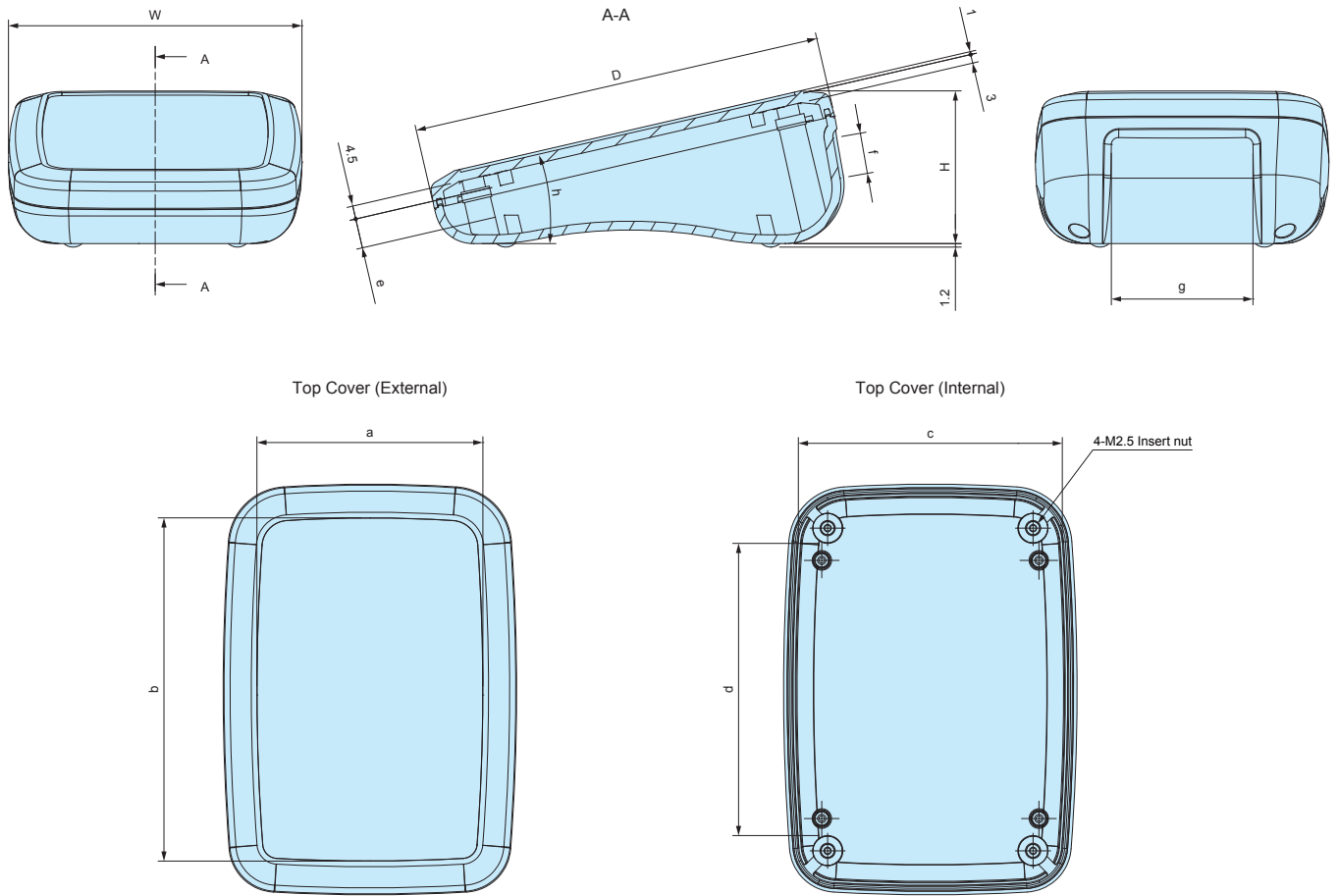
Cable gland
See cable gland pages



TORX screw MR series
See page EM • MR-1

WSC dimensions

■ Drawings below are reference examples only.
DXF/DWG/PDF drawings available on our website.

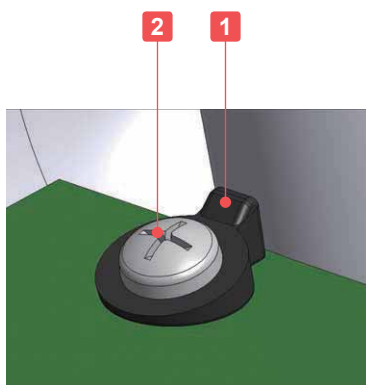


Product no. / Dimensions

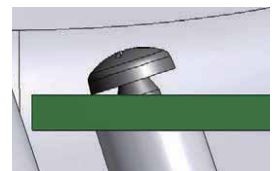
Product no.		Dimensions										Face angle	
● Off white	● Black	W	D	H	a	b	c	d	e	f	g	h	
NEW WSC10-14-5W	NEW WSC10-14-5B	100	140	52	77	117	87	100	10	13.9	48.2	13°	
NEW WSC10-14-7W	NEW WSC10-14-7B	100	140	72	77	117	87	100	22	27.4	48.2	18°	
NEW WSC14-14-5W	NEW WSC14-14-5B	140	140	52	117	117	128	100	10	13.8	80.5	13°	
NEW WSC14-14-7W	NEW WSC14-14-7B	140	140	72	117	117	128	100	22	27.4	80.5	18°	
NEW WSC18-14-5W	NEW WSC18-14-5B	175	140	52	152	117	163	95	11.3	13.8	103.5	13°	
NEW WSC18-14-7W	NEW WSC18-14-7B	175	140	72	152	117	163	95	23.7	27.4	103.5	18°	

WSP-M2.3

INCLINED SPACER



- Due to the sloped shape of the WSC series, boss-tops are also angled. So when mounting PCB on, some gap between the screw head and PCB surface will be generated as shown the diagram. WSP-M2.3 helps to fill the gap.
- EM-2.3-8 as PCB mounting screws are available for bosses in bottom base. (See page 22)



Components

No.	Part name	Pcs	Material	Color / Finish
1	Inclined spacer	4	POM	Black
2	Screw (Tapping M2.3-8)	4	Steel	Trivalent chromate

■ Torque 0.1N · m

Product no. / Details

Product no.	Suitable enclosures	Pcs
NEW WSP-M2.3	WSC (for bottom base PCB boss)	4

NANO SERIES

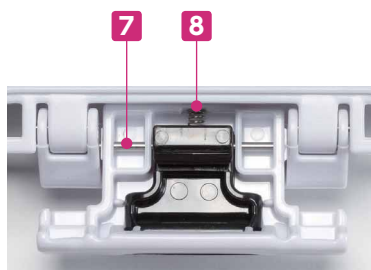
WATERPROOF PORTABLE CASE



- IP65 waterproof compact and stylish case.
- Slit holes on both sides for strap or belt.
- Suitable for storing small electric devices such as mobile phones, wireless devices, portable radios, and so on.



Technical Data
Protection class : IP65
Operating temperature : -20°C~+60°C



Latch (lock mechanism) side



Hinge Side

● How To Use Strap



Insertion of clip into the case



Use as handy strap



Insert strap end into the loop after clip insertion.



Fix it to the belt loop, etc.

Components

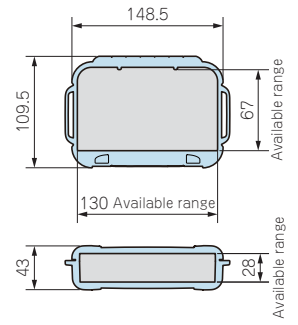
No.	Part name	Material
1	Cover · Base	Polycarbonate
2	Protective net	Silicone
3	Lock lever	Polycarbonate
4	Corner guard	Elastomer
5	Gasket	Elastomer
6	Strap	Nylon · Nylon 66
7	Latch pin	Stainless steel
8	Spring	Stainless steel
9	Pressure relief valve (※)	Nylon 66 · PTFE

※ Waterproof pressure relief valve enables pressure within the case to be equalized with the surrounding, allowing it to be opened with ease, while keeping it waterproof.

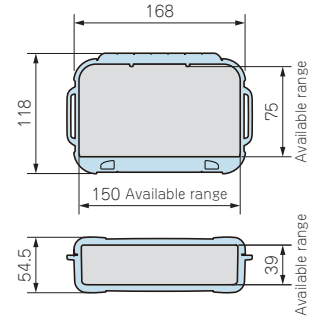
NANO dimensions

■ Drawings below are reference examples only.
DXF/DWG/PDF drawings available on our website.

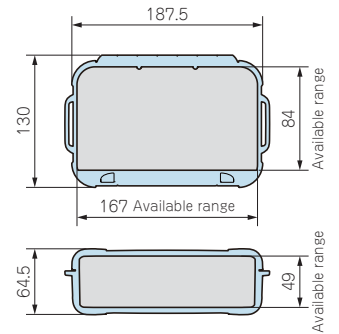
NANO 310



NANO 320



NANO 330



Product no. / Dimensions

Product no.					Dimensions (External)			Dimensions (Internal)			Weight (g)
● Black	● White	● Clear	● Lime	● Marine	W	D	H	w	d	h	
NANO310B	NANO310W	NANO310C	NANO310L	NANO310M	148.5	109.5	43	130	67	28	265
NANO320B	NANO320W	NANO320C	NANO320L	NANO320M	168	118	54.5	150	75	39	350
NANO330B	NANO330W	NANO330C	NANO330L	NANO330M	187.5	130	64.5	167	84	49	450

Applicable for use as electronic and communication devices

PCB can be installed with PCB mounting screw MT series.
NANO series can also be used as a pole mounted communication device.



Accessories(Optional parts)



Aluminium panel NKAP series
See page NKAP-1~NKAP-2



PCB mounting screw MT series
See page NKAP-1



Nameplate sticker NKST series
See page NANUK-ACC-3



NKAP SERIES

ALUMINIUM PANEL for NANO · NK · NKK

↔ NEW SIZE



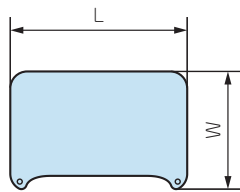
Optional aluminium panel can be used as a controller control / display, measuring device, transmitter, and so on.

Drawings below are reference examples only. DXF/DWG/PDF drawings available on our website.

NKAP dimensions

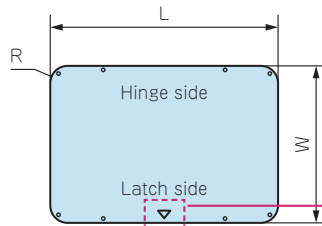
NANO series

Slide insert and screw fastening



NK · NKK series

Required screws vary based on size



※Install panel with ▽marking towards the latch.

Components

No.	Part name	Material
1	Panel	Aluminium (Anodized)
2	Screw	Stainless steel

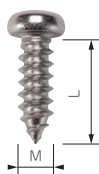


Product no. / Dimensions

Product no.	Suitable case	Thickness	L	W	R	▽ marking	Screw pcs	Weight (g)
NKAP310	NANO310	2	136.2	90.6	13	—	2	59
NKAP320	NANO320	2	156.8	100.4	15.7	—	2	75
NKAP330	NANO330	2	175.9	112.2	17	—	2	94
NKAP903	NK903	1.5	198.5	136.5	15	—	4	109
NKAP904	NK904	1.5	226	163.5	18	—	4	149
NKAP905	NK/NKK905	1.5	257	207	21.5	—	4	214
NEW NKAP908	NK/NKK908	1.5	250.9	200.1	18	—	4	203
NEW NKAP909	NK909	1.5	304.7	190.4	18	—	4	234
NKAP910	NK910 base side	2	346	244.5	17	—	4	452
NKAP910C	NK910 cover side	1.5	339.5	238	14	—	4	329
NKAP915	NK / NKK915	2	368.5	254	28	○	8	496
NKAP918	NK / NKK918	2	397.5	268.5	27	—	8	574
NKAP920	NK / NKK920	2	399.5	285	28	○	8	606
NEW NKAP923	NK / NKK923 base side	2	446.3	309.1	28	—	8	737
NEW NKAP923C	NK / NKK923 cover side	2	438.3	301.1	23.5	—	8	704
NKAP925	NK/NKK925	2	451.5	318	28	○	8	760
NKAP930	NK/NKK930	2	476	350.5	27	○	8	880
NKAP933	NK/NKK933	2	477.5	352	27	—	8	908
NKAP935	NK/NKK935	2	535	301.5	26.5	○	8	855
NKAP940	NK/NKK940	2	526.5	374	27	○	10	1,050
NKAP945	NK/NKK945	2	576.5	450	26.5	○	10	1,395
NEW NKAP950	NK/NKK950	2	540.8	409.1	27	—	10	1,179
NEW NKAP960	NK/NKK960	2	579.7	454.2	27	—	10	1,402

MT SERIES

PCB MOUNTING SCREW for NANO



PCB should be the same size as NKAP series aluminium panel.
Insert PCB into groove (see diagram to the right) and screw into the screw marking.

Product no. / Dimensions

Product no.	M	L	Pcs
MT2.6-8T	2.6	8	2

Material : Stainless steel

CUSTOMIZATION on ALUMINIUM PANEL

- Customization services such as CNC milling, punching press, digital inkjet printing, silkscreen printing, and engraving on NKAP panel are available.
- Custom colors can also be performed either through anodization, or painting.



- Self-clinching Standoff/Stud/Nut or Welded Fastener customization is available.



- An original control panel with machined aluminum panel and overlay sheet can be performed.



EXW SERIES

IP65 ALUMINIUM CASE with CORNER GUARD



- IP65 is made possible by the sealing of between top & bottom covers and end panels with gaskets.
- Available in 39 different sizes and 6 different color combinations by 2 body frame and 3 end panel colors.
- Custom length is available.

Technical Data
Protection class : IP65

Included screw
 EXW7-□, 9-□ models : M2.5-8 x 8 pcs
 EXW12-□, 15-□ models : M3-10 x 8 pcs
 ※Hexagonal wrench included.

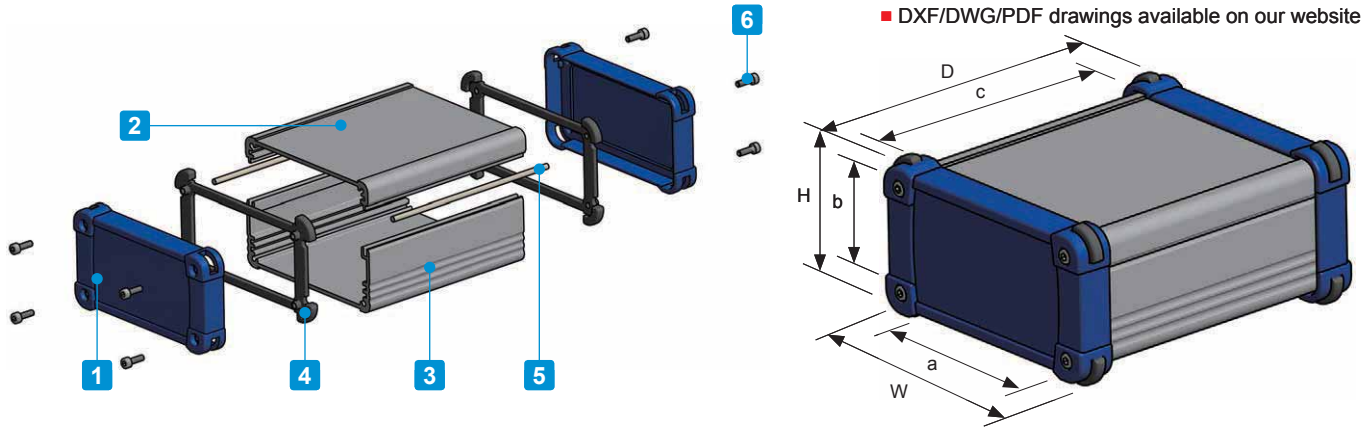
Components

No.	Part name	Pcs	Material	Color / Finish
1	End panel	2	PC+ABS UL94V-0	Black • Gray / Unpainted Navy / Painted
2	Top cover	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
3	Bottom cover	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
4	Panel gasket	2	Silicone	Black • Dark gray
5	Cover gasket	2	Silicone	White gray
6	Screw	8	Stainless Steel	Unfinished

Color Type

Code	S B Silver / Black	S G Silver / Gray	S N Silver / Navy
Color			
Code	B B Black / Black	B G Black / Gray	B N Black / Navy
Color			

DXF/DWG/PDF drawings available on our website.



Please suffix color code at the end of the product number.

