

WSC series

IP67 SLOPED PLASTIC CASE

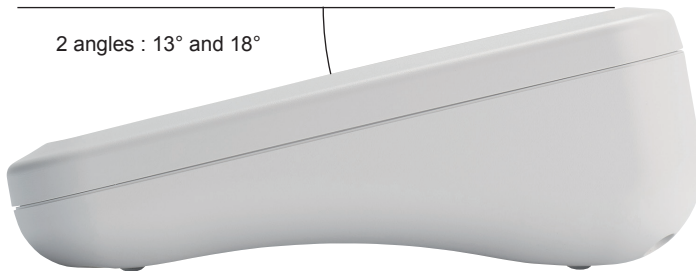


Ergonomic design and streamlined shape

Best suited for desktop operation with its sloped surface.

2 different inclined angles, 13° and 18° are available to select for various operating environments.

Streamlined shape enables the unit to be gripped better when used as a handheld instrument.



2 angles : 13° and 18°

Photo : 13° type



IP67 water- and dust-proof structure that can withstand various environments

High elasticity and good durability for maintaining waterproofing capability.

Built-in insert nut use for long-lasting protection even after frequent opening and closing.



APPLICATION EXAMPLE

Medical Measurement Device • Medical Controller



Transmitter • Network Equipment



RFID Card Reader



RFID Reader for ICT Entry/Exit System "KIDSNA connect" for Daycare/Preschool



Information on waterproofing after hole milling for switches

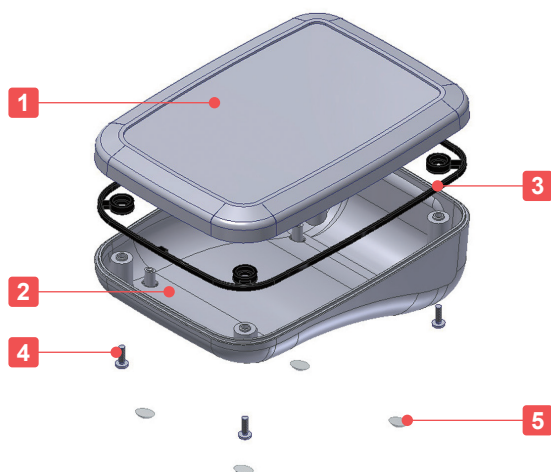
The waterproof performance will be lost once hole or cutout is machined on an IP rated enclosure. To ensure it remains waterproof after hole/cutout machining, IP rated membrane pad or overlay is required.



Information on affixing of cables into waterproof enclosures

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





Technical Data

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

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

Components

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

Accessories (Optional parts)



PCB mounting screw EM series
See page 398



Adhesive standoff AST series
See page 394



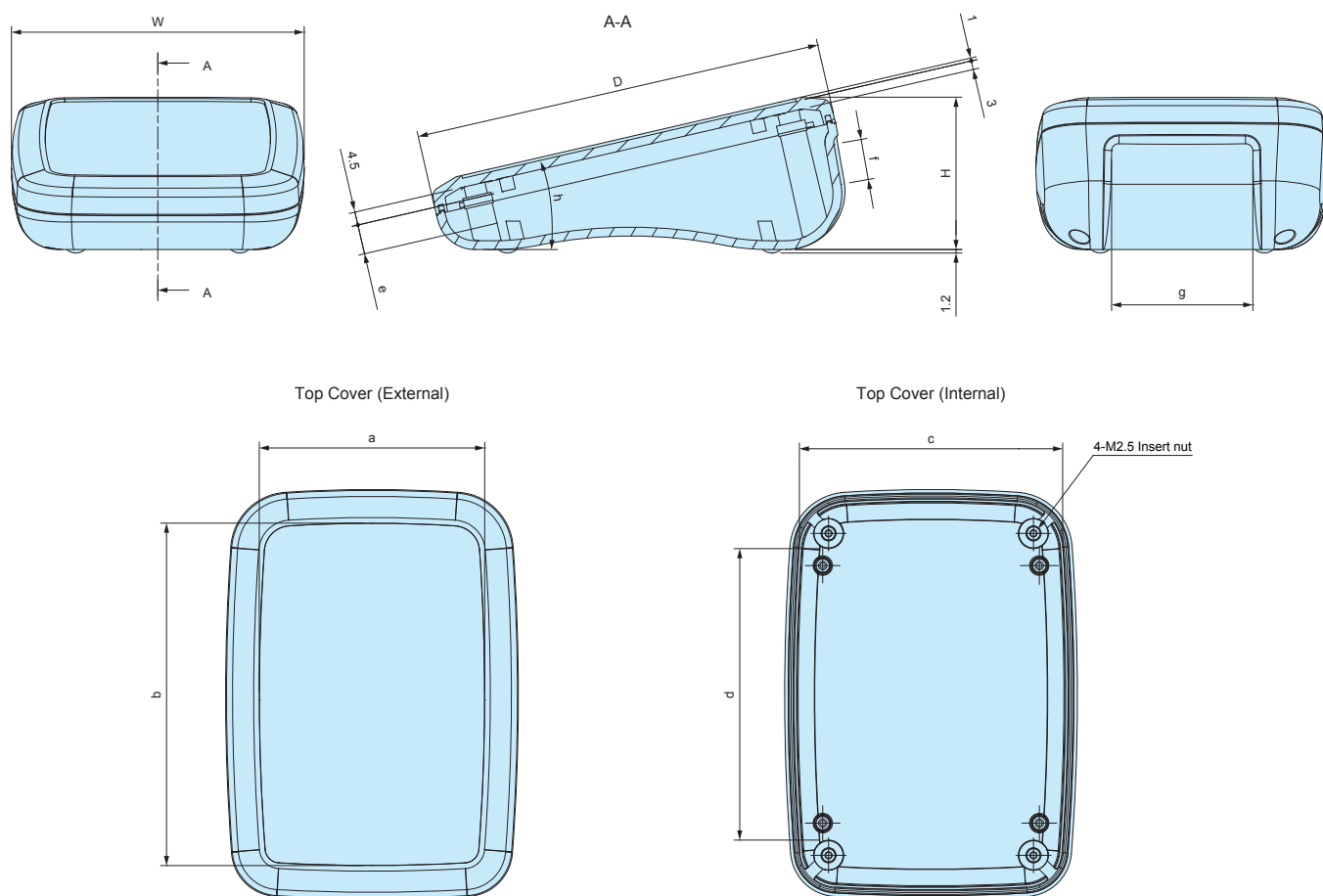
TORX screw MR series
See page 398



Cable gland
See page 181 ~ 193

WSC dimensions

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



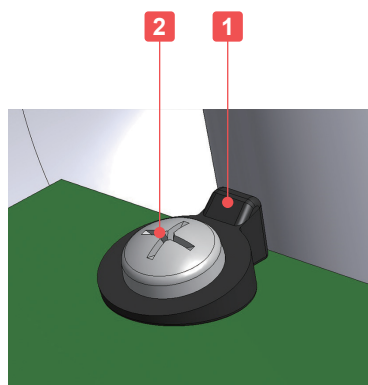
Product no. / Details

Product no.		Dimensions										Face angle	Weight (g)
● Off-white	● Black	W	D	H	a	b	c	d	e	f	g	h	
WSC10-14-5W	WSC10-14-5B	100	140	52	77	117	87	100	10	13.9	48.2	13°	145
WSC10-14-7W	WSC10-14-7B	100	140	72	77	117	87	100	22	27.4	48.2	18°	168
WSC14-14-5W	WSC14-14-5B	140	140	52	117	117	128	100	10	13.8	80.5	13°	190
WSC14-14-7W	WSC14-14-7B	140	140	72	117	117	128	100	22	27.4	80.5	18°	218
WSC18-14-5W	WSC18-14-5B	175	140	52	152	117	163	95	11.3	13.8	103.5	13°	234
WSC18-14-7W	WSC18-14-7B	175	140	72	152	117	163	95	23.7	27.4	103.5	18°	262

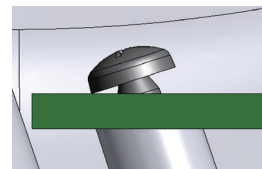
Accessories (Optional parts)

WSP-M2.3

INCLINED SPACER for WSC



- Due to the sloped shape of the WSC series, boss-tops are also angled. Therefore when mounting PCB on, some gap between the screw head and PCB surface will occur as shown in the diagram. WSP-M2.3 helps to fill the gap.
- EM-2.3-8 as PCB mounting screws are available for bosses in bottom base. (See page 398)



Components

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

■ Recommended torque : 0.1N • m

Product no. / Details

Product no.	Suitable models	Pack of
WSP-M2.3	WSC (for bottom base PCB boss)	4

EXPT series**ALUMINIUM PANEL CASE with TILT LEG**

■ Aluminium enclosure with tilt leg for measuring instrument use. Available in 30 different sizes and 16 different color combinations.

Components

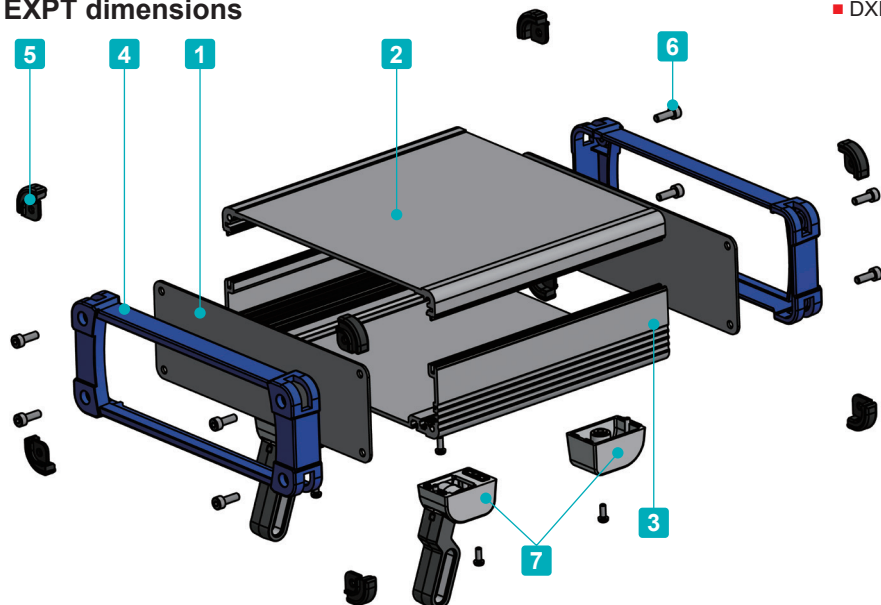
No.	Part name	Pcs	Material	Color / Finish
1	Panel	2	Aluminium A1100P	Silver / Anodized • Black / Painted
2	Top cover	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized with clear coating
3	Bottom cover	1	Extruded aluminium A6063S-T5	Silver • Black / Anodized with clear coating
4	Exterior frame	2	PC+ABS Flame-resistant	Black • Gray / Unpainted Indigo • Navy • Lime • Yellow • Orange • Red / Painted
5	Corner guard	8	Silicone	Dark gray • Black
6	Screw (Hexagonal)	8	Stainless steel	Unfinished
7	Tilt leg	1 set	PC+ABS UL94V-0, TPE	Black & Black • Navy & Gray • Light gray & Gray

Color Type

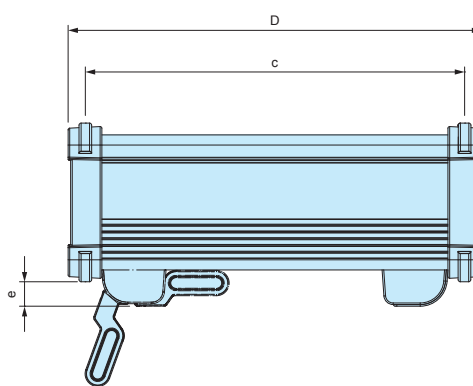
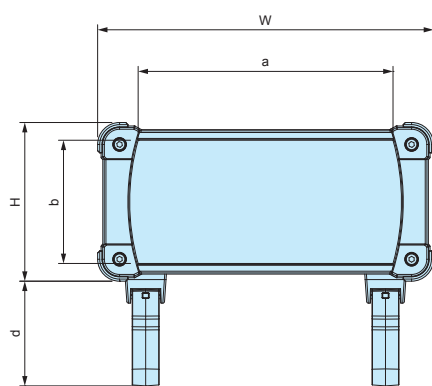
Code	[S][B] Silver / Black	[S][G] Silver / Gray	[S][I] Silver / Indigo	[S][N] Silver / Navy
Color				
Code	[S][L] Silver / Lime	[S][Y] Silver / Yellow	[S][O] Silver / Orange	[S][R] Silver / Red
Color				
Code	[B][B] Black / Black	[B][G] Black / Gray	[B][I] Black / Indigo	[B][N] Black / Navy
Color				
Code	[B][L] Black / Lime	[B][Y] Black / Yellow	[B][O] Black / Orange	[B][R] Black / Red
Color				

EXPT dimensions

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



Included screws
 EXPT20-□ models : M4-12 x 8 pcs
 EXPT24-□, 30-□ models : M5-12 x 8 pcs
 ※Hexagonal wrench included



※c = Top / Bottom cover length.

