

# ELECTRONIC COMPONENTS

PCB  ACCESSORIES

WIRING  CLAMPS 

CABLE  TIES

GROMMETS &  BUSHINGS

WIRING  TUBES & DUCTS

# SYMBIOSIS & COLLABORATION

KITAGAWA INDUSTRIES CO., LTD.

A global technology group providing high quality for life's amenities through "Symbiosis & Collaboration"

The high pace of industrial technology innovation can lead to various problems. We carry out the research and propose the solutions to the problems in order to provide a clean electromagnetic environment.



## R&D bases



Technology Center



Kasugai factory



Inazawa factory



Thailand factory



Wuxi (China) factory



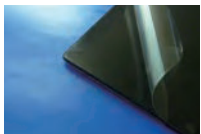
Shenzhen factory

Functional film



Sputtering technology applied at the nano-Level for producing functional coatings provides greater design flexibility for high density electronic equipment.

KG-GEL(vibration damping and shock buffering)



KG-GEL is a special polystyrene gel with super-low hardness of ASKER FP, which provides excellent shock buffering, vibration and noise damping for equipment and sub-assembly components.

LOSTOMER(vibration damping)



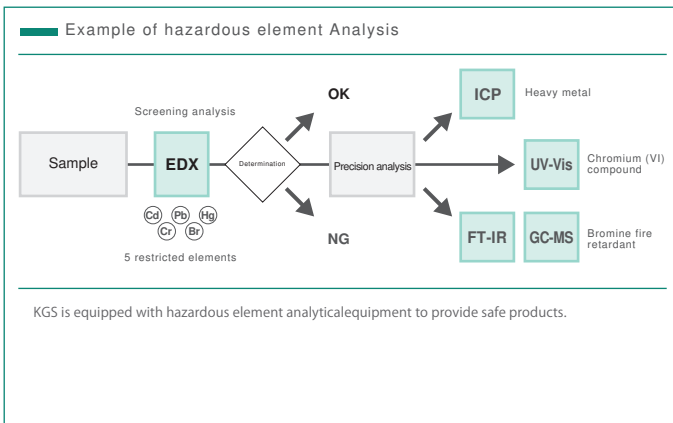
High vibration damping and heat resistant properties (100°C) for a wide range of applications. Can be produced in customized configurations.

COOLPROVIDE(Heat+EMC)



Using our original composite technology we develop multifunctional materials for simultaneous management of EMC and thermal problems.

Environmental policy



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GROMMETS & BUSHINGS



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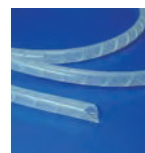


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WIRING TUBES & DUCTS



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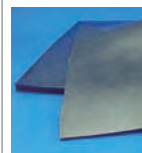
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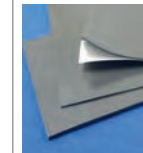
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## LOCKING CLAMP / LBWS

P.39



### Push mount, locking clamp

#### Features

- Compact, space-saving clamp.
- Clamp is open for cable insertion without causing any damage to cables such as optical fibers.

#### Material

- Nylon 66 (Color : Natural / LBWS-0206S-AM-HT-NC)

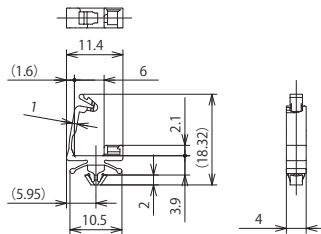


Snap Mounting



Round hole

### LBWS-0206S-AM-HT-NC



※ Operating temperature range: -40°C ~ 125°C

## USB CONNECTOR COVER / USBCC-B-YR

P.72



### Removal prevention clamp for USB connector (Upper tab)

#### Features

- Locking tab makes it easy to lock and release USB connector.
- The upper tab is suitable for USB connectors arranged side-by-side.

#### Material

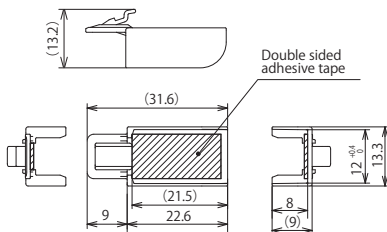
- PBT (Color : Black) UL94 V-0



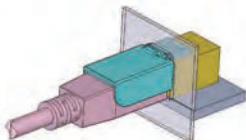
Snap Mounting



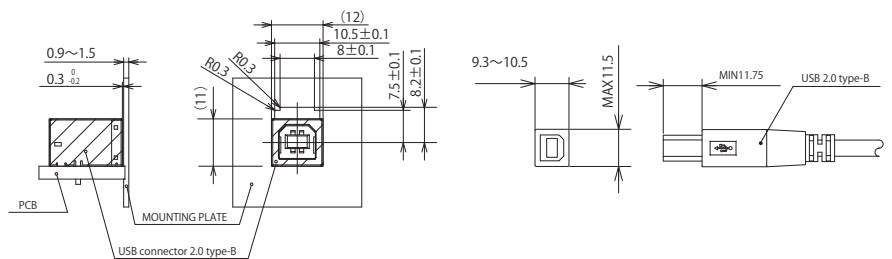
Square hole



#### Application examples



#### Specification drawing



Part No.	Compatible connector	USB plug size	Std. Package
USBCC-B-YR	Type-B USB connector	Refer to Specification drawing	100 pcs.

(Unit : mm)

※ This product is assembled on a USB connector with double-sided adhesive.  
Make sure to press the component firmly onto the connector. Assembled product cannot be reused.

## FIBERGUIDE/ OFG-SCLC-1-R30-V0

P.76

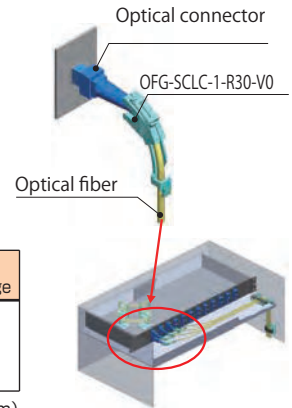


It maintains safe radius for fibers extending from connector boot.

### Features

- The GUIDE maintains bend radius of 30° or more for optical fibers extending from connector boots.
- Applicable to both SC and LC connectors
- Downsized design is also applicable to LC duplex connectors.
- Lock structure prevents unfastening from the fibers.

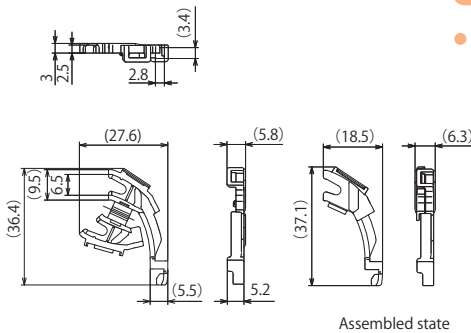
### Application examples



### Material

- Nylon 66 (Color : Natural)

UL94 V-0



Assembled state

Part No.	Applicable connector	Std. Package
OFG-SCLC-1-R30-V0	SC Connector, LC Connector	100 pcs.

