

AW • AWN • AWP series

IP68 ALUMINIUM ENCLOSURE

AW • AWN • AWP series are highly functional aluminium enclosures which are IP68 (24 hours / 1m depth immersion) 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

Waterproof Boating Network Modular System



GNSS Receiver



Heavy Duty Portable Hardness Tester



LoRa Wan Gateway



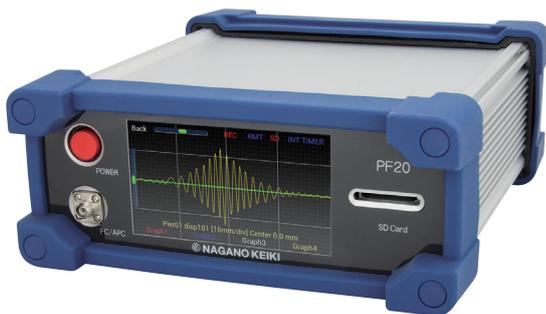
Radio-Control Electronic Exploder



Pin Hole Detector



FBG Data Logger



Data Logger with 3G Modem Report Function



Custom Length Available

Flexible frame length from 50mm to 700mm in 0.1mm intervals.

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

See our website for further details.



AWN series

IP68 HEAT-SINK ALUMINIUM ENCLOSURE



- IP68 and heat dissipation enclosure design. Selectable in both Normal and EMC Shielded type.
- The extruded aluminium frame and diecast aluminium panels make it extremely suitable to be used in harsh environments where waterproofing and heat dissipation is essential.
- PCB or chassis can be mounted by sliding it horizontally into inner-grooved body frame.
- Suitable for measuring instruments, industrial control boxes, industrial camera housings, and other applications.

Technical Data
Protection class : IP68 (24 hours/1m depth)
Operating temperature : -40°C ~ +105°C
Recommended torque : 1.0N • m

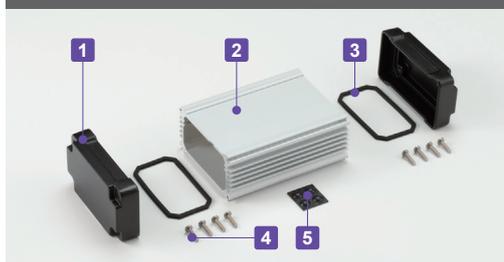
Normal N type Components

No.	Part name	Pcs	Material	Color / Finish
1	End panel	2	Diecast aluminium ADC12	Metallic gray • Black / Powder coated
2	Body frame	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized with clear coating
3	Gasket	2	Silicone	Black
4	Screw	8	Stainless steel	Unfinished
5	Rubber feet	4	Polyurethane	Black

EMC Shielded E type 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 with clear coating
3	Gasket	2	Conductive silicone	Black
4	Screw	8	Stainless steel	Unfinished
5	Rubber feet	4	Polyurethane	Black

Normal - N type



Color type



Metallic gray / Silver

N	G	S
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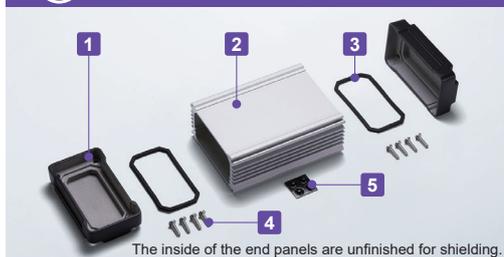
Black / Silver

N	B	S
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Black / Black

N	B	B
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EMC Shielded - E type



Color type



Silver / Silver

E	S	S
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Black / Silver

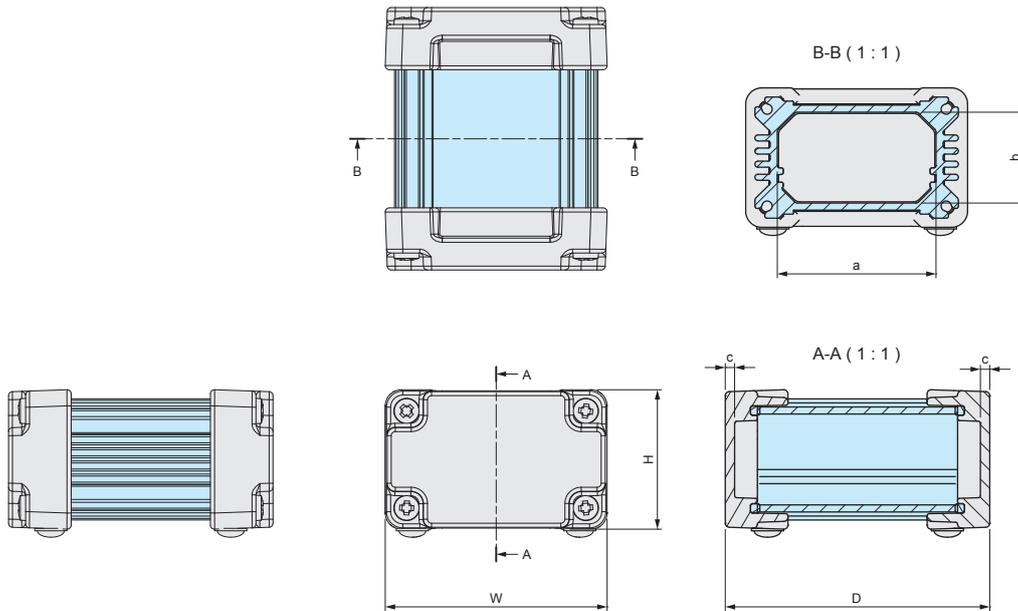
E	B	S
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Black / Black

E	B	B
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AWN dimensions

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



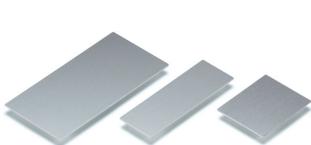
Product no. / Details

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

Product no.	W	H	D	a	b	c	Weight (g)
AWN 5-4- 7□□□	54.6	34.6	65	39	22.5	2.3	118.5
AWN 5-4- 9□□□	54.6	34.6	85	39	22.5	2.3	139
AWN 5-4-11□□□	54.6	34.6	110	39	22.5	2.3	165
AWN 5-4-14□□□	54.6	34.6	135	39	22.5	2.3	191.5
AWN 7-7- 8□□□	65.8	65.8	80	47	51	2.5	272.5
AWN 7-7-11□□□	65.8	65.8	110	47	51	2.5	328
AWN 7-7-15□□□	65.8	65.8	150	47	51	2.5	402.5
AWN 7-7-20□□□	65.8	65.8	200	47	51	2.5	495
AWN 7-7-25□□□	65.8	65.8	250	47	51	2.5	588
AWN 8-5- 9□□□	80.8	45.8	90	62	31	2.5	259.5
AWN 8-5-12□□□	80.8	45.8	115	62	31	2.5	300.5
AWN 8-5-14□□□	80.8	45.8	140	62	31	2.5	342
AWN 8-5-18□□□	80.8	45.8	175	62	31	2.5	399.5
AWN 9-9-10□□□	86.3	86.3	100	66.5	66.5	3	521.5
AWN 9-9-13□□□	86.3	86.3	125	66.5	66.5	3	594.5
AWN 9-9-17□□□	86.3	86.3	170	66.5	66.5	3	725.5
AWN 9-9-22□□□	86.3	86.3	220	66.5	66.5	3	871.5
AWN 9-9-28□□□	86.3	86.3	275	66.5	66.5	3	1,032
AWN11-6-11□□□	106.3	56.3	110	86.5	36.5	3	479.5
AWN11-6-15□□□	106.3	56.3	150	86.5	36.5	3	578
AWN11-6-19□□□	106.3	56.3	190	86.5	36.5	3	676.5
AWN11-6-24□□□	106.3	56.3	240	86.5	36.5	3	800
AWN12-8-11□□□	120	71.3	105	100.2	51.5	3	590.5
AWN12-8-14□□□	120	71.3	140	100.2	51.5	3	696.5
AWN12-8-17□□□	120	71.3	179.5	100.2	51.5	3	816
AWN12-8-22□□□	120	71.3	215	100.2	51.5	3	923.5
AWN16-9-14□□□	156.3	81.3	135	136.5	61.5	3	871.5
AWN16-9-18□□□	156.3	81.3	175	136.5	61.5	3	1,018.5
AWN16-9-23□□□	156.3	81.3	225	136.5	61.5	3	1,201.5
AWN16-9-28□□□	156.3	81.3	275	136.5	61.5	3	1,385
AWN21-9-17□□□	206.3	81.3	170	186.5	61.5	3	1,261
AWN21-9-21□□□	206.3	81.3	210	186.5	61.5	3	1,431.5
AWN21-9-26□□□	206.3	81.3	260	186.5	61.5	3	1,644.5
AWN21-9-31□□□	206.3	81.3	310	186.5	61.5	3	1,857.5

■ Custom length is available.