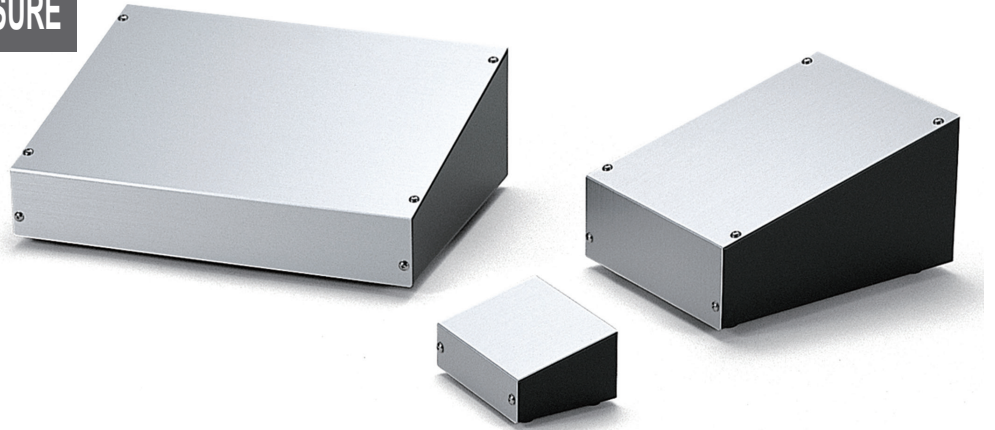
Product no. / Details

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

Product no.	External dimensions			Internal dimensions				
	W	H	D	a	b	c	d	e
EXPT20- 6-19□□	199	56	192	131	35	172	62	14.5
EXPT20- 6-25□□	199	56	245	131	35	225	62	14.5
EXPT20- 6-30□□	199	56	300	131	35	280	62	14.5
EXPT20- 7-19□□	199	74	192	131	53	172	62	14.5
EXPT20- 7-25□□	199	74	245	131	53	225	62	14.5
EXPT20- 7-30□□	199	74	300	131	53	280	62	14.5
EXPT20- 9-19□□	199	94	192	131	73	172	62	14.5
EXPT20- 9-25□□	199	94	245	131	73	225	62	14.5
EXPT20- 9-30□□	199	94	300	131	73	280	62	14.5
EXPT20-12-19□□	199	119	192	131	98	172	62	14.5
EXPT20-12-25□□	199	119	245	131	98	225	62	14.5
EXPT20-12-30□□	199	119	300	131	98	280	62	14.5
EXPT24- 6-17□□	244	64	170	176	43	147	62	14.5
EXPT24- 6-23□□	244	64	230	176	43	207	62	14.5
EXPT24- 6-29□□	244	64	290	176	43	267	62	14.5
EXPT24- 6-35□□	244	64	350	176	43	327	62	14.5
EXPT24- 9-17□□	244	89	170	176	68	147	62	14.5
EXPT24- 9-23□□	244	89	230	176	68	207	62	14.5
EXPT24- 9-29□□	244	89	290	176	68	267	62	14.5
EXPT24- 9-35□□	244	89	350	176	68	327	62	14.5
EXPT24-11-17□□	244	114	170	176	93	147	62	14.5
EXPT24-11-23□□	244	114	230	176	93	207	62	14.5
EXPT24-11-29□□	244	114	290	176	93	267	62	14.5
EXPT24-11-35□□	244	114	350	176	93	327	62	14.5
EXPT30- 9-25□□	300	90	250	230	68	228	61.5	14
EXPT30- 9-32□□	300	90	320	230	68	298	61.5	14
EXPT30- 9-40□□	300	90	400	230	68	378	61.5	14
EXPT30-14-25□□	300	140	250	230	118	228	61.5	14
EXPT30-14-32□□	300	140	320	230	118	298	61.5	14
EXPT30-14-40□□	300	140	400	230	118	378	61.5	14

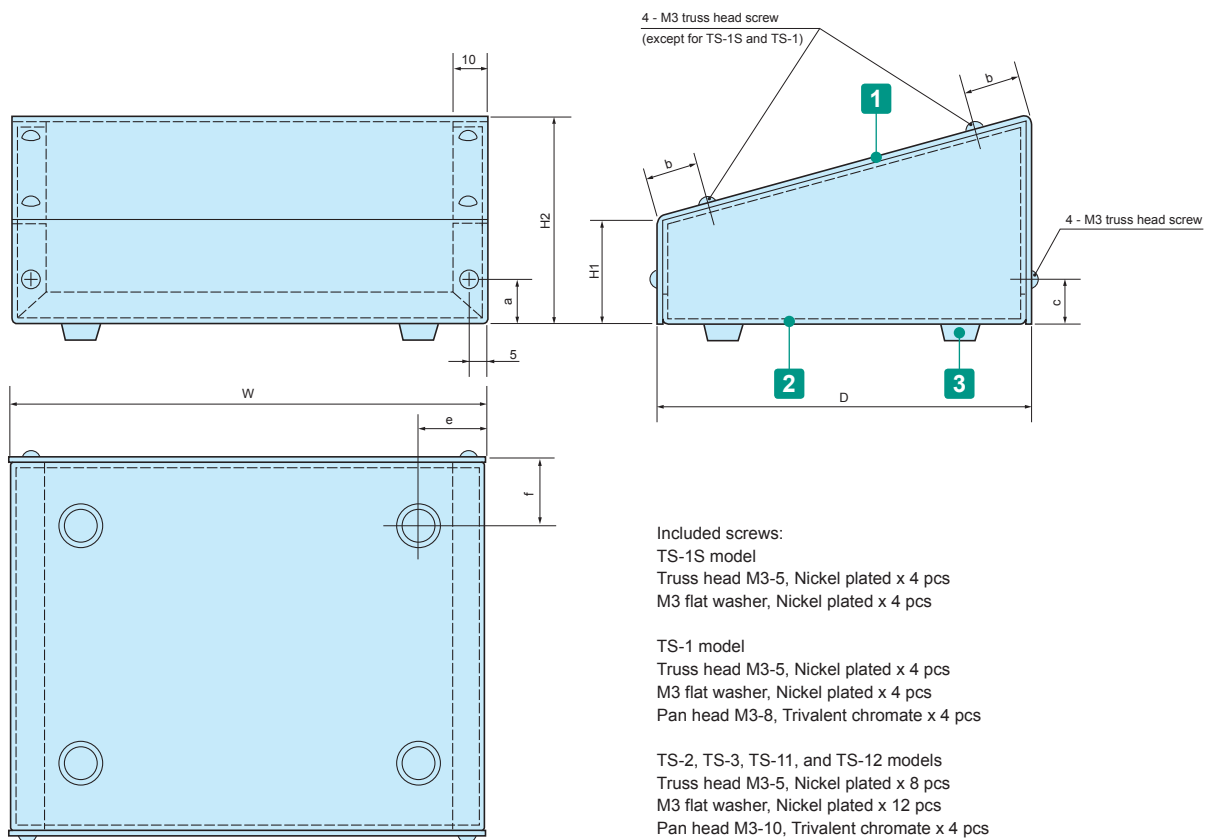
TS SERIES

SLOPED DESKTOP ENCLOSURE



TS dimensions

■ Detailed DXF/DWG drawings available online.

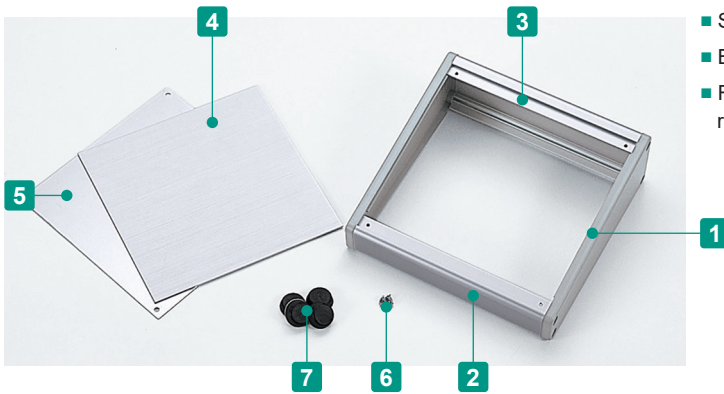


Components

No.	Part name	Pcs	Material	Color / Finish
1	Cover	1	Aluminium A1050P t=1.0	Silver / Hairline brushed & Anodized
2	Base	1	Aluminium A1100P t=1.0	Black
3	Rubber feet	4	Synthetic rubber	Black

Product no. / Dimensions

Product no.	W	H1	H2	D	a	b	c	e	f	Weight (g)
TS- 1S	100	30	47.5	75	15	–	23	12	13	100
TS- 1	140	35	58	100	17.5	–	29	15	16	175
TS- 2	200	35	70	150	15	15	15	20	21	315
TS- 3	290	50	99	210	15	20	15	25	26	615
TS-11	110	35	70	150	15	15	15	15	16	205
TS-12	150	60	107	200	15	15	15	20	21	380



- Simple designed box with 10° angle of inclination for operational ease.
- Both the Slide or Screwed panel side can be utilized as a front panel.
- Rubber feet can be attached in any position based on your design requirements.

Components

No.	Part name	Pcs	Material	Color / Finish
1	Side plate	2	ABS UL94V-0	Black • Gray
2	Front frame	1	Extruded aluminium A6063S-T5	Black • Silver / Anodized with clear coating
3	Rear frame	1	Extruded aluminium A6063S-T5	Black • Silver / Anodized with clear coating
4	Slide panel	1	Aluminium A1100P t=1.5	Black / Painted • Silver / Anodized
5	Screwed panel	1	Aluminium A1100P t=1.5	Black / Painted • Silver / Anodized
6	Screw	12	Steel	Black trivalent chromate • Nickel plated
7	Rubber feet	4	Rubber	Black

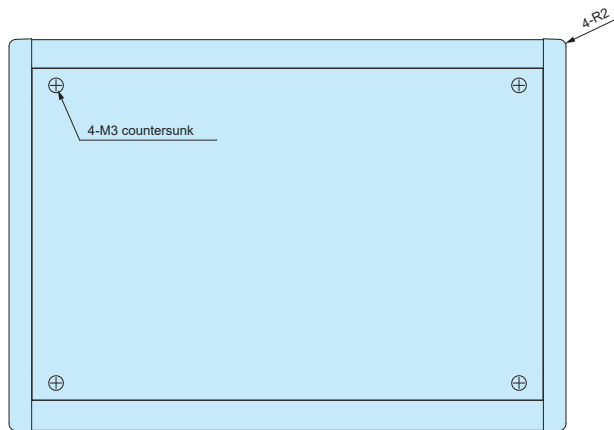
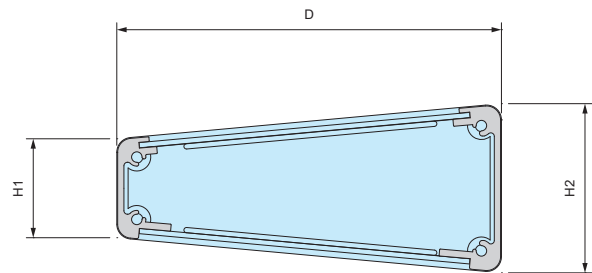
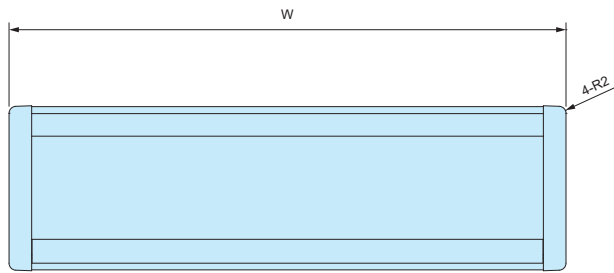
■ Please peel off the protection sheet cover on both panels before application.