(Unit : mm)

## SCREW-LESS BAND / VLSG

P.84



Screw-mount band that allows for easy bundling of cables

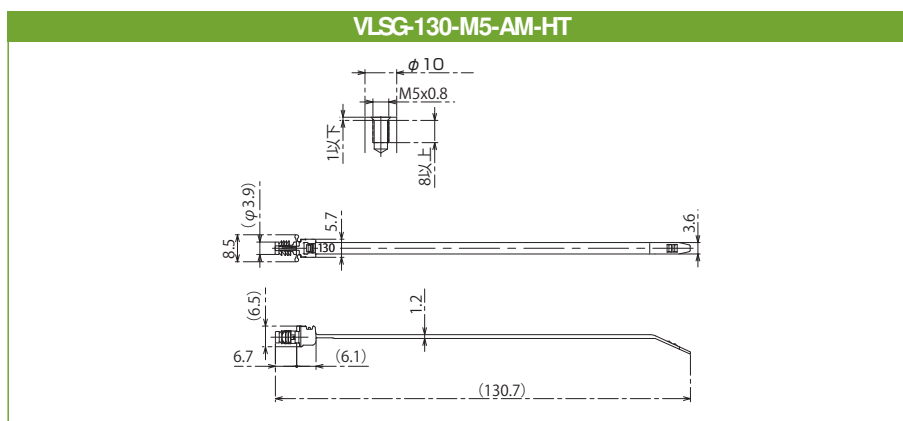
### Features

- Plug-in mounting in screw hole is available without tool.
- Applying heat resistant aging material for the products that has AM-HT-BK at the end of the part number, both heat resistance and durability are performed.

### Material

- Nylon 66 (Color : Black)





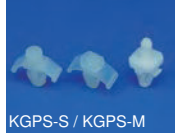













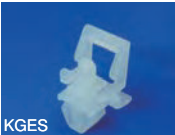


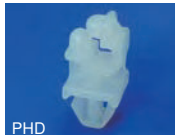


UL94 V-2



Operating temperature range: -40°C~125°C

Spacers

Securing, holding and spacing for PC boards and chassis

 <p>Snap Mounting</p>	 <p>KGLS-S/KLCS/KGLS-M <b>P3-4</b> LOCKING CARDSPACER</p>	 <p>RLS <b>P4</b> RE-USE SPACER</p>	 <p>RPS <b>P5</b> RE-USE CARDSPACER</p>	 <p>KGPS-S / KGPS-M <b>P5</b> CARDSPACER</p>	 <p>WLS <b>P6</b> DOUBLE LOCKING SPACER</p>	
	 <p>MPS,-L <b>P6</b> MINI CARD SPACER</p>	 <p>KGLS-RT <b>P7</b> LOCKING CARD SPACER</p>	 <p>KGLS-RTBM <b>P7</b> LOCKING CARD SPACER</p>	 <p>SCT <b>P8</b> LOCKING CARD SPACER</p>	 <p>SDC <b>P8</b> LOCKING CARD SPACER</p>	 <p>SDB <b>P9</b> LOCKING CARD SPACER</p>
	 <p>SDX <b>P9</b> LOCKING CARD SPACER</p>	 <p>KGPS-RF <b>P10</b> CARD SPACER</p>	 <p>KGPS-RTBM <b>P10</b> CARD SPACER</p>	 <p>QDCT <b>P11</b> LOCKING CARD SPACER</p>	 <p>SDN <b>P11</b> LOCKING CARD SPACER</p>	 <p>KGLS-04T <b>P13</b> LOCKING CARD SPACER</p>
	 <p>KGES <b>P13</b> CARD EDGE SPACER</p>	 <p>CESP-55 <b>P14</b> CARD EDGE SPACER</p>	 <p>KGCP-08-0 <b>P14</b> CARD SPACER</p>	 <p>PHD <b>P15</b> PIERCE HOLD</p>	 <p>RES <b>P16</b> RE-USE EDGE SPACER</p>	 <p>RPH <b>P17</b> RE-USE PIERCE HOLD</p>

**Snap and Adhesive tape Mounting**



**BTT**  
**P12**  
LOCKING CARD SPACER



**KGLS-M**  
**P12**  
LOCKING CARD SPACER

**Snap and Screw Mounting**



**KGTS-T, K**  
**P17**  
TAPPING CARD SPACER

**Screw Mounting**



**KCB-310-V0**  
**P17**  
COLLAR BUSH



**NB/ NA/ TA**  
**P18**  
ONE TOUCH COLLAR BUSHING



**ES**  
**P19**  
EXPANSION NUT



**TFR**  
**P19**  
TOGGLE FIXER

## Rivets

### Securing metal plates and components

**Snap Mounting**



**P/ NR/ NRP/ P-SN**  
**P20**  
NYLON RIVET



**RVT-9943**  
**P20**  
RIVET



**NRK-450L-WT**  
**P23**  
RIVET

## Card Guides

### Card guides and ejectors support smooth insertion and extraction

#### Card Guides

**Snap Mounting**



**KGCH-20-0**  
**P21**  
CARD CORNER HOLDER



**RCH-40-V0**  
**P22**  
RE-USE CARD HOLDER



**RUEGR/ UEGR**  
**P23**  
CARD FIXER  
RE-USE CARD FIXER



**GR-45A**  
**P24**  
CARD GUIDE



**GR**  
**P25**  
CARD GUIDE



**GR-170SS**  
**P28**  
CARD GUIDE WITH STOPPER

#### Ejectors

**Spring pin mounting**



**CBE-15**  
**P26**  
EJECTOR



**CBE**  
**P28**  
EJECTOR

**Snap Mounting**



**EJC-1A**  
**P27**  
EJECTOR



**CBE-18**  
**P27**  
EJECTOR



Snap-mount PCB spacer

Features

- Provides simultaneous functions of spacing and supporting for PCB and chassis.

Material

- Nylon 66 (Color : Natural)

UL94 V-2(V-0<sup>○</sup>)

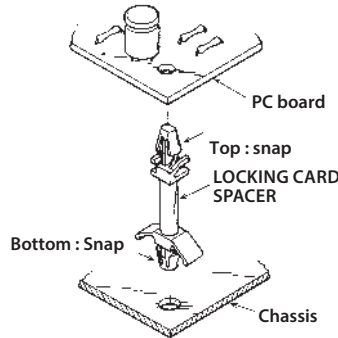
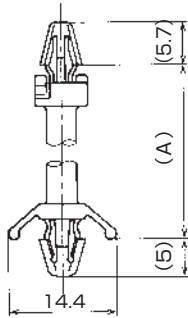


Can be used with KGPS-S series  
Supports heavily loaded PC boards at the middle of PCB

P5

For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

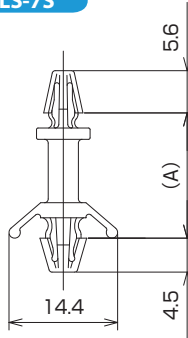
KGLS-S



Part No.	(A)	Mounting hole size	Panel thickness	Std. Package
KGLS-3S	9.8	Top $\phi 4^{+0.2}_0$	Top 1~2	100 pcs.
KGLS-4S	11.4			
KGLS-6S	14.4			
KGLS-8S	17.7			
KGLS-10S	20.9			
KGLS-12S	24.1	Bottom $\phi 4.8^{+0.2}_0$	Bottom 0.5~2.3	
KGLS-14S	27.2			
KGLS-16S	30.4			
KGLS-18S	33.6			
KGLS-22S	39.9			

(Unit : mm)

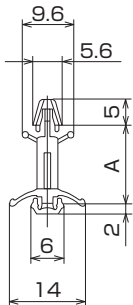
KGLS-7S



Part No.	(A)	Mounting hole size	Panel thickness	Std. Package
KGLS-7S	16.6	Top $\phi 4^{+0.2}_0$ Bottom $\phi 4.8^{+0.2}_0$	Top $\leq t1.8$ Bottom 0.5~2.3	1000 pcs.