Accessories (Optional parts)



Mounting plate AWC series
See page 166



Hexagon socket head screw HCS series
See page 166



Cable gland
See page 181 ~ 193



Silicone protector AWSP series
See page 165



Technical Data
Protection class : IP68 (24 hours/1m depth)
Operating temperature : -40°C ~ +105°C
Recommended torque : 1.0N • m



- Strong impact resistant enclosure with tough silicone boot protectors.
- Specifically designed with heat dissipation effect, EMC shielding and IP68 rating.
- PCB or chassis can be horizontally mounted by sliding into an inner-grooved body frame.
- Available in 25 sizes and 6 different color combinations. Selectable from a total of 150 different combinations.
- Suitable for measuring instruments, industrial control boxes, industrial camera housings, and other applications.

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 with clear coating
3	Protector	2	Silicone	Black • Gray • Navy
4	Conductive gasket	2	Conductive silicone	Black
5	Spacer	8	Resin	White
6	Blind cap	8	Silicone	Black • Gray • Navy
7	Screw	8	Stainless steel	Unfinished

■ AWP series utilizes AWN series E type enclosures.
If N type is required, kindly purchase the enclosure and silicone protector separately.

Color Type



Product no. / Details

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

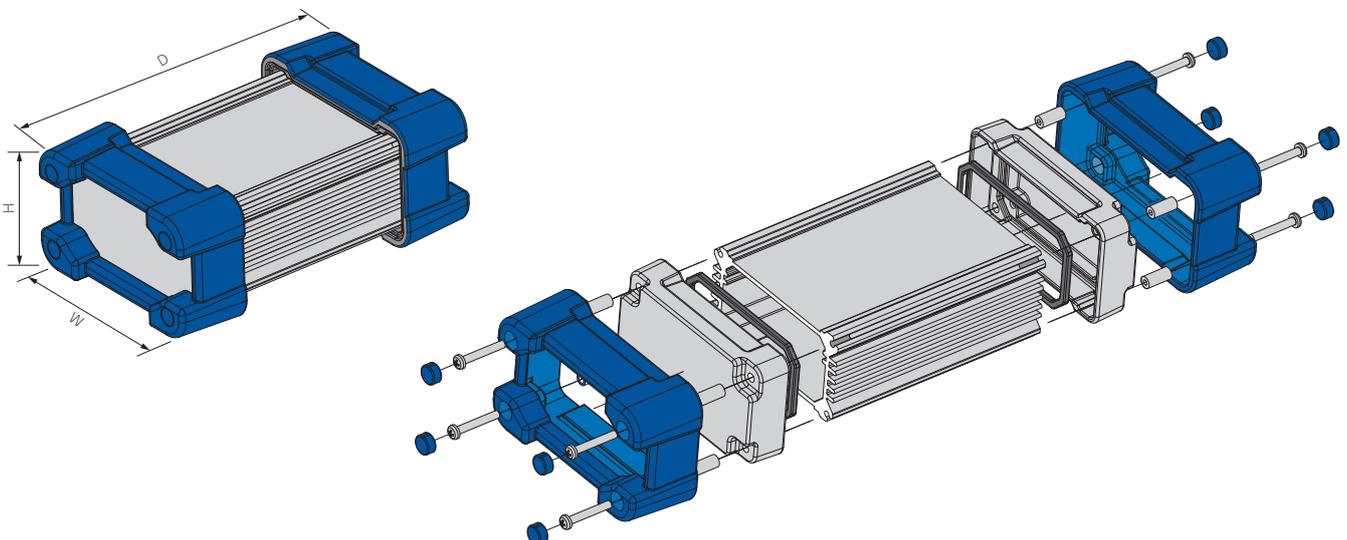
Product no.	W	H	D	※Thermal resistance rate (°C/W)	Weight (g)
AWP 8-5- 9□□	87.4(80.8)	53.6(45.8)	114 (90)	5.97	353.5
AWP 8-5-12□□	87.4(80.8)	53.6(45.8)	139(115)	5.01	394.5
AWP 8-5-14□□	87.4(80.8)	53.6(45.8)	164(140)	4.37	436
AWP 8-5-18□□	87.4(80.8)	53.6(45.8)	199(175)	3.76	493.5
AWP 9-9-10□□	93.9(86.3)	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.

- ※ 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.

AWP dimensions

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



AWSP series

SILICONE PROTECTOR for AWN



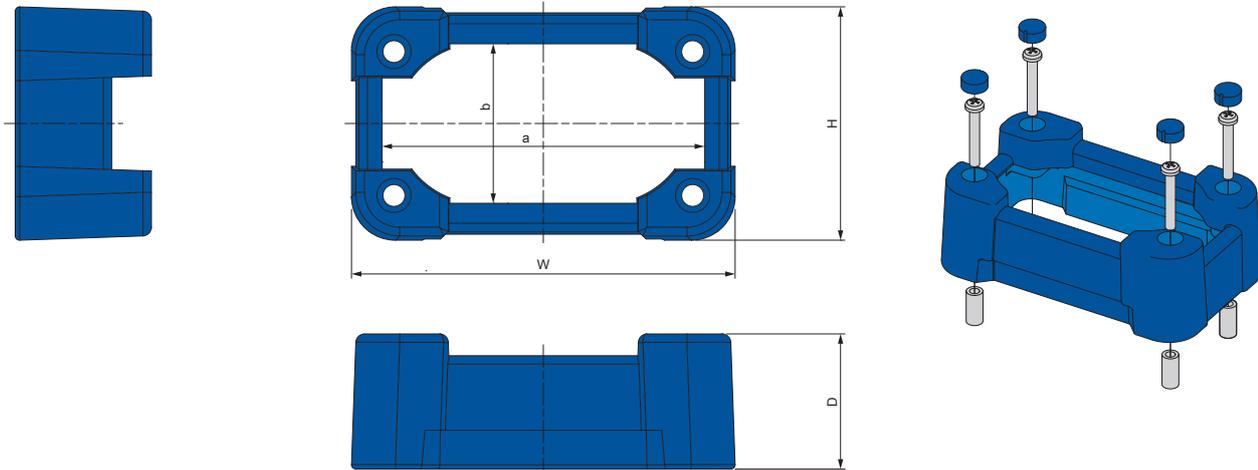
Color Type

Code	B Black	G Gray	N Navy
Color			

■ Silicone protector for AWN series.