Product no. / Dimensions

Product no.	External dimensions			Internal dimensions		
	W	H	D	a	b	c
EXW 7- 3- 6□□	69	34	58	47	20	46
EXW 7- 3- 9□□	69	34	85	47	20	73
EXW 7- 3-11□□	69	34	108	47	20	96
EXW 7- 4- 6□□	69	44	58	47	30	46
EXW 7- 4- 9□□	69	44	85	47	30	73
EXW 7- 4-11□□	69	44	108	47	30	96
EXW 7- 6- 6□□	69	59	58	47	45	46
EXW 7- 6- 9□□	69	59	85	47	45	73
EXW 7- 6-11□□	69	59	108	47	45	96
EXW 9- 4- 7□□	89	39	69	67	25	56
EXW 9- 4-10□□	89	39	99	67	25	86
EXW 9- 4-13□□	89	39	129	67	25	116
EXW 9- 5- 7□□	89	49	69	67	35	56
EXW 9- 5-10□□	89	49	99	67	35	86
EXW 9- 5-13□□	89	49	129	67	35	116
EXW 9- 6- 7□□	89	64	69	67	50	56
EXW 9- 6-10□□	89	64	99	67	50	86
EXW 9- 6-13□□	89	64	129	67	50	116
EXW12- 4- 9□□	116	41	88	89	24	74
EXW12- 4-13□□	116	41	128	89	24	114
EXW12- 4-18□□	116	41	174	89	24	160
EXW12- 6- 9□□	116	56	88	89	39	74
EXW12- 6-13□□	116	56	128	89	39	114
EXW12- 6-18□□	116	56	174	89	39	160
EXW12- 7- 9□□	116	71	88	89	54	74
EXW12- 7-13□□	116	71	128	89	54	114
EXW12- 7-18□□	116	71	174	89	54	160
EXW15- 5-11□□	151	46	107	107	29	93
EXW15- 5-15□□	151	46	147	107	29	133
EXW15- 5-20□□	151	46	197	107	29	183
EXW15- 6-11□□	151	61	107	107	44	93
EXW15- 6-15□□	151	61	147	107	44	133
EXW15- 6-20□□	151	61	197	107	44	183
EXW15- 8-11□□	151	81	107	107	64	93
EXW15- 8-15□□	151	81	147	107	64	133
EXW15- 8-20□□	151	81	197	107	64	183
EXW15-10-11□□	151	101	107	107	84	93
EXW15-10-15□□	151	101	147	107	84	133
EXW15-10-20□□	151	101	197	107	84	183

Custom length is available.

How to install cover gasket



Insert cover gaskets into the joint-grooves on the bottom cover.

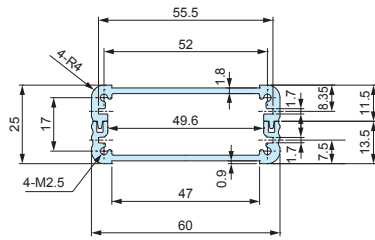


Ensure that a small portion of the cover gasket protrudes out in order to maintain a seal with the panel gasket.

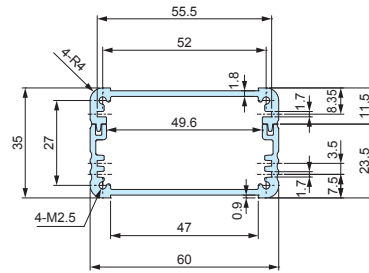
EXP • EXPE • EXW • EXPF • EXEF • EXWF • EX top / bottom covers

■ Drawings below are reference examples only.
DXF/DWG/PDF drawings available on our website.

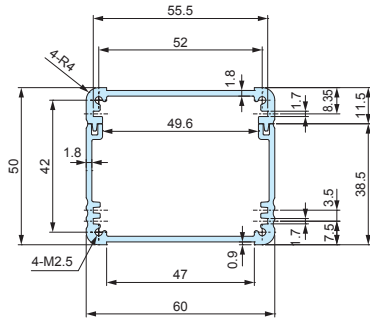
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EX6-3-□



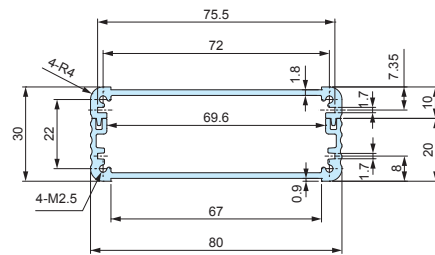
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EX6-4-□



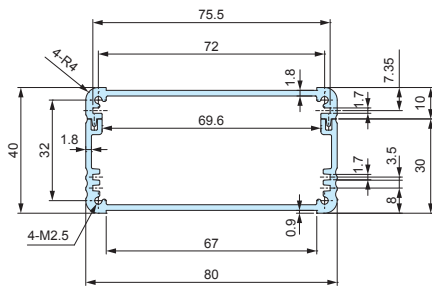
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EX6-5-□



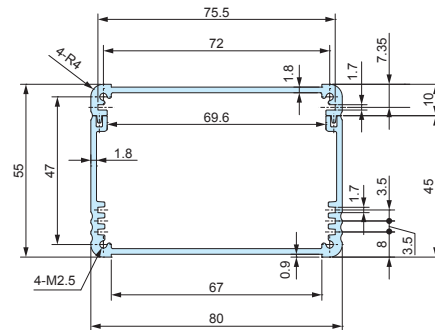
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EX8-3-□



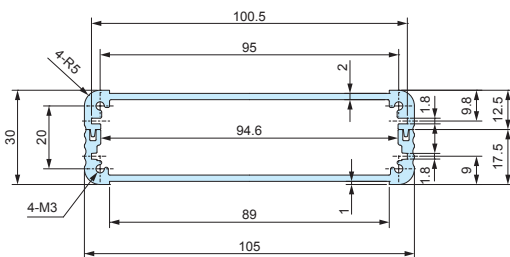
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EX8-4-□



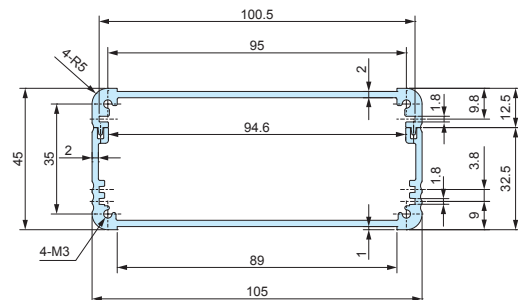
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EX8-6-□



EXP • EXPE • EXW12-4-□
EXPF • EXEF • EXWF11-4-□
EX11-3-□



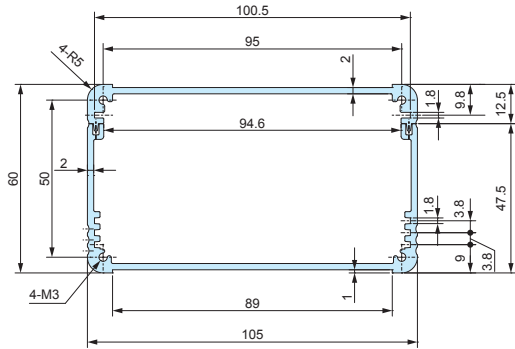
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EXPF • EXEF • EXWF11-6-□
EX11-5-□



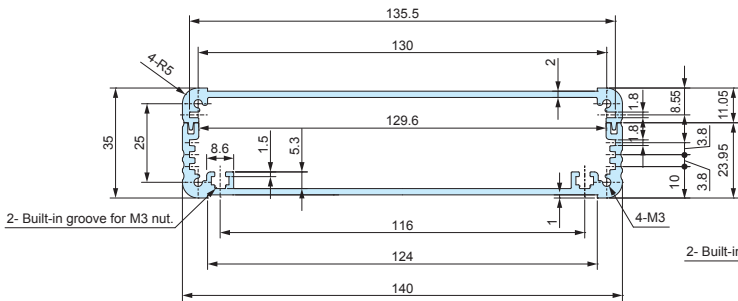
EXP • EXPE • EXW • EXPF • EXEF • EXWF • EX top / bottom covers

■ Drawings below are reference examples only.
DXF/DWG/PDF drawings available on our website.

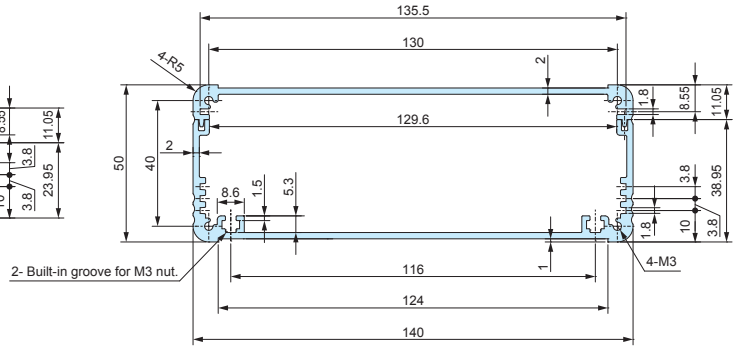
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EX11-6-□



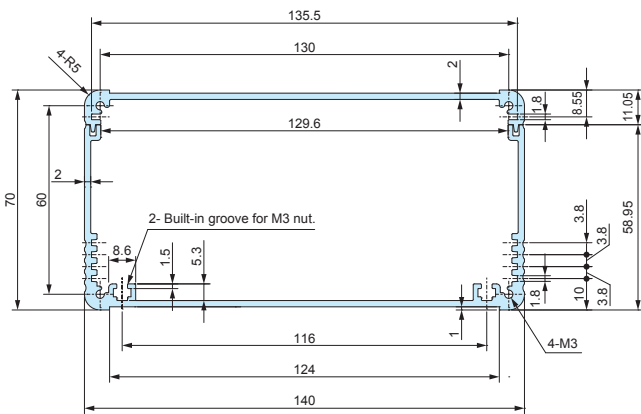
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EX14-4-□



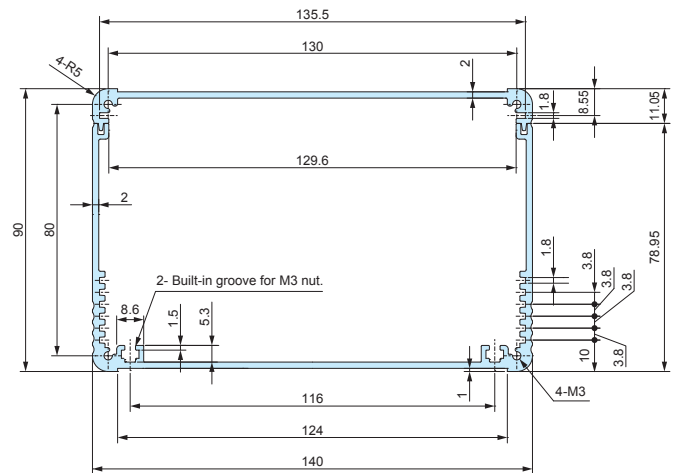
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EX14-5-□



EXP • EXPE • EXW • EXPF • EXEF • EXWF15-8-□
EX14-7-□



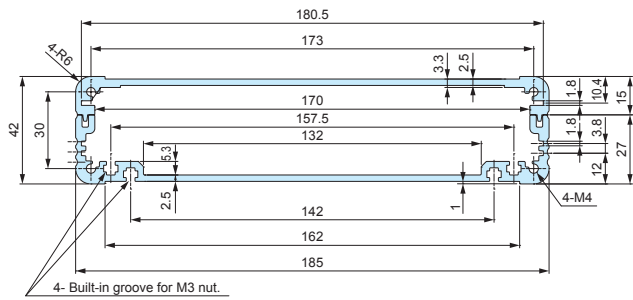
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EX14-9-□



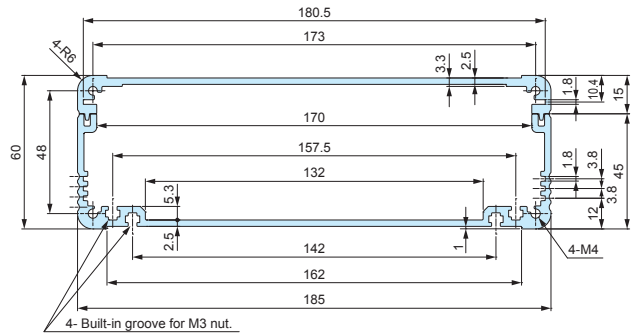
EXP • EXPE • EXPF • EXEF • EXWF • EX top / bottom covers

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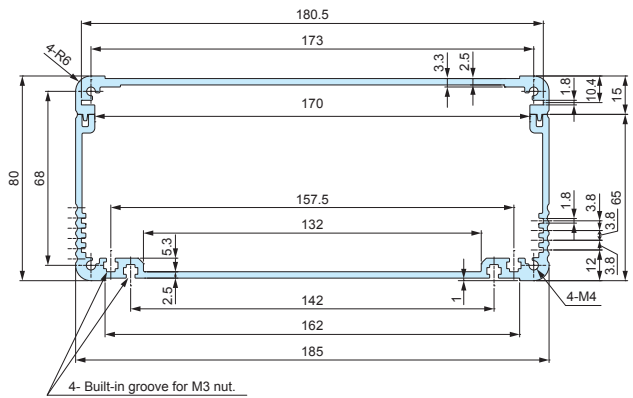
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EX19-4-□



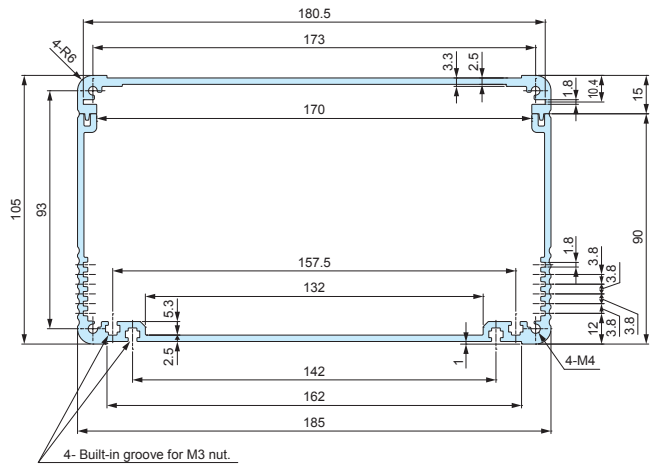
EXP • EXPE20-7-□
EXPF • EXEF • EXWF20-8-□
EX19-6-□



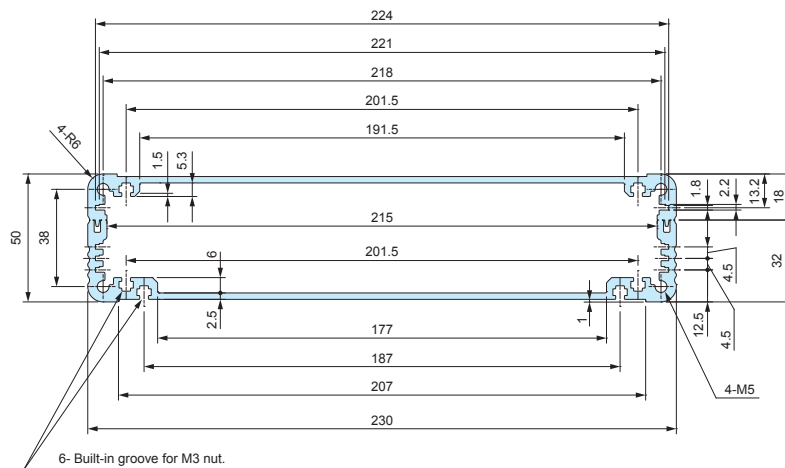
EXP • EXPE20-9-□
EXPF • EXEF • EXWF20-10-□
EX19-8-□



EXP • EXPE • EXPF • EXEF • EXWF20-12-□
EX19-11-□



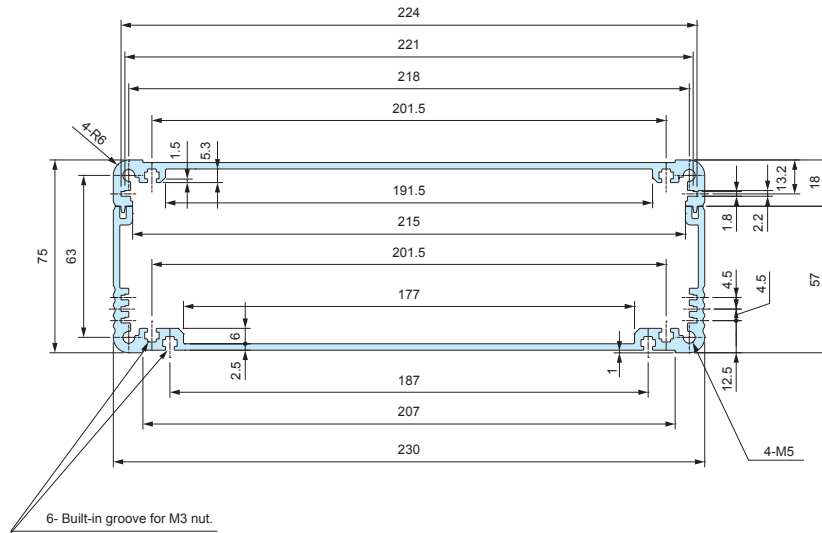
EXP • EXPE24-6-□
EXPF • EXEF • EXWF24-7-□
EX23-5-□



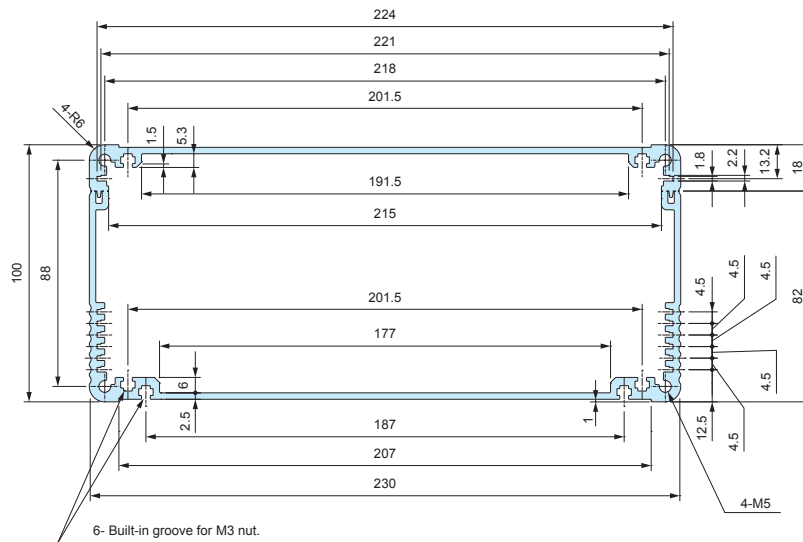
EXP • EXPE • EXPF • EXEF • EXWF • EX top / bottom covers

■ Drawings below are reference examples only.
DXF/DWG/PDF drawings available on our website.