- Low-cost digital printed overlay customization is available with a short lead time.
Refer to page Custom 11 ~ 12 for more details.



CF dimensions

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



Included screws

CF□- 11 models

M3-5 slotted raised countersunk - Black trivalent chromate x 4 pcs

M3-5 slotted raised countersunk - Nickel plated x 4 pcs

M3-10 countersunk - Black trivalent chromate x 8 pcs

CF□- 18, CF□- 23, and CF□- 28 models

M3-5 slotted raised countersunk - Black trivalent chromate x 4 pcs

M3-5 slotted raised countersunk - Nickel plated x 4 pcs

M4-12 countersunk - Black trivalent chromate x 8 pcs

Product no. / Details

Product no.		W	H1	H2	D	Weight (kg)
● Black	● Gray/Silver					
CF 7-11BB	CF 7-11GS	70	28.4	48.6	110.5	0.15
CF11-11BB	CF11-11GS	110	28.4	48.6	110.5	0.21
CF16-11BB	CF16-11GS	160	28.4	48.6	110.5	0.29
CF22-11BB	CF22-11GS	220	28.4	48.6	110.5	0.38
CF28-11BB	CF28-11GS	280	28.4	48.6	110.5	0.47
CF12-18BB	CF12-18GS	120	32.4	66.7	180.5	0.38
CF18-18BB	CF18-18GS	180	32.4	66.7	180.5	0.53
CF27-18BB	CF27-18GS	270	32.4	66.7	180.5	0.76
CF35-18BB	CF35-18GS	350	32.4	66.7	180.5	0.97
CF43-18BB	CF43-18GS	430	32.4	66.7	180.5	1.17
CF15-23BB	CF15-23GS	150	39.8	80	230	0.52
CF21-23BB	CF21-23GS	210	39.8	80	230	0.7
CF27-23BB	CF27-23GS	270	39.8	80	230	0.88
CF36-23BB	CF36-23GS	360	39.8	80	230	1.14
CF45-23BB	CF45-23GS	450	39.8	80	230	1.41
CF21-28BB	CF21-28GS	210	50	99	280	0.93
CF28-28BB	CF28-28GS	280	50	99	280	1.17
CF36-28BB	CF36-28GS	360	50	99	280	1.46
CF45-28BB	CF45-28GS	450	50	99	280	1.77

*H1, H2 dimensions are intersection-to-intersection on the drawing.
Refer to the CAD file or actual product for detailed dimensions.



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January 30, 2023

NOTICE

Material, Color, and Color Code Change

Affected series and changes:

■ **Material Change :**

MY series

Holder : PC + ABS → ABS

Grip + Blind Cap : PP + Elastomer → Elastomer

■ **Color Change :**

MS, MO, MSN, MON, MSY, MOY, MSR, MOR, MN, MY, MSM series

■ **Color Code Change :**

MS, MO, MSN, MON, MSY, MOY, MSR, MOR series

Click below illustrations to check **Current (Old)** and **New** colors on your browser.

Current (Old) Color Code : [G](#)

New Color Code : [GS](#)

**MS • MO
series**



**MS • MO
series**



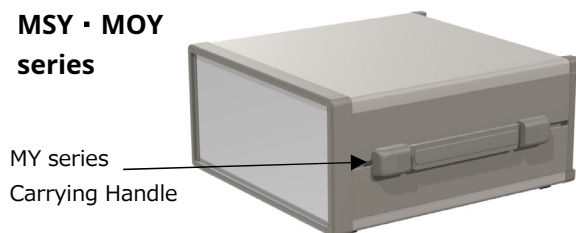
**MSN • MON
series**



**MSN • MON
series**



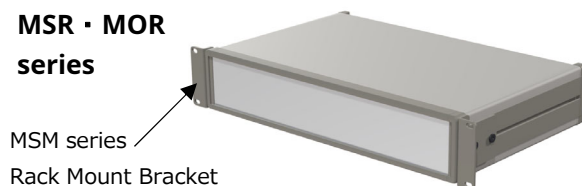
**MSY • MOY
series**



**MSY • MOY
series**



**MSR • MOR
series**



**MSR • MOR
series**



■ **Functionality:** No changes to functionality, size / dimensions, or finish.

■ **Purpose:** To ensure consistent quality throughout via streamlined supply chain and materials.

■ **Period:** 2023 July.

■ **No changes to pricing.**

Thank you for your understanding.

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

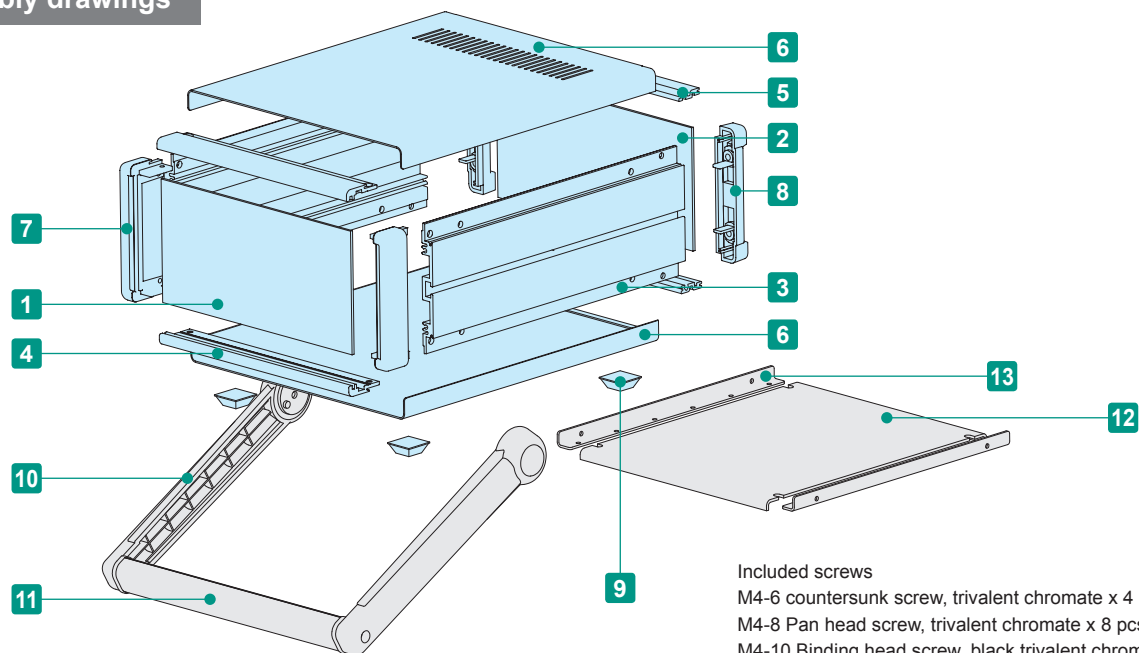
MSN SERIES

DESKTOP ENCLOSURE with STAND HANDLE



- Available in 3 different colors and 176 different sizes.
- Stand handle can be shifted and locked at 30° intervals.
- Maximum load support of 25kg.

Assembly drawings



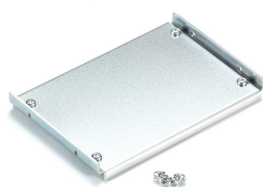
Included screws
 M4-6 countersunk screw, trivalent chromate x 4 pcs
 M4-8 Pan head screw, trivalent chromate x 8 pcs
 M4-10 Binding head screw, black trivalent chromate x 4 pcs

Components

No.	Part name		Pcs	Material	Color / Finish
1	Front panel		1	Aluminium A1050P t=2.0	Silver • Black / Hairline brushed & Anodized
2	Rear panel		1	Aluminium A1050P t=2.0	Silver • Black / Anodized
3	Side frame		2	Extruded aluminium A6063S-T5	Gray • Black / Painted
4	Front frame		2	Extruded aluminium A6063S-T5	Gray • Black / Painted
5	Rear frame		2	Extruded aluminium A6063S-T5	Silver / Anodized
6	Top • Bottom cover		1 each	Steel SPCC t=1.0	Light gray • Black / Painted
7	Corner block		2	Diecast aluminium ADC12	Gray • Black / Painted
8	Rear feet		2	ABS UL94V-0	Gray • Black
9	Rubber feet		4	Polyurethane	Black
10	Stand handle	Bracket	2	ABS UL94HB	Light gray • Black
11		Grip	1	Extruded aluminium A6063S-T5	Silver • Black

■ Note: Front / rear panels are covered with a protective film on one side. Remove before assembly.

Accessories (Optional parts)



12 Mounting plate MSC series
See page MSC • MSCL-1

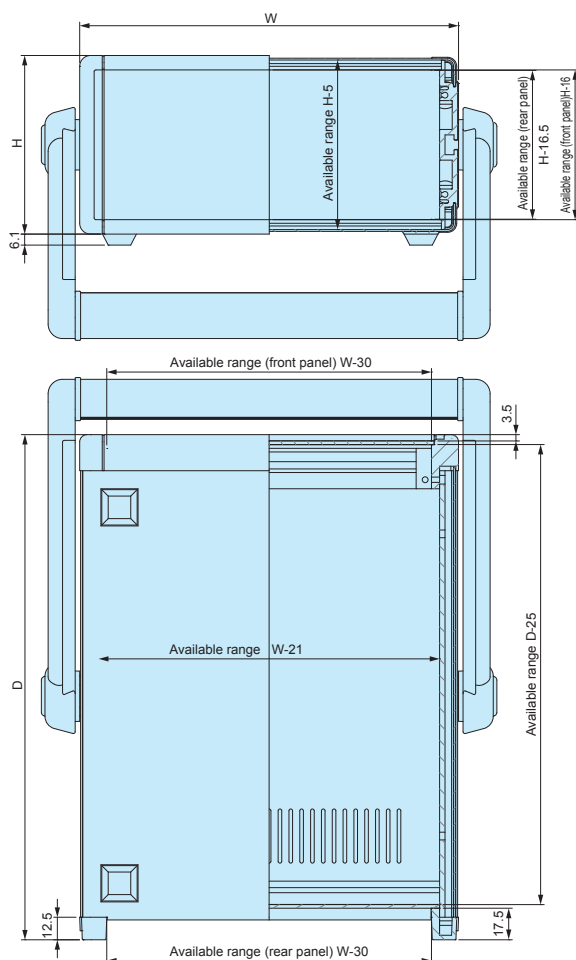


2 L-bracket MSCL series
See page MSC • MSCL-1

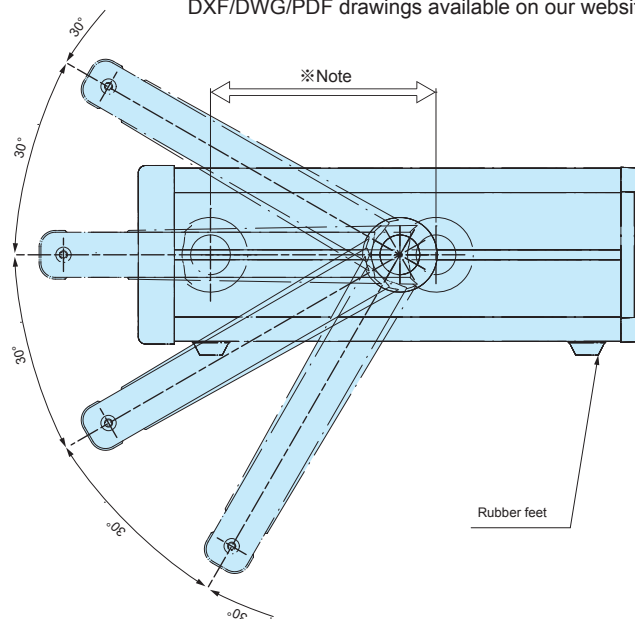


Cable hook CBF series
See page TL • CBF-1

MSN dimensions



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



※ Note
Stand handle location can be freely affixed within denoted range.