AWSP dimensions

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



Components

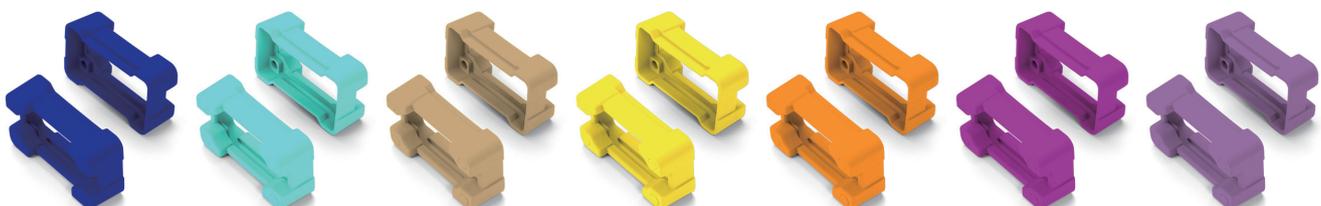
No.	Part name	Pcs	Material	Color / Finish
1	Protector	2	Silicone	Black • Gray • Navy
2	Blind cap	8	Silicone	Black • Gray • Navy
3	Spacer	8	POM	White
4	Screw	8	Stainless steel	Unfinished

Product no. / Details

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

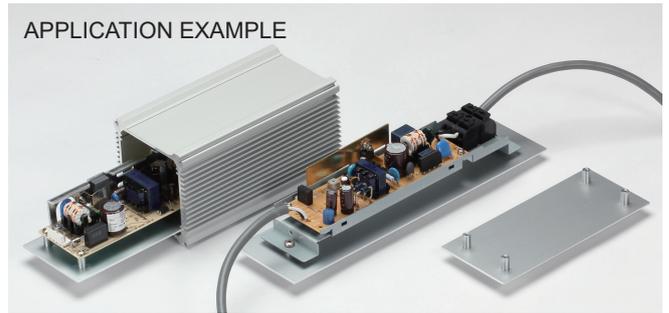
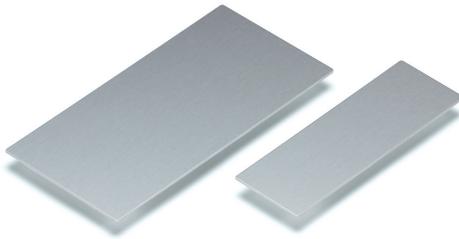
Product no.	W	H	D	a	b	Screw size	Suitable models	Weight (g)
AWSP 8-5□	87.4	53.6	31	73.4	36.6	M3	AWN 8-5-□	100.5
AWSP 9-9□	93.9	95.1	35.5	76.9	75.1	M4	AWN 9-9-□	184.5
AWSP11-6□	113.9	65.1	35.5	96.9	45.1	M4	AWN11-6-□	186
AWSP12-8□	127.6	80.1	35.5	110.6	60.1	M4	AWN12-8-□	201
AWSP16-9□	163.9	90.1	35.5	145.9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

■ Protect switches and/or connectors on end panels from impact when dropped, etc. Custom color is available from just 1 set. For 250 sets or more, manufacturing costs will be similar to a standard color. Please inquire for more details. For custom color order, please specify **PANTONE®** color code.



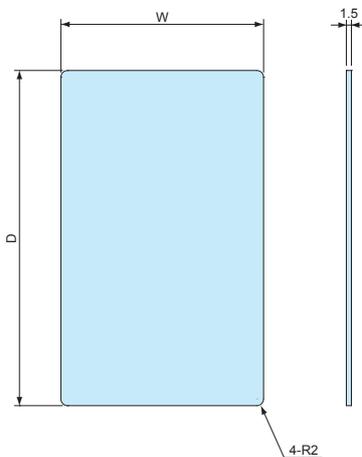
AWC series

ALUMINIUM MOUNTING PLATE for AW • AWN • AWP • AWA



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

AWC dimensions



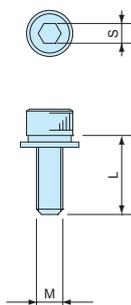
- DXF/DWG/PDF drawings available on our website.

Product no. / Details

Product no.	W	D	Suitable models
AWC 5- 7	38.9	49.2	AW • AWN 5-4- 7
AWC 5- 9	38.9	69.2	AW • AWN 5-4- 9
AWC 5-11	38.9	94.2	AW • AWN 5-4-11
AWC 5-14	38.9	119.2	AW • AWN 5-4-14
AWC 7- 8	47	64	AW • AWN 7-7- 8 • AWA 6-6- 7
AWC 7-11	47	94	AW • AWN 7-7-11 • AWA 6-6-10
AWC 7-15	47	134	AW • AWN 7-7-15 • AWA 6-6-14
AWC 7-20	47	184	AW • AWN 7-7-20 • AWA 6-6-19
AWC 7-25	47	234	AW • AWN 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 for AW • AWN



- 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. / Details

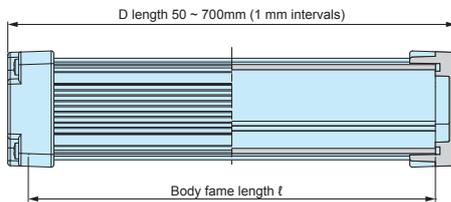
Product no.	M	L	S	Material	Pack of
HCS3-12S	3	12	2.5	Stainless steel	8
HCS4-12S	4	12	3	Stainless steel	8
HCS5-12S	5	12	4	Stainless steel	8

1 Dimensions

To select W-H dimensions from the table below, and D length in 1mm intervals.

55-35 (W-H)	66-66 (W-H)	81-46 (W-H)	86-86 (W-H)	106-56 (W-H)
Same as AWN5-4-□	Same as AWN7-7-□	Same as AWN8-5-□	Same as AWN9-9-□	Same as AWN11-6-□
120-71 (W-H)	156-81 (W-H)	206-81 (W-H)		
Same as AWN12-8-□	Same as AWN16-9-□	Same as AWN21-9-□		

D length



- D length can be requested in 0.1mm intervals, but with higher tolerances (± 0.3 mm).
- *D length may vary due to expansion and contraction of gasket from screw tightening
- Refer to the chart on AW-Frame-2 for body frame length l .

2 Shielding • Color

To select a type and color code from the table below.

Normal - N Type			EMC Shielded - E type	
Metallic gray / Silver N G S	Black / Silver N B S	Black / Black N B B	Silver / Silver E S S	Black / Black E B B

3 Screw

To select screw type.

Plus or Hex screw can be selected.



EMC Shielded - E type equipped with painted panels (unfinished inside) and conductive gasket.

Product Number

To determine a product number, fill W-H and D, select Shielding • Color code and Screw type in the following blank boxes.

Product no. AWNS - -

1 W-H
1 D length
2 Shielding type
2 Color code
3 Screw type

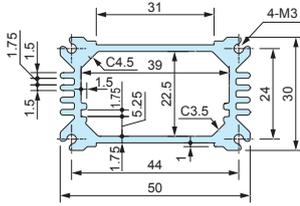
Numbering example: W-H:106-56 x D:123, EMC type, SS color code and Hex screw type

➔ **AWNS106-56-123ESSH**

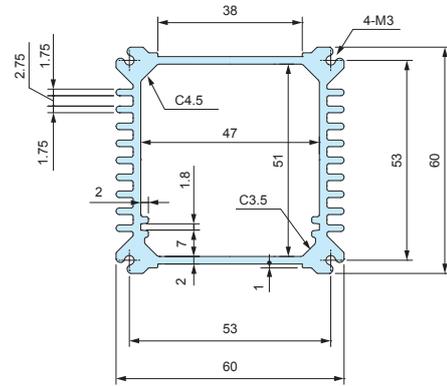
Cross-section view of frame

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

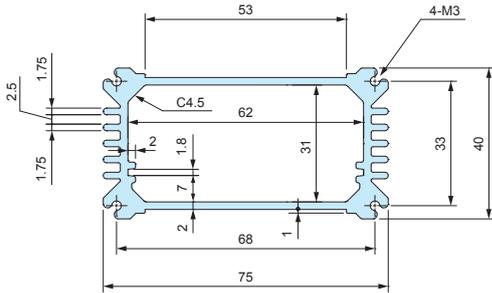
- AWS55-39-□
- AWNS55-35-□
- AWAS52-32-□