EXP • EXPE • EXPF • EXEF • EXWF24-9-□
EX23-8-□

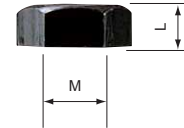
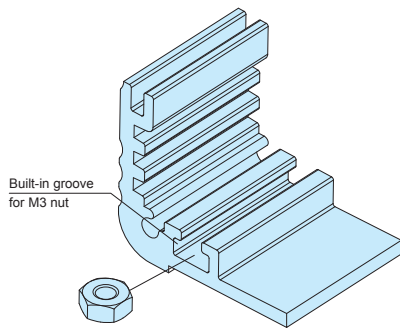


EXP • EXPE24-11-□
EXPF • EXEF • EXWF24-12-□
EX23-10-□



MT-3N

SLIDING NUT for EXP • EXPE • EXW • EXPF • EXEF • EXWF • EX



Product no. / Dimensions

Product no.	M	L	Material	Finish	Pack of
MT-3N	3	2.4	Steel	Black trivalent chromate	50

- Sliding nut can be used on all EXP • EXPE • EXW • EXPF • EXEF • EXWF • EX models with width 140mm or larger bottom covers, as well as with width 230mm top covers.

EXEG SERIES

EMC SHIELDING FABRIC-OVER-FOAM GASKET for EXPE • EXEF



- EMC shielding fabric-over-foam gasket for EXPE • EXEF series.

Suitable Enclosure

Product no.	Suitable enclosure
EXEG-2.5	EXPE7-□ • 9-□ • 12-□ • 15-□ / EXEF7-□ • 9-□ • 11-□ • 15-□
EXEG-3.2	EXPE20-□ • 24-□ / EXEF20-□ • 24-□



EMC Shielding Effects

Product no. / Dimensions

Product no.	Φ	Material	Color	Sales unit
EXEG-2.5	2.5	Wire mesh gasket • TPE	Metallic gray	500mm x 1 pc
NEW EXEG-3.2	3.2	Wire mesh gasket • TPE	Metallic gray	500mm x 1 pc

Length tolerance = +/- 10%

APPLICATION EXAMPLE EX series

PREMAIN POWER AMPLIFIER

Product by AY-densi (Japan)



USB EDGE NODE

Product by SHINWA (Japan)



AW · AWN · AWP IP67 ALUMINIUM ENCLOSURE

AW · AWN · AWP series are highly functional aluminium enclosures which are IP67 rated with heat dissipating heat-sink fins.

34 sizes available. Standard, Flanged, Shielding, and Silicone protector types are available.

Suitable for LED power supply, industrial camera, controller or measuring instrument where waterproof and cooling performance are crucial.

APPLICATION EXAMPLE

LIQUID LEVEL SENSOR

Product by Watty Corporation (Japan)



HEAVY DUTY PORTABLE HARDNESS TESTER

Product by DEMEQ (Argentina)



RADIO-CONTROLLED ELECTRONIC EXPLODER

Product by CODETEL (France)



OUTDOOR LED POWER SUPPLY



OPTICAL PHASE INTERROGATOR (OPI) DEVELOPMENT KIT

Product by Broadcom Limited (USA)



FBG DATA LOGGER

Product by NAGANO KEIKI (Japan)



DATA LOGGER with 3G MODEM REPORT FUNCTION

Product by mSolution (Hong Kong)



PIN HOLE DETECTOR

Product by SANKO ELECTRONIC LABORATORY (Japan)



PD ANNUNCIATOR

Product by ndb Technologies (Canada)



DC CONVERTER



CUSTOM LENGTH AVAILABLE

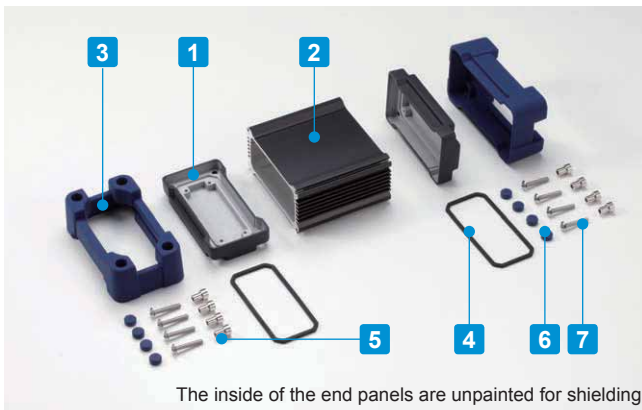
Flexible frame length from 50mm to 700mm in 1mm intervals.

No minimum order quantity and short lead time for small quantity order.





Technical Data
Protection class: IP67
Operating temperature: -40°C ~ +105°C
Recommended torque: 1.0N • m (10kgf • cm)



- Strong impact resistant enclosure with tough silicone boot protectors.
- Specifically designed with heat dissipation effect, EMC shielding and IP67 rating.
- PCB or chassis can be horizontally mounted by sliding into an inner-grooved body frame.
- Available in 30 sizes and 8 different color combinations. Selectable from a total of 240 different combinations.
- Suitable for measuring instruments, industrial control box, industrial camera housing, etc.

Components

No.	Part name	Pcs	Material	Color / Finish
1	End panel	2	Diecast aluminium ADC12	Silver • Black / Painted (unfinished inside)
2	Body frame	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized
3	Protector	2	Silicone	Black • Gray • Navy • Yellow
4	Conductive gasket	2	Conductive silicone	Black
5	Spacer	8	Brass	Nickel plated
6	Blind cap	8	Silicone	Black • Gray • Navy • Yellow
7	Screw	8	Stainless steel	Unfinished

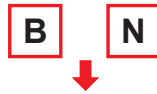
Color Type



Ordering Number

For example, in case of ordering AWP7-7-8 size, Black enclosure and Navy silicone protector.

Product no. : AWP7-7-8



Put a color code SB, SG, SN, SY, BB, BG, BN or BY.

- ※ Thermal resistance test condition
- Ambient air cooling
- Heat-sink fins are set perpendicular to the ground with temperature at 60°C.
- Anodized aluminium extrusion
- Heat source is applied on the opposite side (inner side) of the fins.

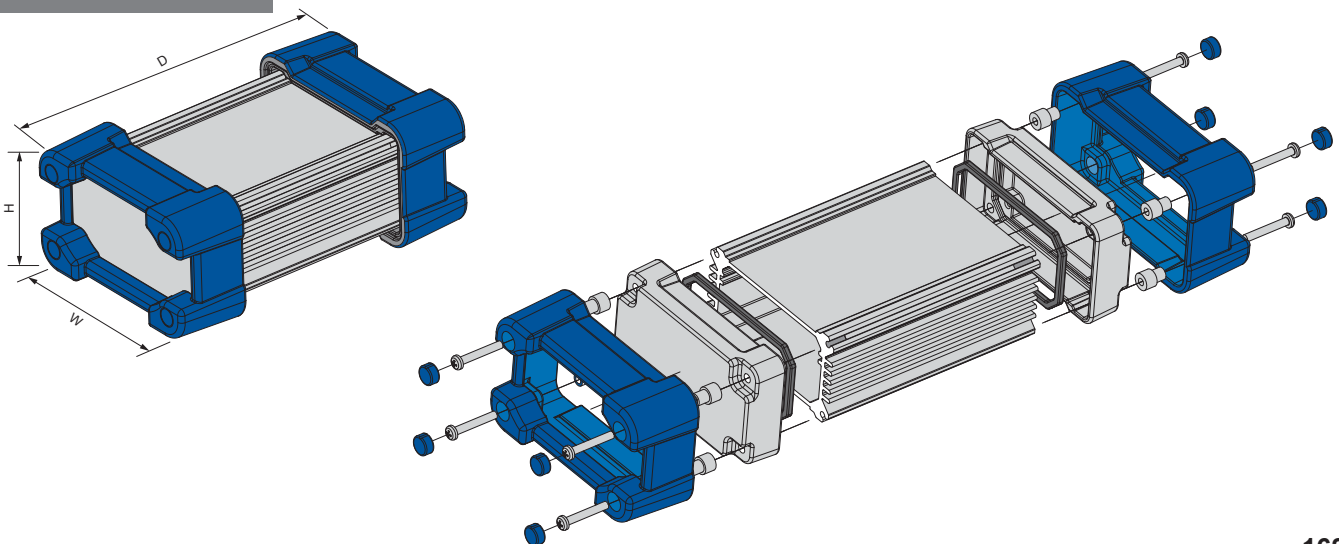
Product no. / Dimensions

Product no.	W	H	D	※Thermal resistance rate (°C/W)	Weight (g)
AWP 7-7- 8□□	72.4(65.8)	73.6(65.8)	104 (80)	4.41	363.5
AWP 7-7-11□□	72.4(65.8)	73.6(65.8)	134(110)	3.5	419
AWP 7-7-15□□	72.4(65.8)	73.6(65.8)	174(150)	2.83	493.5
AWP 7-7-20□□	72.4(65.8)	73.6(65.8)	224(200)	2.33	586
AWP 7-7-25□□	72.4(65.8)	73.6(65.8)	274(250)	2.02	679
AWP 8-5- 9□□	87.4(80.8)	53.6(45.8)	114 (90)	5.97	353.5
AWP 8-5-12□□	87.4(80.8)	53.6(45.8)	139(115)	5.01	394.5
AWP 8-5-14□□	87.4(80.8)	53.6(45.8)	164(140)	4.37	436
AWP 8-5-18□□	87.4(80.8)	53.6(45.8)	199(175)	3.76	493.5
AWP 9-9-10□□	93.9(86.3)	95.1(86.3)	130(100)	3.1	693
AWP 9-9-13□□	93.9(86.3)	95.1(86.3)	155(125)	2.63	766
AWP 9-9-17□□	93.9(86.3)	95.1(86.3)	200(170)	2.12	897
AWP 9-9-22□□	93.9(86.3)	95.1(86.3)	250(220)	1.79	1,043
AWP 9-9-28□□	93.9(86.3)	95.1(86.3)	305(275)	1.54	1,203.5
AWP11-6-11□□	113.9(106.3)	65.1(56.3)	140(110)	4.52	652.5
AWP11-6-15□□	113.9(106.3)	65.1(56.3)	180(150)	3.62	751.5
AWP11-6-19□□	113.9(106.3)	65.1(56.3)	220(190)	3.08	850
AWP11-6-24□□	113.9(106.3)	65.1(56.3)	270(240)	2.64	973
AWP12-8-11□□	127.6(120)	80.1(71.3)	135(105)	3.6	778.5
AWP12-8-14□□	127.6(120)	80.1(71.3)	170(140)	2.93	885
AWP12-8-17□□	127.6(120)	80.1(71.3)	209.5(179.5)	2.47	1,004.5
AWP12-8-22□□	127.6(120)	80.1(71.3)	245(215)	2.18	1,112
AWP16-9-14□□	163.9(156.3)	90.1(81.3)	165(135)	2.64	1,094
AWP16-9-18□□	163.9(156.3)	90.1(81.3)	205(175)	2.2	1,240.5
AWP16-9-23□□	163.9(156.3)	90.1(81.3)	255(225)	1.86	1,424
AWP16-9-28□□	163.9(156.3)	90.1(81.3)	305(275)	1.63	1,607.5
AWP21-9-17□□	213.9(206.3)	90.1(81.3)	202(170)	2.3	1,571.5
AWP21-9-21□□	213.9(206.3)	90.1(81.3)	242(210)	1.99	1,742
AWP21-9-26□□	213.9(206.3)	90.1(81.3)	292(260)	1.72	1,955.5
AWP21-9-31□□	213.9(206.3)	90.1(81.3)	342(310)	1.54	2,168.5

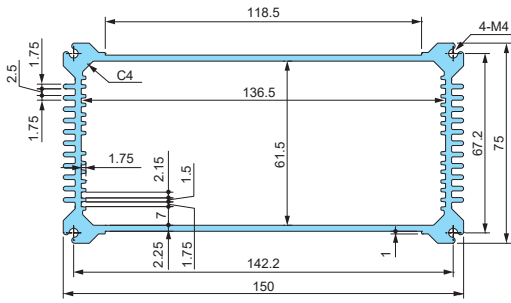
■ () value = enclosure dimension.

AWP dimensions

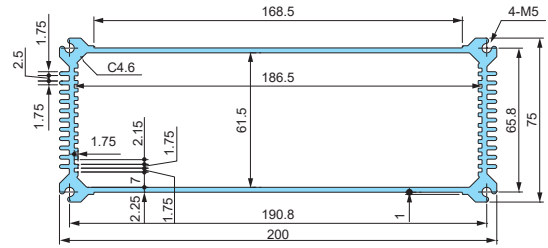
■ DXF/DWG/PDF drawings available on our website.



AW/AWN/AWP16-9-□
AWA15-8-□



AW/AWN/AWP21-9-□
AWA20-8-□

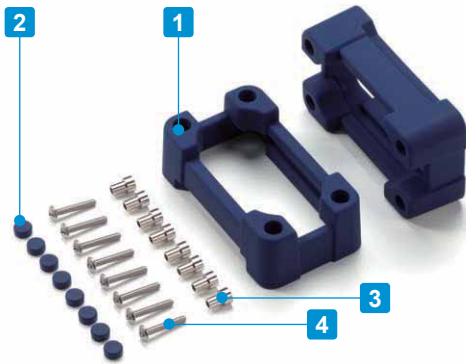


- ※ Thermal resistance test condition
- Ambient air cooling
 - Heat-sink fins are set perpendicular to the ground with temperature at 60°C.
 - Anodized aluminium extrusion
 - Heat source is applied on the opposite side (inner side) of the fins.

