

# HSBOX



## Enclosure embracing the world

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## Introduction



Headquarters (Eumseong)



Branch (Siheung)

We have been dedicated to manufacturing electrical enclosures over the past 30 years in Korea. Our product lineup ranges from steel, stainless steel and plastic enclosures to aluminum enclosures.

### Always puts customers first

We always put quality improvement, new product development and cost reduction on our highest priority to satisfy our customers.

### Ready to Supply Make-to-order products

We can supply any kinds of enclosures from standard forms of electrical enclosures to special forms of enclosures based on the customer demands.

### Cares about the environment

We are committed to developing and manufacturing environment-friendly products under the recognition that the environment protection is corporate social responsibility.

### Meets the international standards and quality certifications

We meet the requirements of international standards from IEC and NEMA, and quality management system (KS Q ISO 9001:2015/ISO 9001:2015). In particular, we have been manufacturing products that meet international standards such as UL, TUV and CE.



### Technical Data

HWASIN's globally certified products	p2
IP (Ingress Protection) / UL / NEMA / RoHS	p4
Explosion protection types / Polyurethane gasket	p6

### Plastic & Aluminum Products

Overview of plastic products	p8
N Series - Small size plastic enclosure	p10
Q Series - European style mid size plastic enclosure	p12
F Series - Mid size plastic enclosures	p14
G Series - Cost effective plastic enclosures	p16
ED-AL Series - Aluminum enclosures	p18
EX-DP Series - Explosion protected aluminum enclosures	p19

### Steel & Stainless Steel Products

Overview of steel & stainless steel products	p20
CD/CDU Series - Cost-effective surface mounting enclosure	p21
AC-LP - High-end weather-proof enclosure	p22
ES/EU Series - Cost-effective indoor enclosure	p24
EX-UC Series - Explosion protected junction box	p26
CS/CU Series - Cost effective outdoor enclosure	p28
OS/OU Series - Outdoor double door enclosure	p29
FB/FS/FU Series - Flush mounted enclosure	p30
HS/HU Series - Watertight & airtight enclosure	p31
IP66 & UL (NEMA 4X) certified products	p32
PS Series - Enhanced weatherproof capability	p33
MS Series - Modular structure	p34
SD Series - Modular structure with inner swing door	p36
KP Series - Operational enclosure	p37
DS Series - Desk style   TS/TSU Series - Terminal box with hook clamp	p38
PB Series - Pull box   Base, Support   FH Series - Fire hydrant enclosures	p39
Earthing terminal   Post   Cable gland cap	p40
PG Series - Cable glands	p41
Make-to-order products	p42

## HWASIN's Globally Certified Products

The following description applies to the products certified by international standards.  
For enclosures without the certifications, we can manufacture enclosures in any forms based on your requirements.

### 1. UL (NEMA) certified products

(1) NEMA is standards defined by the National Electrical Manufacturers Association in the US. The association defines the standards for protection degrees of electrical enclosures. UL, one of the most renowned testing and certification bodies in the US, approves electrical enclosure manufacturers with its certifications based on the NEMA standards. Therefore, products with NEMA ratings and UL ratings are basically same even though the markings are different.

(2) NEMA protection ratings

Since protection ratings between NEMA and IP are systematically different, it's not possible to compare the ratings one by one. The following table is for reference only.

(Unit: mm)

Certification	Model	Max. Size	Description
UL50 Type 1	PB-UL	W2616 * H3226 * D2616	<ul style="list-style-type: none"> <li>Material HGI (Hot Galvanized Coil) min. 1.6mm</li> <li>Protection N/A</li> <li>Feature Pull Box</li> <li>IP Around IP30</li> </ul>
UL50 Type 1	ES / EU	W800 * H1200 * D300	<ul style="list-style-type: none"> <li>Material Steel min. 1.6mm / Stainless steel min. 1.5mm</li> <li>Protection N/A</li> <li>Feature Cost effective distribution and control box</li> <li>IP Around IP30</li> </ul>
UL50 Type 1	CD / CD-U	W800 * H1200 * D300	<ul style="list-style-type: none"> <li>Same spec. as ES/EU(except for surface mount door)</li> </ul>
UL50 Type 1	FB / FU	W800 * H1200 * D300	<ul style="list-style-type: none"> <li>Same spec. as ES/EU(except for flush mount box + cover)</li> </ul>
UL50E Type 3R, 12	AC-LP	W600 * H800 * D500	<ul style="list-style-type: none"> <li>Material Steel min. 1.6mm / Stainless steel min. 1.5mm</li> <li>Protection Water &amp; dust proof</li> <li>Feature High-end distribution and control box</li> <li>IP Around IP56</li> </ul>
UL50 Type	MS / MS-U	W1000 * H2200 * D1000	<ul style="list-style-type: none"> <li>Material Steel min. 2.3mm / Stainless steel min. 2.0mm</li> <li>Protection Waterproof against raindrops (outdoor use)</li> <li>Feature Free standing enclosure (cabinet style)</li> <li>Removable left, right and back covers</li> <li>IP Around IP32</li> </ul>
UL50 Type 4, 4X, 12	HS / HU	W1000 * H1800 * D1000	<ul style="list-style-type: none"> <li>Material Steel min. 2.3mm / Stainless steel min. 2.0mm</li> <li>Protection Completely water and dust proof</li> <li>Feature Clamp locking (airtight enclosure)</li> <li>IP Around IP66</li> </ul>
UL50E Type 4, 4X, 12, 1, 3, 3R	PS-UL	W2300 * H2350 * D1000	<ul style="list-style-type: none"> <li>Material Steel min. 2.3mm / Stainless steel min. 2.0mm</li> <li>Protection Water &amp; dust proof</li> <li>Feature Free standing enclosure (cabinet style)</li> <li>IP Around IP66</li> </ul>

(3) The structure of UL certified products shall be same as the sample products tested and approved by UL and their sizes shall not exceed the maximum size of the sample products.  
The UL certified products shall not have holes and cuttings which do not exist in the drawings approved by UL.  
We can make holes and cuttings (e.g. switches, wiring, vent) for the convenience of customers, but we do not hold any responsibility for the holes and cuttings.

We have obtained TUV IP66 and UL NEMA 4X certifications for electrical enclosures with monitoring windows for the first time as an electrical/control enclosure manufacturers in Korea.  
The maximum size of the monitoring window is 825 x 2125.

### 2. TUV and CE certified products

(1) TUV is one of the most renowned certification bodies with its global reputation.  
(2) Our PS-IP, AC-LP ad RT series are certified by TUV for IP65 and IP66.

(Unit: mm)

Certification	Model	Max. Size	Description
IP66 (TUV)	PS-IP	W2300 * H2350 * D1000	<ul style="list-style-type: none"> <li>Material Steel / Stainless</li> <li>Protection Completely water and dust proof</li> <li>Feature Box type enclosures, free standing enclosures (cabinet type)</li> <li>Structure Welded structure with front door / two doors / front and rear doors</li> </ul>
IP66 (TUV)	AC-LP	W600 * H800 * D500	<ul style="list-style-type: none"> <li>Material Steel min. 1.6mm / Stainless steel min. 1.5mm</li> <li>Protection Water &amp; dust proof</li> <li>Feature High-end distribution and control box</li> <li>Structure Welded structure with front door / two doors</li> </ul>

(3) The products above can be manufactured with CE certification.

(4) The structure of CE certified products shall be same as the sample products tested and approved by the notified body and their sizes shall not exceed the maximum size of the sample products. The CE certified products shall not have holes and cuttings which do not exist in the approved drawings. We can make holes and cuttings (e.g. switches, wiring, vent) for the convenience of customers, but we do not hold any responsibility for the holes and cuttings.

(5) When you need an IP test report done specifically on the unit you purchase, a separate IP testing is required after manufacturing the unit.

























### 3. Separate IP testing

(1) We have vast experience in passing IP tests so that we are capable of producing enclosures with any IP degrees that the customer needs. However, the design and structure of the enclosure might need to be changed to pass the tests.






(2) IP testing requires extra 10 days in addition to the manufacturing time. Therefore, when you need a separate IP test report, the delivery will be in around three weeks after the order.

## Box Ingress Protection Grade: IEC60529

The International Electrotechnical Commission (IEC) defines the protection ratings of electrical equipment or enclosure as shown in the following table:

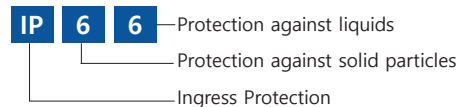
First digit Solid particle protection		Second digit Liquid ingress protection		IK code Protection against mechanical impact	
IP	Description	IP	Description	IK	Description
0	 No Protection	0	 No Protection	00	 No Protection
1	 Ingress of solid object diameter 50mm is protected	1	 Protected against vertical water drip	01	 Impact < 1 Joule
2	 Ingress of solid object diameter 12.5mm is protected	2	 Protected against water drip from vertical direction when the enclosure is tilted at 15°	05	 Protected against drop of 500g object from 20cm height
3	 Ingress of solid object diameter 2.5mm is protected	3	 Protected against water spray at any angle up to 60° from the vertical direction	06	 Protected against drop of 500g object from 20cm height
4	 Ingress of solid object diameter 1.0mm is protected	4	 Protected against water spray from all directions	07	 Protected against drop of 500g object from 40cm height
5	 Protected against dust	5	 Protected against water splash from all directions	08	 Protected against drop of 1,700g object from 29.5cm height
6	 Totally protected against dust	6	 Protected against strong water jets from all directions	09	 Protected against drop of 5,000g object from 20cm height
		7	 Protected against immersion between 15cm and 1m	10	 Protected against drop of 5,000g object from 40cm height
		8	 Protected against long periods of immersion under pressure		

IEC and NEMA defines protecting ratings based on different criteria. The following table is only for reference.

NEMA		IP
Type 1		IP20
Type 3		IP55
Type 3R		IP24
Type 12		IP54
Type 4, 4X		IP66

NEMA  
&  
IEC

### IP ratings (Ingress Protection)



## UL (Underwriters Laboratories)

UL is a global safety consulting and certification company approved to perform safety testing by the U.S. federal agency Occupational Safety and Health Administration. It defines product safety standards, sets the evaluation methods and performs evaluation tests. It follows safety regulations of NEMA for electrical enclosure safety regulations.

**HWASIN is one of the few electrical enclosure manufacturers in Korea with a wide range of UL certified products.**

## NEMA (National Electrical Manufacturers Association)

NEMA is a manufacturers association in the U.S. defining standards for electrical equipment. NEMA defines the standards for the following items as a guideline for testing of electrical enclosures.

Type	Description	Type	Description
1	Intended for indoor use and protected against ingress of solid foreign objects (falling dirt)	4X	Intended for indoor or outdoor use, protected against ingress of solid foreign objects (windblown dust), ingress of water (splashing water, hose directed water), corrosion and undamaged by the external formation of ice
2	Intended for indoor use and protected against ingress of solid foreign objects (falling dirt) and ingress of water (dripping and light splashing)		
3	Intended for indoor or outdoor use, protected against ingress of solid foreign objects (windblown dust), ingress of water (rain, sleet, snow) and undamaged by the external formation of ice	6	Intended for indoor or outdoor use, protected against ingress of solid foreign objects (falling dirt), ingress of water (hose directed water and the entry of water during occasional temporary submersion) and undamaged by the external formation of ice
3R	Intended for indoor or outdoor use, protected against ingress of solid foreign objects (falling dirt), ingress of water (rain, sleet, snow) and undamaged by external formation of ice	6P	Intended for indoor or outdoor use, protected against ingress of solid foreign objects (falling dirt), ingress of water (hose directed water and the entry of water during occasional temporary submersion), corrosion and undamaged by the external formation of ice
3S	Intended for indoor or outdoor use, protected against ingress of solid foreign objects (windblown dust), ingress of water (rain, sleet, snow) and operable when ice laden	12	Intended for indoor use, protected against ingress of solid foreign objects (falling dirt, circulating dirt), and ingress of water (dripping and light splashing)
4	Intended for indoor or outdoor use, protected against ingress of solid foreign objects (falling dirt), ingress of water (splashing water, hose directed water) and undamaged by the external formation of ice	13	Intended for indoor use, protected against ingress of solid foreign objects (falling dirt, circulating dirt), ingress of water (dripping and light splashing) and the spraying, splashing and seepage of oil and non-corrosive coolants

## ROHS (The Restriction of the use of certain Hazardous Substances)

RoHS directive prohibits or restricts the use of six hazardous substances on electrical and electronic equipment.