(Unit : mm)

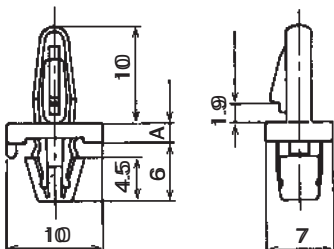
KLCS



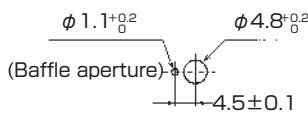
Part No.	A	Mounting hole size	Panel thickness		Std. Package
KLCS-4H	12.0	Top $\phi 4^{+0.2}_0$ Bottom $\phi 4.8^{+0.2}_0$	Top	Bottom 0.8~1.3	100 pcs.
KLCS-6	14.4		1.2~1.6	Bottom 0.5~1	

(Unit : mm)

KGLS-1S



Specification drawing for bottom holes



Part No.	A	Mounting hole size	Panel thickness	Std. Package
KGLS-1S	2.0	Top $\phi 4^{+0.2}_0$ Bottom $\phi 4.8^{+0.2}_0$	Top 1.7 Bottom $1.2^{+0.15}_0$	1000 pcs.

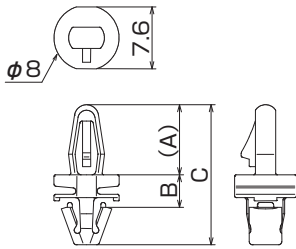
\*Baffle aperture is required.

(Unit : mm)



# LOCKING CARD SPACER /KGLS™-S·KLCS·KGSL-M

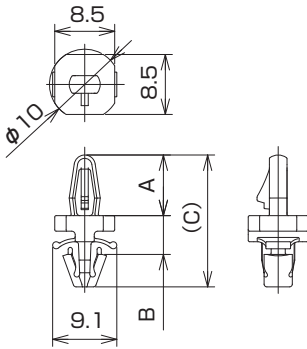
## KGSL-1M-V0



Part No.	(A)	B	C	Mounting hole size	Panel thickness	Std. Package
KGSL-1M-V0	8.6	4.0	17.2	Top $\phi 4^{+0.2}_0$ Bottom $\phi 4.8^{+0.2}_0$	Top $1.6 \pm 0.1$ Bottom $1 \pm 0.1$	1000 pcs.

(Unit : mm)

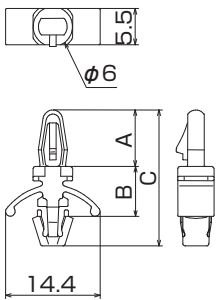
## KGSL-1.5M-V0



Part No.	A	B	(C)	Mounting hole size	Panel thickness	Std. Package
KGSL-1.5M-V0	8.6	5.5	18.7	Top $\phi 4 \pm 0.1$ Bottom $\phi 4.8^{+0.2}_0$	Top $1.6 \sim t1.8$ Bottom $1.0 \sim 1.6$	1000 pcs.

(Unit : mm)

## KGSL-∗M-V0



Part No.	A	B	C	Mounting hole size	Panel thickness	Std. Package
KGSL-2M-V0	8.6	7.6	20.7	Top $\phi 4^{+0.2}_0$ Bottom $\phi 4.8^{+0.2}_0$	Top $1.6 \pm 0.1$ Bottom $0.5 \sim 1.3$	1000 pcs.
KGSL-3M-V0		8.4	21.5			
KGSL-5M-V0		11.6	24.7			100 pcs.
KGSL-7M-V0		13.2	26.3			

(Unit : mm)

# RE-USE SPACER / RLS



## Releasable PCB spacer

### Features

- Holding and spacing for PC boards and chassis.
- Easily removed for maintenance and disassembling.



Push Type



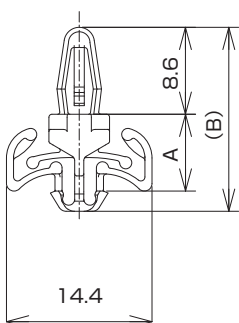
Round hole

### Material

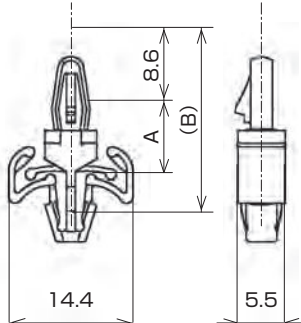
- Nylon 66 (Color : Natural)

UL94 V-0

## RLS-2E

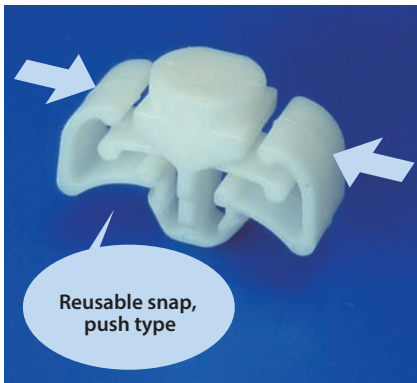


## RLS-3E



Part No.	A	(B)	Mounting hole size	Panel thickness	Std. Package
RLS-2E-V0	7.6	18.2	Top $\phi 4.0^{+0.2}_0$ Bottom $\phi 4.8^{+0.2}_0$	Top : $1.6 \sim 1.8$ Bottom : $0.8 \sim 1.2$	1000 pcs.
RLS-3E-V0	8.4	21.5		Top : $1.6 \sim 1.8$ Bottom : $0.5 \sim 1.6$	1000 pcs.

(Unit : mm)



### Releasable snap-mount spacer

#### Features

- Supports load at the middle of PCB and keeps spaces.
- Snap is easily removed to shorten time for maintenance and disassembling.

#### Material

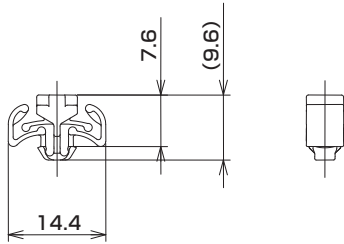
• Nylon 66 (Color : Natural)

UL94 V-0



Reusable Snap

For push-type, refer to



Part No.	Mounting hole size	Panel thickness	Std. Package
RPS-2E-V0	$\phi 4.8^{+0.2}_0$	0.8~1.2	1,000 pcs.

(Unit : mm)

### CARD SPACER™ - / KGPS-S•KGSP-M•KGSP-MP



### Snap-mount PCB spacer support

#### Features

- Provides spacing and support at the centre of PCB.
- Supports heavily loaded PCB at the centre.