Product no.				Frame	※Thermal resistance rate (°C/W)
AW 5-4- 7	AWN 5-4- 7	—	AWA 5-3- 5	49.2	11.2
AW 5-4- 9	AWN 5-4- 9	—	AWA 5-3- 7	69.2	9.18
AW 5-4-11	AWN 5-4-11	—	AWA 5-3-10	94.2	7.64
AW 5-4-14	AWN 5-4-14	—	AWA 5-3-12	119.2	6.63
AW 7-7- 8	AWN 7-7- 8	AWP 7-7- 8	AWA 6-6- 7	64	4.41
AW 7-7-11	AWN 7-7-11	AWP 7-7-11	AWA 6-6-10	94	3.5
AW 7-7-15	AWN 7-7-15	AWP 7-7-15	AWA 6-6-14	134	2.83
AW 7-7-20	AWN 7-7-20	AWP 7-7-20	AWA 6-6-19	184	2.33
AW 7-7-25	AWN 7-7-25	AWP 7-7-25	AWA 6-6-24	234	2.02
AW 8-5- 9	AWN 8-5- 9	AWP 8-5- 9	AWA 8-4- 8	74	5.97
AW 8-5-12	AWN 8-5-12	AWP 8-5-12	AWA 8-4-10	99	5.01
AW 8-5-14	AWN 8-5-14	AWP 8-5-14	AWA 8-4-13	124	4.37
AW 8-5-18	AWN 8-5-18	AWP 8-5-18	AWA 8-4-16	159	3.76
AW 9-9-10	AWN 9-9-10	AWP 9-9-10	AWA 8-8- 9	81	3.1
AW 9-9-13	AWN 9-9-13	AWP 9-9-13	AWA 8-8-11	106	2.63
AW 9-9-17	AWN 9-9-17	AWP 9-9-17	AWA 8-8-16	151	2.12
AW 9-9-22	AWN 9-9-22	AWP 9-9-22	AWA 8-8-21	201	1.79
AW 9-9-28	AWN 9-9-28	AWP 9-9-28	AWA 8-8-26	256	1.54
AW11-6-11	AWN11-6-11	AWP11-6-11	AWA10-5-10	90.6	4.52
AW11-6-15	AWN11-6-15	AWP11-6-15	AWA10-5-14	130.6	3.62
AW11-6-19	AWN11-6-19	AWP11-6-19	AWA10-5-18	170.6	3.08
AW11-6-24	AWN11-6-24	AWP11-6-24	AWA10-5-23	220.6	2.64
AW12-8-11	AWN12-8-11	AWP12-8-11	AWA12-7- 9	85.6	3.6
AW12-8-14	AWN12-8-14	AWP12-8-14	AWA12-7-12	120.6	2.93
AW12-8-17	AWN12-8-17	AWP12-8-17	AWA12-7-17	160.1	2.47
AW12-8-22	AWN12-8-22	AWP12-8-22	AWA12-7-20	195.6	2.18
AW16-9-14	AWN16-9-14	AWP16-9-14	AWA15-5-12	115.6	2.64
AW16-9-18	AWN16-9-18	AWP16-9-18	AWA15-8-16	155.6	2.2
AW16-9-23	AWN16-9-23	AWP16-9-23	AWA15-8-21	205.6	1.86
AW16-9-28	AWN16-9-28	AWP16-9-28	AWA15-8-26	255.6	1.63
AW21-9-17	AWN21-9-17	AWP21-9-17	AWA20-8-15	147.8	2.3
AW21-9-21	AWN21-9-21	AWP21-9-21	AWA20-8-19	187.8	1.99
AW21-9-26	AWN21-9-26	AWP21-9-26	AWA20-8-24	237.8	1.72
AW21-9-31	AWN21-9-31	AWP21-9-31	AWA20-8-29	287.8	1.54

AWSP SERIES

SILICONE PROTECTOR

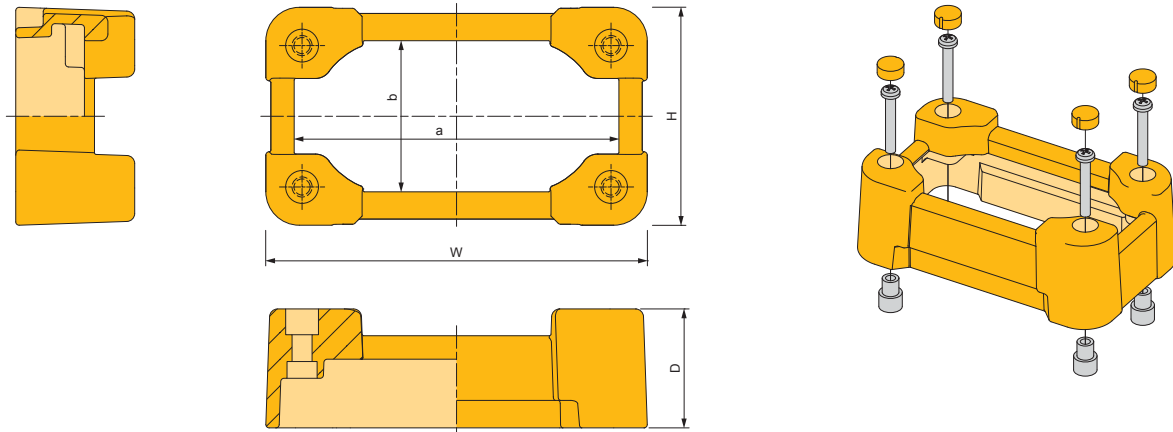


Color Type

Code	B Black	G Gray	N Navy	Y Yellow
Color				

- Silicone protector for AWN series.
- Protect switches and/or connectors on end panels from impact when dropped, etc.

AWSP dimensions



Components

No.	Part name	Pcs	Material	Color / Finish
1	Protector	2	Silicone	Black • Gray • Navy • Yellow
2	Blind cap	8	Silicone	Black • Gray • Navy • Yellow
3	Spacer	8	Brass	Nickel plated
4	Screw	8	Stainless steel	Unfinished

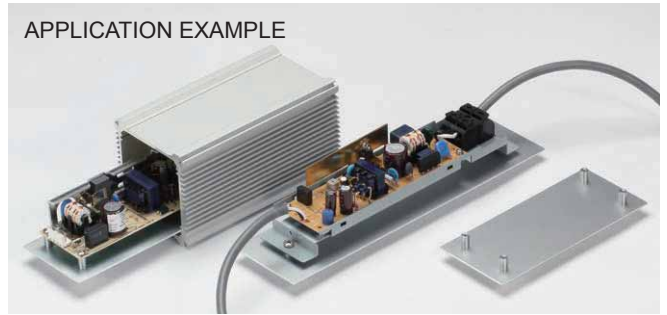
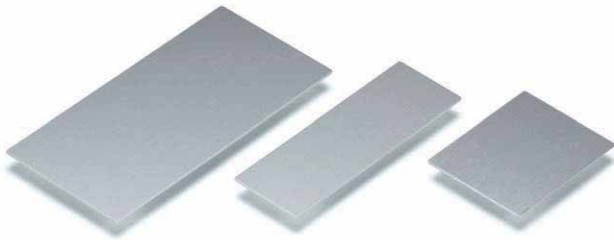
Product no. / Dimensions

■ Please suffix color code at the end of the product number.

Product no.	W	H	D	a	b	Screw size	Suitable enclosure	Weight (g)
AWSP 7-7□	72.4	73.6	31	58.4	56.6	M3	AWN 7-7-□	99
AWSP 8-5□	87.4	53.6	31	73.4	36.6	M3	AWN 8-5-□	100.5
AWSP 9-9□	93.9	95.1	35.5	76.9	75.1	M4	AWN 9-9-□	184.5
AWSP11-6□	113.9	65.1	35.5	96.9	45.1	M4	AWN11-6-□	186
AWSP12-8□	127.6	80.1	35.5	110.6	60.1	M4	AWN12-8-□	201
AWSP16-9□	163.9	90.1	35.5	145.9	69.1	M4	AWN16-9-□	235
AWSP21-9□	213.9	90.1	39.5	192.9	66.1	M5	AWN21-9-□	333

AWC SERIES

ALUMINIUM MOUNTING PLATE

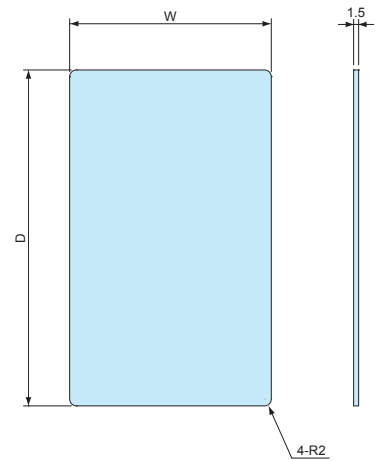


- Material: Aluminium A1050P t=1.5 / Silver anodized
- Mounting plate for AW, AWN, AWP, and AWA series enclosures.
- Utilize for mounting PCB, power supply, terminal blocks, etc.

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

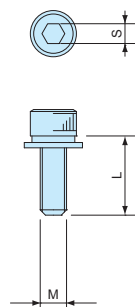
Product no. / Dimensions

Product no.	W	D	Suitable enclosure
AWC 5- 7	38.9	49.2	AW • AWN 5-4-7 • AWA 5-3-5
AWC 5- 9	38.9	69.2	AW • AWN 5-4-9 • AWA 5-3-7
AWC 5-11	38.9	94.2	AW • AWN 5-4-11 • AWA 5-3-10
AWC 5-14	38.9	119.2	AW • AWN 5-4-14 • AWA 5-3-12
AWC 7- 8	47	64	AW • AWN • AWP 7-7-8 • AWA 6-6- 7
AWC 7-11	47	94	AW • AWN • AWP 7-7-11 • AWA 6-6-10
AWC 7-15	47	134	AW • AWN • AWP 7-7-15 • AWA 6-6-14
AWC 7-20	47	184	AW • AWN • AWP 7-7-20 • AWA 6-6-19
AWC 7-25	47	234	AW • AWN • AWP 7-7-25 • AWA 6-6-24
AWC 8- 9	61.8	74	AW • AWN • AWP 8-5-9 • AWA 8-4-8
AWC 8-12	61.8	99	AW • AWN • AWP 8-5-12 • AWA 8-4-10
AWC 8-14	61.8	124	AW • AWN • AWP 8-5-14 • AWA 8-4-13
AWC 8-18	61.8	159	AW • AWN • AWP 8-5-18 • AWA 8-4-16
AWC 9-10	66.5	81	AW • AWN • AWP 9-9-10 • AWA 8-8-9
AWC 9-13	66.5	106	AW • AWN • AWP 9-9-13 • AWA 8-8-11
AWC 9-17	66.5	151	AW • AWN • AWP 9-9-17 • AWA 8-8-16
AWC 9-22	66.5	201	AW • AWN • AWP 9-9-22 • AWA 8-8-21
AWC 9-28	66.5	256	AW • AWN • AWP 9-9-28 • AWA 8-8-26
AWC11-11	86.5	90.6	AW • AWN • AWP11-6-11 • AWA10-5-10
AWC11-15	86.5	130.6	AW • AWN • AWP11-6-15 • AWA10-5-14
AWC11-19	86.5	170.6	AW • AWN • AWP11-6-19 • AWA10-5-18
AWC11-24	86.5	220.6	AW • AWN • AWP11-6-24 • AWA10-5-23
AWC12-11	100.2	85.6	AW • AWN • AWP12-8-11 • AWA12-7-9
AWC12-14	100.2	120.6	AW • AWN • AWP12-8-14 • AWA12-7-12
AWC12-17	100.2	160.1	AW • AWN • AWP12-8-17 • AWA12-7-17
AWC12-22	100.2	195.6	AW • AWN • AWP12-8-22 • AWA12-7-20
AWC16-14	136.3	115.6	AW • AWN • AWP16-9-14 • AWA15-8-12
AWC16-18	136.3	155.6	AW • AWN • AWP16-9-18 • AWA15-8-16
AWC16-23	136.3	205.6	AW • AWN • AWP16-9-23 • AWA15-8-21
AWC16-28	136.3	255.6	AW • AWN • AWP16-9-28 • AWA15-8-26
AWC21-17	186.1	147.8	AW • AWN • AWP21-9-17 • AWA20-8-15
AWC21-21	186.1	187.8	AW • AWN • AWP21-9-21 • AWA20-8-19
AWC21-26	186.1	237.8	AW • AWN • AWP21-9-26 • AWA20-8-24
AWC21-31	186.1	287.8	AW • AWN • AWP21-9-31 • AWA20-8-29



HCS SERIES

HEXAGON SOCKET HEAD SCREW



- Hexagon socket head screws for fastening the end panels of AW and AWN enclosures.
- Utilize for tamper-resistance functionality or for an elegant sleek look.

Product no. / Dimensions

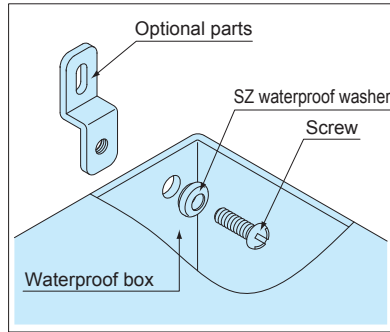
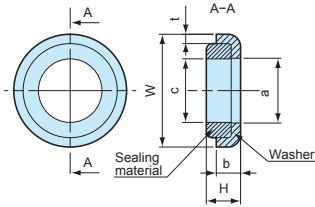
Product no.	M	L	S	Material	Pack of
HCS3-12S	3	12	2.5	Stainless steel	8
HCS4-12S	4	12	3	Stainless steel	8
HCS5-12S	5	12	4	Stainless steel	8

SZ SERIES

WATERPROOF WASHER



- Waterproof washer for screwing onto waterproof boxes.
- NBR sealing material has superior oil resistance (N models only) .
- Silicone sealing material has wider operating temperature with superior temperature and water resistance (S models only).



Technical Data

Water pressure resistance:
 M3 ~ M10 : 200kg/cm² 5min
 M12 ~ M16 : 100kg/cm² 5min

■ Shape of the sealing material vary by product.

Product no. / Dimensions

Product no.	W	H	a	b	c	t	Washer material	Sealing material	Color	Screw size	Pack of
SZ- 3N	7	2.7	3.2	2.2	3.1	0.5	SUS304	NBR	Black	M 3	1
SZ- 3S	7	2.7	3.2	2.2	3.1	0.5	SUS304	Silicone	Brown	M 3	1
SZ- 4N	8	2.8	4.2	2.1	4.1	0.5	SUS304	NBR	Black	M 4	1
SZ- 4S	8	2.8	4.2	2.1	4.1	0.5	SUS304	Silicone	Brown	M 4	1
SZ- 5N	9.5	3.6	5.2	2.7	5.1	0.8	SUS304	NBR	Black	M 5	1
SZ- 5S	9.5	3.6	5.2	2.7	5.1	0.8	SUS304	Silicone	Brown	M 5	1
SZ- 6N	11.5	4	6.2	3	6.2	1	SUS304	NBR	Black	M 6	1
SZ- 6S	11.5	4	6.2	3	6.2	1	SUS304	Silicone	Brown	M 6	1
SZ- 8N	15.2	3.8	8.2	3.2	8.2	1	SUS304	NBR	Black	M 8	1
SZ- 8S	15.2	3.8	8.2	3.2	8.2	1	SUS304	Silicone	Brown	M 8	1
SZ-10N	18	5.3	10.2	4	10.2	1.5	SUS304	NBR	Black	M10	1
SZ-10S	18	5.3	10.2	4	10.2	1.5	SUS304	Silicone	Brown	M10	1
SZ-12N	24	6.1	14.2	4.8	12.2	1.5	SUS304	NBR	Black	M12	1
SZ-12S	24	6.1	14.2	4.8	12.2	1.5	SUS304	Silicone	Brown	M12	1
SZ-16N	30	6.8	18.4	5.3	16	1.9	SUS304	NBR	Black	M16	1
SZ-16S	30	6.8	18.4	5.3	16	1.9	SUS304	Silicone	Brown	M16	1

NMG SERIES

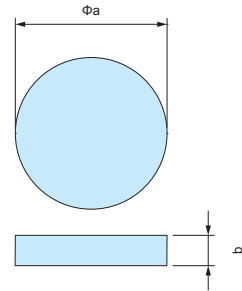
NEODYMIUM MAGNET



Round magnet



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



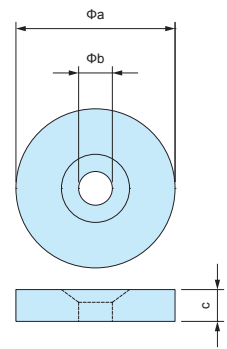
Components

Product no.	a	b	Weight (g)	Flus Density	Adsorption
NMG3-15N	15	3	4	214.4 mT	2.44 kgf
NMG3-20N	20	3	7.1	170.7 mT	3.26 kgf
NMG5-22N	22	5	11.4	247.2 mT	5.91 kgf
NMG5-25N	25	5	18.4	221.9 mT	6.89 kgf

Round magnet with countersunk hole



- Please fasten with a screw.