EU RoHS directive has been enforced by the European Union in order to prohibit or restrict the use of six hazardous substances (lead, cadmium, mercury, hexavalent chromium, PBB and PBDE). The directive has been effective since July 1 2006 and manufacturers shall prove that their products comply with the directive.

### Example application of the substances

Substance	Description
Lead	Used in electrical and electronic industry such as solder, lead-acid batteries and electronic components.
Mercury	Used in production of electrical and electronic appliances and is concentrated in batteries, switches and thermostats.
Cadmium	Used in electronic equipment, car batteries and pigments
Hexavalent chromium	Used in chromate pigments in dyes, paints, inks and plastics
PBB	Used as flame retardants and added to plastics such as home electrical appliances, textiles, plastic foams, and laptop cabinets
PBDE	Used in building materials, electronics, furnishings, motor vehicles, airplanes, plastics, polyurethane foams, and textiles

Products that meet RoHS compliance are available on request



## Ex marking

Ex	e	II	C	T6	IP66
Explosion protection	Protection type	Equipment group	Gas-group	Temperature class	IP rating

## Explosion protection type

Type of protection IEC standard	Symbol	Zone	Applications	Description
Flameproof IEC 60079-1	Ex d	Zone 1	Switchgear, control station, motor, transformer, heater, lighting	An enclosure can withstand an internal explosion occurred by an explosive atmosphere that penetrates the enclosure and prevent the transmission of the explosion to the surroundings.
Pressurization IEC 60079-2	Ex px Ex py Ex pz	Zone 1 Zone 1 Zone 2	Switchgear, control cabinet, analyzer, large motor	The penetration of the surrounding atmosphere into the enclosure is prevented by keeping a protective gas inside it at a pressure above the atmospheric pressure.
Increased safety IEC 60079-7	Ex e	Zone 1	Junction box, control station, motor, lighting	This method increases the level of safety, thus preventing the possibility of excessive temperatures and the occurrence of sparks or electric arcs within the enclosure, where such ignition sources would not occur in normal service.
Intrinsically safe IEC 60079-11	Ex ia Ex ib Ex ic	Zone 0 Zone 1 Zone 2	Meter, field bus, sensor, actuator	An electrical circuit is intrinsically safe if sparks or thermal effects produced under specified test conditions are not capable of causing ignition of a given explosive atmosphere.
Non-sparking IEC 60079-15	Ex nA Ex nC Ex nR	Zone 2 Zone 2 Zone 2	Zone 2 electrical equipment nA=Non-sparking apparatus nC=Fittings and components nR=Restricted breathing	This type is applied to electrical apparatus such that in normal operation it is not capable of igniting a surrounding atmosphere and a fault capable of causing ignition is not likely to occur.
Oil immersion IEC 60079-6	Ex o	Zone 1	Transformer, start rheostat	Parts of electrical apparatus are immersed in oil or a protective fluids so that a potentially explosive atmosphere outside of the apparatus cannot be ignited.
Encapsulation IEC 60079-18	Ex ma Ex mb Ex mc	Zone 0 Zone 1 Zone 2	Electrical equipment of limited power, controller, signal device, display device, sensor	Parts of electrical apparatus are encapsulated in a compound so that it cannot ignite a potentially explosive atmosphere.
Powder filling IEC 60079-5	Ex q	Zone 1	Sensor, display device, electronic bracelet, transmitter	A potentially explosive atmosphere cannot be ignited by filling the enclosure with powder.

## Gas groups

Group I	Group II		Group III		Equipment group
Mines susceptible to firedamp	Explosive gas atmosphere		Explosive dust atmosphere		I : Mines II : Surface industry
Methane	II A	Propane	III A	Combustible flyings	
	II B	Ethylene	III B	Non-conductive combustible dust	
	II C	Hydrogen Acetylene	III C	Conductive combustible dust	

## Temperature classification

Temp. class	T1	T2	T3	T4	T5	T6
Max. surface temp.(°C)	≤ 450°C	≤ 300°C	≤ 200°C	≤ 135°C	≤ 100°C	≤ 85°C

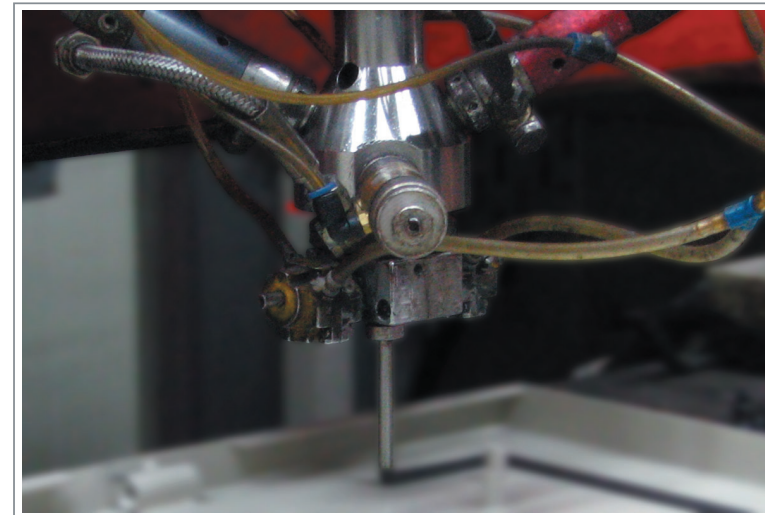
## Presence of explosive atmosphere

	Long period / Frequently	Occasionally	Short period / Rarely
Gas	Zone 0	Zone 1	Zone 2
Dust	Zone 20	Zone 21	Zone 22

## Gasket foaming for water &amp; dust-proof

Electrical enclosures require a high degree of water and dustproof capability for the protection of internal electrical equipment depending on the environment. Our polyurethane gasket has high resilience and flexibility even after a long period time, thus providing excellent sealing capacity.

## Complete prevention of water and dust ingress is guaranteed!



We have been using UL certified material (Germany's RAMPF) for gasket sealing to maintain the high performance of gasket.

## Applications and characteristics of gasket material



Material	Polyurethane
Density	0.3g/cc
Contact duration	10 to 15 mins
Complete formation	24 hrs
Hardness	35 to 45 Shore 00
Restoration rate	95% or higher
Applicable material	Steel, stainless steel, aluminum, plastic
Protection ratings	NEMA 4, 4X, 6, 6P, 12, 13

## Maximum size for gasket work

Max. Size of target workpiece		Height of gasket		Width of gasket		Height to Width Ratio
		Max.	Min.	Max.	Min.	
Flat	1200 x 2400	10	3	20	6	1 : 2
Groove	According to the dimensions of the groove of the workpiece					

\* Polyurethane gasket foaming can be applied to flat surface and groove in any shape.

\* We can work on special dimensions and you can outsource gasket work to us.

## Overview of plastic enclosures

Plastic electrical enclosures have several advantages compared to steel electrical enclosures in terms of weight and stability. Our plastic enclosures are made from pure material, not recycled material, thus providing high strength and durability.



### Lightweight

The weight of a plastic enclosure is 75 percent lighter than a steel enclosure, ensuring easier transit.



### Reliability

It has a high corrosion resistance with a life-long use and provides complete insulation.



### Water & Dust proof

Polyurethane gasket prevents water and dust ingress into the enclosure.



### Inner plate for cover

The cover has bosses onto which inner plate can be mounted so that you can use our plastic enclosure for a wider range of applications.

### Easy drilling

Plastic enclosures allow users to make holes with simple tools, thus improving the work efficiency.

### Strength

Strong engineering plastic materials (e.g. ABS, PC) are used for plastic enclosures, providing strength and high durability.

## Flammability classifications

Plastics have tendency to burn since they are made from oil. Flammability classification classifies how plastics are likely to burn based on how long it takes for burning to stop. The test is generally conducted and certification is given by UL (Underwriters Laboratory).

### Test procedure

Tests are conducted on bar and plaque specimens according to UL94 standards, and there are six classifications: HB, V-2, V-1, V-0, 5VB, 5VA.

**HB < V-2 < V-1 < V-0** The classification on the rightmost is the most flame-retardant.

For V-1 and V-0, the specimens may not drip flaming particles that ignite the dry absorbent cotton 300 mm below the test specimen.

Flame-retardant is different from heat resistance, so being higher flame-retardant does not necessarily mean higher heat resistance.

# Plastic Enclosures

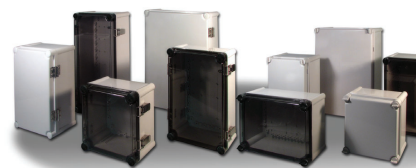
## N Series



## F Series



## Q Series



## G Series



\* Cover material: Opaque - ABS, Transparent - PC  
\* European style gray transparent

### Spec. of plastic enclosures

<b>Material</b>	Body - ABS / Cover - ABS, PC(Polycarbonate) Hook & Hinge - Stainless steel
<b>IP rating</b>	IP66
<b>Color</b>	Body - Gray / Cover - Gray, Transparent

Our plastic enclosures are intended for indoor use.  
When used outdoors, there are chances that the enclosures may be deformed by the direct sunlight.  
The plastic enclosures for outdoor use can be manufactured by a special order.

## Terminal Box N Series

## Assembly diagram



## Drawings &amp; dimensions

(Unit: mm)

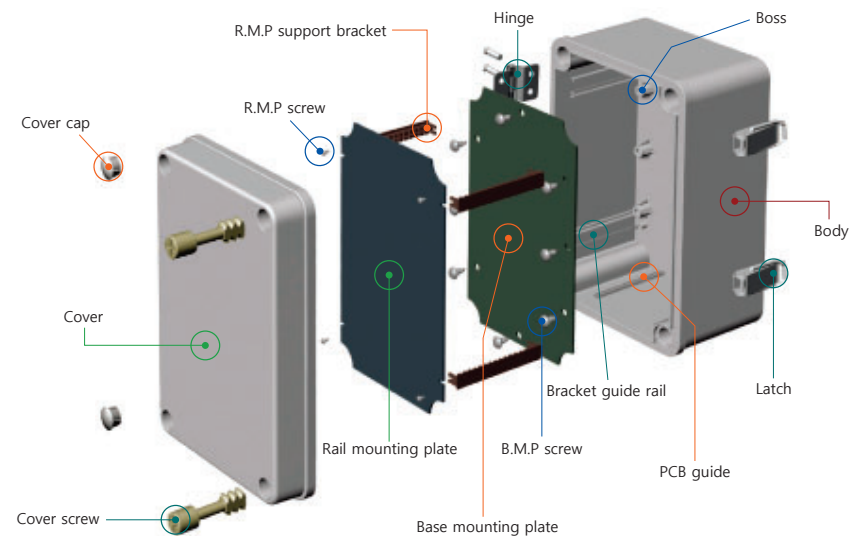
Model		Enclosure dimensions					Mounting plate dimensions		
		Width(W)	Height(H)	Depth(D)			Steel	Plastic	Bolts
				Total	Cover	Body			
<b>EN-AGH</b> Hinge, Opaque cover	0811 07 ■	80	110	70	22	35	65 * 99 * 1.6t	-	2-M4 * 8
	0815 07 ■	80	150	70	22	35	65 * 139 * 1.6t	-	2-M4 * 8
	0820 07	80	200	70	22	35	65 * 184 * 1.6t	-	2-M4 * 8
	0825 07	80	250	70	22	35	65 * 234 * 1.6t	-	2-M4 * 8
<b>EN-ATH</b> Hinge, Transparent cover	1111 07 ■	110	110	75	22	40	94 * 94 * 1.6t	-	2-M4 * 8
	1212 07 ■	125	125	75	17	45	108 * 108 * 1.6t	-	2-M4 * 8
	1318 10 ■	130	180	100	22	65	112 * 160 * 1.6t	-	2-M4 * 8
	1520 10 ■	150	200	100	22	65	113 * 184 * 1.6t	137 * 185 * 4t	2-M4 * 8
<b>EN-AGS</b> Screw, Opaque cover	1520 13 ■	150	200	130	22	95	133 * 184 * 1.6t	137 * 185 * 4t	2-M4 * 8
	1525 10 ■	150	250	100	22	65	133 * 234 * 1.6t	133 * 233 * 4t	2-M4 * 8
	1525 13 ■	150	250	130	22	95	133 * 234 * 1.6t	133 * 233 * 4t	2-M4 * 8
<b>EN-ATS</b> Screw, Transparent cover	2020 10	200	200	100	22	65	183 * 184 * 1.6t	183 * 184 * 4t	2-M4 * 8
	2020 13	200	200	130	22	95	183 * 184 * 1.6t	183 * 184 * 4t	2-M4 * 8

■ means there is no guide rail. ■ means the width and height are interchangeable.