#### Material

• Nylon 66 (Color : Natural)

UL94 V-2 (V-0\*)

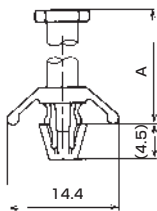


Can be used with KGLS-S series  
Securing and spacing for PCB

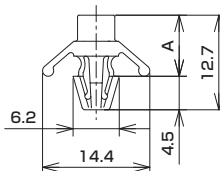


※ For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

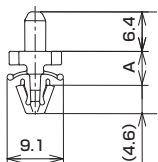
#### KGPS-S•KGSP-M



#### KGPS-3.5S-N



#### KGSP-1.5MP-V0



Part No.	A	Mounting hole size	Panel thickness	Std. Package
KGPS-3S	7.5	$\phi 4.8^{+0.2}_0$	0.5~2.3	100 pcs.
KGPS-4S	9.1			
KGPS-6S	12.1			
KGPS-8S	15.4			
KGPS-10S	18.6			
KGPS-12S	21.8			
KGPS-14S	24.9			
KGPS-16S	28.1			
KGPS-18S	31.3	$\phi 4.8^{+0.2}_0$	0.5~1.6	1000 pcs.
KGSP-2.5M-V2	6.6			
KGSP-3M-V0	7.4	0.5~1.3		

(Unit : mm)

Part No.	A	Mounting hole size	Panel thickness	Std. Package
KGPS-3.5S-N	8.2	$\phi 4.8^{+0.2}_0$	0.5~2.3	500 pcs.

(Unit : mm)

Part No.	A	Mounting hole size	Panel thickness	Std. Package
KGSP-1.5MP-V0	5.5	Top $\phi 3.5 \pm 0.1$ Bottom $\phi 4.8^{+0.2}_0$	Top — Bottom 1.0~1.6	500 pcs.

(Unit : mm)

# DOUBLE LOCKING SPACER / WLS



## PCB spacer for space saving

### Features

- Space-saving PCB spacer.

### Material

- Nylon 66 (Color : Natural)

**UL94 V-2 (V-0\*)**

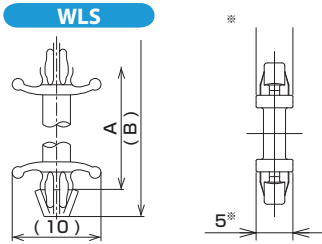
※ For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)



**Can be used with MPS series**

Supports heavily loaded PCB boards at the middle of PCB

Refer to the bottom column



Part No.	A	(B)	Mounting hole size	Panel thickness	Std. Package
WLS-03-0	6.2	10.8	$\phi 3.5^{+0.2}_0$	Top /bottom 1.6±0.15	500 pcs.
WLS-04-0	7.2	11.8			

Part No.	A	(B)	Mounting hole size	Panel thickness	Std. Package
WLS-06-0	9.2	15.2	$\phi 4 \pm 0.1$	Top /bottom 1.6±0.15	500 pcs.
WLS-08-0	11.2	17.2			1000 pcs.
WLS-10-0	13.2	19.2			500 pcs.
WLS-12-0	15.2	21.2			1000 pcs.
WLS-13-0	16.2	22.2			500 pcs.
WLS-14-0	17.2	23.2			1000 pcs.
WLS-16-0	19.2	25.2			500 pcs.
WLS-16.8-0	20.0	26.0			1000 pcs.
WLS-18-0	21.2	27.2			500 pcs.
WLS-20-0	23.2	29.2			

※WLS-03-0, -04-0 : 4.5

(Unit : mm)

# MINI CARD SPACER / MPS,-L



## Snap-mount PCB spacer support for space saving

### Features

- Space-saving type, with support at the centre of PCB.

### Material

- Nylon 66 (Color : Natural)

**UL94 V-2** : MPS-\*\*-0

**UL94 V-0** : MPS-\*\*-L-V0

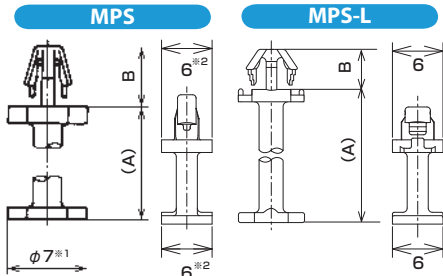
※ Please contact us material and lot size for MPS-\*\*-0 V0 type



**Can be used with WLS series**

Mini PCB spacer

Refer to the top column



※1 MPS-20 :  $\phi 6$   
※2 MPS-20 : 5

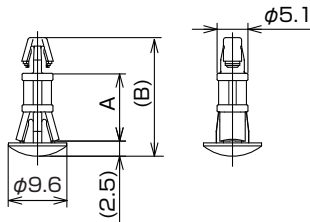
Part No.	(A)	B	Mounting hole size	Panel thickness	Std. Package
MPS-2.5-0	2.5	5.35	$\phi 3.0^{+0.1}$	1.6±0.15	500 pcs.
MPS-04-0	4.0	5.35			
MPS-06-0	6.0	5.35			
MPS-08-0	8.0	5.35			
MPS-10-0	10.0	5.35			
MPS-12-0	12.0	5.35			1000 pcs.
MPS-14-0	14.0	5.35			
MPS-14.8-0	14.8	5.35			
MPS-16-0	16.0	5.35			
MPS-18-0	18.0	5.35			
MPS-20	20.0	5.1	$\phi 3.5^{+0.1}$	1.6±0.1	1000 pcs.

Part No.	(A)	B	Mounting hole size	Panel thickness	Std. Package
MPS-03L-V0	3.0	3.9	$\phi 4.0^{+0.2}$	0.8~1.6	1000 pcs.
MPS-04L-V0	4.0	3.9			1000 pcs.
MPS-05L-V0	5.0	3.9			1000 pcs.
MPS-06L-V0	6.0	3.9			1000 pcs.
MPS-07L-V0	7.0	3.9			1000 pcs.
MPS-08L-V0	8.0	3.8			1000 pcs.
MPS-09L-V0	9.0	3.9			500 pcs.
MPS-10L-V0	10.0	3.9			1000 pcs.
MPS-11L-V0	11.0	3.9			1000 pcs.
MPS-12L-V0	12.0	3.9			1000 pcs.

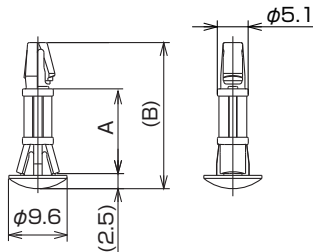
(Unit : mm)



KGLS-RTBM V0



KGLS-14RTBM



## Dome-head, snap-mount spacer for thin panel or thin back plate

## Features

- Applicable thickness of sheet metal is at 0.4 to 1.2mm.
- Applicable thickness of PC board is for 1.6mm and 1.2mm.
- Dust resistant performance is performed by bowl shaped snap mounted from chassis bottom.