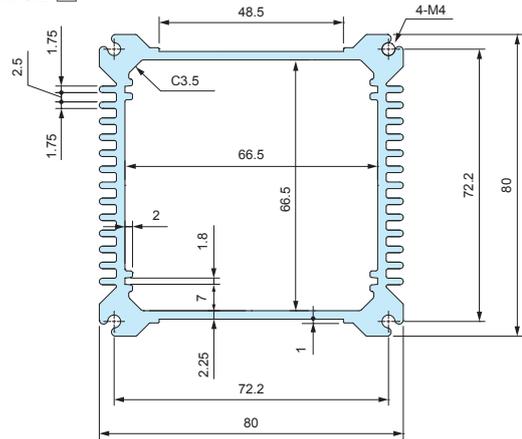
- AWS66-71-□
- AWNS66-66-□
- AWAS61-61-□



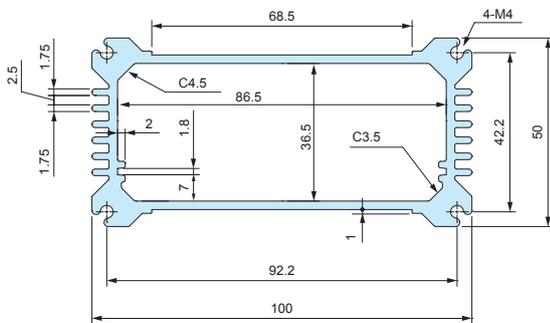
- AWS81-51-□
- AWNS81-46-□
- AWAS76-41-□



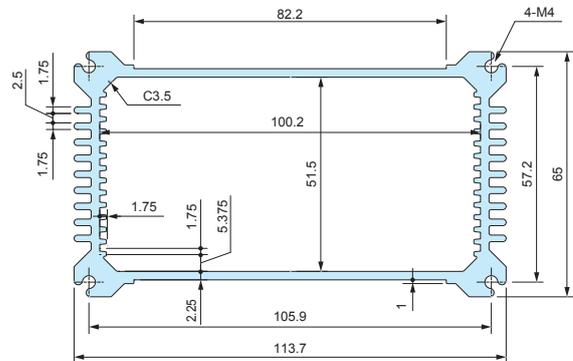
- AWS86-92-□
- AWNS86-86-□
- AWAS82-82-□



- AWS106-62-□
- AWNS106-56-□
- AWAS102-52-□



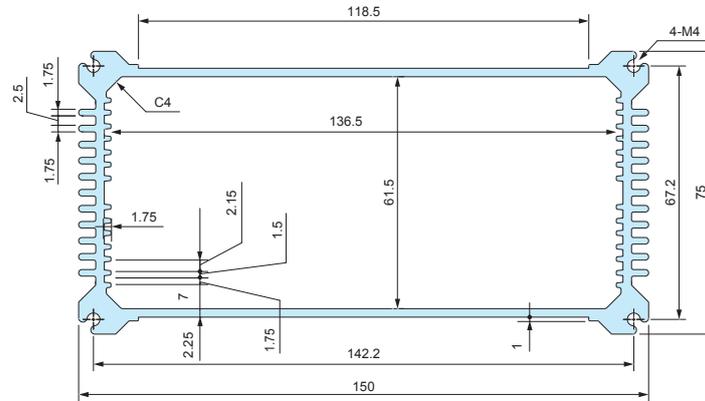
- AWS120-77-□
- AWNS120-71-□
- AWAS116-67-□



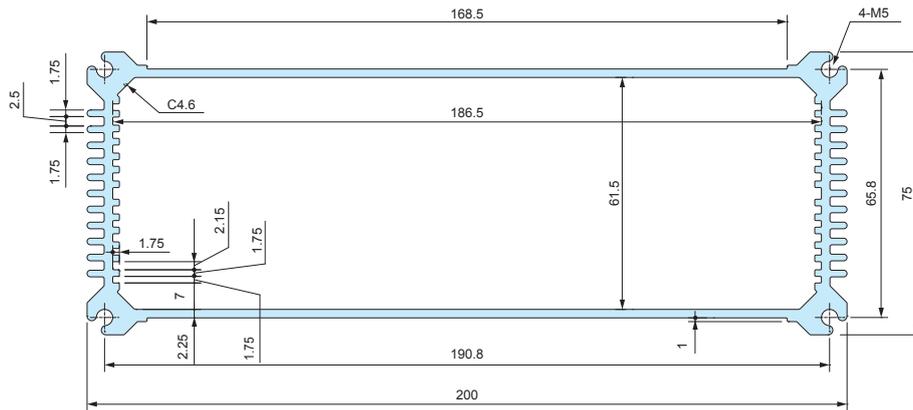
Cross-section view of frame

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

- AWS156-87-□
- AWNS156-81-□
- AWAS152-77-□



- AWS206-87-□
- AWNS206-81-□
- AWAS202-77-□



Product no.	Frame length (ℓ)
AWS55-39-□ AWNS55-35-□	D-15.8
AWS66-71-□ AWNS66-66-□	D-16
AWS81-51-□ AWNS81-46-□	D-16
AWS86-92-□ AWNS86-86-□	D-19
AWS106-62-□ AWNS106-56-□	D-19.4
AWS120-77-□ AWNS120-71-□	D-19.4
AWS156-87-□ AWNS156-81-□	D-19.4
AWS206-87-□ AWNS206-81-□	D-22.2

Product no.	Frame length (ℓ)
AWAS52-32-□	D-4
AWAS61-61-□	D-4
AWAS76-41-□	D-4
AWAS82-82-□	D-5
AWAS102-52-□	D-5
AWAS116-67-□	D-5
AWAS152-77-□	D-5
AWAS202-77-□	D-6

AWSC SERIES CUSTOM SIZED MOUNTING PLATE for AWS • AWNS • AWAS

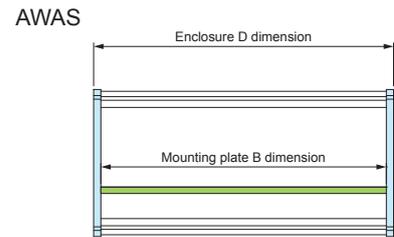
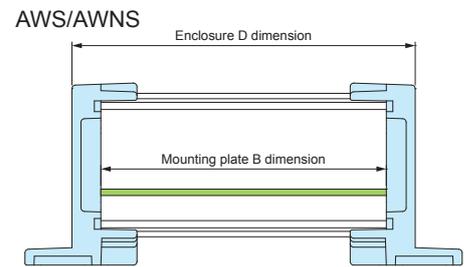
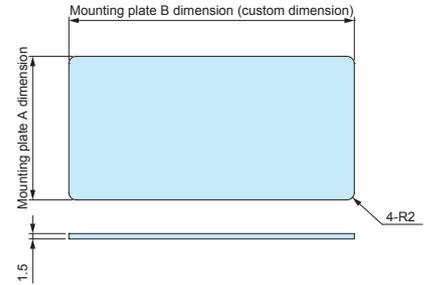


- Adjustable sizes available to be fitted for the custom sized AWS, AWNS or AWAS enclosures.
- Can be slid in and out for easy maintenance access.
- Easily customizable.