The material of a mounting plate is HGI.

Mounting bolts are x-shaped round head with tapping screw.

Specifications and dimensions may be changed without a prior notice for the improvement of performance.



## Components and features

Basic components		Bolts for mounting plate			
Optional components		Mounting plate, cover mounting plate, wall mounting brackets			
Gasket foam	Mounting plate	PCB guide	Latch & hinge	Cover screws	
Polyurethane gasket with high resilience guarantees the prevention of water and dust ingress.	Mounting plates can be installed onto the cover and in the middle of the body with support brackets.	PCB can be installed directly onto the enclosure with PCB guides.	Stainless steel latches and hinges are anti-corrosive and strong enough to withstand frequent opening and closing.	Screws are easy to hold to make fastening of a cover easier and can be fixed onto the cover to reduce the chances of losing the screws.	

Some products might not have the features above.

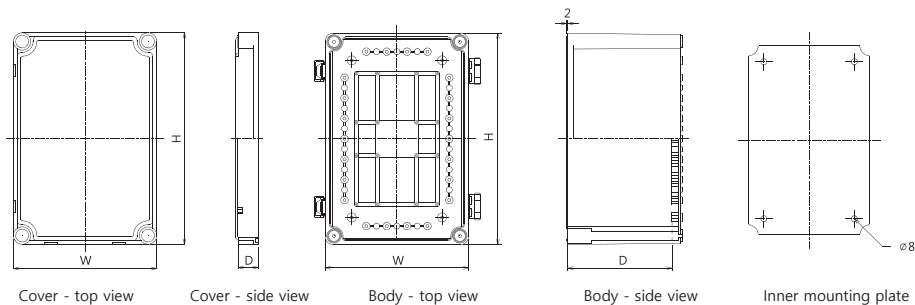
Water &amp; dust proof ratings (IP code and NEMA type) are the result of a test conducted in a laboratory environment. Therefore, they do not guarantee water &amp; dust proof capacity in real world environments.

## Europe Style Q Series



## Drawings &amp; dimensions

(Unit: mm)



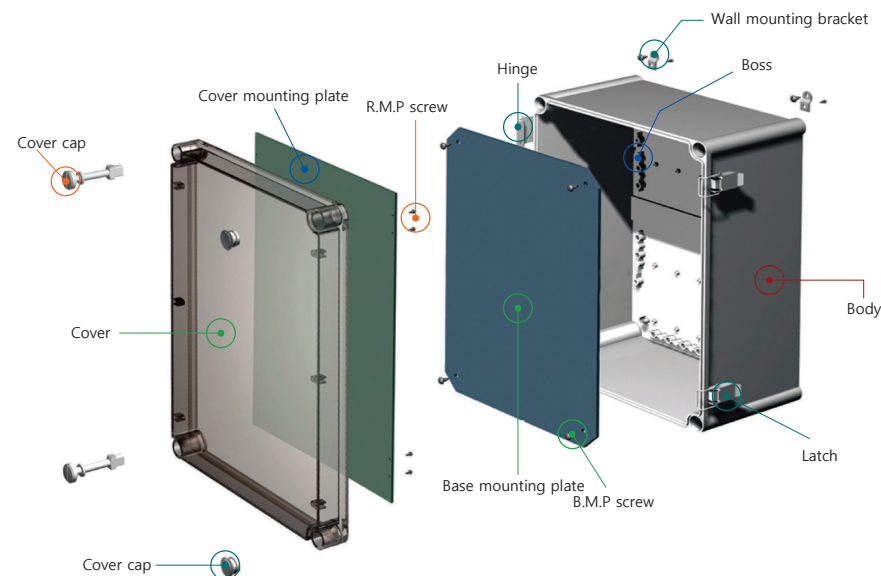
Model	Enclosure dimensions						Mounting plate dimensions		
	Width(W)	Height(H)	Depth(D)				Steel	Plastic	Bolts
			Total	Cover	Body				
<b>EQ-AGH</b> Hinge, Opaque cover	1919 13	190	190	130	27	90	161 * 161 * 1.6t	170 * 161 * 4t	4-M5*10L
	1928 13	190	280	130	27	90	161 * 250 * 1.6t	165 * 256 * 4t	4-M5*10L
	1928 18	190	280	180	27	140	161 * 250 * 1.6t	165 * 256 * 4t	4-M5*10L
<b>EQ-ATH</b> Hinge, Transparent cover	1938 13	190	380	130	27	90	161 * 350 * 1.6t	170 * 161 * 2ea	4-M5*10L
	1938 18	190	380	180	27	140	161 * 350 * 1.6t	170 * 161 * 2ea	4-M5*10L
	2828 13	280	280	130	27	90	250 * 250 * 1.6t	260 * 260 * 4t	4-M5*10L
<b>EQ-AGS</b> Screw, Opaque cover	2838 13	280	380	130	27	90	250 * 351 * 1.6t	260 * 360 * 4t	4-M5*10L
	2838 18	280	380	180	27	140	250 * 351 * 1.6t	260 * 360 * 4t	4-M5*10L
	2856 13	280	560	130	27	90	250 * 531 * 1.6t	-	8-M5*10L
<b>EQ-ATS</b> Screw, Transparent cover	3856 18	380	560	180	27	140	350 * 531 * 1.6t	-	8-M5*10L

\* The material of a mounting plate is HGI.

\* Mounting bolts are x-shaped round head with tapping screw.

\* Specifications and dimensions may be changed without a prior notice for the improvement of performance.

## Assembly diagram



## Components and features

<b>Basic components</b>		Bolts for mounting plate			
<b>Optional components</b>		Mounting plate, cover mounting plate, wall mounting brackets			
Gasket foam	Mounting plate	PCB guide	Latch & hinge	Cover screws	
Polyurethane gasket with high resilience guarantees the prevention of water and dust ingress.	Mounting plates can be installed onto the cover and in the middle of the body with support brackets.	The corners of the enclosure are round-shaped and protruded, thus providing the excellent exterior and higher strength.	Stainless steel latches and hinges are anti-corrosive and strong enough to withstand frequent opening and closing.	Screws are easy to hold to make fastening of a cover easier and can be fixed onto the cover to reduce the chances of losing the screws.	

Some products might not have the features above.

"Water & dust proof ratings (IP code and NEMA type) are the result of a test conducted in a laboratory environment. Therefore, they do not guarantee water & dust proof capacity in real world environments."



## Control Box F Series



## Drawings &amp; dimensions

(Unit: mm)

Model		Enclosure dimensions					Mounting plate dimensions		
		Width(W)	Height(H)	Depth(D)			Steel	Plastic	Bolts
				Total	Cover	Body			
EF-AGH Hinge, Opaque cover	2030 15	200	300	150	27	110	165 * 273 * 1.6t	165 * 256 * 4t	4-M5 * 8L
	2535 16	250	350	160	27	120	215 * 323 * 1.6t	219 * 319 * 4t	4-M5 * 8L
	3030 18	300	300	180	27	140	266 * 276 * 1.6t	260 * 260 * 4t	4-M5 * 8L
	3040 18	300	400	180	27	140	265 * 373 * 1.6t	265 * 375 * 4t	4-M5 * 8L
	3545 20	350	450	200	27	160	315 * 423 * 1.6t	319 * 219 * 2ea	4-M5 * 8L
EF-ATH Hinge, Transparent cover	4050 20	400	500	200	27	160	365 * 473 * 1.6t	374 * 474 * 4t	4-M5 * 8L
	4060 23	400	600	230	47	170	365 * 573 * 1.6t	-	4-M5 * 8L
	5060 18/25	530	630	185/255	35	150/220	450 * 552 * 1.6t	-	6-M5 * 10L
	5070 18/25	530	730	185/255	35	150/220	450 * 652 * 1.6t	-	6-M5 * 10L
	6080 18/28	630	830	185/285	35	150/250	550 * 752 * 1.6t	-	6-M5 * 10L

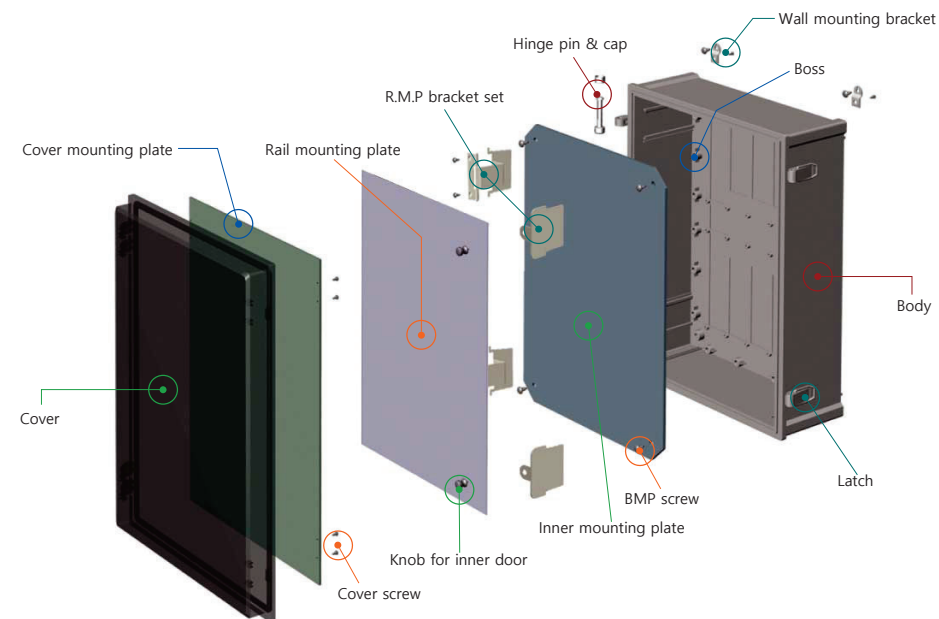
■ means that middle mounting plate cannot be installed on the products.

\* The material of a mounting plate is HGI.

\* Mounting bolts are x-shaped round head with tapping screw.

\* Specifications and dimensions may be changed without a prior notice for the improvement of performance.

## Assembly diagram



## Components and features

<b>Basic components</b>		Bolts for mounting plate			
<b>Optional components</b>		Mounting plate, wall mounting brackets, latch, new middle B.M.P. (bolt type, magnetic type), old middle B.M.P. and brackets			
Gasket foam		Inner door		Latch	Hinge
Polyurethane gasket with high resilience guarantees the prevention of water and dust ingress.		You can choose either bolt type or magnetic type inner door.		With the inner door brackets, you can utilize a middle base mounting plate as an inner door.	Stainless steel latches and hinges are anti-corrosive and strong enough to withstand frequent opening and closing.
					Built-in hinges allow you to assemble the enclosure with a great ease and attach and detach the cover.

Some products might not have the features above.

"Water &amp; dust proof ratings (IP code and NEMA type) are the result of a test conducted in a laboratory environment. Therefore, they do not guarantee water &amp; dust proof capacity in real world environments."