## Material

- Nylon 6 (Color : Natural) **UL94 V-0** : KGLS-8, 10, 12RTBM V0
- Nylon 66 (Color : Natural) **UL94 V-0** : KGLS-3.5, KGLS-5, 6RTBM V0
- UL94 V-2** : KGLS-14RTBM

Part No.	A	(B)	Mounting hole size	Panel thickness	Std. Package
KGLS-3.5 RTBM V0	3.5	11.9	Top $\phi 4^{+0.2}$ Bottom $\phi 5.5^{+0.2}$	Top 1.2~1.6 Bottom 0.4~1.2	100 pcs.
KGLS-5RTBM V0	5	13.4			
KGLS-6RTBM V0	6	14.4			
KGLS-8RTBM V0	8	16.4			
KGLS-10RTBM V0	10	18.4			
KGLS-12RTBM V0	12	20.4			
KGLS-16RTBM V0	16	24.4			

(Unit : mm)

Part No.	A	(B)	Mounting hole size	Panel thickness	Std. Package
KGLS-14RTBM	14	24.15	Top $\phi 4^{+0.2}$ Bottom $\phi 5.5^{+0.2}$	Top 1.2~1.6 Bottom 0.4~1.2	100pcs.

(Unit : mm)

## LOCKING CARD SPACER™ / KGLS™-RT



## Dome-head, snap-mount spacer

## Features

- Dome head snap mounted from underside of chassis, seals the hole from dust intrusion.

## Material

- Nylon 66 (Color : Natural) **UL94 V-2(V-0\*)**

※ For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)



Snap Mounting

(Dome head with low protrusion)



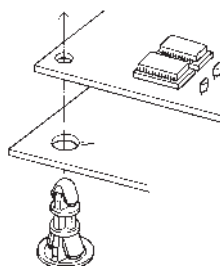
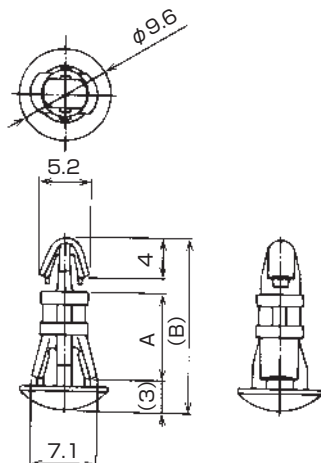
Round hole



Can be used with KGPS-RF series

Supports heavily loaded PC boards at the middle of PCB

▶ P10



Part No.	A	(B)	Mounting hole size	Panel thickness	Std. Package
KGLS-5RT	5	13.8	Top $\phi 4^{+0.2}$ Bottom $\phi 5.5^{+0.2}$	Top 1.6±0.15 Bottom 1~1.75	100 pcs.
KGLS-6RT	6	14.8			
KGLS-7RT V0	7	15.8			
KGLS-8RT	8	16.8			
KGLS-10RT	10	18.8			
KGLS-12RT	12	20.8			100 pcs.
KGLS-14RT	14	22.8			
KGLS-16RT	16	24.8			
KGLS-18RT	18	26.8			
KGLS-20RT V0	20	28.7			
KGLS-22RT	22	30.7	500 pcs.		
KGLS-24RT	24	32.8			

(Unit : mm)



Dome-head, snap-mount spacer

Features

- Holding and spacing for PC boards and chassis



Snap Mounting

Material

- Nylon 66 (Color: Natural)

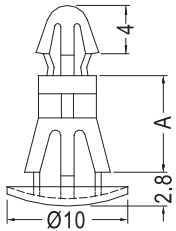
UL94 V-2 (V-0\*)



Round hole

\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

P.C.B Ø4.0  
THICKNESS 1.2~1.7



CHASSIS Ø5.5  
THICKNESS 1.2~1.8

Part No.	"A"±0.4mm	Std.Package
SCT-5	5.0	1000 pcs.
SCT-6	6.0	
SCT-7	7.0	
SCT-8	8.0	
SCT-10	10.0	
SCT-12	12.0	
SCT-14	14.0	
SCT-18	18.0	

(Unit: mm)

LOCKING CARD SPACER / SDC



Dome-head, snap-mount spacer

Features

- Holding and spacing for PC boards and chassis



Snap Mounting

Material

- Nylon 66 (Color: Natural)

UL94 V-2 (V-0\*)

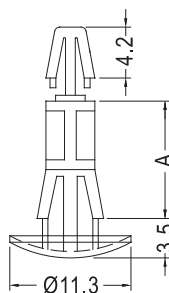


Round hole

\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

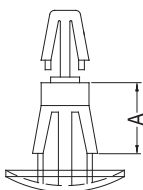
Fig. 2

P.C.B Ø4.0  
THICKNESS 1.2~1.7



CHASSIS Ø5.5  
THICKNESS 1.5~2.2

Fig. 1



Part No.	"A"±0.4mm	Std.Package
SDC-3	3.5	1000 pcs.
SDC-5	5.0	
SDC-6	6.35	
SDC-8	8.0	
SDC-10	10.0	1000 pcs.
SDC-12	12.7	
SDC-15	15.9	
SDC-19	19.0	
SDC-25	25.4	
SDC-35	35.5	

(Unit: mm)



Dome-head, snap-mount spacer

Features

- Holding and spacing for PC boards and chassis



Material

- Nylon 66 (Color: Natural) **UL94 V-2 (V-0\*)**

\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

(Unit: mm)

Fig. 1

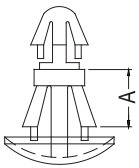
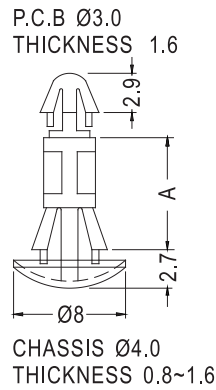


Fig. 2



Part No.	"A"±0.4mm	Std.Package
SDB-2.5	2.5	2000 pcs.
SDB-3	3.2	
SDB-4	4.0	
SDB-5	5.0	
SDB-6	6.0	1000 pcs.
SDB-7	7.0	
SDB-8	8.0	
SDB-9	9.0	
SDB-10	10.0	
SDB-12	12.0	
SDB-14	14.0	
SDB-16	16.0	

LOCKING CARD SPACER / SDX



Dome-head, snap-mount spacer

Features

- Holding and spacing for PC boards and chassis

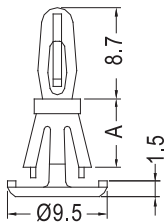


Material

- Nylon 66 (Color: Natural) **UL94 V-2 (V-0\*)**

\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

P.C.B Ø3.2  
THICKNESS 1.2~1.7



P.C.B Ø4.8  
THICKNESS 1.2~1.6

Part No.	"A"±0.4mm	Std.Package
SDX-6.5	6.5	1000 pcs.
SDX-7.9	7.9	
SDX-9.7	9.7	
SDX-11.1	11.1	
SDX-12.7	12.7	
SDX-14.3	14.3	
SDX-15.9	15.9	

(Unit: mm)



Dome-head, snap-mount spacer support

Features

- Provides spacing and support at the centre of PCB.
- Dome head snap protects against dust intrusion. Mounted from underside of chassis.