■ Top • Bottom cover of sizes 160x160, 160x230, 160x280, 210x160 do not have ventilation holes.

Color Type

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

● G		● B		● BS	
Panel	Silver	Panel	Black	Panel	Silver
Top • Bottom cover	Light gray	Top • Bottom cover	Black	Top • Bottom cover	Black
Side frame	Gray	Side frame	Black	Side frame	Black

Product no. / Dimensions

Product no.	H	W	D	Weight (kg)
MSN 66-16-16 □	66	160	160	1.2
MSN 66-16-23 □	66	160	230	1.5
MSN 66-16-28 □	66	160	280	1.8
MSN 66-21-16 □	66	210	160	1.4
MSN 66-21-23 □	66	210	230	1.8
MSN 66-21-28 □	66	210	280	2.1
MSN 66-21-35 □	66	210	350	2.5
MSN 66-26-23 □	66	260	230	2.1
MSN 66-26-28 □	66	260	280	2.4
MSN 66-26-35 □	66	260	350	2.9
MSN 66-32-23 □	66	320	230	2.4
MSN 66-32-28 □	66	320	280	2.8
MSN 66-32-35 □	66	320	350	3.4
MSN 66-32-45 □	66	320	450	4.1
MSN 66-37-23 □	66	370	230	2.6
MSN 66-37-28 □	66	370	280	3.1
MSN 66-37-35 □	66	370	350	3.7
MSN 66-37-45 □	66	370	450	4.4
MSN 66-43-23 □	66	430	230	3.0
MSN 66-43-28 □	66	430	280	3.5
MSN 66-43-35 □	66	430	350	4.2
MSN 66-43-45 □	66	430	450	5.2
MSN 88-16-16 □	88	160	160	1.3
MSN 88-16-23 □	88	160	230	1.6
MSN 88-16-28 □	88	160	280	1.9
MSN 88-21-16 □	88	210	160	1.5
MSN 88-21-23 □	88	210	230	1.9
MSN 88-21-28 □	88	210	280	2.3
MSN 88-21-35 □	88	210	350	2.7
MSN 88-26-23 □	88	260	230	2.3
MSN 88-26-28 □	88	260	280	2.6
MSN 88-26-35 □	88	260	350	3.1
MSN 88-32-23 □	88	320	230	2.6
MSN 88-32-28 □	88	320	280	3.0
MSN 88-32-35 □	88	320	350	3.6
MSN 88-32-45 □	88	320	450	4.4
MSN 88-37-23 □	88	370	230	2.9
MSN 88-37-28 □	88	370	280	3.3
MSN 88-37-35 □	88	370	350	4.0
MSN 88-37-45 □	88	370	450	4.7
MSN 88-43-23 □	88	430	230	3.2
MSN 88-43-28 □	88	430	280	3.7
MSN 88-43-35 □	88	430	350	4.4
MSN 88-43-45 □	88	430	450	5.5

Product no.	H	W	D	Weight (kg)
MSN 99-16-16 □	99	160	160	1.3
MSN 99-16-23 □	99	160	230	1.7
MSN 99-16-28 □	99	160	280	2.0
MSN 99-21-16 □	99	210	160	1.6
MSN 99-21-23 □	99	210	230	2.0
MSN 99-21-28 □	99	210	280	2.3
MSN 99-21-35 □	99	210	350	2.8
MSN 99-26-23 □	99	260	230	2.3
MSN 99-26-28 □	99	260	280	2.7
MSN 99-26-35 □	99	260	350	3.2
MSN 99-32-23 □	99	320	230	2.6
MSN 99-32-28 □	99	320	280	3.1
MSN 99-32-35 □	99	320	350	3.7
MSN 99-32-45 □	99	320	450	4.5
MSN 99-37-23 □	99	370	230	2.9
MSN 99-37-28 □	99	370	280	3.4
MSN 99-37-35 □	99	370	350	4.1
MSN 99-37-45 □	99	370	450	4.8
MSN 99-43-23 □	99	430	230	3.3
MSN 99-43-28 □	99	430	280	3.8
MSN 99-43-35 □	99	430	350	4.5
MSN 99-43-45 □	99	430	450	5.6
MSN133-16-16 □	133	160	160	1.5
MSN133-16-23 □	133	160	230	1.9
MSN133-16-28 □	133	160	280	2.2
MSN133-21-16 □	133	210	160	1.8
MSN133-21-23 □	133	210	230	2.3
MSN133-21-28 □	133	210	280	2.6
MSN133-21-35 □	133	210	350	3.1
MSN133-26-23 □	133	260	230	2.6
MSN133-26-28 □	133	260	280	3.0
MSN133-26-35 □	133	260	350	3.5
MSN133-32-23 □	133	320	230	2.9
MSN133-32-28 □	133	320	280	3.4
MSN133-32-35 □	133	320	350	4.0
MSN133-32-45 □	133	320	450	4.9
MSN133-37-23 □	133	370	230	3.3
MSN133-37-28 □	133	370	280	3.8
MSN133-37-35 □	133	370	350	4.4
MSN133-37-45 □	133	370	450	5.2
MSN133-43-23 □	133	430	230	3.7
MSN133-43-28 □	133	430	280	4.2
MSN133-43-35 □	133	430	350	4.9
MSN133-43-45 □	133	430	450	6.0

Product no. / Dimensions

Product no.	H	W	D	Weight (kg)
MSN149-16-16 □	149	160	160	1.6
MSN149-16-23 □	149	160	230	2.0
MSN149-16-28 □	149	160	280	2.4
MSN149-21-16 □	149	210	160	1.8
MSN149-21-23 □	149	210	230	2.4
MSN149-21-28 □	149	210	280	2.7
MSN149-21-35 □	149	210	350	3.2
MSN149-26-23 □	149	260	230	2.7
MSN149-26-28 □	149	260	280	3.1
MSN149-26-35 □	149	260	350	3.6
MSN149-32-23 □	149	320	230	3.1
MSN149-32-28 □	149	320	280	3.5
MSN149-32-35 □	149	320	350	4.2
MSN149-32-45 □	149	320	450	5.1
MSN149-37-23 □	149	370	230	3.4
MSN149-37-28 □	149	370	280	3.9
MSN149-37-35 □	149	370	350	4.6
MSN149-37-45 □	149	370	450	5.4
MSN149-43-23 □	149	430	230	3.8
MSN149-43-28 □	149	430	280	4.4
MSN149-43-35 □	149	430	350	5.1
MSN149-43-45 □	149	430	450	6.3
MSN177-16-16 □	177	160	160	1.9
MSN177-16-23 □	177	160	230	2.4
MSN177-16-28 □	177	160	280	2.8
MSN177-21-16 □	177	210	160	2.2
MSN177-21-23 □	177	210	230	2.8
MSN177-21-28 □	177	210	280	3.2
MSN177-21-35 □	177	210	350	3.8
MSN177-26-23 □	177	260	230	3.2
MSN177-26-28 □	177	260	280	3.6
MSN177-26-35 □	177	260	350	4.2
MSN177-32-23 □	177	320	230	3.5
MSN177-32-28 □	177	320	280	4.0
MSN177-32-35 □	177	320	350	4.8
MSN177-32-45 □	177	320	450	5.8
MSN177-37-23 □	177	370	230	3.9
MSN177-37-28 □	177	370	280	4.4
MSN177-37-35 □	177	370	350	5.2
MSN177-37-45 □	177	370	450	6.1
MSN177-43-23 □	177	430	230	4.3
MSN177-43-28 □	177	430	280	4.9
MSN177-43-35 □	177	430	350	5.7
MSN177-43-45 □	177	430	450	7.0

Product no.	H	W	D	Weight (kg)
MSN199-16-16 □	199	160	160	2.0
MSN199-16-23 □	199	160	230	2.6
MSN199-16-28 □	199	160	280	2.9
MSN199-21-16 □	199	210	160	2.3
MSN199-21-23 □	199	210	230	2.9
MSN199-21-28 □	199	210	280	3.3
MSN199-21-35 □	199	210	350	3.9
MSN199-26-23 □	199	260	230	3.3
MSN199-26-28 □	199	260	280	3.7
MSN199-26-35 □	199	260	350	4.4
MSN199-32-23 □	199	320	230	3.7
MSN199-32-28 □	199	320	280	4.2
MSN199-32-35 □	199	320	350	4.9
MSN199-32-45 □	199	320	450	5.9
MSN199-37-23 □	199	370	230	4.0
MSN199-37-28 □	199	370	280	4.6
MSN199-37-35 □	199	370	350	5.4
MSN199-37-45 □	199	370	450	6.3
MSN199-43-23 □	199	430	230	4.5
MSN199-43-28 □	199	430	280	5.1
MSN199-43-35 □	199	430	350	5.9
MSN199-43-45 □	199	430	450	7.2
MSN222-16-16 □	222	160	160	2.2
MSN222-16-23 □	222	160	230	2.7
MSN222-16-28 □	222	160	280	3.0
MSN222-21-16 □	222	210	160	2.5
MSN222-21-23 □	222	210	230	3.0
MSN222-21-28 □	222	210	280	3.4
MSN222-21-35 □	222	210	350	4.1
MSN222-26-23 □	222	260	230	3.4
MSN222-26-28 □	222	260	280	3.8
MSN222-26-35 □	222	260	350	4.5
MSN222-32-23 □	222	320	230	3.8
MSN222-32-28 □	222	320	280	4.3
MSN222-32-35 □	222	320	350	5.1
MSN222-32-45 □	222	320	450	6.2
MSN222-37-23 □	222	370	230	4.2
MSN222-37-28 □	222	370	280	4.8
MSN222-37-35 □	222	370	350	5.6
MSN222-37-45 □	222	370	450	6.6
MSN222-43-23 □	222	430	230	4.7
MSN222-43-28 □	222	430	280	5.2
MSN222-43-35 □	222	430	350	6.1
MSN222-43-45 □	222	430	450	7.5

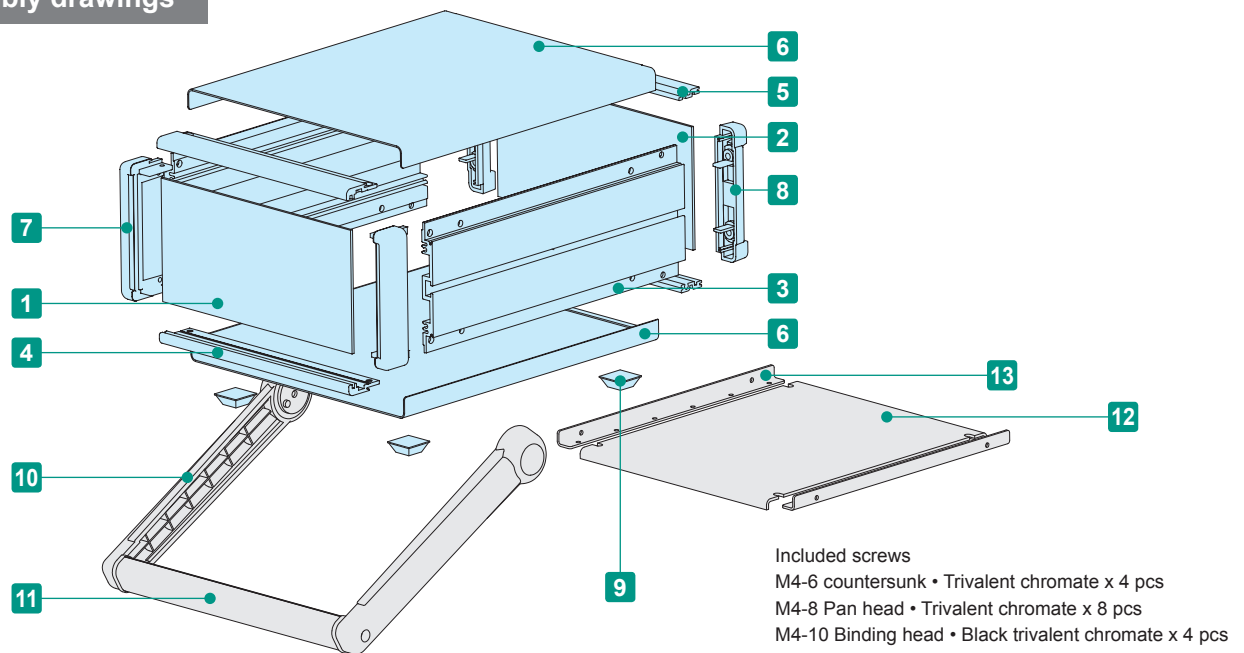
MON SERIES

SYSTEM CASE with STAND HANDLE



- Available in 3 different colors and 176 different sizes.
- Stand handle can be shifted and locked at 30° intervals. Maximum load support of 25kg.
- Lightweight system case with stand handle. Suitable for use as measuring instruments, etc.