■ Material / Finish : Aluminium A1050P / Silver anodized

Mounting plate dimensions

Enclosure W-H product no.	Mounting plate A dimension	Mounting plate B dimension	Enclosure W type
AWS55-39/AWNS55-35	38.9	Enclosure D dimension-15.8	55
AWAS52-32	38.9	Enclosure D dimension-4	52
AWS66-71/AWNS66-66	47	Enclosure D dimension-16	66
AWAS61-61	47	Enclosure D dimension-4	61
AWS81-51/AWNS81-46	61.8	Enclosure D dimension-16	81
AWAS76-41	61.8	Enclosure D dimension-4	76
AWS86-92/AWNS86-86	66.5	Enclosure D dimension-19	86
AWAS82-82	66.5	Enclosure D dimension-5	82
AWS106-62/AWNS106-56	86.5	Enclosure D dimension-19.4	106
AWAS102-52	86.5	Enclosure D dimension-5	102
AWS120-77/AWNS120-71	100.2	Enclosure D dimension-19.4	120
AWAS116-67	100.2	Enclosure D dimension-5	116
AWS156-87/AWNS156-81	136.3	Enclosure D dimension-19.4	156
AWAS152-77	136.3	Enclosure D dimension-5	152
AWS206-87/AWNS206-81	186.1	Enclosure D dimension-22.2	206
AWAS202-77	186.1	Enclosure D dimension-6	202



Confirm Product No. Confirm product code with enclosure W product code and enclosure D dimension.

Mounting Plate Product No. **AWSC** -
 Enclosure W type Enclosure D dimension

Example : Enclosure W-H dimensions (i.e. AWS81-51) = 81-51, Enclosure D dimension = 234mm
AWSC -

Lead time

Custom Size Only 4 business days (1 ~ 10 pcs)
 Custom Size + Hole Milling 8 business days (1 ~ 10 pcs)

Order Inquiry

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

AWSP series

SILICONE PROTECTOR for AWN



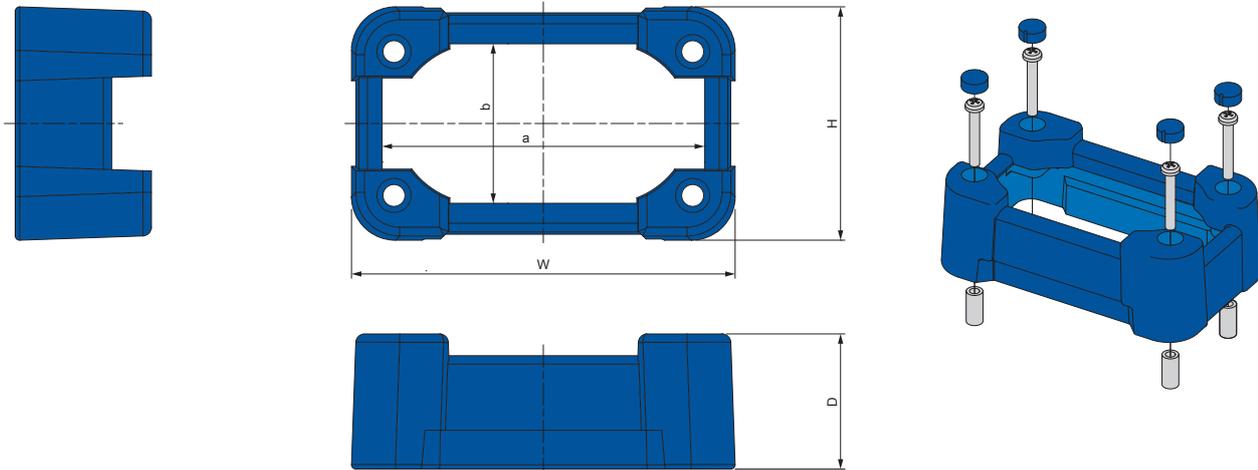
Color Type

Code	B Black	G Gray	N Navy
Color			

■ Silicone protector for AWN series.

AWSP dimensions

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



Components

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

Product no. / Details

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

Product no.	W	H	D	a	b	Screw size	Suitable models	Weight (g)
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

■ Protect switches and/or connectors on end panels from impact when dropped, etc. Custom color is available from just 1 set. For 250 sets or more, manufacturing costs will be similar to a standard color. Please inquire for more details. For custom color order, please specify **PANTONE®** color code.



PMF-12M

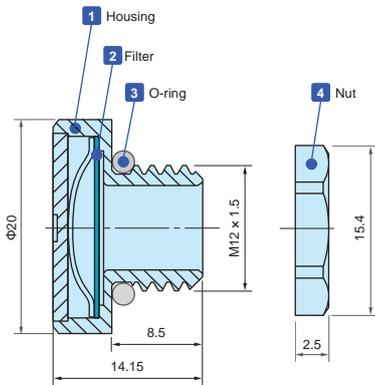
STAINLESS STEEL PROTECTIVE VENT



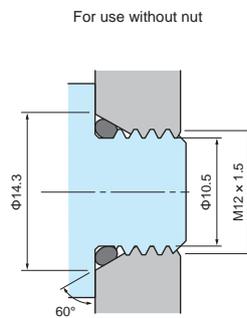
Application example

- 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 litres or under.
- For outdoor use, installation on the side of the enclosure unit is recommended.

PMF-12M dimensions

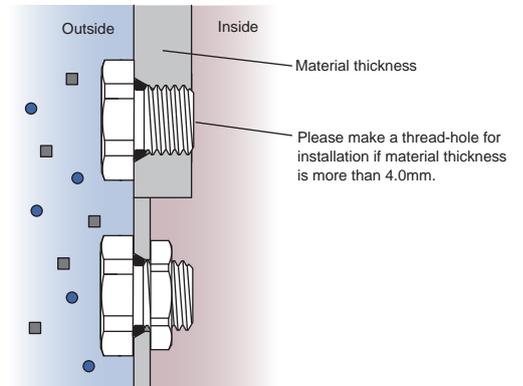


Hole milling drawings



- While $\Phi 12.2$ 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.

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. / Details

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	$\Phi 12.2$	14

PMF series

PROTECTIVE VENT

Pressure Equalization / Ventilation

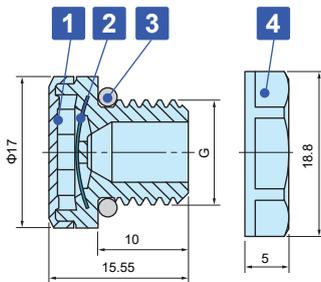


Application Example

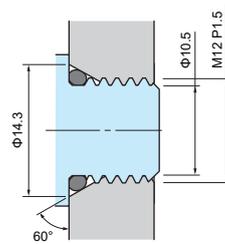
- Protective vent protects the enclosure from deformation by equalizing internal and external pressure differences, as well as venting the gas generated within the enclosure.
- IP68 protection class (water depth 2 meters / 60 mins) with an operating temperature range -40°C ~ +125°C allows them to be used in harsh environments.
- PMF-12 and PMF-12HS models are suitable for up to 5 and 50 liters respectively.
- Recommended to be installed at the sides of the enclosure.
- Use in industrial and electrical / electronic products only; not suitable to be used in medical, food and beverage, and cosmetic industries and related industrial equipment.

PMF dimensions

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

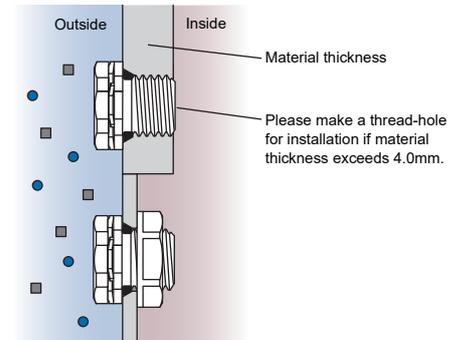


Hole milling drawings



■ Recommended for prevention of O-ring deformation during tightening. If tightened with a lock nut, a standard through-hole is sufficient for installation.