KGLS-RT

Can be used with KGLS-RT series  
Securing and spacing for PCB

Refer to the page 7

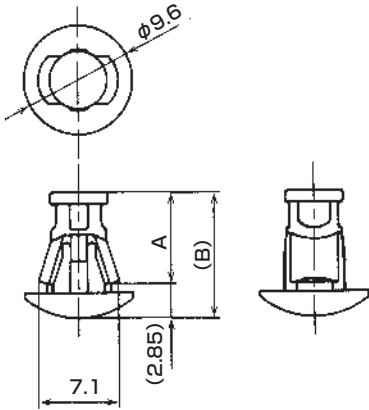
Material

- Nylon 66 (Color : Natural)

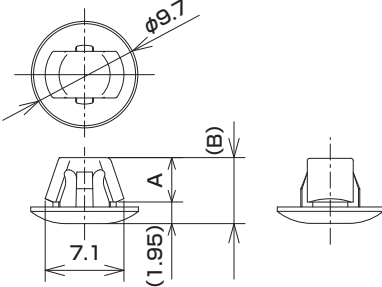
UL94 V-2 (V-0※)

※ For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

KGPS-RF



KGPS-4RF-V0



Part No.	A	(B)	Mounting hole size	Panel thickness	Std. Package
KGPS-5RF	5	7.9	φ5.5 <sup>+0.2</sup>	1~1.7	500 pcs.
KGPS-6RF	6	8.9			
KGPS-8RF	8	10.9			
KGPS-10RF	10	12.9			
KGPS-12RF	12	14.9			
KGPS-14RF	14	16.9			
KGPS-16RF	16	18.9			
KGPS-18RF	18	20.9			

(Unit : mm)

Part No.	A	(B)	Mounting hole size	Panel thickness	Std. Package
KGPS-4RF-V0	4	5.95	φ5.5±0.1	0.6~1.2	1,000 pcs.

(Unit : mm)

CARD SPACER™ / KGPS-RTBM



Dome-head, snap-mount spacer support for thin panel

Features

- Provides spacing and support at the center of PCB.
- Applicable thickness of sheet metal is at 0.4 to 1.2mm.
- Dust resistant performance is performed by bowl shaped snap mounted from chassis bottom.

Material

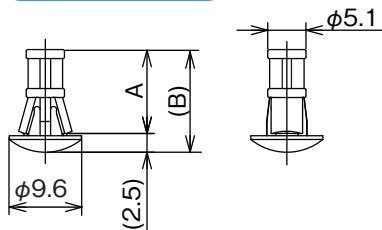
- Nylon 6 (Color : Natural)
- Nylon 66 (Color : Natural)

UL94 V-0 : KGPS-8, 10, 12RTBM V0

UL94 V-0 : KGPS-5, 6RTBM V0

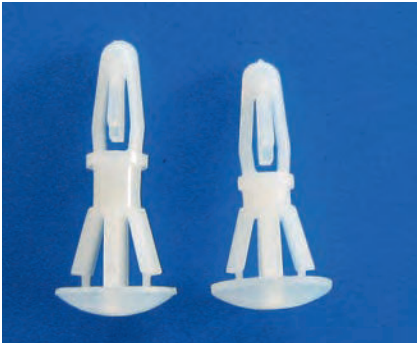
UL94 V-2 : KGPS-14RTBM

KGPS-RTBM

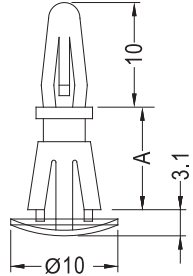


Part No.	A	(B)	Mounting hole size	Panel thickness	Std. Package
KGPS-5RTBM V0	5	7.5	φ5.5 <sup>+0.2</sup>	0.4~1.2	100 pcs.
KGPS-6RTBM V0	6	8.5			
KGPS-8RTBM V0	8	10.5			
KGPS-10RTBM V0	10	12.5			
KGPS-12RTBM V0	12	14.5			
KGPS-14RTBM	14	16.5			

(Unit : mm)



P.C.B Ø4.0  
THICKNESS 1.6



CHASSIS Ø5.5  
THICKNESS 1.0~1.7

### Dome-head, snap-mount spacer

#### Features

- Holding and spacing for PC boards and chassis

#### Material

- Nylon 66 (Color: Natural)

**UL94 V-2 (V-0\*)**



Snap Mounting



Round hole

\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

Part No.	"A"±0.4mm	Std.Package
QDCT-6	6.3	1000 pcs.
QDCT-8	7.9	
QDCT-10	10.0	
QDCT-12A	12.0	
QDCT-12	12.7	

(Unit: mm)

## LOCKING CARD SPACER / SDN



### Dome-head, snap-mount spacer

#### Features

- Holding and spacing for PC boards and chassis

#### Material

- Nylon 66 (Color: Natural)

**UL94 V-2 (V-0\*)**



Snap Mounting



Round hole

\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

Fig. 1

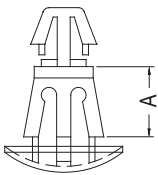
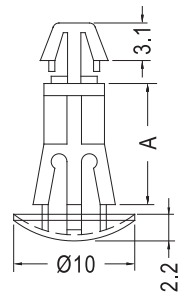


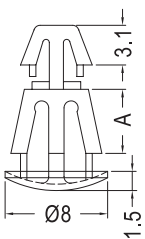
Fig. 3

P.C.B Ø4.0  
THICKNESS 1.2~1.7



CHASSIS Ø5.5  
THICKNESS 0.8~1.6

Fig. 2

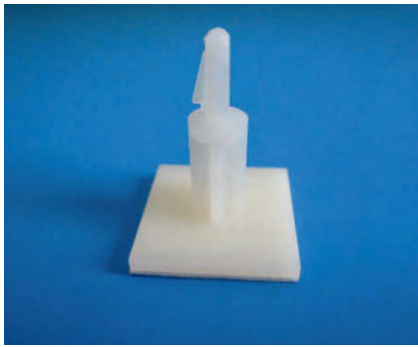


Part No.	"A"±0.4mm	Std.Package
SDN-3	3.5	Fig.1
SDN-5	5.0	
SDN-6	6.35	
SDN-5SP	5.0	Fig.2
SDN-7	7.0	Fig.3
SDN-8	8.0	
SDN-8.5	8.5	
SDN-10	10.0	
SDN-12A	12.0	
SDN-12	12.7	
SDN-13.5	13.5	
SDN-14	14.0	
SDN-15	15.2	
SDN-16	15.9	
SDN-18	18.0	
SDN-19	19.0	
SDN-20	20.0	
SDN-22	21.7	
SDN-24	24.0	
SDN-25	25.4	
SDN-30	30.0	

1000 pcs.

(Unit: mm)





Locking Card Spacer with adhesive tape mount

Features

- Holding and spacing for PC boards and chassis

Material

- Nylon 66 (Color: Natural)

UL94 V-2 (V-0\*)



Top: Snap Mounting

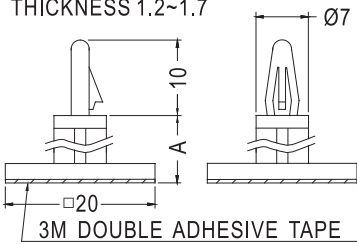


Round hole



Bottom: Adhesive tape mounting

P.C.B Ø4.0  
THICKNESS 1.2~1.7



\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

Part No.	"A"±0.4mm	Std.Package
BTT-5	5.4	500 pcs.
BTT-6	6.3	
BTT-8	8.0	
BTT-10	9.8	
BTT-12	12.8	
BTT-15	16.2	

(Unit: mm)

LOCKING CARD SPACER / KGLS-M



PCB spacer with adhesive tape mount with no drilling required

Features

- Spacing and securing for PCB and chassis.