Assembly drawings

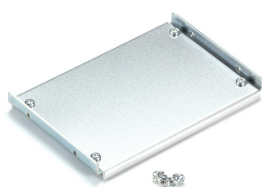


Components

No.	Part name		Pcs	Material	Color / Finish
1	Front panel		1	Aluminium A1050P t=2.0	Silver • Black / Hairline brushed & Anodized
2	Rear panel		1	Aluminium A1050P t=2.0	Silver • Black / Anodized
3	Side frame		2	Extruded aluminium A6063S-T5	Gray • Black / Painted
4	Front frame		2	Extruded aluminium A6063S-T5	Gray • Black / Painted
5	Rear frame		2	Extruded aluminium A6063S-T5	Silver / Anodized
6	Top • Bottom cover		1 each	Aluminium A1100P t=1.0	Light gray • Black / Painted
7	Corner block		2	Diecast aluminium ADC12	Gray • Black / Painted
8	Rear feet		2	ABS UL94V-0	Gray • Black
9	Rubber feet		4	Polyurethane	Black
10	Stand handle	Bracket	2	ABS UL94HB	Light gray • Black
11		Grip	1	Extruded aluminium A6063S-T5	Silver • Black

■ Note: Front / rear panels and top / bottom covers are covered with a protective film on one side. Remove before assembly.

Accessories (Optional parts)



12 Mounting plate MSC series
See page MSC • MSCL-1



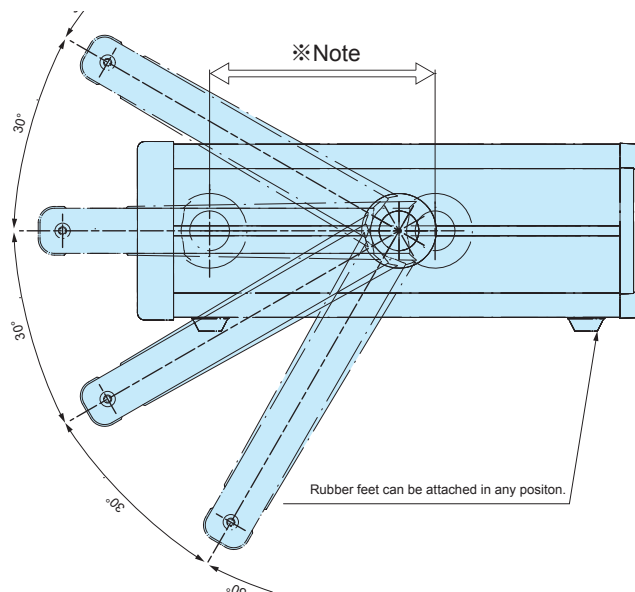
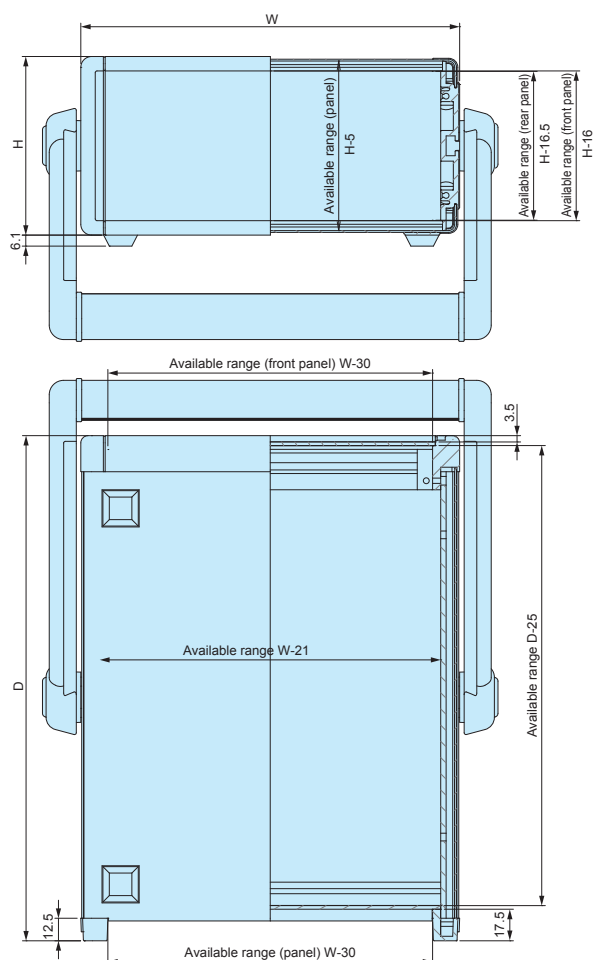
13 L-bracket MSCL series
See page MSC • MSCL-1



Cable hook CBF series
See page TL • CBF-1

MON dimensions

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



Color Type

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

● G



Panel	Silver
Top • Bottom cover	Light Gray
Side frame	Gray

● B



Panel	Black
Top • Bottom cover	Black
Side frame	Black

● BS



Panel	Silver
Top • Bottom cover	Black
Side frame	Black

Product no. / Dimensions

Product no.	H	W	D	Weight (kg)
MON 66-16-16□	66	160	160	0.9
MON 66-16-23□	66	160	230	1.1
MON 66-16-28□	66	160	280	1.3
MON 66-21-16□	66	210	160	1.1
MON 66-21-23□	66	210	230	1.3
MON 66-21-28□	66	210	280	1.5
MON 66-21-35□	66	210	350	1.7
MON 66-26-23□	66	260	230	1.5
MON 66-26-28□	66	260	280	1.7
MON 66-26-35□	66	260	350	2.0
MON 66-32-23□	66	320	230	1.7
MON 66-32-28□	66	320	280	1.9
MON 66-32-35□	66	320	350	2.2
MON 66-32-45□	66	320	450	2.6
MON 66-37-23□	66	370	230	1.9
MON 66-37-28□	66	370	280	2.1
MON 66-37-35□	66	370	350	2.4
MON 66-37-45□	66	370	450	2.8
MON 66-43-23□	66	430	230	2.1
MON 66-43-28□	66	430	280	2.4
MON 66-43-35□	66	430	350	2.7
MON 66-43-45□	66	430	450	3.2
MON 88-16-16□	88	160	160	1.0
MON 88-16-23□	88	160	230	1.3
MON 88-16-28□	88	160	280	1.5
MON 88-21-16□	88	210	160	1.2
MON 88-21-23□	88	210	230	1.5
MON 88-21-28□	88	210	280	1.7
MON 88-21-35□	88	210	350	1.9
MON 88-26-23□	88	260	230	1.7
MON 88-26-28□	88	260	280	1.9
MON 88-26-35□	88	260	350	2.2
MON 88-32-23□	88	320	230	1.9
MON 88-32-28□	88	320	280	2.1
MON 88-32-35□	88	320	350	2.5
MON 88-32-45□	88	320	450	2.9
MON 88-37-23□	88	370	230	2.1
MON 88-37-28□	88	370	280	2.3
MON 88-37-35□	88	370	350	2.7
MON 88-37-45□	88	370	450	3.1
MON 88-43-23□	88	430	230	2.3
MON 88-43-28□	88	430	280	2.6
MON 88-43-35□	88	430	350	3.0
MON 88-43-45□	88	430	450	3.5

Product no.	H	W	D	Weight (kg)
MON 99-16-16□	99	160	160	1.1
MON 99-16-23□	99	160	230	1.3
MON 99-16-28□	99	160	280	1.5
MON 99-21-16□	99	210	160	1.3
MON 99-21-23□	99	210	230	1.5
MON 99-21-28□	99	210	280	1.7
MON 99-21-35□	99	210	350	2.0
MON 99-26-23□	99	260	230	1.7
MON 99-26-28□	99	260	280	2.0
MON 99-26-35□	99	260	350	2.3
MON 99-32-23□	99	320	230	2.0
MON 99-32-28□	99	320	280	2.2
MON 99-32-35□	99	320	350	2.6
MON 99-32-45□	99	320	450	3.0
MON 99-37-23□	99	370	230	2.1
MON 99-37-28□	99	370	280	2.4
MON 99-37-35□	99	370	350	2.8
MON 99-37-45□	99	370	450	3.2
MON 99-43-23□	99	430	230	2.4
MON 99-43-28□	99	430	280	2.7
MON 99-43-35□	99	430	350	3.1
MON 99-43-45□	99	430	450	3.7
MON133-16-16□	132.5	160	160	1.3
MON133-16-23□	132.5	160	230	1.6
MON133-16-28□	132.5	160	280	1.8
MON133-21-16□	132.5	210	160	1.5
MON133-21-23□	132.5	210	230	1.8
MON133-21-28□	132.5	210	280	2.0
MON133-21-35□	132.5	210	350	2.3
MON133-26-23□	132.5	260	230	2.0
MON133-26-28□	132.5	260	280	2.3
MON133-26-35□	132.5	260	350	2.6
MON133-32-23□	132.5	320	230	2.3
MON133-32-28□	132.5	320	280	2.5
MON133-32-35□	132.5	320	350	2.9
MON133-32-45□	132.5	320	450	3.4
MON133-37-23□	132.5	370	230	2.5
MON133-37-28□	132.5	370	280	2.8
MON133-37-35□	132.5	370	350	3.2
MON133-37-45□	132.5	370	450	3.6
MON133-43-23□	132.5	430	230	2.7
MON133-43-28□	132.5	430	280	3.0
MON133-43-35□	132.5	430	350	3.5
MON133-43-45□	132.5	430	450	4.1