Power Box G Series



Drawings & dimensions

(Unit: mm)

Cover - top view

Cover - side view

Body - top view

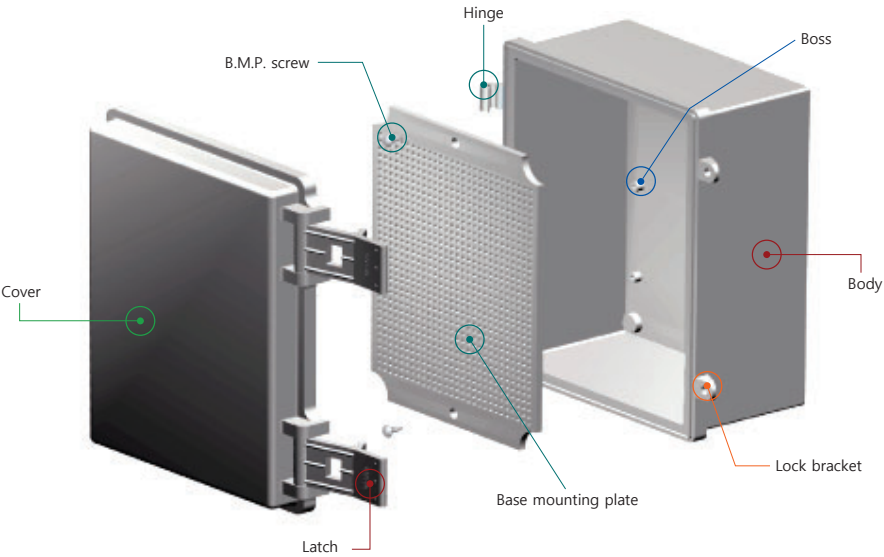
Body - side view

Inner mounting plate

Model		Enclosure dimensions					Mounting plate dimensions		
		Width(W)	Height(H)	Depth(D)			Steel	Plastic	Bolts
				Total	Cover	Body			
EG-AGH Hinge, Opaque cover	1515 09	150	150	90	22	55	128 * 128 * 1.6t	128 * 128 * 4t	2-M5*10L
	1520 10	150	200	100	22	65	133 * 184 * 1.6t	137 * 185 * 4t	2-M5*10L
	2030 13	200	300	130	22	90	165 * 273 * 1.6t	165 * 256 * 4t	4-M5*10L
	3030 16	300	300	160	22	120	266 * 276 * 1.6t	260 * 260 * 4t	4-M5*10L
	3040 16	300	400	160	22	120	265 * 373 * 1.6t	260 * 360 * 4t	4-M5*10L
	4050 16	400	500	160	22	120	365 * 473 * 1.6t	374 * 474 * 4t	4-M5*10L
	4050 18	400	500	180	22	140	365 * 473 * 1.6t	374 * 474 * 4t	4-M5*10L
	5060 20	500	600	200	37	150	470 * 570 * 1.6t	-	4-M5*10L
	5070 21	500	700	210	42	155	470 * 670 * 1.6t	-	4-M5*10L
	6080 26	600	800	260	52	205	570 * 770 * 1.6t	-	4-M5*10L

Mounting plate is plastic except for 5060, 5070 and 6080(HGI).  
Mounting bolts are x-shaped round head with tapping screw.  
Specifications and dimensions may be changed without a prior notice for the improvement of performance.

Assembly diagram



\* Components and design might be different from the assembly diagram above.  
(Models with the size of 5060 or larger do not have the lock brackets)

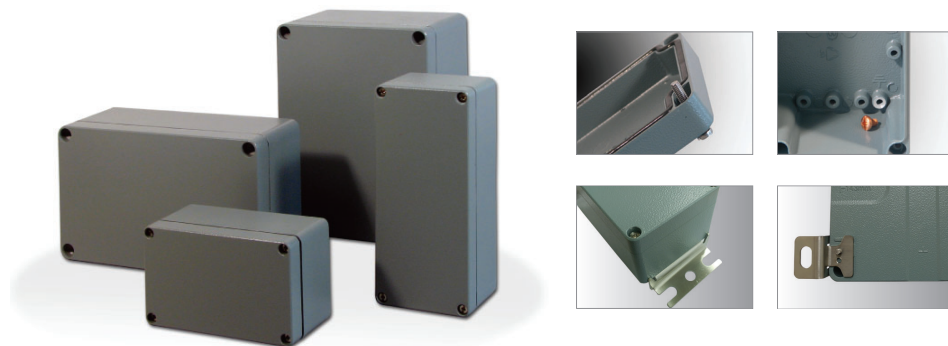
Components and features

<b>Basic components</b>		Plastic mounting plate (1515 ~ 4050), Steel mounting plate (5060 ~ 6080)	
<b>Optional components</b>		Steel mounting plate (1520 ~ 4050), Wall mounting brackets	
Gasket foam	Hook	Hinge	Plastic B.M.P.
Polyurethane gasket with high resilience guarantees the prevention of water and dust ingress.	The latch is designed to fasten the cover with a great ease and the lock ring provides a higher security.	The built-in hinge allows users to easily attach and detach the cover, thus providing a great convenience to users for making holes on the cover.	Plastic base mounting plate with grids allows users to easily install electrical equipment.

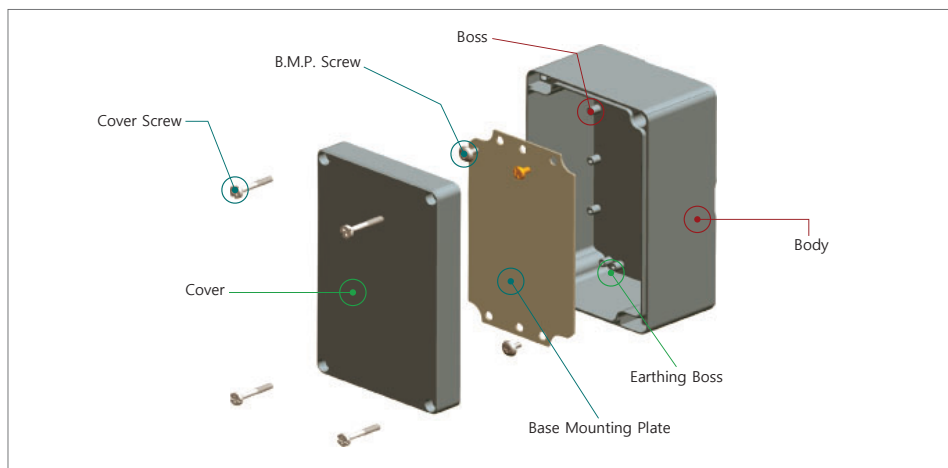
Some products might not have the features above.  
"Water & dust proof ratings (IP code and NEMA type) are the result of a test conducted in a laboratory environment.  
Therefore, they do not guarantee water & dust proof capacity in real world environments."

## Aluminum Box ED Series

IP66 Test Passed



(Thickness: 3mm, Unit: mm)



Basic components Bolts for mounting plate, earthing bolt, bolts for cover

Optional Base mounting plate, wall mounting brackets

Model		Enclosure Dimensions					B.M.P. & Boss		
		Width(W)	Height(H)	Depth(D)	Inner Depth		Steel B.M.P.	Bolts for B.M.P.	Boss Height
					Cover	Body			
ED-AL	0813 06	80	130	60	11	37	69 * 114 * 1.6T	4-M4 * 6L	5.5
	0818 06	80	180	60	11	37	69 * 169 * 1.6T	4-M4 * 6L	5.5
	1220 08	126	206	80	15	49	113 * 193 * 1.6T	4-M6 * 8L	9.5
	1520 10	156	206	100	16	68	143 * 193 * 1.6T	4-M6 * 8L	9.5
	1616 09	163	163	93	17	60	145 * 145 * 1.6T	4-M5 * 8L	8.5
	1626 09	163	263	93	17	60	145 * 245 * 1.6T	4-M5 * 8L	8.5
	2328 11	234	284	112	17	79	213 * 263 * 1.6T	4-M5 * 8L	8.5
	2333 12	234	334	122	17	89	213 * 313 * 1.6T	4-M5 * 8L	8.5

"Water & dust proof ratings (IP code and NEMA type) are the result of a test conducted in a laboratory environment. Therefore, they do not guarantee water & dust proof capacity in real world environments."

Detailed specifications are provided separately.  
Please refer to the Ex catalogue.



## Explosion Protected Aluminum Box

EX-DP-(W)(H)(D)-S

Screw type



## Applications

Hazardous areas - gas &amp; dust

## Material

Aluminum ALDC12.1

## Coating

Munsell 7.5BG 6/1.5 powder coating

## Ex marking

Ex eb IIC T6/T5/T4 Gb  
Ex tb III C T85°C/T100°C/T135°C Db  
Ex ia IIC T6/T5/T4 Gb  
Ex ib IIC T6/T5/T4 Gb

## Gasket

PUR

## Certificate

IECEx, ATEX, KCs

## Ambient temperature

-20°C ~ +40°C (T6) or +55°C (T5/T4)

## IP rating

IP66

\* Unit: mm

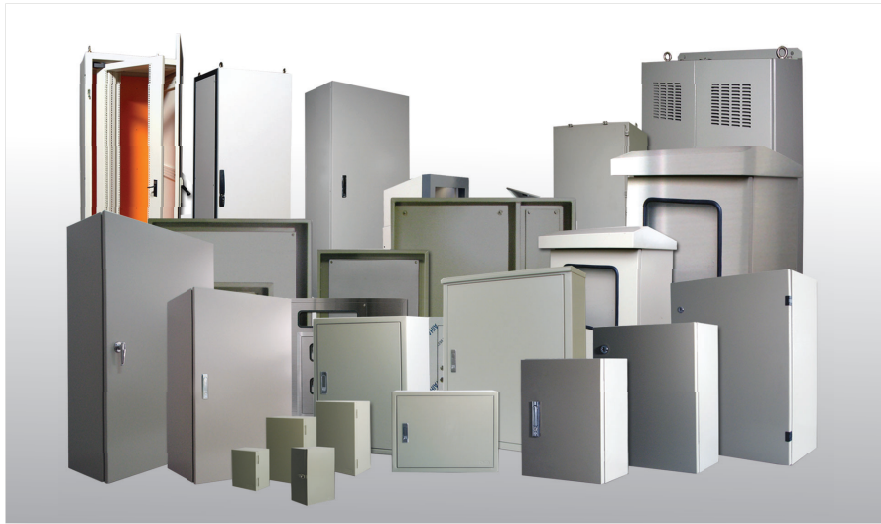
\* MDP: Maximum Dissipated Power

Model	W	H	D	BW	BH	IW	IH	Door type	Optional cable gland plates	MDP
EX-DP-081306-S	80	130	62	-	160	68.5	113.5	Screw	Not applicable	6.96 W
EX-DP-081806-S	80	180	62	-	210	69	169	Screw	Not applicable	6.36 W
EX-DP-122008-S	126	206	82	73	236	113	193	Screw	Not applicable	8.82 W
EX-DP-152010-S	156	206	102	119	236	143	192.2	Screw	Not applicable	8.22 W
EX-DP-161609-S	162	162	92	118	192	145	145	Screw	Not applicable	6.36 W
EX-DP-162609-S	162	262	92	118	292	145	245	Screw	Not applicable	12.5 W
EX-DP-232811-S	232	282	112	188	312	213	263	Screw	Not applicable	21.63 W
EX-DP-233312-S	232	332	122	188	362	213	313	Screw	Not applicable	21.18 W

"Water & dust proof ratings (IP code and NEMA type) are the result of a test conducted in a laboratory environment. Therefore, they do not guarantee water & dust proof capacity in real world environments."



# Steel Enclosures



**HSBOX** guarantees the complete prevention of water and dust ingress.  
(TUV IP66 Certified)

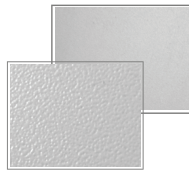


With the water-proof frames invented from our experience and know-how, the gasket guarantees the highest water and dust proof performance for enclosures requiring a high degree of IP.

Polyurethane Gasket

**HSBOX** provides explosion protected enclosures with IECEx, ATEX and KCs, globally certified enclosures (UL, TUV, CE), and enclosures with EMI capability.

Our steel enclosures are made of pickled oiled steel sheets and cold rolled steel, ensuring higher corrosion resistance and durability compared to hot rolled steel. We also have large scale powder coating facilities providing high painting quality, which guarantees longer lifespan of steel enclosures.



- \* Smooth powder coating (top)
- \* Embossing powder coating (bottom)

**Do you need earthquake-resistant enclosures?**  
We have extensive experience in manufacturing earthquake-resistant enclosures.