Material

- Nylon 66 (Color : Natural)

UL94 V-2



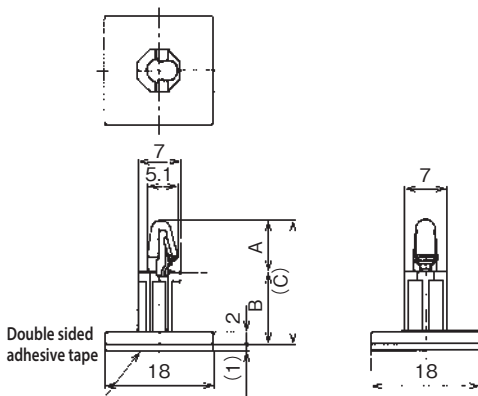
Top : Snap Mounting



Round hole



Bottom : Adhesive tape mounting



Part No.	A	B	(C)	Mounting hole size	Panel thickness	Std. Package
KGLS-4M-R	8.5	5.6	14.1	Top $\phi 4^{+0.1}_0$	Top 1.6~2.0	100 pcs.
KGLS-6M-R	8.5	8.7	17.2			1,000 pcs.
KGLS-8M-R	8.5	11.9	20.4			100 pcs.

(Unit : mm)

LOCKING CARD SPACER / KGLS™-T



Snap-mount spacer for wooden chassis and PCB panel

Features

- Spacing and securing for PCB and chassis.

Material

- Nylon 66 (Color : Natural)

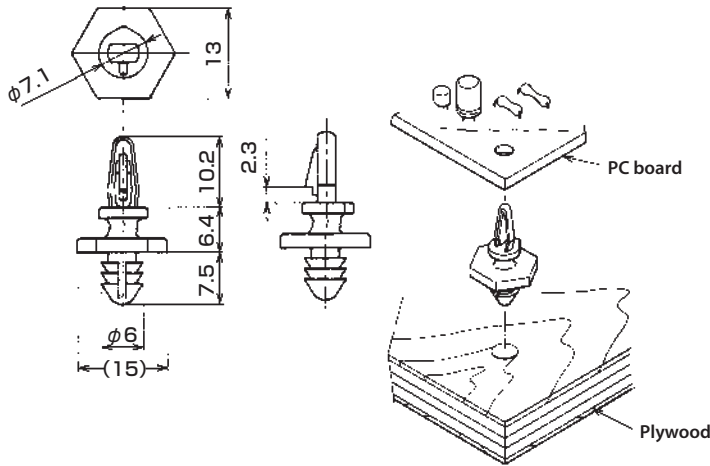
UL94 V-2



Top : Snap Mounting  
Bottom : Snap mounting for wood panels



Round hole

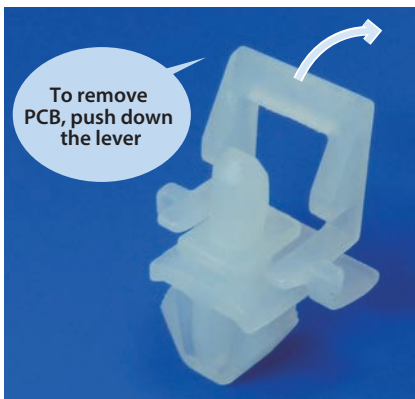


Part No.	Mounting hole size	Panel thickness	Std. Package
KGLS-04T	Top φ4 <sup>+0.2</sup> Bottom φ5.5~5.8*	Top Max.2.0 Bottom —*	100 pcs.

(Unit : mm)

\*Varies according to the material, please confirm suitable hole dimensions and panel thickness using the actual material.

CARD EDGE SPACER / KGES



Releasable PCB spacer for easy mount and dismount

Features

- Board is mounted and dismounted easily using the special lever.

Material

- Nylon 66 (Color : Natural)

UL94 V-2 (V-0\*)

\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)



Snap Mounting

Top



Round hole

Bottom

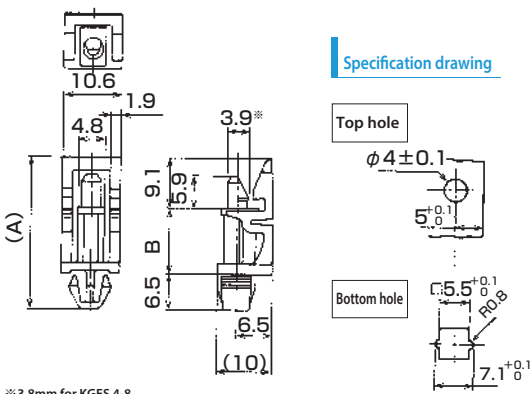


Odd-shaped hole



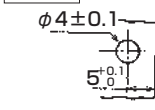
Can be used with PHD series  
Holding and opening of PCB for  
access to backside with no hinge  
used.

P15

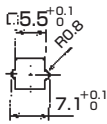


Specification drawing

Top hole



Bottom hole



\*3.8mm for KGES 4-8.

Part No.	(A)	B	Mounting hole size	Panel thickness	Std. Package
*KGES-4	19.6	4	Refer to Specification drawing	Top 1.6±0.1	1,000 pcs.
KGES-6	21.6	6			100 pcs.
KGES-8	23.6	8		Bottom 1~1.8	1,000 pcs.
KGES-10	25.6	10			
KGES-12	27.6	12			
KGES-14	29.6	14			
KGES-18	33.6	18			
KGES-25	40.6	25			
KGES-30	45.6	30			

\*KGES-4 has a slightly different configuration from the left drawing.

(Unit : mm)



Releasable PCB spacer that does not drilling for easy access

**Features**

- PC board spacer that stabilise edge of PC board by simply pressing it onto this product.
- Easy removable of board by lever action.
- Suitable to mount thin PC board. (Thickness of mounted PC board : 1.2±0.17mm)
- Suitable to prevent bending of PCB and secure spacing.

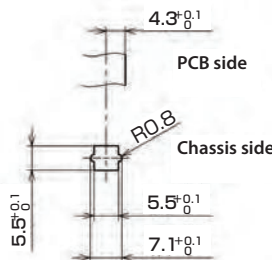
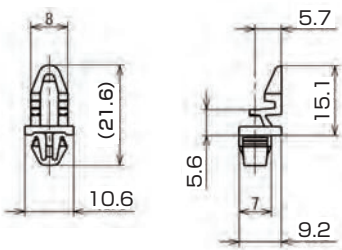
※ We recommend you to utilize this product as a supplementary usage together with screw or other fixing means.

**Material**

- Nylon 66 (Color : Natural)

UL94 V-0

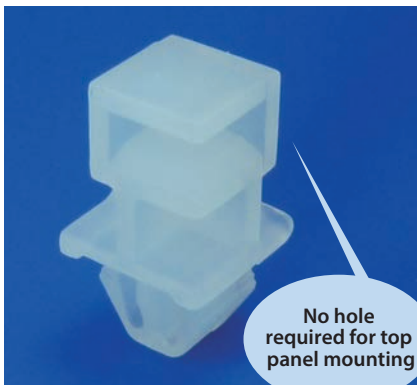
**Specification drawing**



Part No.	Chassis thickness		Mounting hole size	
	PC board	Chassis	PC board	Chassis
CESP-55	1.2 ±0.17	0.8~1.8	—	Custom (See above)

(Unit : mm)

CORNER POST / KGCP



Releasable PCB spacer that does not require drilling

**Features**

- Requires no mounting hole and occupies only 6mm square.