Product no. / Dimensions

Product no.	H	W	D	Weight (kg)
MON149-16-16□	149	160	160	1.3
MON149-16-23□	149	160	230	1.7
MON149-16-28□	149	160	280	1.9
MON149-21-16□	149	210	160	1.5
MON149-21-23□	149	210	230	1.9
MON149-21-28□	149	210	280	2.1
MON149-21-35□	149	210	350	2.4
MON149-26-23□	149	260	230	2.1
MON149-26-28□	149	260	280	2.4
MON149-26-35□	149	260	350	2.7
MON149-32-23□	149	320	230	2.4
MON149-32-28□	149	320	280	2.7
MON149-32-35□	149	320	350	3.1
MON149-32-45□	149	320	450	3.6
MON149-37-23□	149	370	230	2.6
MON149-37-28□	149	370	280	2.9
MON149-37-35□	149	370	350	3.3
MON149-37-45□	149	370	450	3.9
MON149-43-23□	149	430	230	2.9
MON149-43-28□	149	430	280	3.2
MON149-43-35□	149	430	350	3.6
MON149-43-45□	149	430	450	4.3
MON177-16-16□	177	160	160	1.6
MON177-16-23□	177	160	230	2.1
MON177-16-28□	177	160	280	2.3
MON177-21-16□	177	210	160	1.8
MON177-21-23□	177	210	230	2.3
MON177-21-28□	177	210	280	2.6
MON177-21-35□	177	210	350	3.0
MON177-26-23□	177	260	230	2.6
MON177-26-28□	177	260	280	2.9
MON177-26-35□	177	260	350	3.3
MON177-32-23□	177	320	230	2.8
MON177-32-28□	177	320	280	3.2
MON177-32-35□	177	320	350	3.7
MON177-32-45□	177	320	450	4.3
MON177-37-23□	177	370	230	3.1
MON177-37-28□	177	370	280	3.4
MON177-37-35□	177	370	350	3.9
MON177-37-45□	177	370	450	4.6
MON177-43-23□	177	430	230	3.4
MON177-43-28□	177	430	280	3.7
MON177-43-35□	177	430	350	4.3
MON177-43-45□	177	430	450	5.0

Product no.	H	W	D	Weight (kg)
MON199-16-16□	199	160	160	1.8
MON199-16-23□	199	160	230	2.2
MON199-16-28□	199	160	280	2.5
MON199-21-16□	199	210	160	2.0
MON199-21-23□	199	210	230	2.4
MON199-21-28□	199	210	280	2.7
MON199-21-35□	199	210	350	3.1
MON199-26-23□	199	260	230	2.7
MON199-26-28□	199	260	280	3.0
MON199-26-35□	199	260	350	3.4
MON199-32-23□	199	320	230	3.0
MON199-32-28□	199	320	280	3.3
MON199-32-35□	199	320	350	3.8
MON199-32-45□	199	320	450	4.5
MON199-37-23□	199	370	230	3.2
MON199-37-28□	199	370	280	3.6
MON199-37-35□	199	370	350	4.1
MON199-37-45□	199	370	450	4.7
MON199-43-23□	199	430	230	3.5
MON199-43-28□	199	430	280	3.9
MON199-43-35□	199	430	350	4.4
MON199-43-45□	199	430	450	5.2
MON222-16-16□	221.5	160	160	1.9
MON222-16-23□	221.5	160	230	2.3
MON222-16-28□	221.5	160	280	2.6
MON222-21-16□	221.5	210	160	2.1
MON222-21-23□	221.5	210	230	2.6
MON222-21-28□	221.5	210	280	2.9
MON222-21-35□	221.5	210	350	3.3
MON222-26-23□	221.5	260	230	2.9
MON222-26-28□	221.5	260	280	3.1
MON222-26-35□	221.5	260	350	3.6
MON222-32-23□	221.5	320	230	3.1
MON222-32-28□	221.5	320	280	3.5
MON222-32-35□	221.5	320	350	4.0
MON222-32-45□	221.5	320	450	4.8
MON222-37-23□	221.5	370	230	3.4
MON222-37-28□	221.5	370	280	3.8
MON222-37-35□	221.5	370	350	4.3
MON222-37-45□	221.5	370	450	5.0
MON222-43-23□	221.5	430	230	3.7
MON222-43-28□	221.5	430	280	4.1
MON222-43-35□	221.5	430	350	4.7
MON222-43-45□	221.5	430	450	5.5

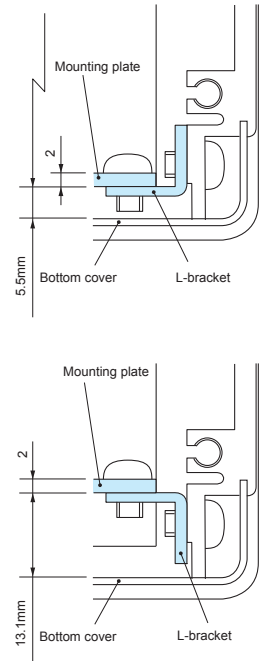
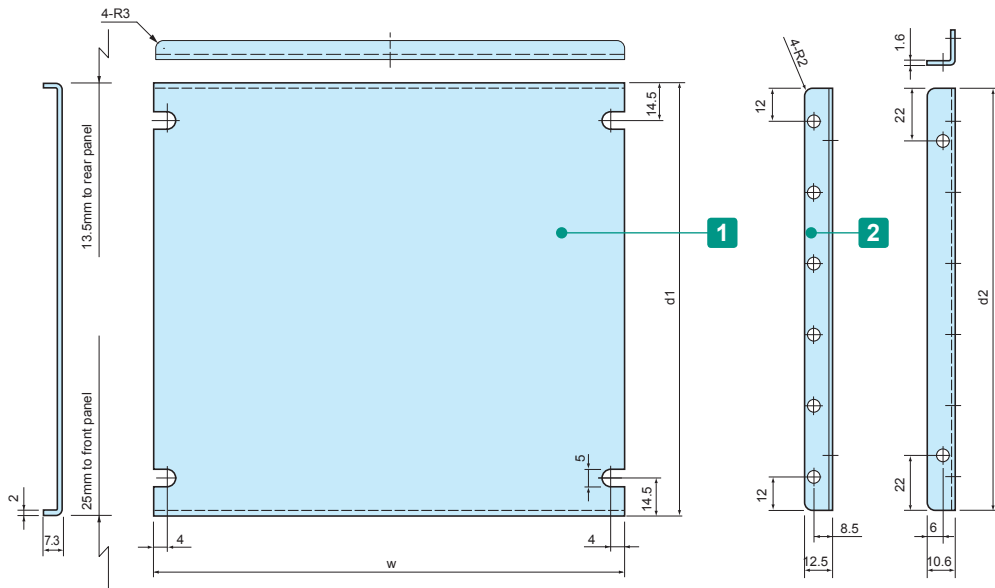
MSC SERIES

MOUNTING PLATE for MS • MSN • MSY • MSR • MO • MON • MOY • MOR

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

■ 1 set = Mounting plate + L-bracket

Mounting example



Components

No.	Part name	Pcs	Material	Color / Finish
1	Mounting plate	1	Aluminium A1050P t=2.0	Unfinished
2	L-bracket	2	Steel SPCC	Trivalent chromate

Included screws: M4-6 pan head, trivalent chromate x8

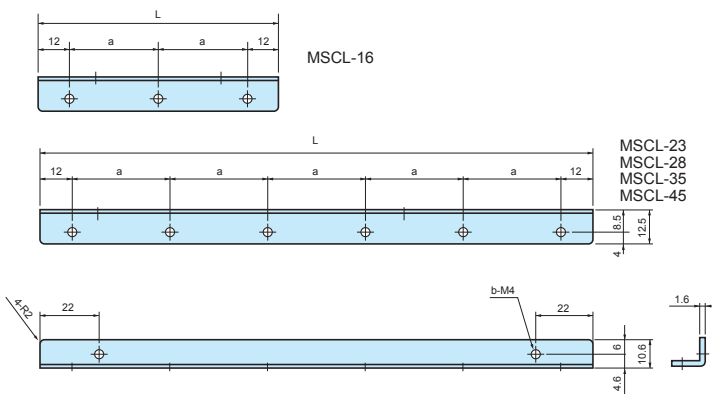
Product no. / Dimensions

Product no.	w	d1	d2	Enclosure W×D	Weight (g)
MSC16-16	130	96.5	91.5	160 × 160	120
MSC16-23	130	166.5	161.5	160 × 230	210
MSC16-28	130	216.5	211.5	160 × 280	270
MSC21-16	180	96.5	91.5	210 × 160	150
MSC21-23	180	166.5	161.5	210 × 230	250
MSC21-28	180	216.5	211.5	210 × 280	330
MSC21-35	180	286.5	281.5	210 × 350	430
MSC26-23	230	166.5	161.5	260 × 230	300
MSC26-28	230	216.5	211.5	260 × 280	390
MSC26-35	230	286.5	281.5	260 × 350	510
MSC32-23	290	166.5	161.5	320 × 230	360

Product no.	w	d1	d2	Enclosure W×D	Weight (g)
MSC32-28	290	216.5	211.5	320 × 280	460
MSC32-35	290	286.5	281.5	320 × 350	600
MSC32-45	290	386.5	381.5	320 × 450	810
MSC37-23	340	166.5	161.5	370 × 230	410
MSC37-28	340	216.5	211.5	370 × 280	520
MSC37-35	340	286.5	281.5	370 × 350	680
MSC37-45	340	386.5	381.5	370 × 450	910
MSC43-23	400	166.5	161.5	430 × 230	460
MSC43-28	400	216.5	211.5	430 × 280	590
MSC43-35	400	286.5	281.5	430 × 350	770
MSC43-45	400	386.5	381.5	430 × 450	1,040

MSCL SERIES

L-BRACKET for MS • MSN • MSY • MSR • MO • MON • MOY • MOR



- Use with your original mounting plate or PCB.
- 1 pair of L-bracket are included with each MSC mounting plate.

Components

Part name	Material	Color / Finish
L-bracket	Steel SPCC	Trivalent chromate

Product no. / Dimensions

Product no.	L	a	b	Sales unit
MSCL-16	91.5	33.75	5	1 set (2 pcs)
MSCL-23	161.5	27.5	8	1 set (2 pcs)
MSCL-28	211.5	37.5	8	1 set (2 pcs)
MSCL-35	281.5	51.5	8	1 set (2 pcs)
MSCL-45	381.5	71.5	8	1 set (2 pcs)

MSM SERIES

RACK MOUNT BRACKET

Components

Material	Color / Finish
Extruded aluminium A6063S-T5	Gray • Black / Painted

Included screws : M5-10 Flat head x 4 pcs / Black trivalent chromate + Nut x 4 pcs

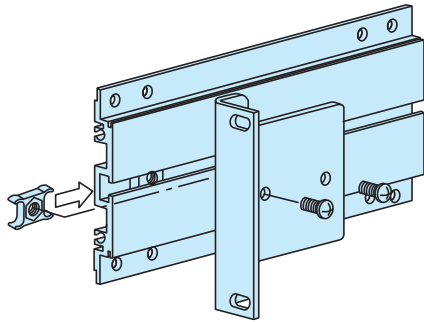
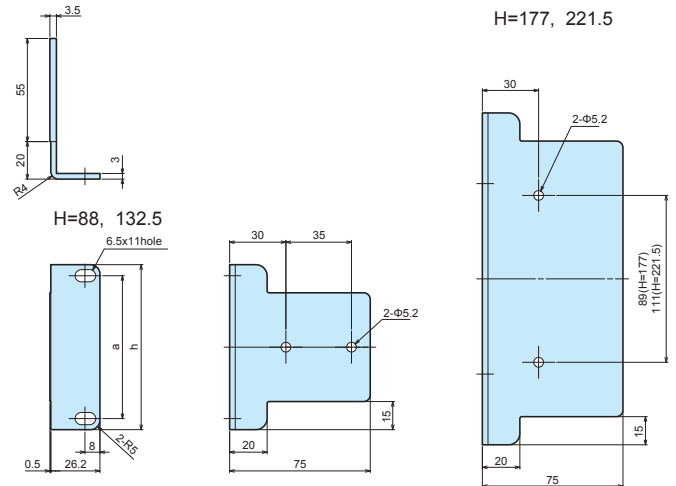
Color Type

Color code	Material	Color / Finish
G	Extruded aluminium A6063S-T5	Gray / Painted
B	Extruded aluminium A6063S-T5	Black / Painted

Product no. / Dimensions

Product no.	h (Enclosure H)	a	Pack of
MSM- 88□	88	76.2	2
MSM-133□	132.5	57.1	2
MSM-177□	177	101.6	2
MSM-222□	221.5	146	2

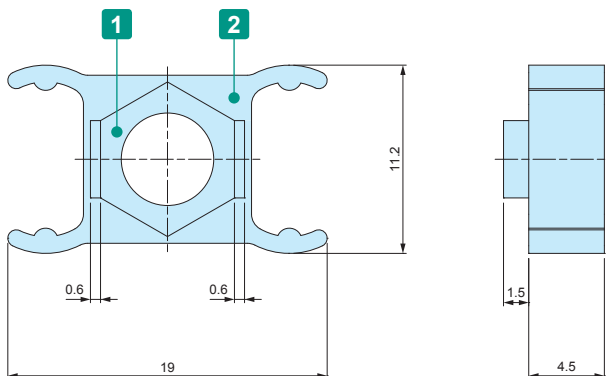
■ Please suffix color code at the end of the product number.