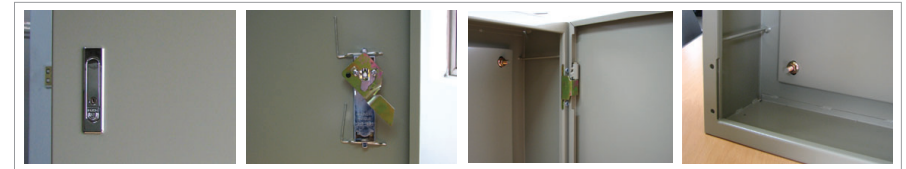
## Indoor Surface Mounting Distribution Box CD Series



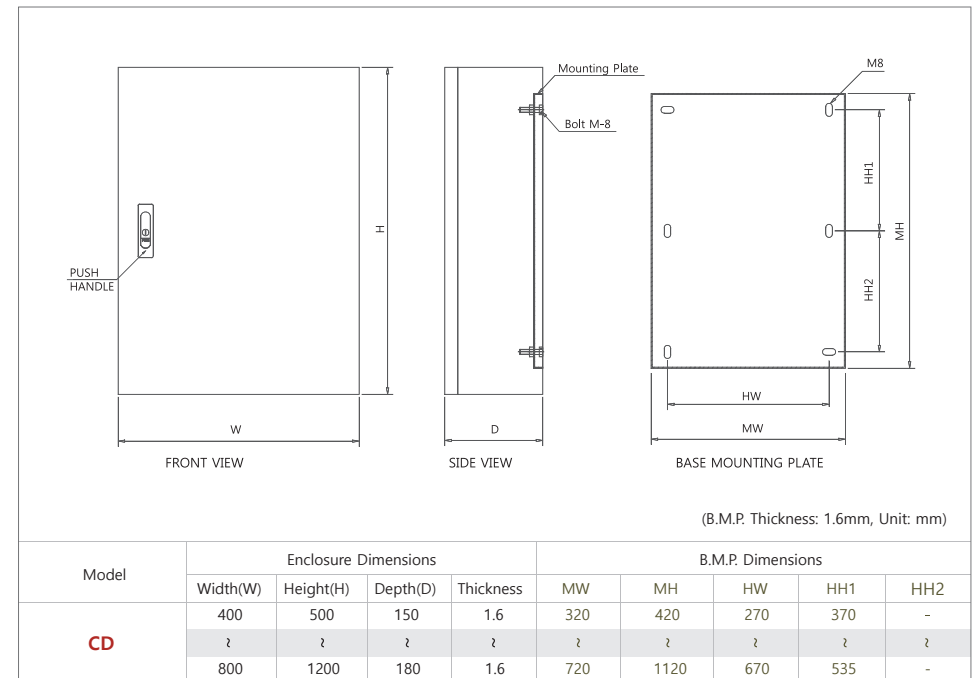
**Feature** Surface mounting, Various sizes, Robust (1.6mmT)  
**Material** CD: Steel, CD-U: Stainless steel  
**Color** Basic: 5Y7/1 (Smooth powder coating)  
Custom: RAL7032 (Leathertone powder coating)  
Other colors upon request

**Components** B.M.P, Handle

Available as UL certified products  
(UL50 Type 1 Enclosure; additional discussion needed)



### Drawings and Dimensions



\* We can custom-build enclosures in any size other than the standard sizes.



High-end Weatherproof Box  
AC-LP Series



- Feature** Intended for indoor and outdoor use  
Base mounting plate installable inside of door
- Material** Steel 1.6mm, Stainless steel 1.5mm
- Color** RAL7035 (Leather-tone, powder coating)  
Custom color upon request
- Components** Base mounting plate, waterproof key handle
- Options** B.M.P. for door, monitoring window

NEMA 3R, 12 (UL), IP66(TUV), CE Certified  
Available as ready-made standard products



cam lock (C)



plane handle (H)



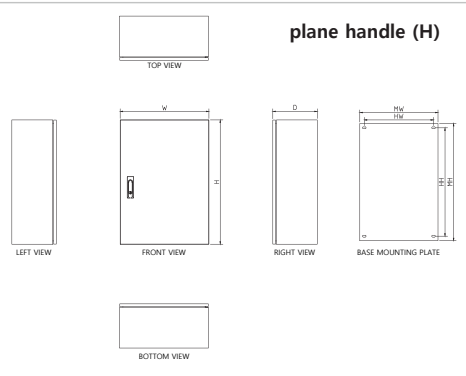
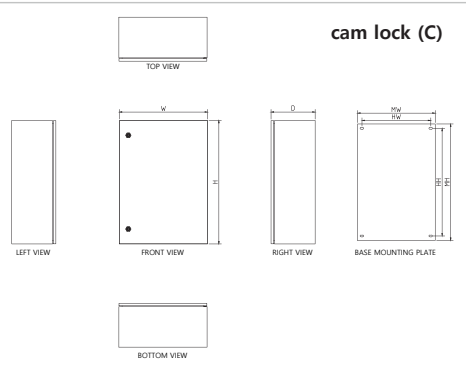
latch (M)



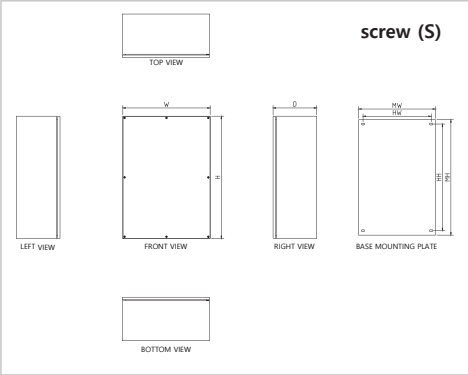
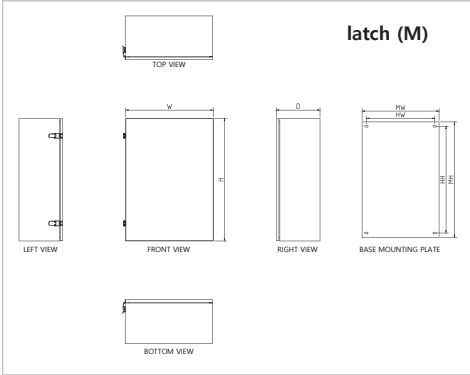
screw (S)



Dimensions



"Water & dust proof ratings (IP code and NEMA type) are the result of a test conducted in a laboratory environment.  
Therefore, they do not guarantee water & dust proof capacity in real world environments."



Size

(Thickness- enclosure: 1.6mm, BMP: HGI 1.6mm) (Unit: mm)

Model	Enclosure Dimensions			B.M.P. Dimensions				Standard			
	Width(W)	Height(H)	Depth(D)	MW	MH	HW	HH	C	H	M	S
AC-LP	150	150	120	90	110	60	80	-	-	-	○
	150	200	120	90	160	60	130	-	-	○	○
	150	250	120	90	210	60	180	-	-	○	○
	200	200	150	140	160	110	130	-	-	○	○
	200	250	120	140	210	110	180	-	-	○	○
	200	300	150	140	260	110	230	-	-	○	○
	250	300	150	190	260	160	230	-	-	○	○
	300	300	200	240	260	210	230	○	-	○	-
	300	400	200	240	360	210	330	○	○	○	-
	400	300	200	340	260	310	230	○	-	○	-
	400	500	200	340	460	310	430	○	○	○	-
	400	600	250	340	560	310	530	○	○	○	-
	600	400	250	540	360	510	330	○	○	-	-
	500	600	250	440	560	410	530	○	○	-	-
	500	700	250	440	660	390	610	○	○	-	-
	600	700	250	540	660	490	610	○	○	-	-
	600	800	250	540	760	490	710	○	○	-	-

※ UL certification is available only with the Camlock model.

Available sizes

(unit : mm)

Door	Model	Min. size	Max. size	Certification	
1 Door	cam lock, latch plane handle,	200(W) * 200(H) * 50(D)	600(W) * 800(H) * 500(D)	IP66	TUV
	screw	100(W) * 100(H) * 50(D)	1100(W) * 1600(H) * 500(D)		
	cam lock	200(W) * 200(H) * 50(D)	600(W) * 800(H) * 500(D)	1, 2, 3R, 12	UL
2 Door	screw	400(W) * 300(H) * 50(D)	1200(W) * 1600(H) * 500(D)	IP66	TUV

※ Specifications and dimensions may be changed without a prior notice for the improvement of performance.  
※ We can custom-build enclosures in any size other than the standard sizes.

## Cost Effective Distribution Box ES Series



<b>Feature</b>	Highly cost effective, Available in stock
<b>Material</b>	ES: Steel, EU: Stainless steel
<b>Color</b>	Basic: 5Y7/1 (Smooth powder coating) Custom: RAL7032 (Leathertone powder coating) Other colors upon request

**Components** B.M.P., Handle

Available as UL certified products  
(UL50 Type 1 Enclosure; additional discussion needed)  
Products can be customized in any form and any size upon request.



## Double Door Enclosure with a Plastic Cover ES-P/ES-PD/AC-P Series



A transparent door is attached to a standard ES Series enclosure (indoor use)



A transparent door is attached to a customized ES Series enclosure for outdoor use (control units installable)



A transparent door is attached to a standard AC-LP Series enclosure (outdoor use)

### AC-P Standard Dimensions

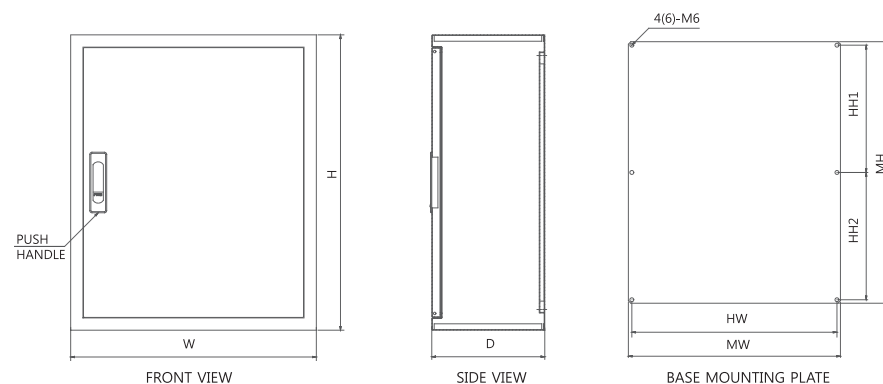
### ES-P / ES-PD Standard Dimensions

Model	Dimensions	
	Width (W)	Height (H)
<b>ES-P / ES-PD</b> 2030	200	300
<b>ES-P / ES-PD</b> 2535	250	350
<b>ES-P / ES-PD</b> 3040	300	400
<b>ES-P / ES-PD</b> 3545	350	450
<b>ES-P / ES-PD</b> 4050	400	500
<b>ES-P / ES-PD</b> 4060	400	600

Model	Dimensions	
	Width (W)	Height (H)
<b>AC-P</b> 2030	200	300
<b>AC-P</b> 2535	250	350
<b>AC-P</b> 3030	300	300
<b>AC-P</b> 3040	300	400
<b>AC-P</b> 3545	350	450
<b>AC-P</b> 4050	400	500
<b>AC-P</b> 4060	400	600

  : Available on request

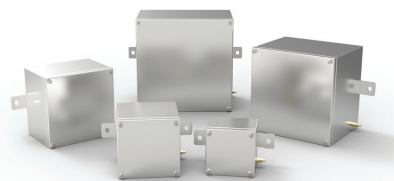
## Drawings and Dimensions



(Thickness- enclosure: 1.0~1.2mm, BMP: 1.0~1.6mm) (Unit: mm)

Model	Enclosure Dimensions			Mounting Plate Dimensions				
	Width(W)	Height(H)	Depth(D)	MW	MH	HW	HH1	HH2
<b>ES/EU</b> 2030 10/15	200	300	100/150	140	240	116	216	-
<b>ES/EU</b> 2535 15/17	250	350	150/170	190	290	166	266	-
<b>ES/EU</b> 3020 15	300	200	150	240	140	216	116	-
<b>ES/EU</b> 3040 15/20	300	400	150/200	240	340	216	316	-
<b>ES/EU</b> 3525 15/17	350	250	150/170	290	190	266	166	-
<b>ES/EU</b> 3545 15/20	350	450	150/200	290	390	266	366	-
<b>ES/EU</b> 4030 15/20	400	300	150/200	340	240	316	216	-
<b>ES/EU</b> 4050 15/20	400	500	150/200	340	440	316	416	-
<b>ES/EU</b> 4060 15/22	400	600	150/220	340	540	316	516	-
<b>ES/EU</b> 4535 15/20	450	350	150/200	390	290	366	266	-
<b>ES/EU</b> 4555 15/22	450	550	150/220	390	490	366	466	-
<b>ES/EU</b> 5040 15/20	450	400	150/200	440	340	416	316	-
<b>ES/EU</b> 5060 15/23	500	600	150/230	430	530	406	506	-
<b>ES/EU</b> 6040 15/22	500	400	150/220	540	340	516	316	-
<b>ES/EU</b> 6050 15/23	600	500	150/230	530	430	506	406	-
<b>ES/EU</b> 5070 15/25	600	700	150/250	430	630	406	606	-
<b>ES/EU</b> 6070 17/25	500	700	170/250	530	630	506	606	-
<b>ES/EU</b> 6080 17/25	600	800	170/250	530	730	506	706	-
<b>ES/EU</b> 6090 17/25	600	900	170/250	530	830	506	806	-
<b>ES/EU</b> 7050 15/25	600	500	150/250	630	430	616	416	-
<b>ES/EU</b> 7060 17/25	700	600	170/250	630	530	606	506	-
<b>ES/EU</b> 7090 17/25	700	900	170/250	630	830	606	806	-
<b>ES/EU</b> 7010 17/30	700	1000	170/300	620	920	596	448	448
<b>ES/EU</b> 7012 17/30	700	1200	170/300	620	1120	596	548	548
<b>ES/EU</b> 8060 17/25	800	600	170/250	730	530	706	506	-
<b>ES/EU</b> 8012 17/30	800	1200	170/300	720	1120	696	548	548

\* Specifications and dimensions may be changed without a prior notice for the improvement of performance.