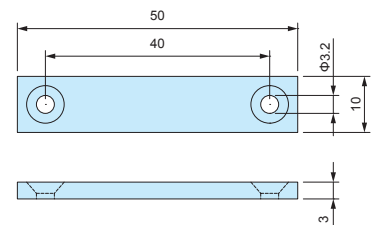
Components

Product no.	a	b	c	Countersunk size	Weight (g)	Flus Density	Adsorption
NMG3-15M3	15	3.2	3	M3	3.8	214.3 mT	2.33 kgf
NMG3-20M3	20	3.2	3	M3	6.9	170.6 mT	3.17 kgf
NMG5-22M4	22	4.3	5	M4	13.7	247.2 mT	5.68 kgf
NMG5-25M5	25	5.3	5	M5	17.6	221.9 mT	6.58 kgf

Rectangular magnet with countersunk holes



- Please fasten with a screw.



Components

Product no.	a	b	c	Countersunk size	Weight (g)	Flus Density	Adsorption
NMG3-50M3	50	10	3	M3	11.3	210.0 mT	9.1 kgf

Example 1 The magnetic force remains strong even through plastic.



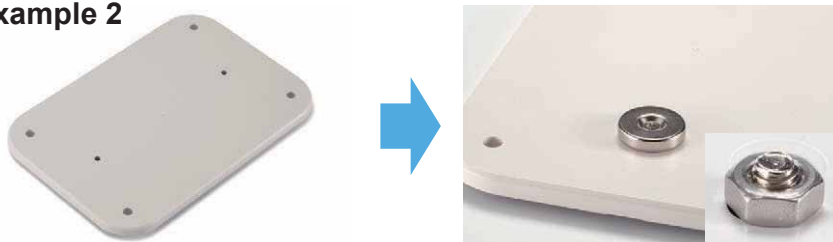
Make recessed pocket on the inside wall.

Glue on.



Attach onto a metallic surface.

Example 2



Make holes

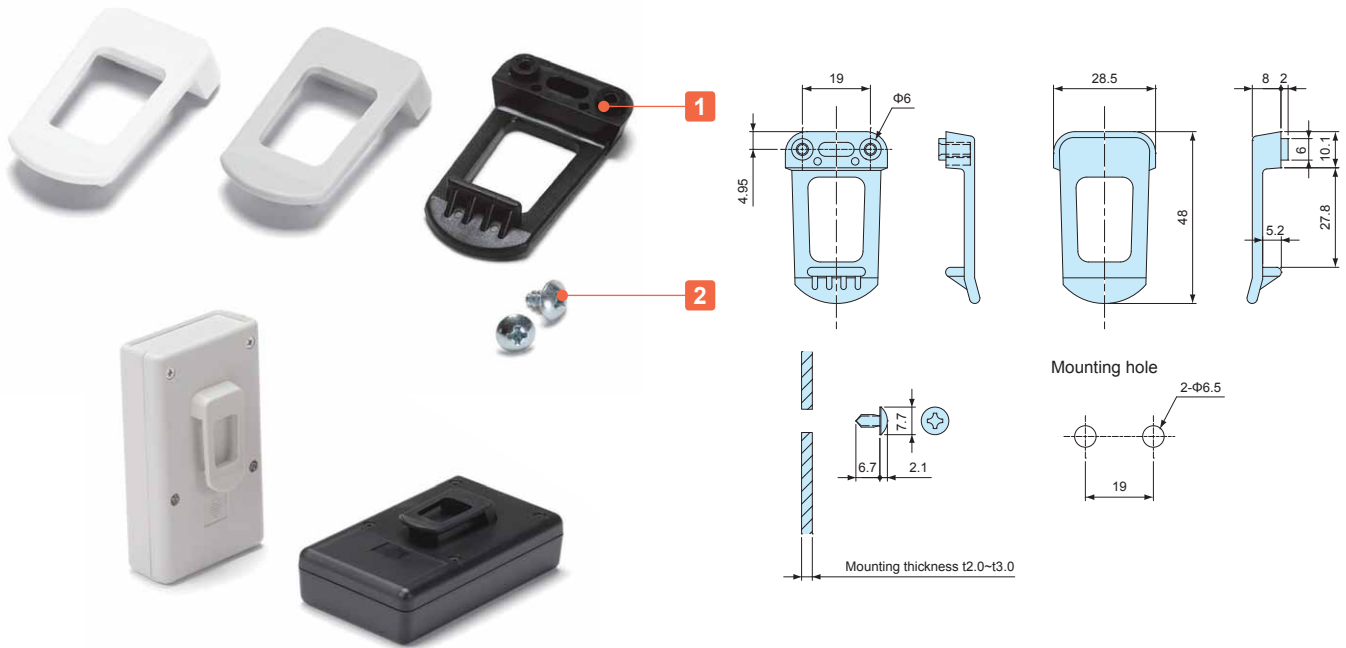
Fasten with a screw and nut.



Attach onto a metallic surface.

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

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



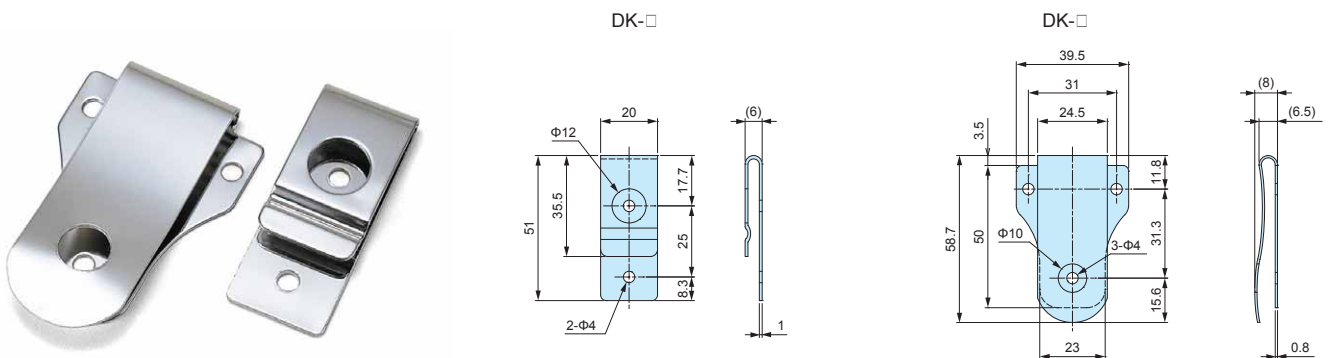
■ New White color type is added to match LC, PF, and TWN series color.

Components

No.	Holder material	Pcs	Material	Color / Finish
1	Clip	1	ABS UL94HB	White • White gray • Black
2	Screw	2	Steel M3.5-6	Zinc plated

Product no. / Dimensions

Product no.			W	H	D
● White	● White gray	● Black			
NEW GDH-1W	GDH-1G	GDH-1B	28.5	10	48



Product no. / Dimensions

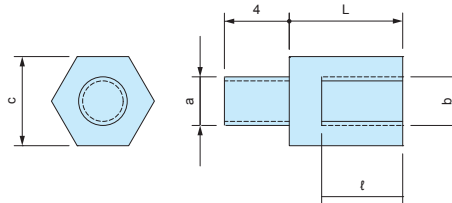
Product no.	Material	Finish
DK-1	Steel SPCC t=1.0	Chrome plated
DK-2	Steel SPCC t=0.8	Chrome plated

TPS SERIES

TAPPING STANDOFF



- Tapping screw head allows for easy installation onto existing enclosure boss mount.
- 3 different sizes available : M2.3, M2.6 and M3 size.



Product no. / Dimensions

■ Material / Finish : Brass / Unfinished

Product no.	Screw size (a)	Screw size (b)	c	L	ℓ	Pack of	Recommended enclosure models	
TPS-M2.3-4	M2.3	M2.3	5	4	3	4	WH series • PFE series LC • LCE • LCS • LCT series PF • PFF series (M2.3 boss models) TW • TWN • TWF series (M2.3 boss models) WP series (M2.3 boss models)	
TPS-M2.3-5	M2.3	M2.3	5	5	3	4		
TPS-M2.3-6	M2.3	M2.3	5	6	4	4		
TPS-M2.3-7	M2.3	M2.3	5	7	5	4		
TPS-M2.3-8	M2.3	M2.3	5	8	6	4		
TPS-M2.3-10	M2.3	M2.3	5	10	6	4		
TPS-M2.3-12	M2.3	M2.3	5	12	6	4		
TPS-M2.6-4	M2.6	M2.6	5	4	3	4		PF • PFF series (M2.6 boss models) WP series (M2.6 boss models)
TPS-M2.6-5	M2.6	M2.6	5	5	3	4		
TPS-M2.6-7	M2.6	M2.6	5	7	5	4		
TPS-M2.6-10	M2.6	M2.6	5	10	6	4		
TPS-M2.6-12	M2.6	M2.6	5	12	6	4	SU • OP series TWS • TW • TWN • TWF series (M3 boss models)	
TPS-M3-4	M3	M3	5.5	4	3	4		
TPS-M3-5	M3	M3	5.5	5	3	4		
TPS-M3-6	M3	M3	5.5	6	4	4		
TPS-M3-7	M3	M3	5.5	7	5	4		
TPS-M3-8	M3	M3	5.5	8	5	4		
TPS-M3-10	M3	M3	5.5	10	6	4		
TPS-M3-12	M3	M3	5.5	12	6	4		



- Please use a suitable sized socket driver to both secure and loosen the tapping standoff.



How to tighten

MT SERIES

PCB MOUNTING SCREWS for TPS



- PCB mounting Screws for TPS tapping standoffs.

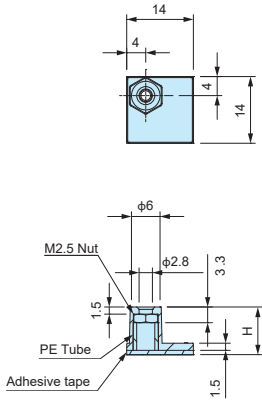
Product no. / Dimensions

Product no.	M	L	Head style	Material	Finish	Pack of
NEW MT2.3-4	2.3	4	Pan	Steel	Trivalent chromate	20
NEW MT2.3-6	2.3	6		Steel	Trivalent chromate	20
NEW MT2.6-4	2.6	4		Steel	Trivalent chromate	20
MT3-4	3	4		Steel	Trivalent chromate	20

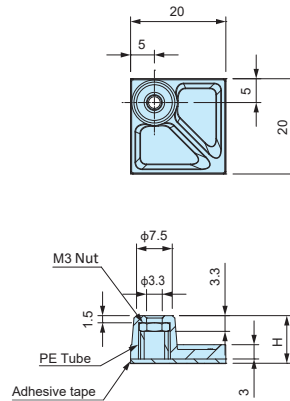


- Double -sided adhesive tape allows the standoff to be mounted quickly and easily; allows PCB mounting in non-boss enclosures.
- Convenient for installing PCBs into enclosures without the need for customization.
- Please ensure that surface is cleaned and grease-free before adhering.
- Once removed,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

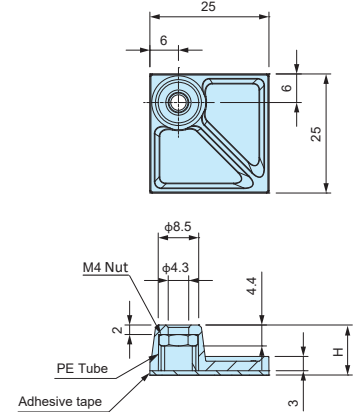
AST2.5-□



AST3-□



AST4-□



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

Product no. / Dimensions

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

Product no.	H dimension	Included screw	Recommended PCB Thickness (mm)	Recommended torque (N • m)	Weight (g)	Pack of
AST2.5-5B	5	M2.5-5 panhead	1.0~2.0	0.3	0.6	4
AST2.5-10B	10	M2.5-5 panhead	1.0~2.0	0.3	0.8	4
AST3-6B	6	M3-6 panhead	1.0~3.0	0.4	1.5	4
AST3-10B	10	M3-6 panhead	1.0~3.0	0.4	1.6	4
AST3-15B	15	M3-6 panhead	1.0~3.0	0.4	1.8	4
AST3-20B	20	M3-6 panhead	1.0~3.0	0.4	2.1	4
AST4-10.5B	10.5	M4-8 panhead	1.0~3.5	0.8	2.6	4
AST4-20B	20	M4-8 panhead	1.0~3.5	0.8	3.2	4
AST2.5-5B-P	5	None	—	0.3	0.6	100
AST2.5-10B-P	10	None	—	0.3	0.8	100
AST3-6B-P	6	None	—	0.4	1.5	100
AST3-10B-P	10	None	—	0.4	1.6	100
AST3-15B-P	15	None	—	0.4	1.8	100
AST3-20B-P	20	None	—	0.4	2.1	100
AST4-10.5B-P	10.5	None	—	0.8	2.6	50
AST4-20B-P	20	None	—	0.8	3.2	50

TAKACHI ELECTRONICS ENCLOSURE CO., LTD.

3-21-16 Higashi-ryoke,
Kawaguchi, Saitama 332-0003, JAPAN
Tel. +81-48-222-5409

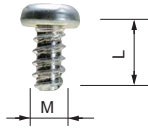
www.takachi-enclosure.com
sales@takachi-el.co.jp

● All items listed in this catalogue are compliant with EU RoHS 10 standard.

NEW PRODUCT Vol.1 2020.7

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

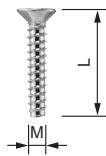
Product no.	M	L	Material	Finish	Suitable enclosures	Pack of
EM-1.6	1.6	4	Steel	Trivalent chromate	WC • CSS • CS • PS (M1.6 size)	50
EM-2	2	5	Steel	Trivalent chromate	PS • TW • TWN • TWF • WP (M2 size)	50
EM-2.3	2.3	6	Steel	Trivalent chromate	WH • LC • LCT • LCS • LCE • PFE WSC (Top cover bosses) PF • PFF (M2.3 size) TW • TWN • TWF (M2.3 size) WP (M2.3 size)	50
NEW EM-2.3-8	2.3	8	Steel	Trivalent chromate	WSC (Bottom base bosses)	50
EM-2.6	2.6	6	Steel	Trivalent chromate	PF • PFF • WP (M2.6 size)	50
EM-3	3	5	Steel	Trivalent chromate	SU TWS • TW • TWN • TWF (M3 sizes)	50
EM-3-6	3	6	Steel	Trivalent chromate		50

MR SERIES

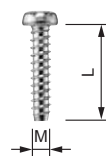
TORX SCREW



Countersunk head



Pan head



With pin



★ Without pin



★ : MR1.6-6S, MR-2S, MR2.6-10□, and MR3-14□ are without pin.

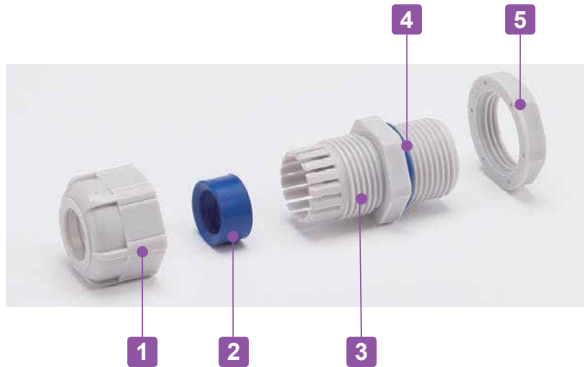
Product no. / Dimensions

★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 • PFE • PFF (M2.5 size)	20
MR2.6-10S★	2.6	10	T8	Countersunk	Steel	Nickel plated	TW • TWN (M2.6 models) TWF (M2.6 models)	20
MR2.6-10B★	2.6	10	T8	Countersunk	Steel	Black trivalent chromate	MX • MXA • MXB • MXF (M2.6 models)	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-N / F2 / F3 LCT • LCS • LC145S-F6 / 145S-N LCE115-N TW • TWN7-2-11 / 7-4-11 / 7-5-11 TWF7-2-11 / 7-4-11 / 7-5-11 / 8-2-8 / 8-4-8	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 LCE115H-N • LCE135-N • LCE145H-N • LCE165H-N	20
MR3-8PS	3	8	T10	Pan	Steel	Nickel plated	PF • PFE • PFF (M3 size)	20
MR3-14S★	3	14	T10	Countersunk	Steel	Nickel plated	TW • TWN (M3 models) TWF (M3 models)	20
MR3-14B★	3	14	T10	Countersunk	Steel	Black trivalent chromate	MX • MXA • MXB • MXF (M3 models)	20
MR-2S★	3	10	T10	Countersunk	Steel	Nickel plated	HEN	20



- Weatherproof cable gland equipped with high ultraviolet and degradation resistant silicone sealing insert and O-ring.
- Recommended to use outdoors where waterproofing is critical.