Installation drawings



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

Technical Data

Product no.	PMF-12	PMF-12HA
Airflow	450ml / min (dp = 7kPa)	4,000ml / min (dp = 7kPa)
Recommended torque	0.6 ~ 0.8N · m	0.6 ~ 0.8N · m
Certifications	IEC60529 (Protection class test) : IP65 · 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 · 1,000 hours IEC60068-2-11, 52 (Salt spray test) IEC60068-2-64 (Vibration test) GR-3108-CORE (Corrosive gas test) UL94V-0 (Flame-resistant) · UL746C f1	

Product no. / Details

Product no.		Material				G		Lock nut
● Light gray	● Black	1 Housing	2 Filter	3 O-ring	4 Lock nut	Thread size	Mount hole	SW
PMF-12S	PMF-12B	PA66 / 6	PTFE	Silicone	PA66 (UL94V-2)	M12 x P1.5	Φ12.2	17
PMF-12HAS	PMF-12HAB	PA66 / 6	PTFE	Silicone	PA66 (UL94V-2)	M12 x P1.5	Φ12.2	17

PMF-32S LARGE PROTECTIVE VENT

Pressure Equalization / Ventilation



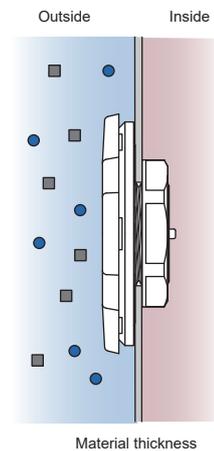
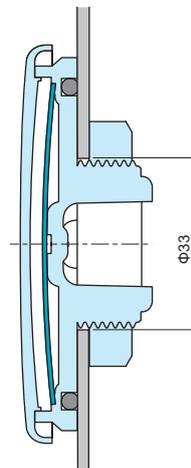
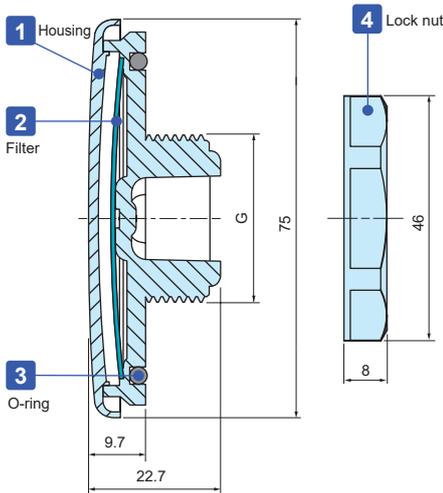
- Maintains exceptionally high airflow in extra-large enclosures with volumes of up to 200 liters in an outdoor environment.
- Protective vent protects the enclosure from deformation by equalizing internal and external pressure differences, as well as venting the gas generated within the enclosure.
- Simple and flat design allows it to be used on a wide variety of enclosure types.
- IP68 protection class rated (water depth 2 meters / 60 mins) 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.
- Recommended to be installed at the sides of the enclosure.
- Use in industrial and electrical / electronic products only; not suitable to be used in medical, food and beverage, and cosmetic industries and related industrial equipment.

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

PMF-32 dimensions

Hole milling drawings

Installation drawings



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

Technical Data

Airflow	16ℓ / min (dp = 1.2kPa)
Recommended torque	5 N · m
Certifications	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 • 1,000 hours IEC60068-2-11, 52 (Salt spray test) IEC60068-2-64 (Vibration test) IEC62108, 10.8 • 9 (Solar industry test) : Freezing • High temperature tes • Hail impact test GR-3108-CORE (Corrosive gas test) UL94V-0 (Flame-resistant) • UL746C f1

Product no. / Details

Product no.	Material				G			Lock nut SW
	1 Housing	2 Filter	3 O-ring	4 Lock nut	Thread size	Thread diameter	Mount hole	
PMF-32S	Polycarbonate	PTFE	Silicone	PA66	M32 x P1.5	Φ32	Φ33	41.5



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

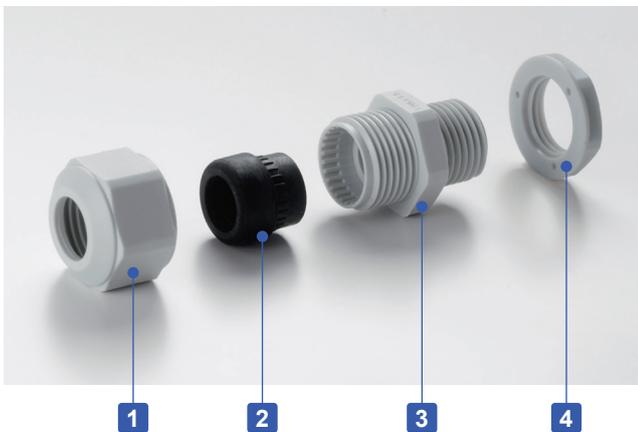
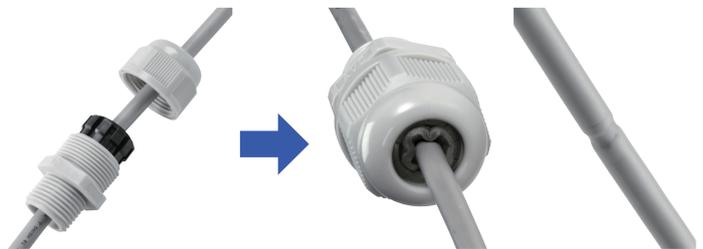
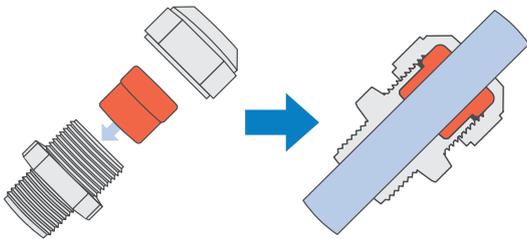
Technical Data
Protection class : IP68 1bar / 30min
Operating temperature : -20°C ~ +100°C
Compliant with EN50262 Ver. A

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

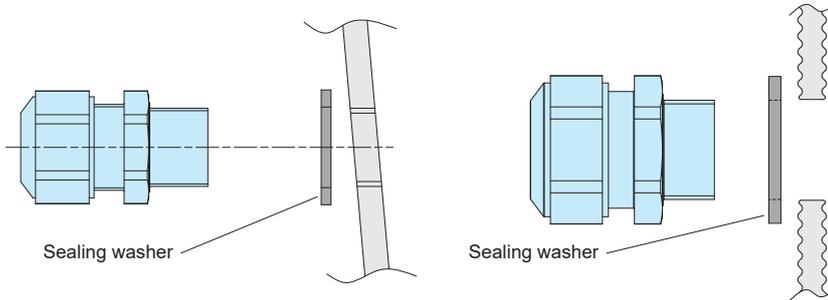
■ Lock nut is not included for M8 and M10 sizes.
Please drill an appropriate thread hole into the enclosure for installation.

- Appropriate 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.



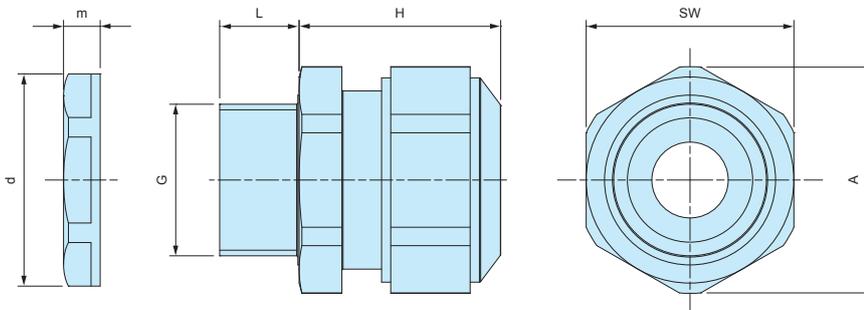
■ No optional sealing washer is required when installing on an even surface because of the built-in waterproof rib.

■ An optional sealing washer is required when installing on an uneven surface. (See website for more information on the optional sealing washer AGP series)



AG dimensions

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



■ Lock nut is not included for M8 and M10 sizes. Please drill an appropriate thread hole into the enclosure for installation.