EX-UCS-(W)(H)(D)-S



EX-UC-(W)(H)(D)-S



EX-UC-(W)(H)(D)-H

## Explosion Protected Junction Box



EX-UC-(W)(H)(D)-H  
EX-UC-(W)(H)(D)-S  
EX-UCS-(W)(H)(D)-S

<b>Feature</b>	Explosion protected
<b>Material</b>	316L grade stainless steel or others upon request
<b>Gasket</b>	Silicone
<b>Components</b>	External earthing bolt, B.M.P., cable gland plate
<b>Options</b>	Document box
<b>Ambient temperature</b>	-40°C ~ +40°C (T6) or +55°C (T5) or +65°C (T4)
<b>Ex marking</b>	Ex eb IIC T6/T5/T4 Gb Ex tb IIIC T85°C/T100°C/T135°C Db Ex ia IIC T6/T5/T4 Gb Ex ib IIC T6/T5/T4 Gb
<b>Certification</b>	ATEX, IECEx, KCs
<b>IP rating</b>	IP66

Detailed specifications are provided separately.  
Please refer to our explosion protected product catalogue.

\* Please contact our sales manager for sizes other than specified in the table below.

\* Unit: mm

\* MDP: Maximum Dissipated Power

Model	W	H	D	BW	IW	IH	Door type	Optional cable gland plates	MDP
EX-UCS-121210-S	120	120	100	175	71	71	Screw	Not applicable	5.96 W
EX-UCS-121212-S	120	120	120	175	71	71	Screw	Not applicable	5.96 W
EX-UCS-151510-S	150	150	100	205	101	101	Screw	Not applicable	5.96 W
EX-UCS-151512-S	150	150	120	205	101	101	Screw	Not applicable	5.96 W
EX-UCS-152012-S	150	200	120	205	101	151	Screw	Not applicable	6.66 W
EX-UCS-152015-S	150	200	150	205	101	151	Screw	Not applicable	6.66 W
EX-UCS-202012-S	200	200	120	255	151	151	Screw	Not applicable	6.66 W
EX-UCS-202015-S	200	200	150	255	151	151	Screw	Not applicable	6.66 W
EX-UCS-202512-S	200	250	120	255	151	201	Screw	Not applicable	7.88 W
EX-UCS-202515-S	200	250	150	255	151	201	Screw	Not applicable	7.88 W
EX-UCS-252512-S	250	250	120	305	201	201	Screw	Not applicable	7.88 W
EX-UCS-252515-S	250	250	150	305	201	201	Screw	Not applicable	7.88 W
EX-UCS-253012-S	250	300	120	305	201	251	Screw	Not applicable	7.88 W
EX-UCS-253015-S	250	300	150	305	201	251	Screw	Not applicable	7.88 W
EX-UCS-303012-S	300	300	120	355	251	251	Screw	Not applicable	12.26 W
EX-UCS-303015-S	300	300	150	355	251	251	Screw	Not applicable	12.26 W

When electrical equipment other than terminal blocks provided us are used in our explosion protected enclosure, we don't hold any responsibilities for that. In particular, when electrical equipment is installed on the Empty Enclosure, the enclosure with the electrical equipment shall be certified separately since the Empty Enclosure is a component.

"Water & dust proof ratings (IP code and NEMA type) are the result of a test conducted in a laboratory environment. Therefore, they do not guarantee water & dust proof capacity in real world environments."

\* Please contact our sales manager for sizes other than specified in the table below.

\* Unit: mm

\* MDP: Maximum Dissipated Power

Model	W	H	D	BW	BH	IW	IH	Door type	Optional cable gland plates	MDP
EX-UC-203015-H	200	300	150	255	240	120	220	Hinge	Top, Bottom, Left, Right	15.15 W
EX-UC-203020-H	200	300	200	255	240	120	220	Hinge	Top, Bottom, Left, Right	15.15 W
EX-UC-302015-H	300	200	150	355	140	220	120	Hinge	Top, Bottom, Left, Right	15.15 W
EX-UC-302020-H	300	200	200	355	140	220	120	Hinge	Top, Bottom, Left, Right	15.15 W
EX-UC-303015-H	300	300	150	355	240	220	220	Hinge	Top, Bottom, Left, Right	20.5 W
EX-UC-303020-H	300	300	200	355	240	220	220	Hinge	Top, Bottom, Left, Right	20.5 W
EX-UC-304015-H	300	400	150	355	340	220	320	Hinge	Top, Bottom, Left, Right	22.12 W
EX-UC-304020-H	300	400	200	355	340	220	320	Hinge	Top, Bottom, Left, Right	22.12 W
EX-UC-304025-H	300	400	250	355	340	220	320	Hinge	Top, Bottom, Left, Right	22.12 W
EX-UC-304030-H	300	400	300	355	340	220	320	Hinge	Top, Bottom, Left, Right	22.12 W
EX-UC-403015-H	400	300	150	355	240	320	220	Hinge	Top, Bottom, Left, Right	22.12 W
EX-UC-403020-H	400	300	200	455	240	320	220	Hinge	Top, Bottom, Left, Right	22.12 W
EX-UC-403025-H	400	300	250	455	240	320	220	Hinge	Top, Bottom, Left, Right	22.12 W
EX-UC-403030-H	400	300	300	455	240	320	220	Hinge	Top, Bottom, Left, Right	22.12 W
EX-UC-405015-H	400	500	150	455	440	320	420	Hinge	Top, Bottom, Left, Right	27.75 W
EX-UC-405020-H	400	500	200	455	440	320	420	Hinge	Top, Bottom, Left, Right	27.75 W
EX-UC-405025-H	400	500	250	455	440	320	420	Hinge	Top, Bottom, Left, Right	27.75 W
EX-UC-405030-H	400	500	300	455	440	320	420	Hinge	Top, Bottom, Left, Right	27.75 W
EX-UC-504015-H	500	400	150	555	340	420	320	Hinge	Top, Bottom, Left, Right	27.75 W
EX-UC-504020-H	500	400	200	555	340	420	320	Hinge	Top, Bottom, Left, Right	27.75 W
EX-UC-504025-H	500	400	250	555	340	420	320	Hinge	Top, Bottom, Left, Right	27.75 W
EX-UC-504030-H	500	400	300	555	340	420	320	Hinge	Top, Bottom, Left, Right	27.75 W
EX-UC-507015-H	500	700	150	555	640	420	620	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-507020-H	500	700	200	555	640	420	620	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-507025-H	500	700	250	555	640	420	620	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-507030-H	500	700	300	555	640	420	620	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-705015-H	700	500	150	755	440	620	420	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-705020-H	700	500	200	755	440	620	420	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-705025-H	700	500	250	755	440	620	420	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-705030-H	700	500	300	755	440	620	420	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-709015-H	700	900	150	755	840	620	820	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-709020-H	700	900	200	755	840	620	820	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-709025-H	700	900	250	755	840	620	820	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-709030-H	700	900	300	755	840	620	820	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-907015-H	900	700	150	955	640	820	620	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-907020-H	900	700	200	955	640	820	620	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-907025-H	900	700	250	955	640	820	620	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-907030-H	900	700	300	955	640	820	620	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-10010015-H	1000	1000	150	1055	940	920	920	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-10010020-H	1000	1000	200	1055	940	920	920	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-10010025-H	1000	1000	250	1055	940	920	920	Hinge	Top, Bottom, Left, Right	44.98 W
EX-UC-10010030-H	1000	1000	300	1055	940	920	920	Hinge	Top, Bottom, Left, Right	44.98 W



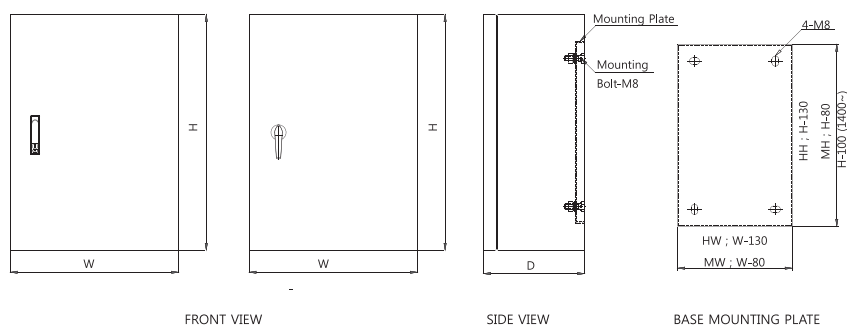
## Indoor & Outdoor Enclosures CS Series



<b>Feature</b>	Waterproof (limited use)
<b>Material</b>	CS: Steel 1.6~2.3mm CU: Stainless steel
<b>Color</b>	5Y7/1 (Smooth powder coating) Custom color upon request
<b>Components</b>	B.M.P, Handle
<b>Options</b>	Roof, Document box, G Handle



### Drawings and Dimensions



(Thickness-enclosure: 1.6mm ~ 2.3mm, B.M.P. Thickness: 1.6mm ~ 2.3mm, Unit: mm)

Model	Enclosure Dimensions			B.M.P. Dimensions			
	Width(W)	Height(H)	Depth(D)	MW	MH	HW	HH
CS	250	350	150	170	270	120	220
	?	?	?	?	?	?	?
	900	2000	300	820	1900	770	1870

We can custom-build enclosures in any size other than the standard sizes.  
"Water & dust proof ratings (IP code and NEMA type) are the result of a test conducted in a laboratory environment.  
Therefore, they do not guarantee water & dust proof capacity in real world environments."

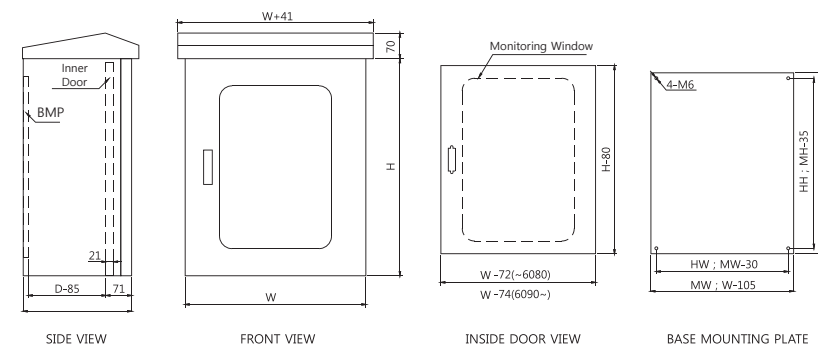
## Outdoor Enclosure with Inner Door OS Series



<b>Feature</b>	Waterproof, Inner door Indoor & outdoor Use
<b>Material</b>	OS: Steel 1.6~2.3mm OU: Stainless steel
<b>Color</b>	5Y7/1 (Smooth powder coating) Custom color upon request
<b>Components</b>	B.M.P, Handle



### Drawings and Dimensions



Model	Enclosure Dimensions			B.M.P. Dimensions				
	Width(W)	Height(H)	Depth(D)	MW	MH	HW	HH	Inner Depth
OS	300	400	250	195	300	165	265	150
	?	?	?	?	?	?	?	?
	700	1000	300	595	900	565	865	200

Inner Depth means the distance between Inner Door and B.M.P.  
We can custom-build enclosures in any size other than the standard sizes.  
"Water & dust proof ratings (IP code and NEMA type) are the result of a test conducted in a laboratory environment.  
Therefore, they do not guarantee water & dust proof capacity in real world environments."