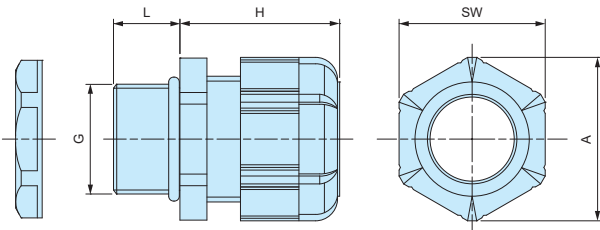


Components

■ PA = Polyamide

No.	Part name	Material
1	Cap	PA66 UL94V-2
2	Sealing insert	Silicone
3	Connector	PA66 UL94V-2
4	O-ring	Silicone
5	Nut	PA66 UL94V-2

RMW dimensions



Technical Data

Protection class: IP67
Operating temperature: -20°C ~ +80°C

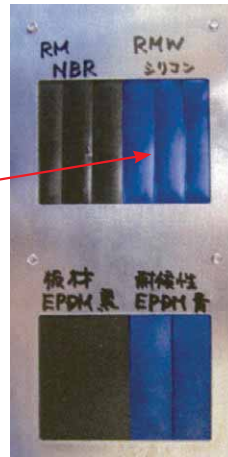
- DXF/DWG/PDF drawings available on our website.
- Lock nut is not included for RMW10S-6.
Please drill a proper thread hole into the enclosure for installation.

Product no. / Dimensions

Product no.		G		Cable range		L	H Max	SW	A	Pack of
● Black	● Light gray	Thread size	Mounting hole	Min	Max					
RMW8L-2.5B	RMW8L-2.5S	M8×1.25	Φ8.2	1	2.5	13	19.5	11.8	13.5	1
RMW8L-4B	RMW8L-4S	M8×1.25	Φ8.2	2.5	4	13	19.5	11.8	13.5	1
RMW10S-6B	RMW10S-6S	M10×1.5	—	3	6	8	20.5	13	14.4	1
RMW10L-6B	RMW10L-6S	M10×1.5	Φ10.2	3	6	13	20.5	13	14.4	1
RMW12S-7B	RMW12S-7S	M12×1.5	Φ12.2	3.5	7	9	20.5	16	17.6	1
RMW12L-7B	RMW12L-7S	M12×1.5	Φ12.2	3.5	7	14.5	20.5	16	17.7	1
RMW16S-8B	RMW16S-8S	M16×1.5	Φ16.2	4	8	9	23.5	19	21	1
RMW16L-8B	RMW16L-8S	M16×1.5	Φ16.2	4	8	15	24	19	21	1
RMW20S-12B	RMW20S-12S	M20×1.5	Φ20.2	6	12	10	29	24	26.2	1
RMW20L-12B	RMW20L-12S	M20×1.5	Φ20.2	6	12	15	28.5	24	26.2	1
RMW25L-17B	RMW25L-17S	M25×1.5	Φ25.2	11	17	15	35	33	36.2	1
RMW32L-21B	RMW32L-21S	M32×1.5	Φ32.3	13	21	15	38	36	39.5	1
RMW40L-27B	RMW40L-27S	M40×1.5	Φ40.3	18	27	18	43.5	45.7	50.5	1
RMW50L-38B	RMW50L-38S	M50×1.5	Φ50.4	27	38	20	50.5	60	66.5	1
RMW8L-2.5B-P	RMW8L-2.5S-P	M8×1.25	Φ 8.2	1	2.5	13	19.5	11.8	13.5	100
RMW8L-4B-P	RMW8L-4S-P	M8×1.25	Φ 8.2	2.5	4	13	19.5	11.8	13.5	100
RMW10L-6B-P	RMW10L-6S-P	M10×1.5	Φ10.2	3	6	13	20.5	13	14.4	100
RMW12S-7B-P	RMW12S-7S-P	M12×1.5	Φ12.2	3.5	7	9	20.5	16	17.6	100
RMW12L-7B-P	RMW12L-7S-P	M12×1.5	Φ12.2	3.5	7	14.5	20.5	16	17.7	100
RMW16S-8B-P	RMW16S-8S-P	M16×1.5	Φ16.2	4	8	9	23.5	19	21	100
RMW16L-8B-P	RMW16L-8S-P	M16×1.5	Φ16.2	4	8	15	24	19	21	100
RMW20S-12B-P	RMW20S-12S-P	M20×1.5	Φ20.2	6	12	10	29	24	26.2	100
RMW20L-12B-P	RMW20L-12S-P	M20×1.5	Φ20.2	6	12	15	28.5	24	26.2	100
RMW25L-17B-P	RMW25L-17S-P	M25×1.5	Φ25.2	11	17	15	35	33	36.2	100

RMW series silicone sealing insert weatherproof test report

Object: Cut into a piece of the silicone sealing insert from RMW series and attach it onto an aluminium plate.
 For comparison, NBR sealing insert from our RM and EPDM sealing insert from another manufacturer is also attached for comparison purposes.



Before

After

Testing conditions

Equipment : 7.5kW Super Xenon Weather Meter SX75 (Suga Test Instruments Co., Ltd.- <http://www.sugatest.co.jp/english/>)
Conditions : JIS B7754 : 1991

Testing with an authorized Xenon arc lamp weathering test equipment under the conditions denoted below.

Irradiance : 180W/m² at 300-400nm

Black Panel Temperature : 63±3°C Humidity Range : 50±10%

Cycle Conditions : 120 minutes cycle (18 minutes irradiation + water spray - 102 minutes irradiation)

2,000 hours (equivalent to a period of 4 years under natural conditions)

Time period :

Total radiant exposure : 1296MJ/m²

Test result (visual / touch inspection)

Silicone sealing insert material : No cracks, no gloss transition, no powder - no appearance change at all. Flexibility remains unchanged.

Before



After



NBR material from our RM series : Lost glossiness on the surface and material is stiffened.

Before



After

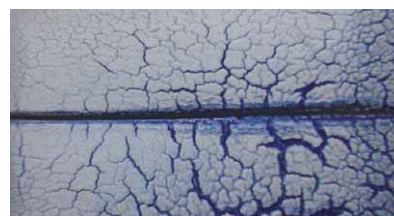


EPDM material from weatherproof cable gland of another manufacturer : Cracked, color drastically faded and powder appeared on the surface.

Before

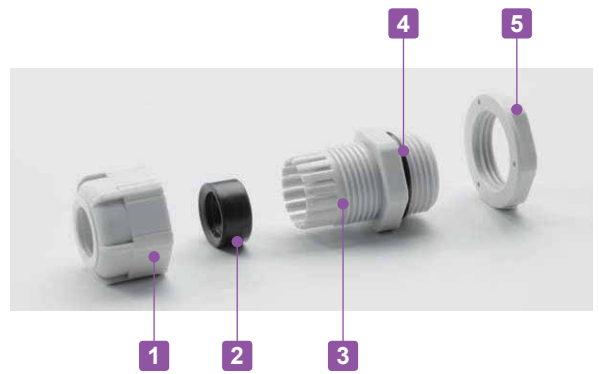


After



RM SERIES

POLYAMIDE CABLE GLAND



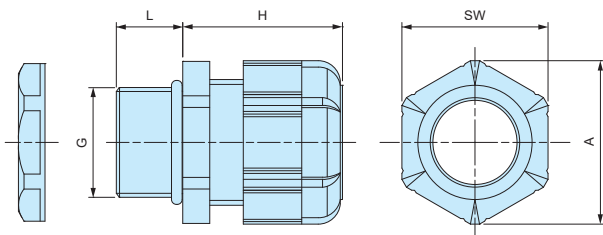
- Low cost cable glands made from polyamide material.
- Wide selection, for M8 ~ M63, suitable for $\Phi 1\text{mm} \sim \Phi 44\text{ mm}$ cable.
- High oil resistant NBR rubber sealing and O-ring.
- IP67 protection class.

Components

■ PA = Polyamide

No.	Part name	Material
1	Cap	PA66 UL94V-2
2	Sealing insert	NBR
3	Connector	PA66 UL94V-2
4	O-ring	NBR
5	Lock nut	PA66 UL94V-2

RM dimensions



Technical Data

Protection class: IP67
Operating temperature: $-20^{\circ}\text{C} \sim +80^{\circ}\text{C}$

- DXF/DWG/PDF drawings available on our website.
- Lock nut is not included for RM8S-2.5, 8S-4, and 10S-6 models.
Please drill a proper thread hole into the enclosure for installation.

Product no. / Dimensions

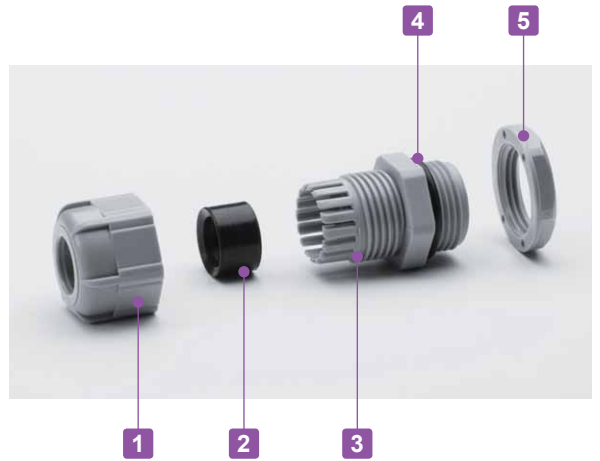
Product no.		G		Cable range		L	H Max	SW	A	Pack of
● Black	● Light gray	Thread size	Mounting hole	Min	Max					
RM8S-2.5B	RM8S-2.5S	M8×1.25	—	1	2.5	7.5	19.5	11.8	13.5	1
RM8L-2.5B	RM8L-2.5S	M8×1.25	$\Phi 8.2$	1	2.5	13	19.5	11.8	13.5	1
RM8S-4B	RM8S-4S	M8×1.25	—	2.5	4	7.5	19.5	11.8	13.5	1
RM8L-4B	RM8L-4S	M8×1.25	$\Phi 8.2$	2.5	4	13	19.5	11.8	13.5	1
RM10S-6B	RM10S-6S	M10×1.5	—	3	6	8	20.5	13	14.4	1
RM10L-6B	RM10L-6S	M10×1.5	$\Phi 10.2$	3	6	13	20.5	13	14.4	1
RM12S-7B	RM12S-7S	M12×1.5	$\Phi 12.2$	3.5	7	9	20.5	16	17.6	1
RM12L-7B	RM12L-7S	M12×1.5	$\Phi 12.2$	3.5	7	14.5	20.5	16	17.7	1
RM16S-8B	RM16S-8S	M16×1.5	$\Phi 16.2$	4	8	9	23.5	19	21	1
RM16L-8B	RM16L-8S	M16×1.5	$\Phi 16.2$	4	8	15	24	19	21	1
RM20S-12B	RM20S-12S	M20×1.5	$\Phi 20.2$	6	12	10	29	24	26.2	1
RM20L-12B	RM20L-12S	M20×1.5	$\Phi 20.2$	6	12	15	28.5	24	26.2	1
RM25L-17B	RM25L-17S	M25×1.5	$\Phi 25.2$	11	17	15	35	33	36.2	1
RM32L-21B	RM32L-21S	M32×1.5	$\Phi 32.3$	13	21	15	38	36	39.5	1
RM40L-27B	RM40L-27S	M40×1.5	$\Phi 40.3$	18	27	18	43.5	45.7	50.5	1
RM50L-38B	RM50L-38S	M50×1.5	$\Phi 50.4$	27	38	20	50.5	60	66.5	1
RM63L-44B	RM63L-44S	M63×1.5	$\Phi 63.4$	37	44	20	53	68	75.5	1
RM8L-2.5B-P	RM8L-2.5S-P	M8×1.25	$\Phi 8.2$	1	2.5	13	19.5	11.8	13.5	100
RM8L-4B-P	RM8L-4S-P	M8×1.25	$\Phi 8.2$	2.5	4	13	19.5	11.8	13.5	100
RM10L-6B-P	RM10L-6S-P	M10×1.5	$\Phi 10.2$	3	6	13	20.5	13	14.4	100
RM12S-7B-P	RM12S-7S-P	M12×1.5	$\Phi 12.2$	3.5	7	9	20.5	16	17.6	100
RM12L-7B-P	RM12L-7S-P	M12×1.5	$\Phi 12.2$	3.5	7	14.5	20.5	16	17.7	100
RM16S-8B-P	RM16S-8S-P	M16×1.5	$\Phi 16.2$	4	8	9	23.5	19	21	100
RM16L-8B-P	RM16L-8S-P	M16×1.5	$\Phi 16.2$	4	8	15	24	19	21	100
RM20S-12B-P	RM20S-12S-P	M20×1.5	$\Phi 20.2$	6	12	10	29	24	26.2	100
RM20L-12B-P	RM20L-12S-P	M20×1.5	$\Phi 20.2$	6	12	15	28.5	24	26.2	100
RM25L-17B-P	RM25L-17S-P	M25×1.5	$\Phi 25.2$	11	17	15	35	33	36.2	100

RPG SERIES

POLYAMIDE CABLE GLAND

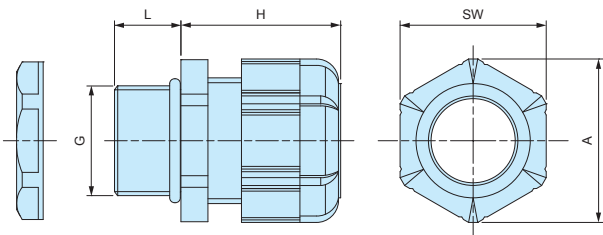


IP67



- Inexpensive cable glands made from polyamide material with PG threading.
- High oil resistant NBR rubber sealing and O-ring.
- IP67 protection class.

RPG dimensions



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

Components

■ PA = Polyamide

No.	Part name	Material
1	Cap	PA66 UL94V-2
2	Sealing insert	NBR
3	Connector	PA66 UL94V-2
4	O-Ring	NBR
5	Lock-nut	PA66 UL94V-2

Technical Data

Protection class: IP67
Operating temperature: -20°C ~ +80°C

Product no. / Dimensions

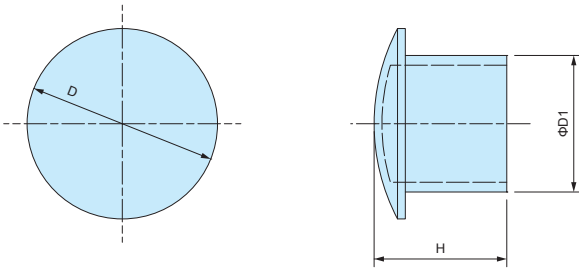
Product no.		G			Cable range		L	H Max	SW	A	Pack of
● Black	● Gray	Thread size	Thread dia.	Mounting hole	Min	Max					
RPG7-7B	RPG7-7G	PG7	12.5	Φ12.7	3	7	9	20.5	16	17.7	1
RPG9-8B	RPG9-8G	PG9	15.2	Φ15.4	4	8	9	23.5	19	21	1
RPG11-10B	RPG11-10G	PG11	18.6	Φ18.8	5	10	9	26	22	24	1
RPG13.5-11B	RPG13.5-11G	PG13.5	20.4	Φ20.6	6	11	10	29	24	26.4	1
RPG16-14B	RPG16-14G	PG16	22.5	Φ22.7	8	14	10	30	26.7	29.5	1
RPG21-18B	RPG21-18G	PG21	28.3	Φ28.5	13	18	12	35	33	36.5	1
RPG29-25B	RPG29-25G	PG29	37	Φ37.2	18	25	12	41.5	42	46.5	1

SP SERIES

SEALING PLUG



SP dimensions



■ Material : Nylon

- Sealing plug for cable glands when not in use.
- Maintain a waterproof seal when plugged into the sealing insert on cable glands.

Product no. / Dimensions

Product no.	D	D1	H	Suitable cable glands	Pack of
SP-12	10.2	6	15.5	RMW12, RM12, RMW16, RM16, RPG7, RPG9	10
SP-16	15.6	9.5	15.5	RMW20, RM20, RPG11, RPG13.5	10
SP-20	19.6	13.5	16.5	RPG16	10
SP-25	24.4	17.5	17	RMW25, RM25, RMW32, RM32, RPG21	5
SP-40	32.5	24.5	17.5	RMW40, RM40, RPG29	5
SP-50	47.2	38.9	17.6	RMW50, RM50	5

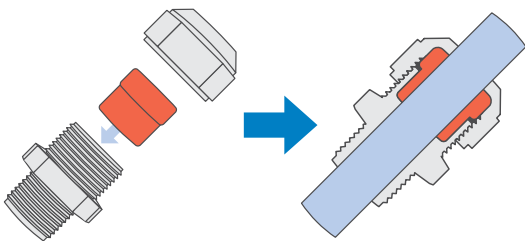


- High water protection IP68 (1bar / 30min) polyamide cable gland.
- Wide selection, for M8 ~ M50, suitable for $\Phi 2.5\text{mm} \sim \Phi 42\text{mm}$ cable.
- Super tough and superior heat resistant PA6GF (glass fiber filled PA6) material on cap and connector.
- Safer halogen free, eco-friendly product.