Product no. / Details

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

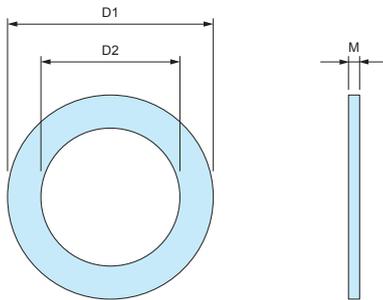
AGP SERIES

SEALING WASHER for AG • AGSP

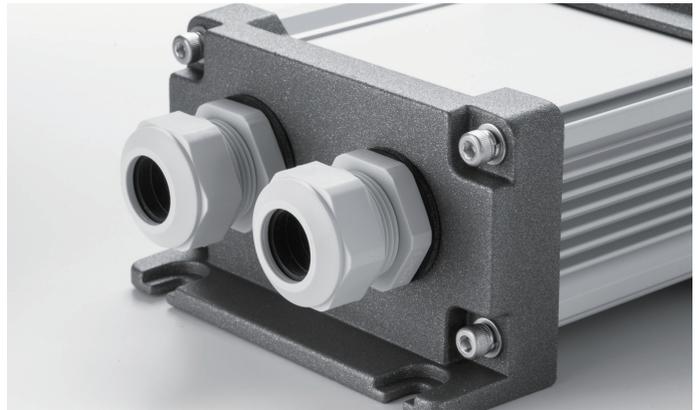


- Sealing washer for AG series.
- Made from oil resistant NBR material.
- Use in the case of installation on a rough or uneven surfaces.
- Selectable in 7 sizes (from M12 to M50)
- Sealing washer is not necessary for installation on flat surfaces.

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



- Economical metal cable gland.
- Equivalent to IP67 protection class.
- Wide selection available from M12 ~ M32.

Technical Data

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

*In-house test

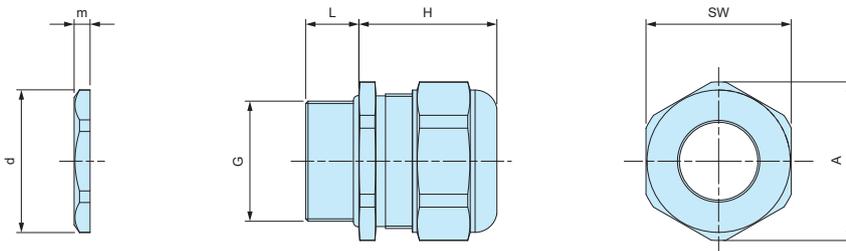


Components

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

RMC dimensions

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



Product no. / Details

Product no.	G		Cable range		L	H Max	SW	A	d	m	Pack of
	Thread size	Mounting hole	Min	Max							
RMC12-6.5	M12×1.5	Φ12.2	5	6.5	10	18	15	16.5	15.4	2.5	1
RMC12-7.5	M12×1.5	Φ12.2	6.5	7.5	10	18	15	16.5	15.4	2.5	1
RMC16-8	M16×1.5	Φ16.2	6.5	8	10	23	18	19.7	19.7	2.8	1
RMC16-10.5	M16×1.5	Φ16.2	8	10.5	10	23	18	19.7	19.7	2.8	1
RMC20-11	M20×1.5	Φ20.2	9.5	11	10	23.5	24	26.4	24.2	3.2	1
RMC20-14.5	M20×1.5	Φ20.2	11	14.5	10	23.5	24	26.4	24.2	3.2	1
RMC25-16	M25×1.5	Φ25.2	14	16	11	28.5	30	33	29.7	3.3	1
RMC25-19	M25×1.5	Φ25.2	16	19	11	28.5	30	33	29.7	3.3	1
RMC32-21	M32×1.5	Φ32.3	18	21	13	30.5	36	39.6	37.4	3.5	1
RMC32-25.5	M32×1.5	Φ32.3	21	25.5	13	30.5	36	39.6	37.4	3.5	1

IP68



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

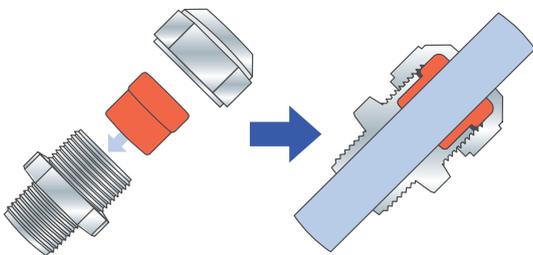
Technical Data
Protection class : IP68 1bar / 30min
Operating temperature : -40°C ~ +100°C
Compliant with EN50262 Ver. A

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.



- Appropriate 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.

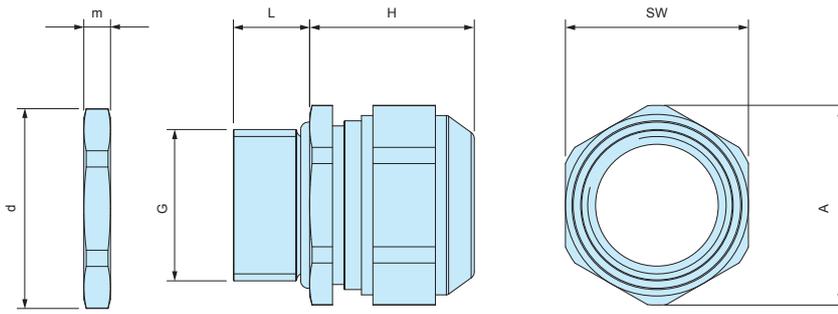


Components

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.



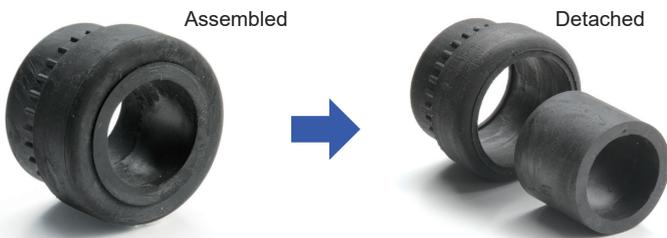
Product no. / Details

Product no.	G		Cable range		L	H Max	SW	A	d	m	Pack of
	Thread size	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



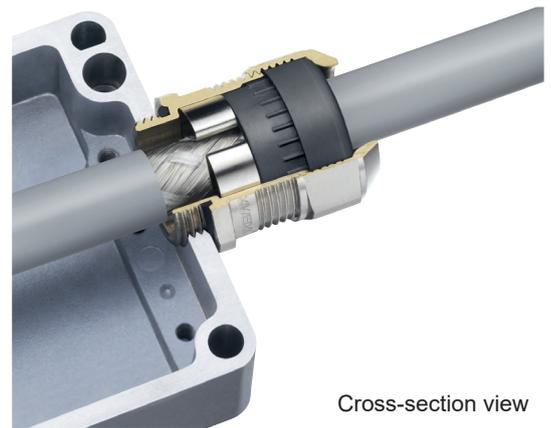
- Optimal contact spring provides excellent shield contact and the smallest possible transfer impedance.
- Clawed lock nut makes a good EMC shield contact possible on conductive enclosures.
- Shape of the contact spring not only allows for a large clamping range to the shield but also enables easy and faster installation and re-installation.
- 2-piece detachable sealing inserts can be adapted to the wider existing cable diameter on site. (AGE12 available only with 1-piece sealing insert)

Technical Data	
Protection class : IP68 2bar / 30min, IP69K	
Operating temperature : -60°C ~ +100°C	
Compliant with IEC62444 Var. A	



Cable Range

No.	Sealing insert type	
	Assembled	Detached
AGE16-10.5	Φ 6 ~ Φ 7.5	Φ 7.5 ~ Φ10.5
AGE20-15	Φ 8 ~ Φ10.5	Φ10.5 ~ Φ15
AGE25-20	Φ12.5 ~ Φ15	Φ15 ~ Φ20
AGE32-25	Φ17 ~ Φ20	Φ20 ~ Φ25