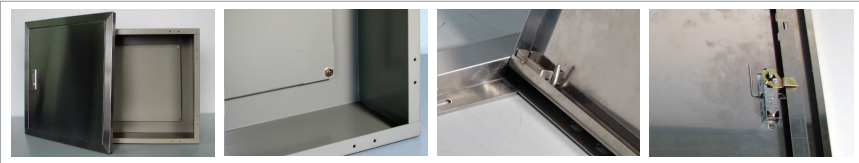
Flush Mounted Distribution Box  
Flush Mounted Distribution Box Door

FB Series  
FS Series

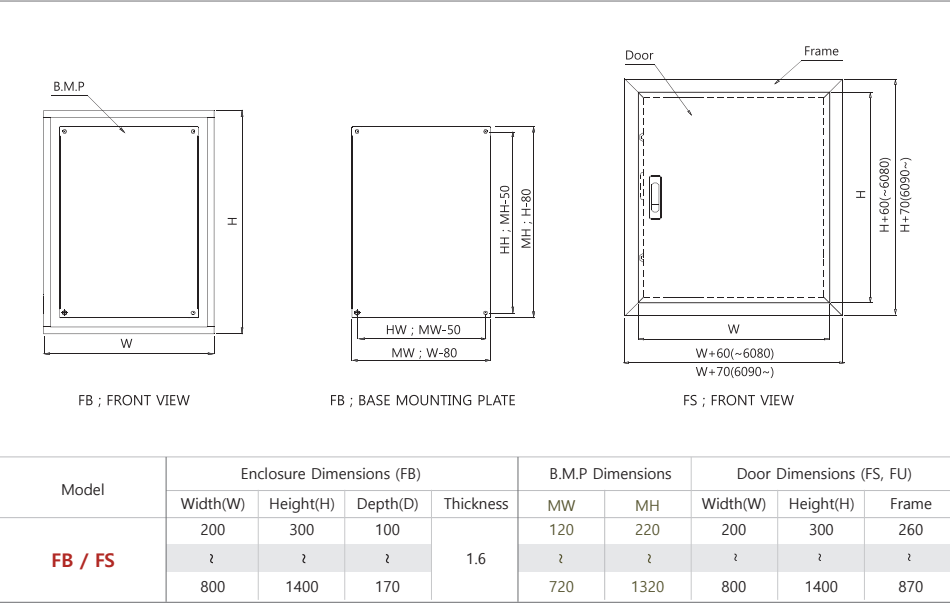


- Feature** High strength and durability
- Material** FB, FS: Steel, FU: Stainless steel
- Color** Basic: 5Y7/1 (Smooth powder coating)  
Other colors upon request
- Components** FB: B.M.P.

Available as UL certified products  
(UL50 Type 1 Enclosure; additional discussion needed)



Drawings and Dimensions



We can custom-build enclosures in any size other than the standard sizes.  
"Water & dust proof ratings (IP code and NEMA type) are the result of a test conducted in a laboratory environment.  
Therefore, they do not guarantee water & dust proof capacity in real world environments."

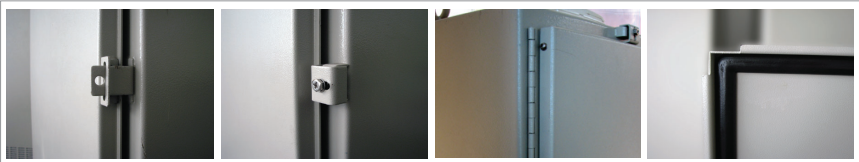


Enhanced Water & Dust-proof Performance  
HS Series

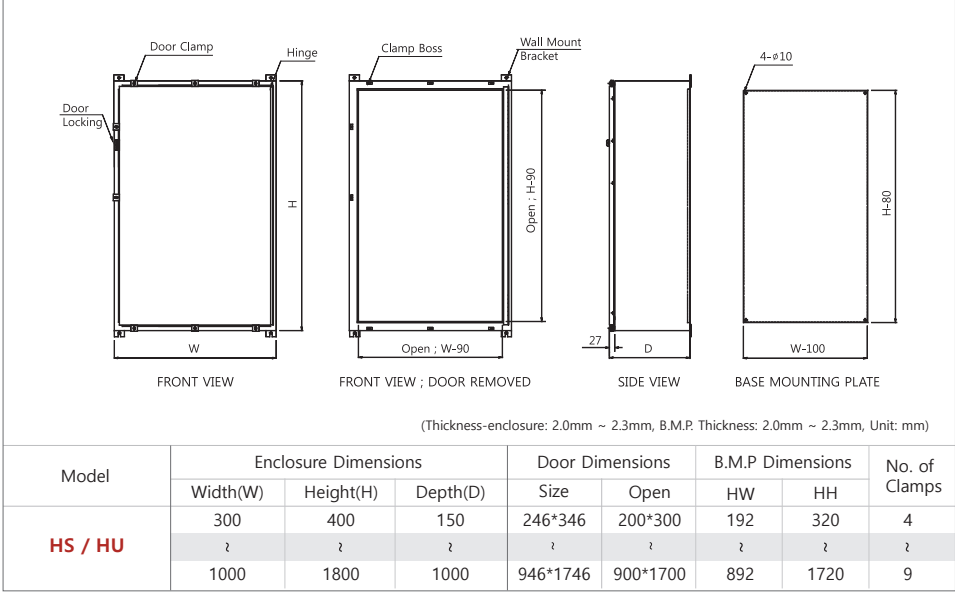


- Feature** Enhanced weather proof, protection from the outside
- Material** HS: Steel, HU: Stainless steel
- Color** RAL7032 (Leathertone powder coating)  
Other colors upon request
- Components** B.M.P, Earthing bolt, Wall mount brackets, Door clamp, Lock ring for security
- Options** Document box, Lifting bolts, Cable hole cover

Available as UL certified products  
(UL50 Type 4, 4X, 12 Enclosure; additional discussion needed)



Drawings and Dimensions



We can custom-build enclosures in any size other than the standard sizes.  
"Water & dust proof ratings (IP code and NEMA type) are the result of a test conducted in a laboratory environment.  
Therefore, they do not guarantee water & dust proof capacity in real world environments."



## IP66 & NEMA 4X (UL) Certified Product Guide



We have IP66 and NEMA 4X certifications for our enclosures with monitoring windows, and a pioneer in obtaining global certifications as an electrical enclosure manufacturer.

<b>Material</b>	Steel, Stainless steel
<b>Monitoring Window</b>	Tempered glass 5mm, Polycarbonate 5mm (TUV)
<b>Color</b>	RAL7032 (Leathertone powder coating)
<b>Certification</b>	NEMA 4X (UL), IP66 (TUV)

※ Higher degree of IP covers lower degrees of IP.



### Dimensions

(Unit: mm)

Model	Max. Size	Certification	Certification Body
<b>PS-UL</b>	2300(W)*2350(H)*1000(D)	NEMA 4X (1, 3, 4, 3R, 12 included)	UL
<b>PS-IP</b>	2300(W)*2350(H)*1000(D)	IP66	TUV
<b>HS/HU</b>	1000(W)*1800(H)*1000(D)	NEMA 4X (4, 12 included)	UL

Model	Max. Size (Monitoring Window)	Certification	Certification Body
<b>PS-UL</b>	825 * 2125	NEMA 4X (1, 3, 4, 3R, 12 included)	UL
<b>PS-IP</b>	825 * 2125	IP66 (lower IP degrees included)	TUV

※ You can refer to page 30 for the detailed specifications of HS/HU series.

Material: Steel / STS304 / STS316L (Min. thickness: 2mm)

Door types: Single, LR (left & right), FB (front & back) and any combinations

※ Note

1. The max. size of the depth excludes the depth of the door.
2. You can order any sizes between minimum and maximum sizes but the certified detailed specifications (e.g. handle, hinge, structure) must be applied.
3. The enclosures are certified under the assumption that there are no holes or extra components other than the ones certified, and we do not hold any responsibilities for the additional holes and components.

"Water & dust proof ratings (IP code and NEMA type) are the result of a test conducted in a laboratory environment. Therefore, they do not guarantee water & dust proof capacity in real world environments."



## Water & Dust-proof Enclosure PS Series

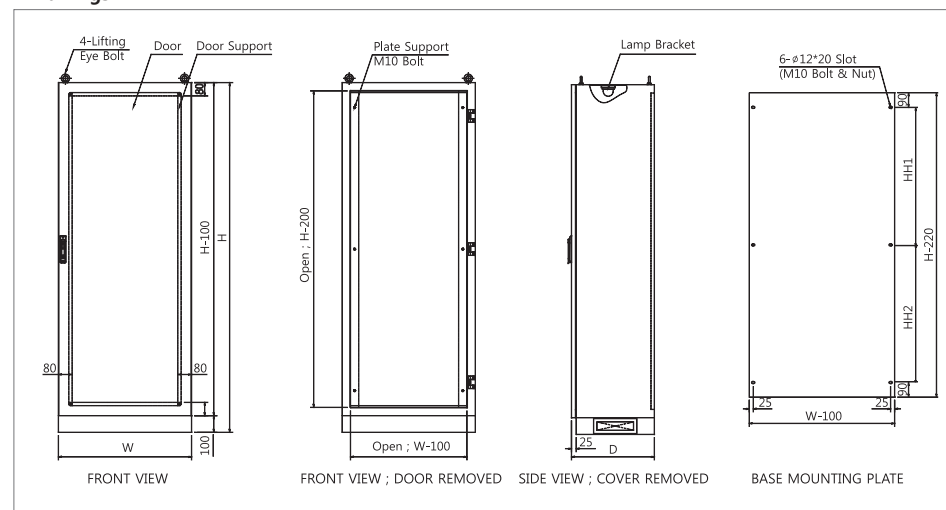


<b>Feature</b>	Enhanced water & dust proof performance
<b>Material</b>	Steel / Stainless steel
<b>Color</b>	RAL7032 (Leathertone powder coating) Custom color upon request
<b>Components</b>	B.M.P., cable hole cover, lifting bolts, base, handle
<b>Options</b>	Filter & case, door stopper, rear door, side BMP, keyboard support, horizontal bracket, earthing bolt, busbar, fan cover, cooler, cable bar, channel base, document box, monitoring window, air conditioner, lamp bracket, limit switch bracket

Available as IP66(TUV) and UL certified products  
(UL50 Type 4X Enclosure; additional discussion needed)



### Drawings



We can custom-build enclosures in any size other than the standard sizes.

"Water & dust proof ratings (IP code and NEMA type) are the result of a test conducted in a laboratory environment. Therefore, they do not guarantee water & dust proof capacity in real world environments."



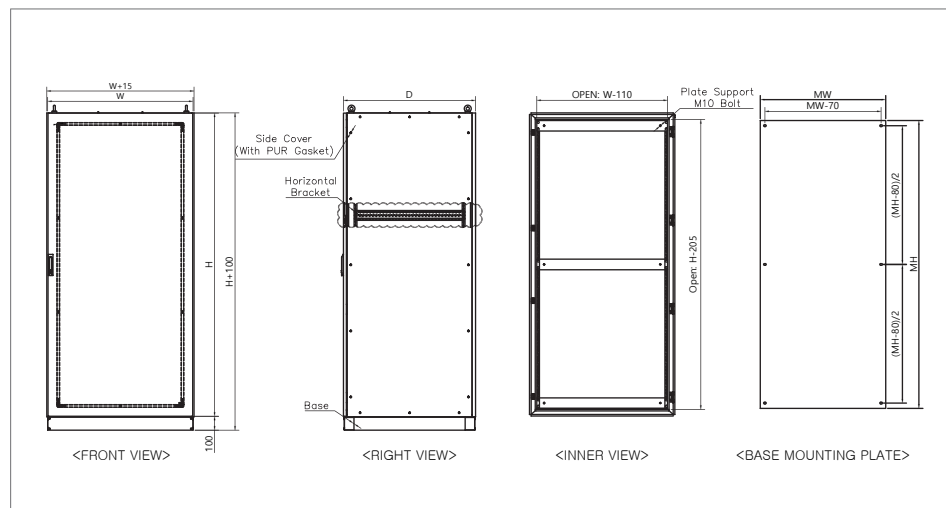


## Versatile Modular Structure Enclosure for outdoor installation

### MS-IP Series



#### Drawings



"Water & dust proof ratings (IP code and NEMA type) are the result of a test conducted in a laboratory environment. Therefore, they do not guarantee water & dust proof capacity in real world environments."