Technical Data
Protection class: IP68 1bar / 30min
Operating temperature: -20°C ~ +100°C
Compliant with EN50262 Ver. A

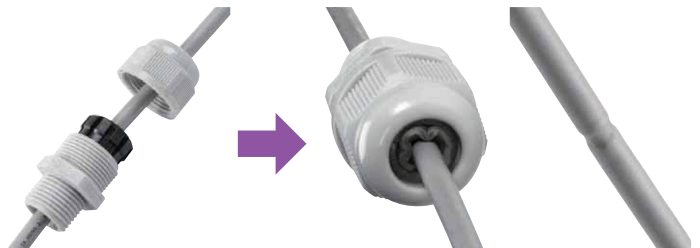
AG Series

Thicker sealing insert evenly hold a cable by having a larger holding area.
Remains durable even after repeated tightening / loosening.



Lamellar insert type

If over-tightened, it can cause the rubber bush or cable to deform, which can allow water to seep in.



Components

■ PA6GF = Polyamide6 Glass Fiber Filled

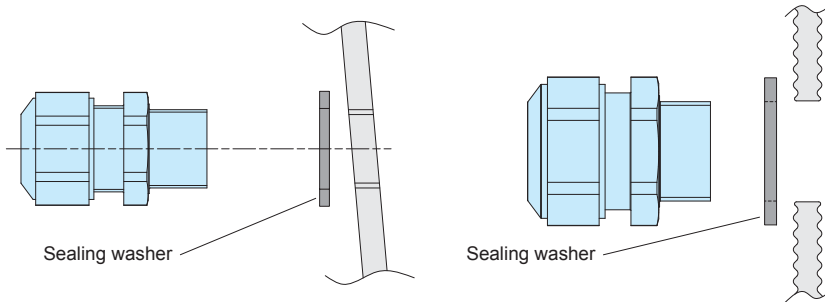
No.	Part name	Material
1	Cap	PA6GF
2	Sealing insert	TPE
3	Connector	PA6GF
4	Lock nut	PA6

- Lock nut is not included for M8 and M10 sizes.
Please drill a proper thread hole into the enclosure for installation.

- Proper tightening torque varies by each cable diameter.
Tighten the cap until top of the sealing insert forms a small bead between the cap and the cable.

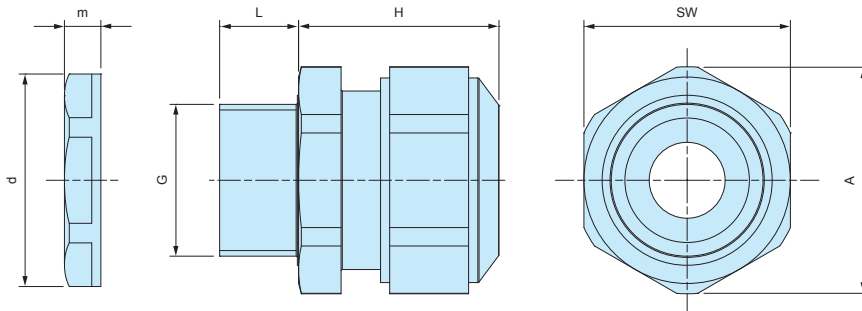


- No optional sealing washer is required when installing on an even surface because of the built-in waterproof rib.
- An optional sealing washer is required when installing on an uneven surface. (See page AGP-1 for more information on the optional sealing washer)



AG dimensions

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



- Lock nut is not included for M8 and M10 sizes. Please drill a proper thread hole into the enclosure for installation.

Product no. / Dimensions

Product no.		G		Cable range		L	H Max	SW	A	d	m	Pack of
● Black	● Light gray	Thread size	Mounting hole	Min	Max							
AG8-3.5B	AG8-3.5S	M8×1.0	—	2.5	3.5	10	17	12	13.2	—	—	1
AG8-5B	AG8-5S	M8×1.0	—	3.5	4.7	10	17	12	13.2	—	—	1
AG10-6B	AG10-6S	M10×1.0	—	4	6	10	19	15	16.5	—	—	1
AG12-5B	AG12-5S	M12×1.5	Φ12.2	3.5	4.7	12	23.5	17	18.7	18.8	5	1
AG12-6.5B	AG12-6.5S	M12×1.5	Φ12.2	5	6.5	12	23	17	18.7	18.8	5	1
AG12-8B	AG12-8S	M12×1.5	Φ12.2	6.5	7.8	12	23	17	18.7	18.8	5	1
AG16-10B	AG16-10S	M16×1.5	Φ16.2	8	10	12	26	21	23.1	24.3	5	1
AG20-15B	AG20-15S	M20×1.5	Φ20.2	11	15	13	27	27	29.7	29	6	1
AG25-16B	AG25-16S	M25×1.5	Φ25.2	12.5	16	13	34	34	37.4	36	6.7	1
AG25-20B	AG25-20S	M25×1.5	Φ25.2	16	20	13	34	34	37.4	36	6.7	1
AG32-25.5B	AG32-25.5S	M32×1.5	Φ32.3	21	25.5	15	36	41	45.6	46	8	1
AG40-28.5B	AG40-28.5S	M40×1.5	Φ40.3	24	28.5	15	41	50	55.4	53.5	9	1
AG40-33B	AG40-33S	M40×1.5	Φ40.3	28.5	33	15	41	50	55.4	53.5	9	1
AG50-37B	AG50-37S	M50×1.5	Φ50.4	33	37	16	45	60	65.5	66	9.6	1
AG50-42B	AG50-42S	M50×1.5	Φ50.4	37	42	16	45	60	65.5	66	9.6	1

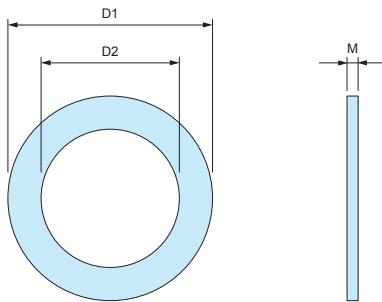
AGP SERIES

SEALING WASHER for AG • AGSP



- Sealing washer for AG series.
- Made from oil resistant NBR material.
- Use in the case of installation on a rough or uneven surfaces.
- Selectable in 7 sizes (from M12 to M50)
- Sealing washer is not necessary for installation on flat surfaces.

AGP Dimensions



- Material : NBR

Product no. / Dimensions

Product no.	D1	D2	M	Suitable cable gland	Pack of
AGP-12	20	12	1.6	AG12	10
AGP-16	23.5	16.5	2.0	AG16	10
AGP-20	29	20	2.0	AG20	10
AGP-25	37	25	2.0	AG25	10
AGP-32	44	32	2.2	AG32	5
AGP-40	52	40	2.2	AG40	5
AGP-50	64	50	3.1	AG50	5

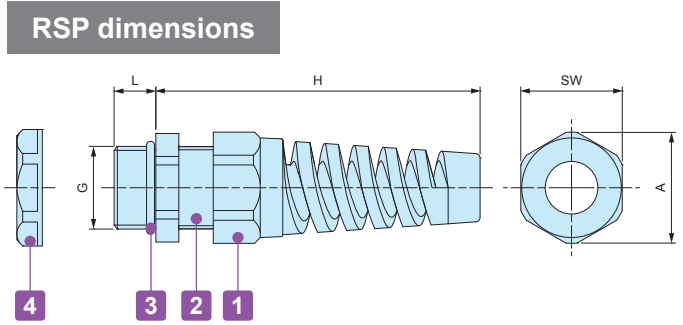
RSP SERIES

STRAIN RELIEF CABLE GLAND



IP67

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



Technical Data
Protection class : IP67 Temperature range -20°C ~ +80°C

Components

■ PA = Polyamide

No.	Part name	Material
1	Strain relief cap	PA66 (UL94V-2)
-	Sealing insert	NBR
2	Connector	PA66 (UL94V-2)
3	O-ring	NBR
4	Lock- nut	PA66 (UL94V-2)

Product no. / Dimensions

Product no.		G		Cable range		L	H Max	SW	A	Pack of
● Black	● Light gray	Thread size	Mounting hole	Min	Max					
RSP12-6B	RSP12-6S	M12×1.5	φ12.2	3.5	6	9	62	16	17	1
RSP16-8B	RSP16-8S	M16×1.5	φ16.2	4	8	9	69	19.5	21	1
RSP20-11B	RSP20-11S	M20×1.5	φ20.2	6	11	10	82	24	26	1
RSP25-16B	RSP25-16S	M25×1.5	φ25.2	11	16	12	102	33	36	1

AGM SERIES

METAL CABLE GLAND

IP68



- High water protection IP68 (1bar / 30min) metal cable gland.
- Wide selection, for M6 ~ M50 and PG7 ~ PG16.
Suitable for $\Phi 2$ mm ~ $\Phi 42$ mm cable.

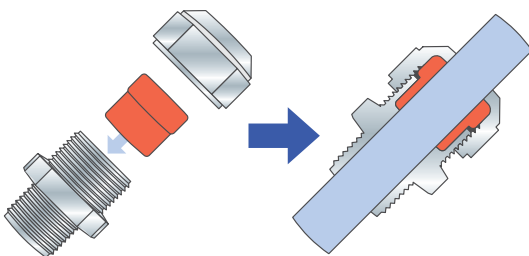
Technical Data
Protection class: IP68 1bar / 30min
Operating temperature: -40°C ~ +100°C
Compliant with EN50262 Ver. A

AGM Series

Thicker sealing insert evenly hold a cable by having a larger holding area. Remains durable even after repeated tightening / loosening.

Lamellar insert type

If over-tightened, it can cause the rubber bush or cable to deform, which can allow water to seep in.



- Proper tightening torque varies by each cable diameter.
Tighten the cap until top of the sealing insert forms a small bead between the cap and the cable.

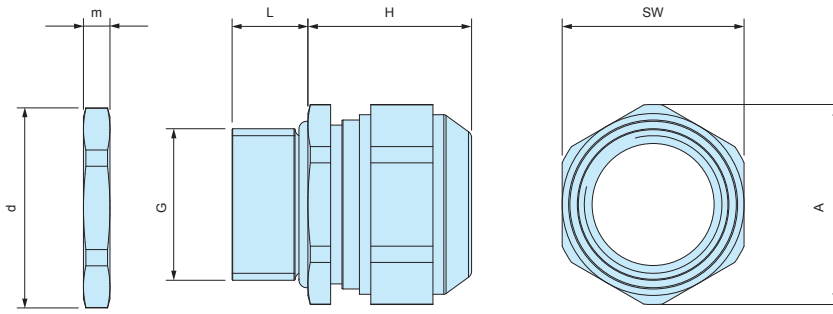


Components

No.	Part name	Material	Color / Finish
1	Cap	Brass	Nickel plated
2	Sealing insert	TPE	Black
3	Connector	Brass	Nickel plated
-	O-ring	NBR	Black
4	Lock nut	Brass	Nickel plated

AGM dimensions

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



Product no. / Dimensions

Product no.	G			Cable range		L	H Max	SW	A	d	m	Pack of
	Thread size	Thread outer dia.	Mounting hole	Min	Max							
AGM6-2.5	M6×1.0	—	Φ6.2	2	2.5	8	12	8	9	10	2.8	1
AGM6-3	M6×1.0	—	Φ6.2	2.5	3.0	8	12	8	9	10	2.8	1
AGM6-3.5	M6×1.0	—	Φ6.2	3.0	3.5	8	12	8	9	10	2.8	1
AGM8-5	M8×1.25	—	Φ8.2	3.5	4.7	10	14	11	12	12	3	1
AGM10-6	M10×1.5	—	Φ10.2	4.0	6.0	10	15	13	14.3	14	2.8	1
AGM12-8	M12×1.5	—	Φ12.2	6.5	8.0	10	17	15	16.5	16.5	2.8	1
AGM16-10.5	M16×1.5	—	Φ16.2	8.0	10.5	10	21	18	20	21	3	1
AGM20-15	M20×1.5	—	Φ20.2	11.0	15.0	10	23	24	26.5	26.5	3.5	1
AGM25-20	M25×1.5	—	Φ25.2	16.0	20.0	11	28	30	33	33	4	1
AGM32-25.5	M32×1.5	—	Φ32.3	21.0	25.5	13	29.5	36	39.5	39.5	4	1
AGM40-28.5	M40×1.5	—	Φ40.3	24.0	28.5	13	32	46	50.7	51	5	1
AGM40-33	M40×1.5	—	Φ40.3	28.5	33.0	13	32	46	50.7	51	5	1
AGM50-37	M50×1.5	—	Φ50.4	33.0	37.0	14	34	55	59.7	60	5.5	1
AGM50-42	M50×1.5	—	Φ50.4	37.0	42.0	14	34	55	59.7	60	5.5	1
AGM7PG-5	PG7	12.5	Φ12.7	3.5	5.0	6	17	15	16.5	16.5	3	1
AGM9PG-6	PG9	15.2	Φ15.4	4.5	6.0	6	20	18	20	20	3	1
AGM11PG-8.5	PG11	18.6	Φ18.8	5.5	8.5	6	21	21	23	23.5	3	1
AGM13PG-11	PG13	20.4	Φ20.6	8.0	11.0	6	21	24	26.5	25.5	3	1
AGM16PG-14.5	PG16	22.5	Φ22.7	11	14.5	6	23	24	26.5	29	3	1

PMF-6B

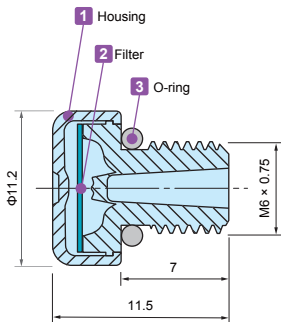
SMALL PROTECTIVE VENT



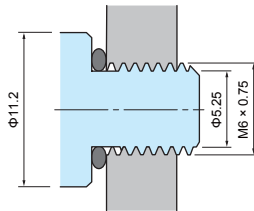
Application example

- Small and screw-in protective vent suitable for compact, and hand-held type devices.
- IP68 protection class (water depth 2 meters / 60 mins) and -40°C ~ +150°C operating temperature range allows it to be used in various environments.
- Suitable for enclosures with capacities of 2.0 litres or under.
- For outdoor use, installation on the side of the enclosure unit is recommended.

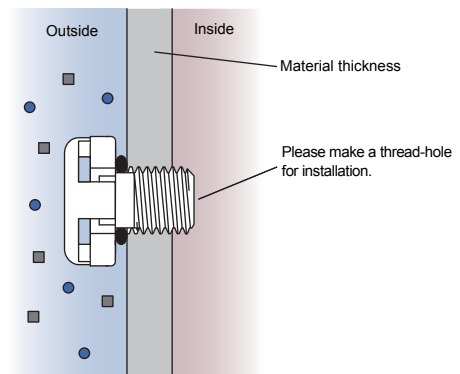
PMF-6B dimensions



Hole milling drawings



Installation drawings



Technical Data

Airflow	300ml / min (dp = 7 kPa)
Recommended Torque	0.2 ~ 0.4 N • m
Certifications	IEC60529 (Protection class test) : IP66 • IP67 • IP68 IEC60068-2-1, 2, 14 (Heat resistance test) : -40°C ~ +150°C IEC60068-2-78 (Humidity test) : 85°C • 85% humidity • 1000 hours IEC60068-2-64 (Vibration test) UL94V-0 (Flame-resistant) • UL746C f1

Product no. / Dimensions

Product no.	Material			G	
● Black	1 Housing	2 Filter	3 O-ring	Thread size	Mount hole
PMF-6B	PA6 (Body) • PA66 (Cap)	PTFE	Silicone	M6 x 0.75	—

PMF-12M

STAINLESS STEEL PROTECTIVE VENT

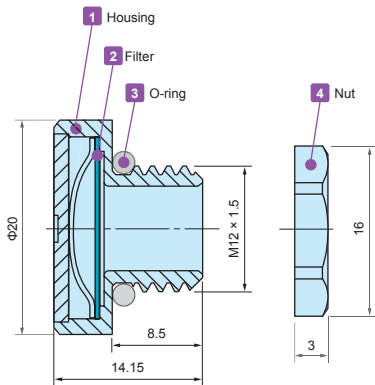
★ ★ NEW

IP68 IP69K

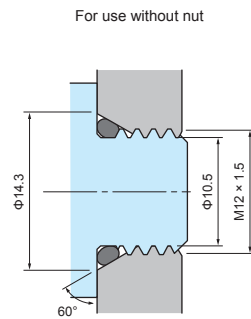


- Stainless steel protective vent for superior durability and chemical resistance.
- IP68 protection class (water depth 2 meters / 60 mins) and -40°C ~ +125°C operating temperature range allows it to be used in various environments.
- Suitable for enclosures with capacities of 20 liters or under.
- For outdoor use, installation on the side of the enclosure unit is recommended.