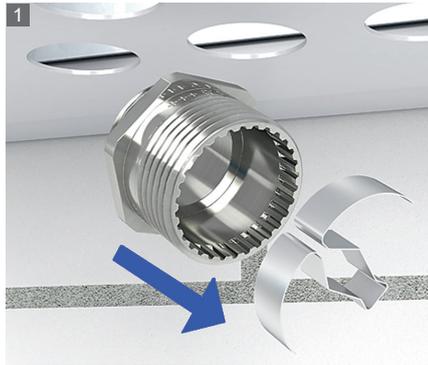


Cross-section view

Components

No.	Part name	Material	Color / Finish
1	Cap	Brass	Nickel plated
2	Sealing insert	TPE	Black
3	Connector	Brass	Nickel plated
4	Contact spring	Stainless steel	Unfinished
-	O-Ring	NBR	Black
5	Lock-nut	Brass	Nickel plated

INSTALLATION Instruction



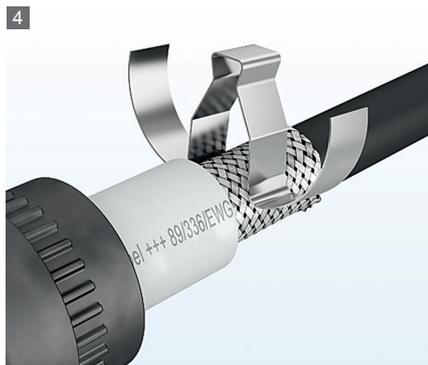
Remove the contact spring from the connector.



Install the connector onto the enclosure.



Strip the cable.



Clip the contact spring on the shielded cable.



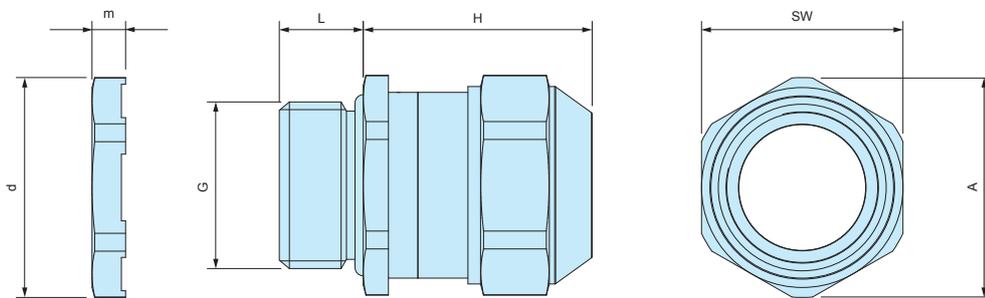
Pass the cable through the sealing insert and cap.



Tighten the cap to complete.

AGE dimensions

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



Product no. / Details

Product no.	G		Cable range		L	H Max	SW	A	d	m	Pack of
	Thread size	Mounting hole	Min	Max							
AGE12-5	M12×1.5	Φ12.2	3.5	5.0	10	22	15	16.5	16.5	3.5	1
AGE12-6.5	M12×1.5	Φ12.2	5.0	6.5	10	22	15	16.5	16.5	3.5	1
AGE16-10.5	M16×1.5	Φ16.2	6.0	10.5	10	25	18	20	21	3.5	1
AGE20-15	M20×1.5	Φ20.2	8.0	15.0	10	27	24	26.5	26.5	4	1
AGE25-20	M25×1.5	Φ25.2	12.5	20.0	11	33	30	33	33	4	1
AGE32-25	M32×1.5	Φ32.3	17.0	25.0	13	34	36	39.5	39.5	5	1

AGH SERIES

HEAT RESISTANT METAL CABLE GLAND

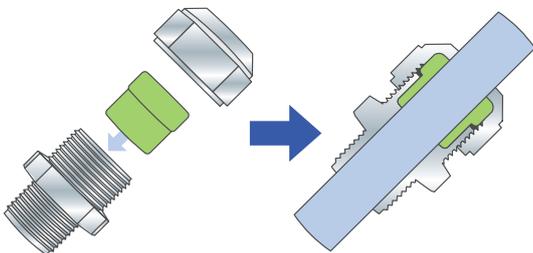


- Heat resistant sealing insert made of FPM material. Resistant up to 200°C
- IP68 1bar / 30min high performance waterproof cable gland.

Technical Data
Protection class : Protection class IP68 1bar / 30min 10m depth immersion in 30 minutes
Operating temperature : -40°C ~ +200°C
Compliant with EN50262 Var. A

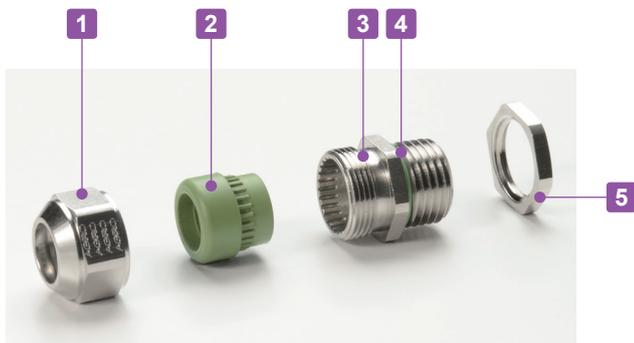
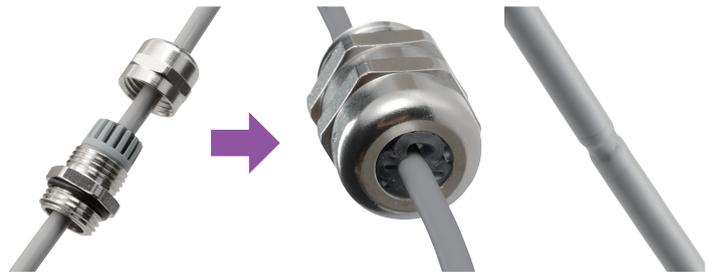
AGH series

Thicker sealing insert evenly clasp onto the cable by having a larger area. Remains durable even after repeated tightening / loosening.



Conventional cable gland

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



- Tightening torque varies depending on the cable diameter. Tighten until the sealing insert protrudes slightly from the cap.

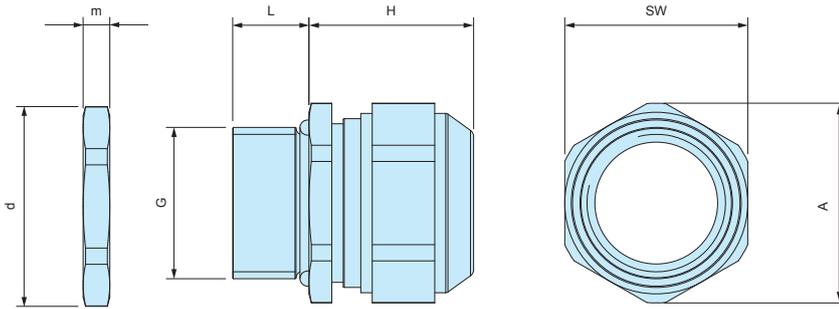


Components

No.	Part name	Material	Color / Finish
1	Cap	Brass	Nickel plated
2	Sealing insert	FPM	Green
3	Connector	Brass	Nickel plated
4	O-Ring	FPM	Green
5	Lock-nut	Brass	Nickel plated

AGH 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	Mounting hole	Min	Max							
AGH10-6	M10×1.5	Φ10.2	4.0	6.0	10	15	13	14.3	14.2	3	1
AGH12-8	M12×1.5	Φ12.2	6.5	8.0	10	17	15	16.5	16.5	3	1
AGH16-10.5	M16×1.5	Φ16.2	8.0	10.5	10	20	18	20	21	3	1
AGH20-15	M20×1.5	Φ20.2	11.0	15.0	10	23	24	26.5	26.3	3.5	1
AGH25-20	M25×1.5	Φ25.2	16.0	20.0	11	27	30	33	33	4	1
AGH32-25.5	M32×1.5	Φ32.3	21.0	25.5	13	28.5	36	39.7	39.7	4	1