## Versatile Modular Structure Enclosure for indoor installation

### MS Series

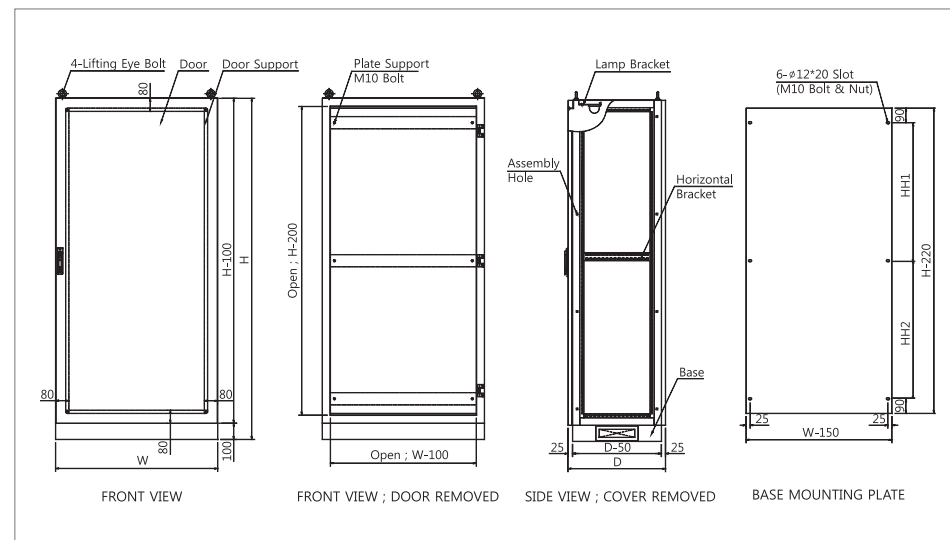


<b>Feature</b>	Modular structure, Easy maintenance
<b>Material</b>	Steel / Stainless steel
<b>Color</b>	RAL7032 (Leathertone powder coating) Custom color upon request
<b>Components</b>	B.M.P., cable hole cover, lifting bolts, base, horizontal bracket, swing frame unit, clip nut, standard handle
<b>Options</b>	Filter & case, door stopper, rear door, side BMP, keyboard support, horizontal bracket, earthing bolt, busbar, fan cover, cooler, cable bar, channel base, document box, monitoring window, air conditioner, lamp bracket, limit switch bracket

Available as UL certified products  
(UL50 Type 3R Enclosure; additional discussion needed)



#### Drawings



We can custom-build enclosures in any size other than the standard sizes.



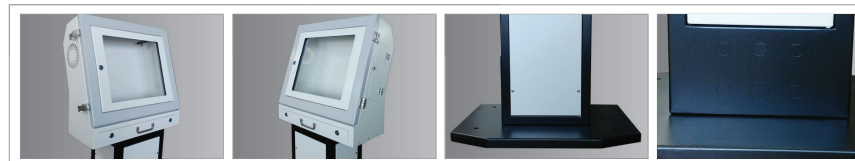
<b>Feature</b>	Modular structure, Easy maintenance
<b>Material</b>	Steel / Stainless steel
<b>Color</b>	RAL7032 (Leathertone powder coating) Custom color upon request
<b>Components</b>	B.M.P, cable hole cover, lifting bolts, base, horizontal bracket, swing frame unit, clip nut, standard handle
<b>Options</b>	Filter & case, door stopper, rear door, side BMP, keyboard support, horizontal bracket, earthing bolt, busbar, fan cover, cooler, cable bar, channel base, document box, monitoring window, air conditioner, lamp bracket, limit switch bracket, blank cover

The technical drawings of the RACK-1000 are as follows:

- FRONT VIEW:** Shows the rack with dimensions: 4-Lift Eye Bolt, 2-Hinge & Bearing, 465, 450, 130, 80, 80, 100, H-100, H, W, 80, 100, Locking, Z, Z.
- FRONT VIEW ; DOOR REMOVED:** Shows the rack with dimensions: 130, 465, 450, 130, 25, D-50, D, 25, Locking, Rack Mount Area.
- SIDE VIEW ; COVER REMOVED:** Shows the rack with dimensions: 130, Horizontal Bracket, Sub-Rack, Base, 6- $\phi 12 \times 20$  Slot (M10 Bolt & Nut), H-220, W-100, 25, 25, 80.
- BASE MOUNTING PLATE:** Shows the base mounting plate with dimensions: 25, 25, 80, W-100, H-220.
- SECTION Z-Z:** Shows a cross-section of the rack with dimensions: Sub-Rack, Rack Mount, Sight Glass 5t acryl, Door, 130, R.
- BOTTOM VIEW:** Shows the bottom view of the rack with dimensions: Cable Entrance Hole & Cover.
- ANCHOR PLAN:** Shows the anchor plan with dimensions: 4- $\phi 16$  Hole, D-100, W-200.



<b>Feature</b>	17" monitor, Modular structure, Multi-functional
<b>Material</b>	Steel / Stainless steel
<b>Color</b>	NL4083, EN4673, EC4283 (Powder coating) Custom color upon request
<b>Components</b>	Shelf, B.M.P.
<b>Options</b>	B.M.P., side B.M.P., shelf, caster, touch pen bracket, mouse pad, cable glands (PG-13.5, PG-16, PG-25)



Technical drawings of the SPS-1000A machine showing four views: Side (L) View, Front View, Rear View, and Anchor Base.

- Side (L) View:** Shows the machine's profile with dimensions  $H$  (height) and  $D$  (base width).
- Front View:** Shows the machine's front face with dimensions  $H$  (height) and  $W$  (base width).
- Rear View:** Shows the machine's back face with dimensions  $W$  (base width) and labels for **DOOR** and **CABLE GLAND** (녹아웃 타공).
- Anchor Base:** Shows the base plate with dimensions  $W$  (width) and  $D$  (depth).

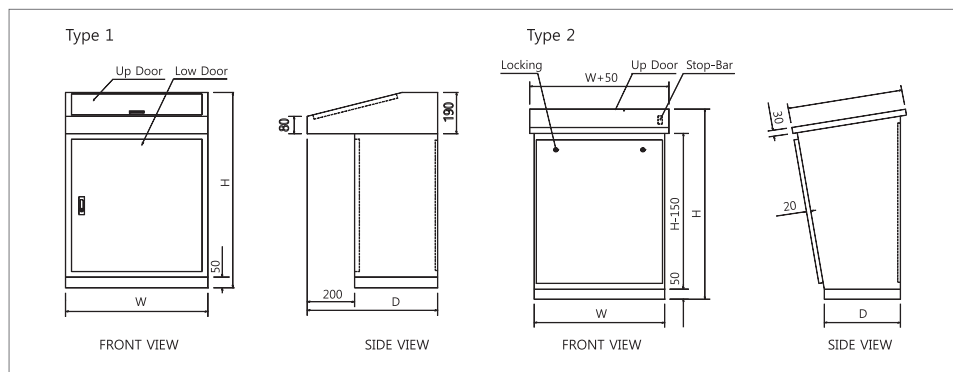
We can custom-build enclosures in any size other than the standard sizes.

## Desk-style Enclosure DS Series



- Feature** Console style, Multi-functional
- Material** Steel / Stainless steel
- Color** NL4083, EN4673, EC4283  
(Powder coating)  
Custom color upon request
- Components** B.M.P.

### Drawings



We can custom-build enclosures in any size other than the standard sizes.

## Hook-style Terminal Box TSU Series



- Type** TSU-S: Regular hook clamp  
TSU-L: Lock hook clamp
- Feature** Easy to use for a small terminal box  
Waterproof with polyurethane gasket
- Material** Stainless steel
- Components** B.M.P., hook clamp

### TSU Dimensions

MODEL	Enclosure Dimensions		
	Width(W)	Height(H)	Depth(D)
1520 10	150	200	100
1725 10	170	250	100
2030 12	200	300	120

We can custom-build enclosures in any size other than the standard sizes.

## Pull Box PB-UL Series

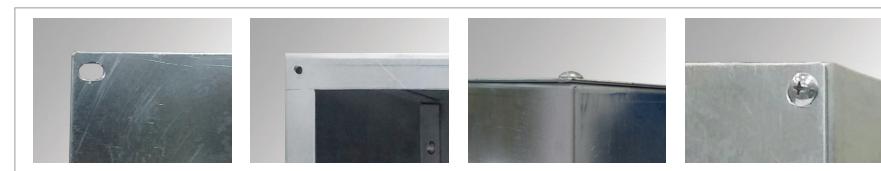


UL Certified Product



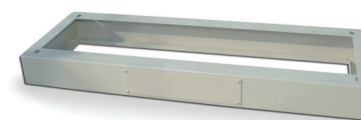
- Feature** Cost-effective & Indoor only
- Material** Steel (HGI 1.6T ~ 3.2T)  
Stainless steel
- Color** Basic: None  
Custom color upon request
- Size** Min. : W100 \* H100 \* D100  
Max. : W2600 \* H3200 \* D2600

Available as UL50 Type 1 Enclosure  
Custom size, color, structure upon request  
(Additional discussion needed)



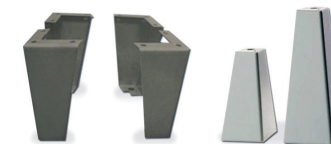
We can custom-build enclosures in any size other than the standard sizes.

## Base & Support



Base

Color: 5Y7/1, Material: Steel 2.3mm



Support

Size: Height 100/200/300

## Fire Hydrant System Series



We can custom-build enclosures in any size other than the standard sizes.

## Post



Type A  
Aluminum mould

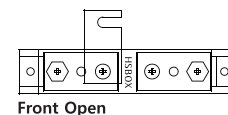
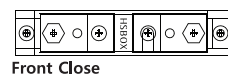


Type B  
SUS plate

Type A Ø100, Height 1000 SUS, AL Mould

Type B Ø100, Height 1000 SUS 304 Welding

## Ground Terminal



## Features

Terminal block body is made from flame-resistant PC eliminating the need for separate insulating Bakelite mounting plate (complete insulation).  
One size regardless of the thickness of cables (up to 120SQ)  
Contact failure is minimized with the use of solderless terminals.

Cable Gland Cap  
PG-CAP

**Feature** Used to prevent dust from entering the enclosure through cable glands when wires are not used



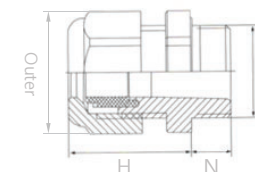
Model	Size	Available PG model	Units / pack
PG-CAP	Ø 6	PG-07	100
	Ø 8	PG-09	100
	Ø 10	PG-11	100
	Ø 12	PG-13.5	100
	Ø 14	PG-16, PG-19	100
	Ø 18	PG-21, PG-25	100
	Ø 25	PG-29	50
	Ø 32	PG-36	20
	Ø 38	PG-42	20
	Ø 44	PG-48, PG-63	20

Cable Gland  
PG Series

<b>Material</b>	Nylon PA
<b>Heat resistance</b>	Instantaneous 120 degrees
<b>Color</b>	Gray (G) - RAL7035 Black (B) - RAL9005



Sealing nut   Seal   Body&washer   Lock nut



## Dimensions

Unit: mm

Model	Type	Wire range	N				H				Outer				Ø				Cutting Size	Units per pack			
			G	B	GL	BL	G	B	GL	BL	G	B	GL	BL	G	B	GL	BL		G	B	GL	BL
PG	PG-07	3~6.5	8	15	22	22	16	15	12	12.5	13	100	100										
	PG-09	4~8	8	15	26	24	19	19	16	15.2	17	100	100										
	PG-11	5~10	8	15	27	26	22	22	18	18.6	19	100	100										
	PG-13.5	6~12	9	15	28	27	24	24	20	20.4	21	100	100										
	PG-16	10~14	10	15	30	29	27	27	22	22.5	23	100	100										
	PG-19	13~15	10	-	30	-	27/28	-	24	-	25	100	-										
	PG-21	14~18	10	15	35	35	33	33	28	28.3	29	100	100										
	PG-25	17~21	11	-	34	-	35/36	-	30	-	31	50	-										
	PG-29	19~25	12	18	40	40	41/42	42	37	37	37	50	50										
	PG-36	23~32	14	18	48	48	52/53	53	47	47	49	20	20										
	PG-42	33~38	14	18	49	50	60/61	60	54	54	55	20	20										
	PG-48	38~44	14	19	50	51	64/65	65	59	59.3	61	20	20										
	PG-63	43~50	27	-	60	-	76	-	70	-	71	4	-										

※ Notation:   This color indicates standard products PG-xxG and PG-xxB.  
  This color indicates products with long threads (N) PG-xxGL and PG-xxBL.



## Custom Made Products



## Custom Made Products