PMF-12M dimensions

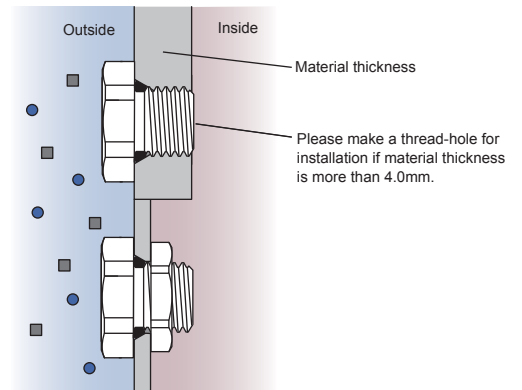


Hole milling drawings



- While φ12.2mm through-hole is sufficient for installation, 60° angle tapered hole is recommended to prevent deformation of the O-ring.

Installation drawings



- If used with a lock nut, material thickness should not exceed 4.0mm.

Technical Data

Airflow	1600ml / min (dp = 7 kPa)
Recommended Torque	0.6 ~ 1.2 N · m
Certifications	IEC60529 (Protection class test) : IP66 • IP67 • IP68 • IP69K IEC60068-2-1, 2, 14 (Heat resistance test) : -40°C ~ +125°C IEC60068-2-78 (Humidity test) : 85°C • 85% humidity • 1000 hours IEC60068-2-64 (Vibration test)

Product no. / Dimensions

Product no.	Material				G		Nut SW
	1 Housing	2 Filter	3 O-ring	4 Nut	Thread size	Mount hole	
PMF-12M	Stainless steel	PTFE	Silicone	Brass • Nickel plated	M12 x 1.5	φ12.2	15

PMF SERIES

PROTECTIVE VENT

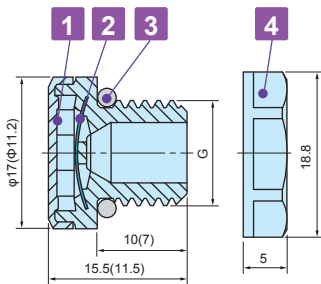


Application example

- Protective vents prevents the ingress of a variety of contaminants, such as water, dust and other particules while allowing water vapor molecules to diffuse through the microporous membrane.
- Equalize pressure and reduce condensation by allowing airflow into and out of sealed enclosures.
- With an IP68 protection class (water depth 2 meters / 60 mins) and -40°C ~ +125°C operating temperature range, it can be used in harsh environmental conditions.
- PMF-6B works up to 2 liters capacity enclosures. Whereas, PMF-12 models work for up to 5 liters and PMF-12HS models work for up to 50 liters.
- For outdoor use, more efficient to install on the side(s).
- Recommended to use for industrial, electric, electronics purpose only.

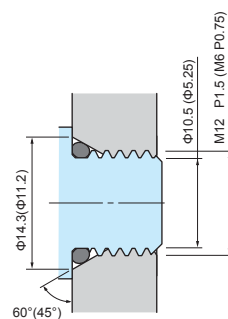
PMF dimensions

■ Drawings below are reference examples only.
DXF/DWG/PDF drawings available on our website.



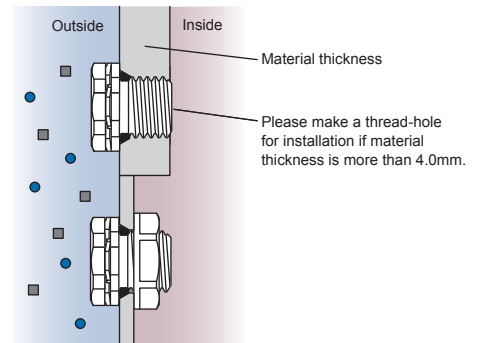
() values are for PMF-6B.
Lock nut is not available for PMF-6B.

Hole milling drawings



■ While $\Phi 12.2\text{mm}$ through-hole is sufficient for installation, 60° angle tapered hole is recommended to prevent deformation of the O-ring.

Installation drawings



■ If used with a lock nut, material thickness should not exceed 4.0mm, and $\Phi 12.2\text{mm}$ through-hole is sufficient.

Technical Data

Product no.	PMF-6B	PMF-12	PMF-12HA
Airflow	300ml / min (dp = 7 kPa)	450ml / min (dp = 7 kPa)	4000ml / min (dp = 7 kPa)
Recommended Torque	0.2 ~ 0.4 N · m	0.6 ~ 0.8 N · m	0.6 ~ 0.8 N · m
Certifications	IEC60529 (Protection class test): IP66 • IP67 • IP68 • IP69K (Not for PMF-6B) IEC60068-2-1, 2, 14 (Heat resistance test): - 40°C ~ +125°C (~+150°C for PMF-6B) IEC60068-2-78 (Humidity test): 85°C • 85% humidity • 1000 hours IEC60068-2-64 (Vibration test) (PMF-6B only) UL94V-0 (Flame-resistant) • UL746C f1		

Product no. / Dimensions

Product no.		Material				G		Nut SW
● Light gray	● Black	1 Housing	2 Filter	3 O-ring	4 Lock nut	Thread size	Mount hole	
—	NEW PMF-6B	PA6 (Body) PA66 (Cap)	PTFE	Silicone	n/a	M6 x 0.75	—	—
PMF-12S	PMF-12B	PA6	PTFE	Silicone	PA6 (UL94V-2)	M12 x 1.5	$\Phi 12.2$	17
PMF-12HAS	PMF-12HAB	PA6	PTFE	Silicone	PA6 (UL94V-2)	M12 x 1.5	$\Phi 12.2$	17

PMF-32 SERIES

LARGE PROTECTIVE VENT

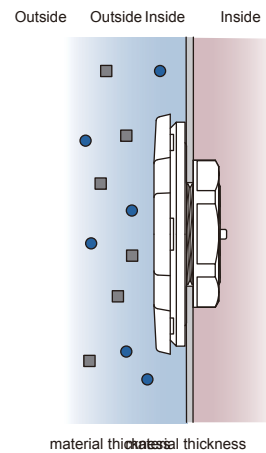
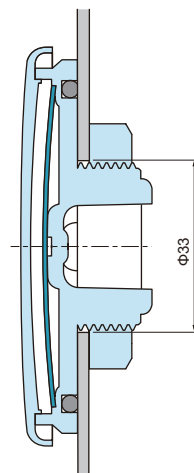
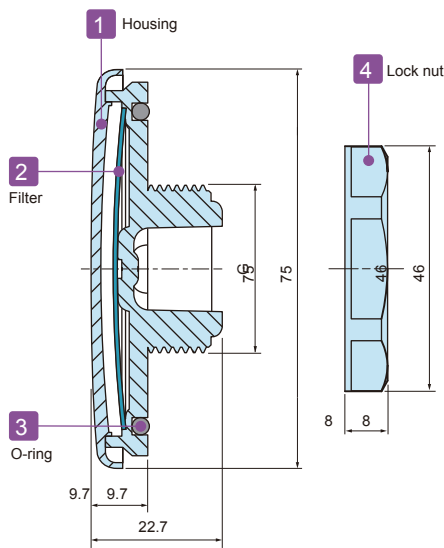


- Maintaining high airflow for large enclosures in an outdoor environment.
- Equalize pressure and reduce condensation by allowing airflow into and out of sealed enclosures.
- Simple and flat design allows it to be used on a wide variety of enclosure types.
- IP68 protection class rated with an operating temperature range of -40°C ~ +125°C allows it to be used in harsh environments.
- Compliant with Solar industry testing IEC62108 standards.
- For superior performance, installation on the side of the enclosure is recommended.

PMF-32 Dimensions

Hole milling drawings

Installation drawings



■ If used with a lock nut, material thickness should not exceed 5.0mm.

Technical Data

Airflow	16 ℓ / min (dp = 12 mbar)
Recommended torque	5 N · m
Certifications (without nut)	IEC529, 2nd (Protection class test): IP66 • IP67 • IP68 • IP69K IEC60068-2-1, 2, 14 (Heat resistance test): - 40°C ~ +125°C IEC60068-2-78 (Humidity test): 85°C • 85% humidity • 1000 hours IEC62108.10.8 • 9 (Solar industry test): Freezing - high temperature test • Hail impact test UL94V-0 (Flame-resistant) • UL746C

Product no. / Dimensions

Product no.	Material				G		Nut SW
	1 Housing	2 Filter	3 O-ring	4 Lock nut	Thread size	Mount hole	
PMF-32S	PC	PTFE	Silicone	PA6	M32×1.5	Φ33	41.5

VSC SERIES

ADHESIVE PROTECTIVE VENT FILTER



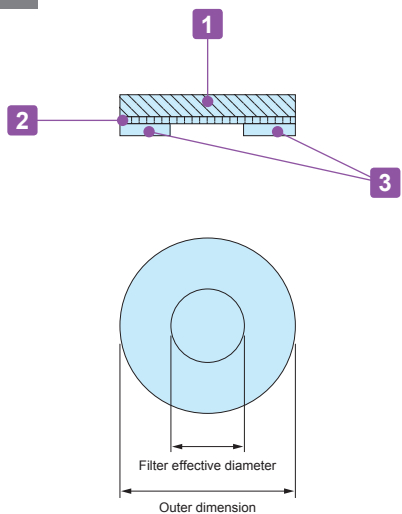
Technical Data
Water Entry Pressure (WEP): $\geq 20.0\text{kPa}$
Airflow: $450\text{cc}/\text{cm}^2 \cdot \text{min}$ at 1.29Kpa

- Prevents ingress of a variety of contaminants, such as water, dust and other particles.
- Allows water vapor molecules to diffuse through the microporous membrane.
- Recommended to be adhered onto flat plastic or metallic surfaces.

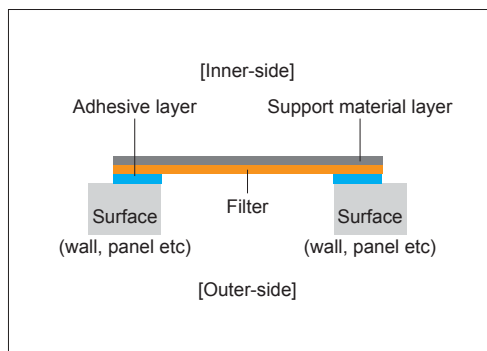
NOTE

- Surface must be wiped dry before adhering.
- An initial period of a few hours is required for the adhesive to properly bond to the surface.
- Please do not adhere onto the top-side of enclosures. Rain water etc will collect on the filter, which will weaken the adhesive seal and prevent ventilation.

Drawing



Installation drawing



Components

No.	Part name	Material	Color
1	Adhesive	Acrylic adhesive	Transparent
2	Filter	PTFE	White
3	Support material	Polyester fabric	White

Product no. / Dimensions

Product no.	Outer dimension (Φ)	Filter effective diameter (Φ)	Thickness	Sales unit
VSC075	7.5	4.0	0.35	5 pcs (per pack)
VSC130	13.0	8.0	0.35	4 pcs (per pack)
VSC240	24.0	16.0	0.35	4 pcs (per pack)
VSC075-S	7.5	4.0	0.35	100 pcs (per sheet)
VSC130-S	13.0	8.0	0.35	56 pcs (per sheet)
VSC240-S	24.0	16.0	0.35	20 pcs (per sheet)

DIGITAL PRINTED OVERLAY



3 reasons for low initial costs

Reason 1



Cutting process



Avoiding the cost for cutting die manufacturing via our in-house cutting plotter.

Reason 2

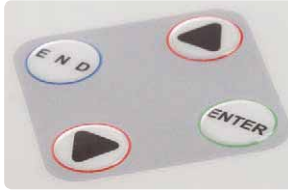


Printing process



Saving the cost for print plates via utilization of our in-house digital inkjet printer.

Reason 3



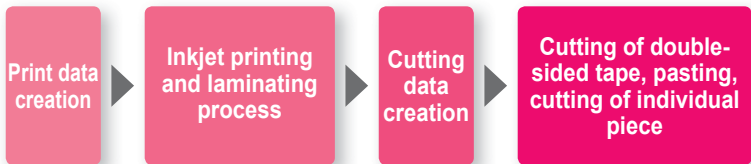
Embossing process



Reducing the cost for the embossing die via our new die manufacturing process.

Comparison of current and previous manufacturing methods

Current



Previous



PRODUCTION PROCESS



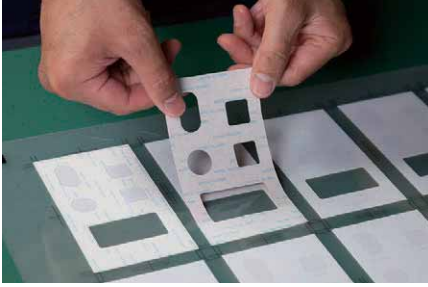
1. Inkjet printing on film



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

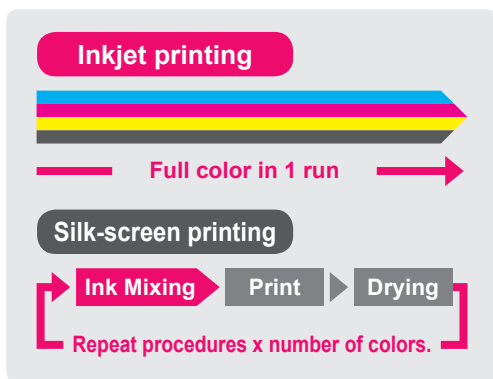
CUSTOMIZATION EXAMPLE



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

Inkjet printing 1 run only for full color print

Printing cost Full color

Silk-screen printing Printing cost x number of colors

Printing cost Color 1	Printing cost Color 2	Printing cost Color 3	Printing cost Color 4
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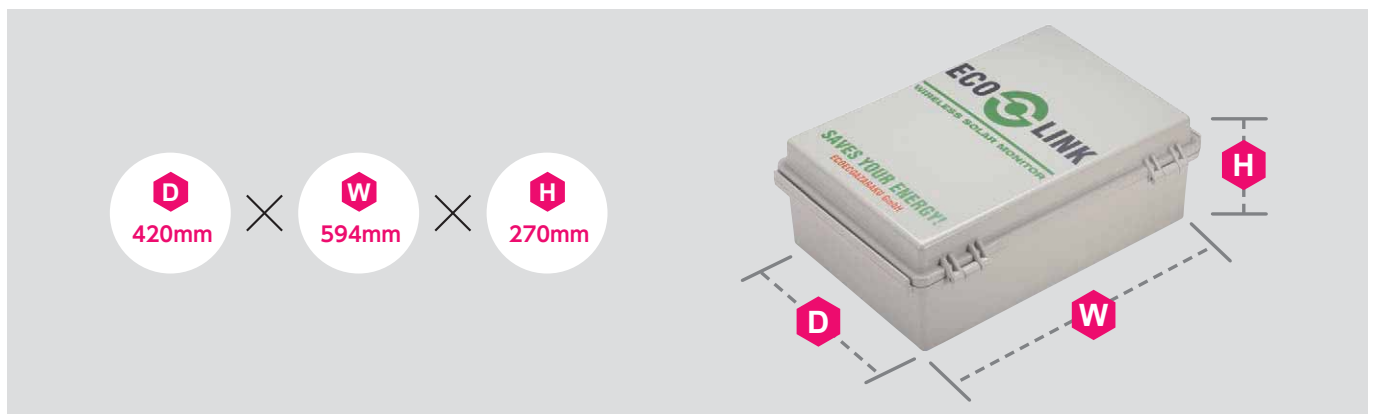
High quality printing of photo image and color gradation.

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.



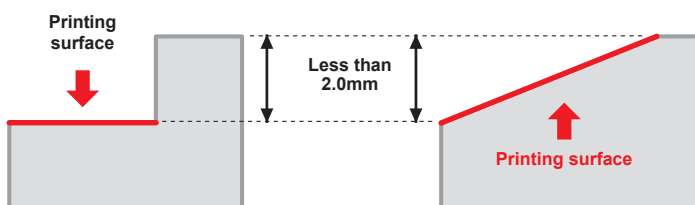
Maximum printable enclosure size



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.