MZ SERIES

SIDE FRAME NUT

■ Side frame nut for MS • MSN • MSY • MSR • MO • MON • MOY • MOR series.



Components

No.	Part name	Material	Color / Finish
1	Nut	Brass • Steel	Nickel plated
2	Holder	Polyethylene	Black

Product no. / Feature

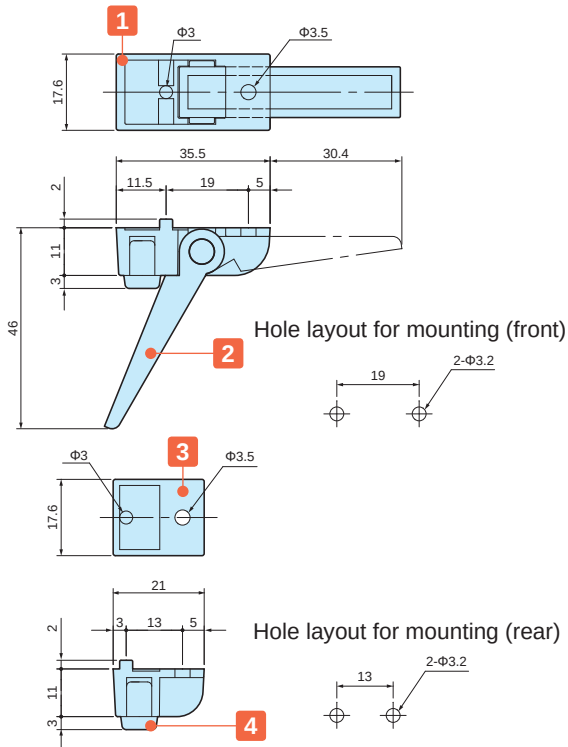
Product no.	Screw size	Nut material	Pack of
MZ-4	M4	Brass	10
MZ-5	M5	Steel	10

TL series

TILT LEG

TL dimensions

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



Components

* Maximum load = 7 kg

No.	Part name	Pcs	Material	Color / Finish
1	Front feet	2	ABS UL94HB	Black • Gray • Light gray
2	Leg	2	ABS UL94HB	Black • Gray • Light gray
3	Rear feet	2	ABS UL94HB	Black • Gray • Light gray
4	Rubber feet	4	EPDM	Gray • Black
-	Screw	4	Steel	Black trivalent chromate

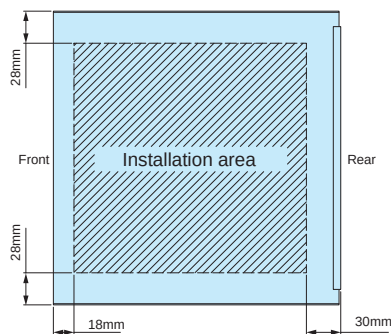
■ Included screws: M3-8 and M3 nut (with washer) set.

Product no. / Dimensions

Product no.	Color (body)	Color (rubber feet)	Sales unit
● TL-45BB	Black	Black	1 set
● TL-45GG	Gray	Gray	1 set
● TL-45SG	Light gray	Gray	1 set

■ EPDM (black) may have its color migrate onto the placement surface.

MS SERIES INSTALLATION AREA



CBF-1G

CABLE HOOK



- Used for wrapping and securing cords and wires.
- Can be used with a variety of different enclosure series and models.
- Requires a panel thickness of between 1.0 ~ 3.0mm.

Product no. / Dimensions

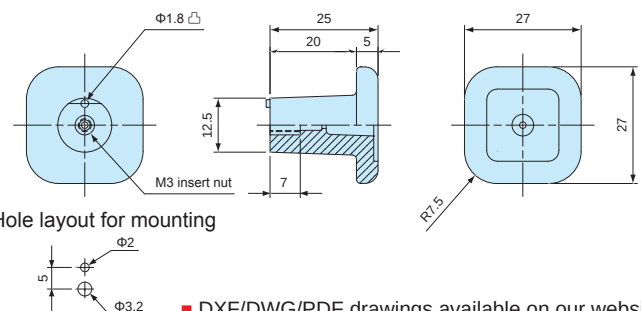
Product no.	Material	Color	Pack of
CBF-1G	ABS UL94HB	Gray	4

■ Included screws: M3-8 trivalent chromate (with washer) x 4 pcs



APPLICATION EXAMPLE

CBF dimensions



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

TLW series

TILT LEG



APPLICATION EXAMPLE

- Double shot injection molded feet with soft and well-designed rounded shape.
- Non-slip design with Elastomer (TPE) pad.
- Available in 3 different color patterns (2 color patterns for TLW-70 models).
- TLW-70E models are exclusively for use with width 185mm or larger bottom covers of EXP • EXPE • EXW • EX • EXH • EXHE aluminium enclosures.

Technical Data

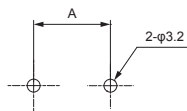
Max load : 7kg

Components

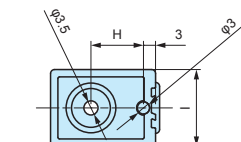
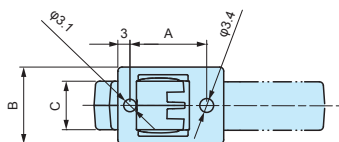
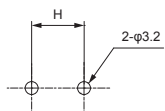
No.	Part name	Pcs	Material	Color / Finish
1	Front foot	2	PC + ABS UL94V-0 • TPE	Black & Black • Navy & Gray • Light gray & Gray
2	Rear foot	2	PC + ABS UL94V-0 • TPE	Black & Black • Navy & Gray • Light gray & Gray
-	Screw	4	Steel M3-8 pan head	Black trivalent chromate
-	Nut	4	Steel M3	Black trivalent chromate

TLW dimensions

Mounting hole (Front)

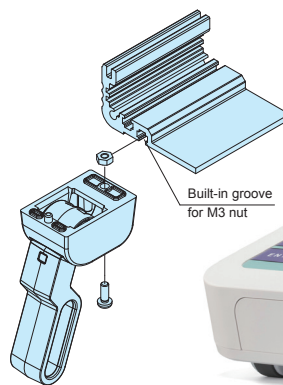


Mounting hole (Rear)



1

2

Built-in groove
for M3 nut

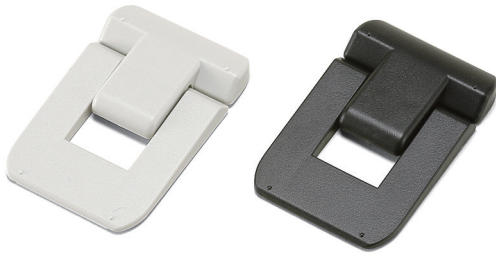
- DXF/DWG/PDF/STP drawings available on our website.

- TLW-70E□□ models are for installation (with M3 nut) into the built-in grooves on bottom-covers of EXP • EXPE 20-6, EXH • EXHE • EX 19-4 or larger models.

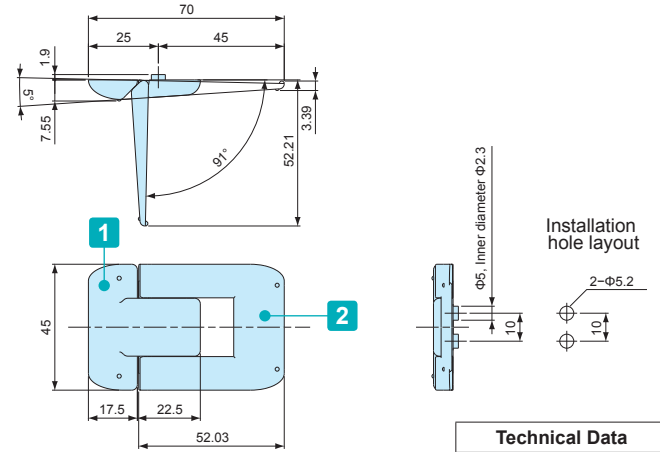
- Hole milling is required to install TLW-46□□ and TLW-70□□ models.
- Max installation panel thickness : t = 3.5mm

Product no. / Details

Product no.	A	B	C	D	E	F	G	H	I	J	K	L	Color (plastic)	Color (TPE)	Weight (g)
TLW-46BB	19	19	12	51.2	45.9	2	14	13	19	27	14	2	Black	Black	23
TLW-46NG	19	19	12	51.2	45.9	2	14	13	19	27	14	2	Navy	Gray	23
TLW-46LG	19	19	12	51.2	45.9	2	14	13	19	27	14	2	Light gray	Gray	23
TLW-70EBB	-	25	16	75.4	69	3	21.5	-	25	39	21.5	3	Black	Black	59
TLW-70ENG	-	25	16	75.4	69	3	21.5	-	25	39	21.5	3	Navy	Gray	59
TLW-70ELG	-	25	16	75.4	69	3	21.5	-	25	39	21.5	3	Light gray	Gray	59
TLW-70BB	30	25	16	75.4	69	2	21.5	20	25	39	21.5	2	Black	Black	59
TLW-70LG	30	25	16	75.4	69	2	21.5	20	25	39	21.5	2	Light gray	Gray	59

TI SERIES**TILT STAND**

Installation Example

**Technical Data**

Max load : 3kg

Components

No.	Part name	Pcs	Material	Color / Finish
1	Body	1	ABS UL94HB	Black • Light gray
2	Leg	1	ABS UL94HB	Black • Light gray
—	Screw (M3-6 Pan head tapping)	2	Steel	Trivalent chromate

Product no.

Product no.	
● Black	● Light Gray
TI-70B	TI-70S

DIGITAL PRINTED OVERLAY



3 reasons for low initial costs

Reason
①



Cutting process



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

Reason
②

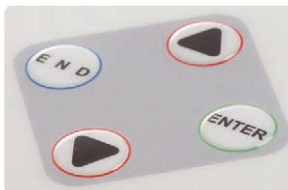


Printing process



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

Reason
③

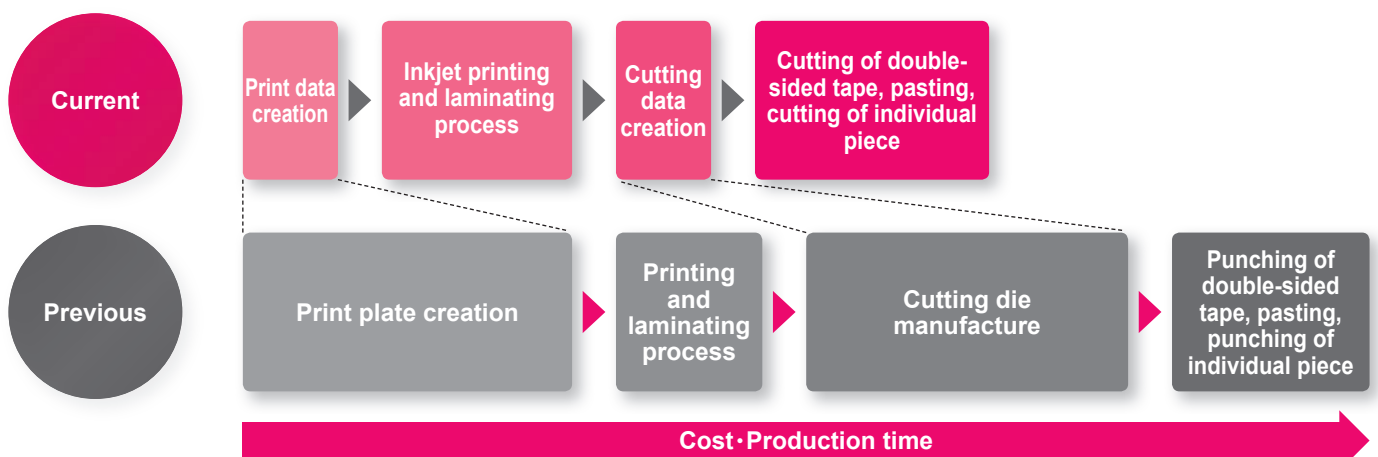


Embossing process



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

Comparison of current and previous manufacturing methods



PRODUCTION PROCESS



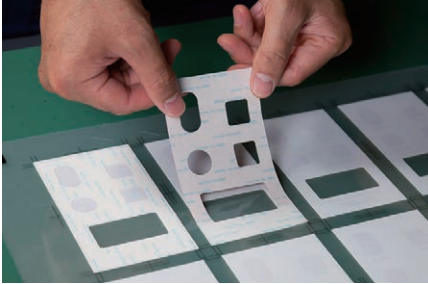
1. Inkjet printing on film



2. Laminating



3. Cutting double-sided tape



4. Sticking double-sided tape on printed film



5. Cutting the sheet to size



6. Embossing



7. Machining on enclosure



8. Sticking overlay sheet onto enclosure



9. Complete

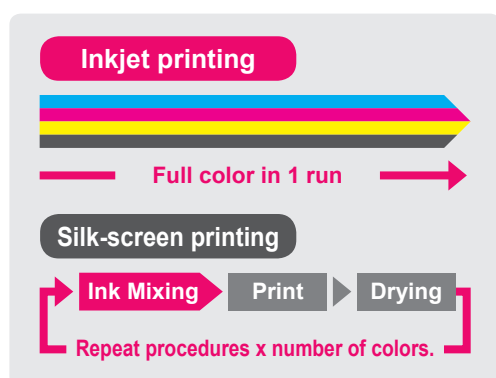
CUSTOMIZATION EXAMPLE



INKJET PRINTING



Full color digitally designed image
can be printed in 1 run.
No cost difference regardless of the
number of colors used.



Low printing cost
Full color print possible
in small quantities

Inkjet printing	1 run only for full color print			
Printing cost Full color				
Silk-screen printing	Printing cost x number of colors			
Printing cost Color 1	Printing cost Color 2	Printing cost Color 3	Printing cost Color 4	

High quality printing of photo image and color gradation.

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

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



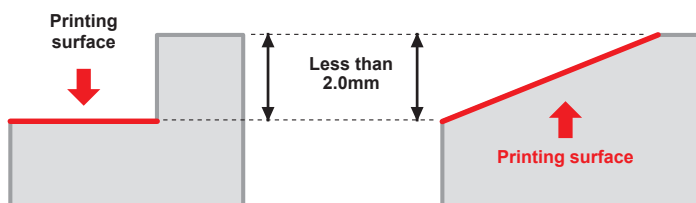
Maximum printable enclosure size



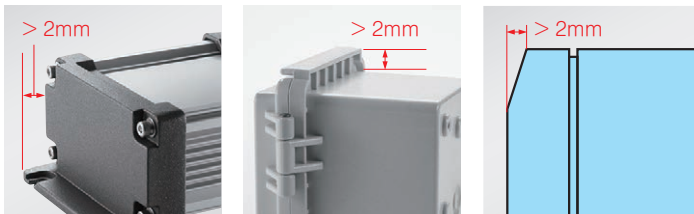
Printable on surfaces with height differential

Printing is possible on recessed, sloped and rounded sections.

Gap difference is less than 2.0mm.



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



Printed example

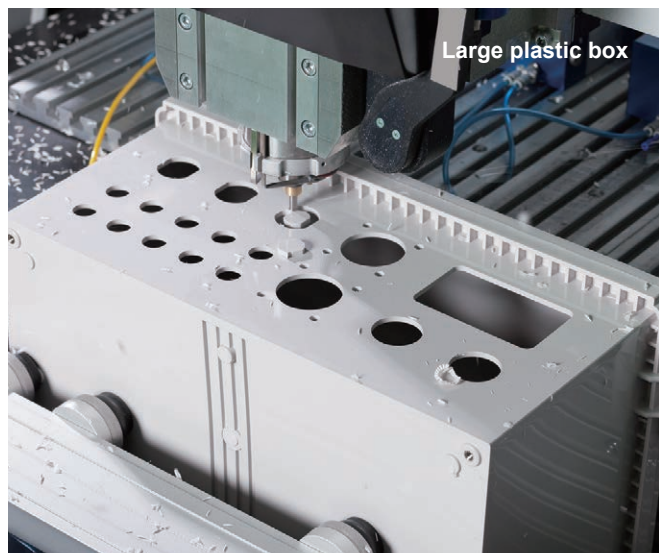


CNC MACHINING

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



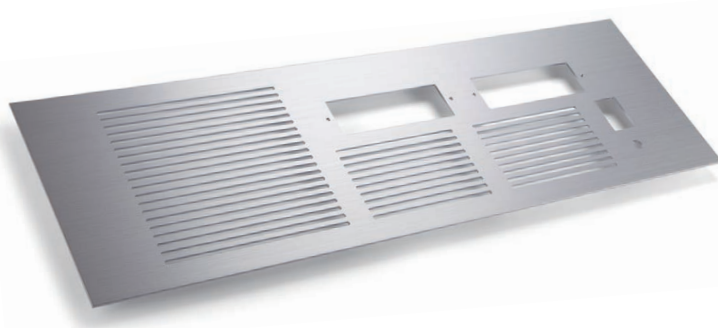
- Mainly used for plastic, aluminium die-cast, and aluminium extrusion material types.
- Able to perform milling for various shapes and sizes.
- Recommended for small quantity customization.



LASER CUTTING

Laser cutting utilizes a laser to perform cutting on an object, allowing various types and shapes of holes to be cut.

New fiber laser machine allows the processing of aluminium sheets with both high precision and speed. Processing of Pure Aluminium 1050 is also possible with minimal burr as compared to conventional CO² laser machines, which causes excessive burring.

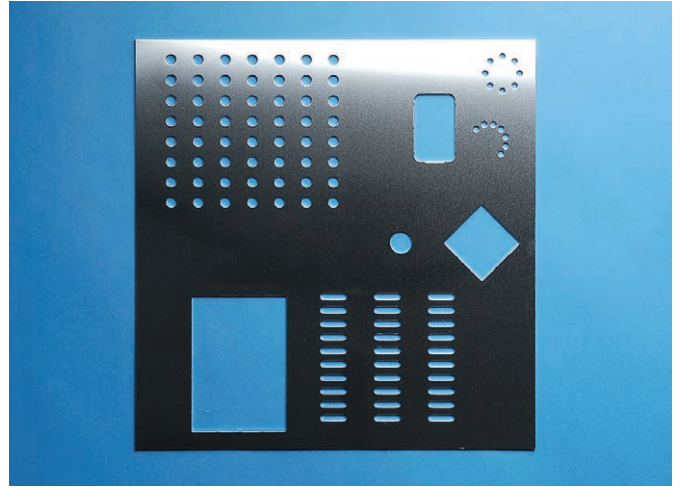
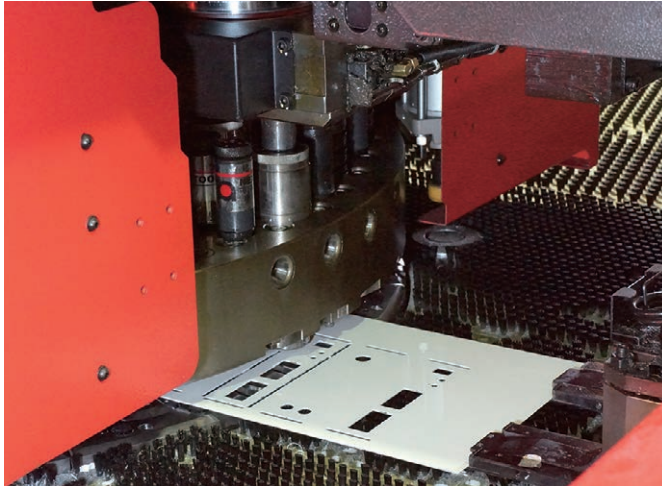


PUNCHING PRESS

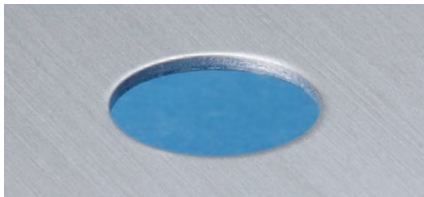
What is punching press? It is a type of machine press used to cut holes in material via the use of various sized die sets.

Punching press allows the realization of high cost performance due to its high speed automated turret punching process, which significantly reduces machining lead-time.

Due to its ability to create designated sized holes by means of rapid multiple hole punches, this enables it to punch holes of various sizes and types quickly and efficiently.

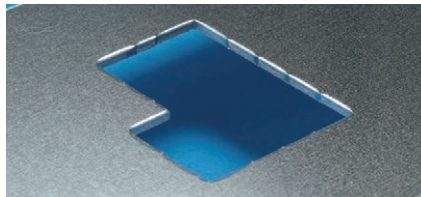


Circular hole



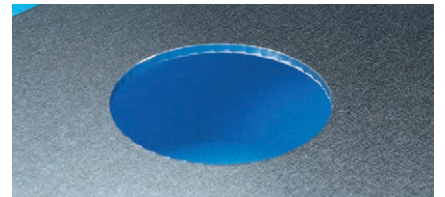
Circular holes as small as 1.0mm in diameter can be punched.

Nibbling press (rectangle)



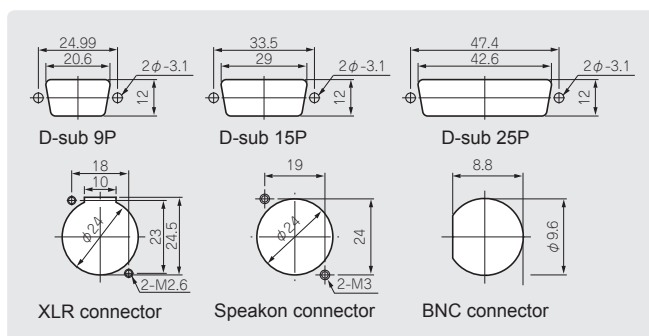
Complex or large rectangular shapes can be punched out with multiple presses.

Nibbling press (round)

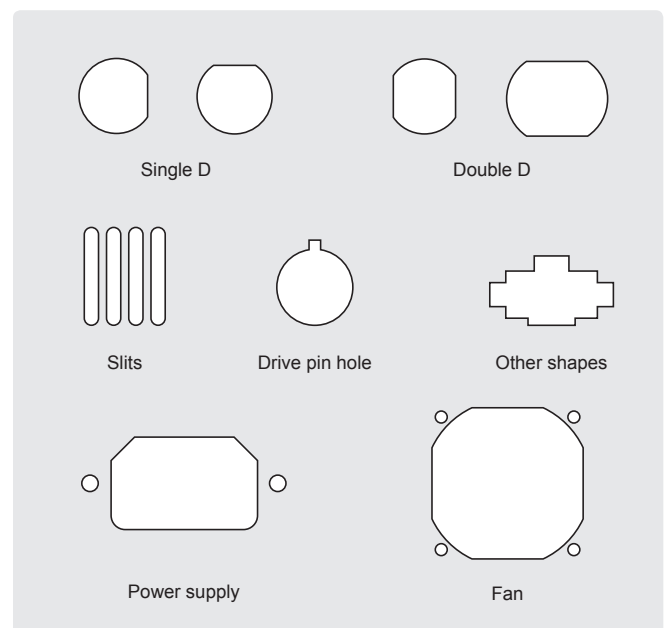


Punching of large circular holes with multiple smaller die strokes.

Common connector shapes



Unique shapes



Burring punch



Increasing surface area on a thin metallic sheet for screw threads to bore into.