**Material**

- Nylon 66 (Color : Natural)

UL94 V-2



Bottom



Top : No mounting hole needed

(Space of 6mm square is required at each panel corner)

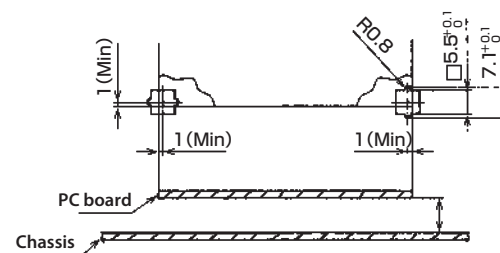
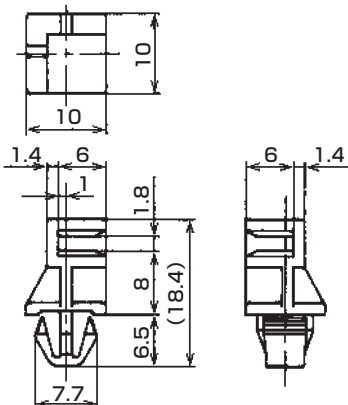


Can be used with KGES-8 series

For installation and removal of PCB

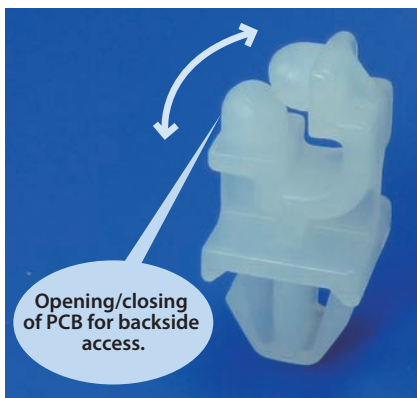
Refer to the left page

**Specification drawing**



Part No.	Mounting hole size	Panel thickness	Std. Package
KGCP-08-0	Refer to Specification drawing	Top 1.6±0.15 Bottom 1~1.8	1,000 pcs.

(Unit : mm)



Spacer that allows easy opening/ closing/ removal of PCB

Features

- PCB can be mounted and opened for access to the backside for maintenance.
- Non-hinge mechanism protects the product from damage by PCB open/close movement.

Material

- Nylon 66 (Color : Natural)

UL94 V-2 (V-0<sup>※</sup>)

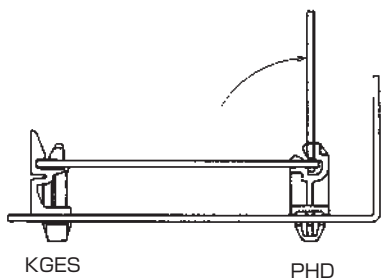
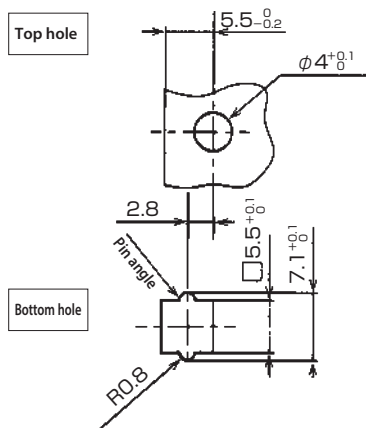
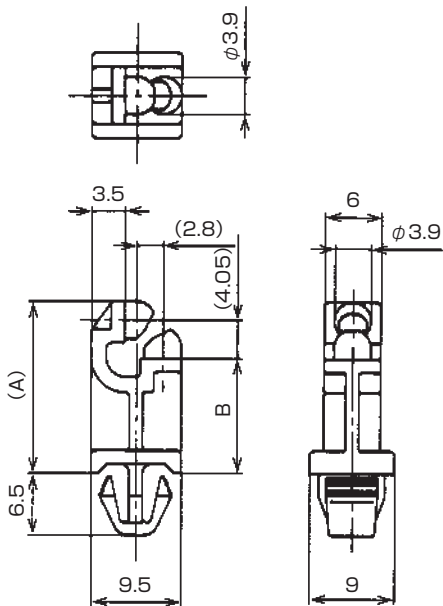
※ For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)



Can be used with KGES series  
For installation and removal of PCB

P13

Specification drawing



Part No.	(A)	B	Mounting hole size	Panel thickness	Std. Package
PHD-04	10	4	Top $\phi 4^{+0.1}$ Bottom Refer to Specification drawing	Top $1.6 \pm 0.1$	1000 pcs.
PHD-06	12	6			
PHD-08	14	8		Bottom 1~1.8	1000 pcs/ MOQ: 10,000 pcs.
PHD-10	16	10			
PHD-12	18	12		1000 pcs.	
PHD-14	20	14			
PHD-18	24	18		1000 pcs.	
PHD-25	31	25			
PHD-30	36	30			

(Unit : mm)



Releasable spacer for easy access and maintenance of PCB and panel

**Features**

- Easily mount and dismount PCB by pushing down the lever.
- Removal by one hand with no tools required.

**Material**

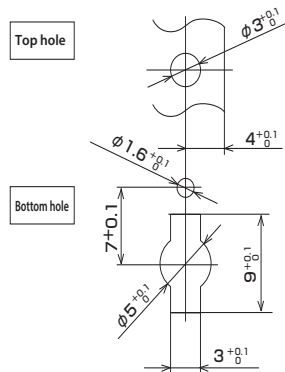
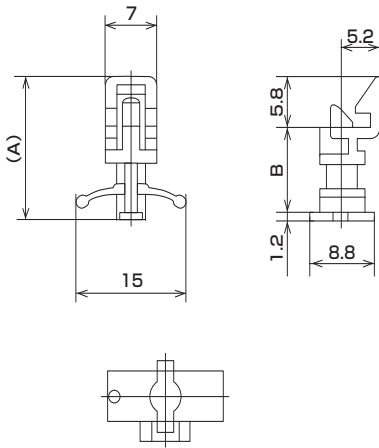
- Nylon 66 (Color : Natural) **UL94 V-2 (V-0\*)**

※ For V0 type, "V0" is added to the end of the part No. (With regard to lot size and lead time, please contact us.)

**Specification drawing**



Can be used with RPH series  
Holding and opening of PCB for backside access.



Part No.	(A)	B	Mounting hole size	Panel thickness	Std. Package
RES-6	13	6	Refer to Specification drawing	Top 1.6±0.1 Bottom 0.8~1.6	100 pcs.
RES-8	15	8			
RES-10	17	10			
RES-12	19	12			
RES-14	21	14			

(Unit : mm)



Releasable spacer for easy access and maintenance of PCB and panel (not hinged)

**Features**

- PCB can be mounted and opened for access to the backside for maintenance.
- Removed by one hand no tools required.

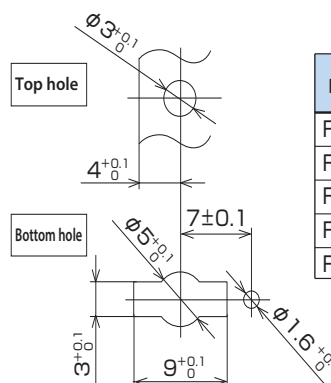
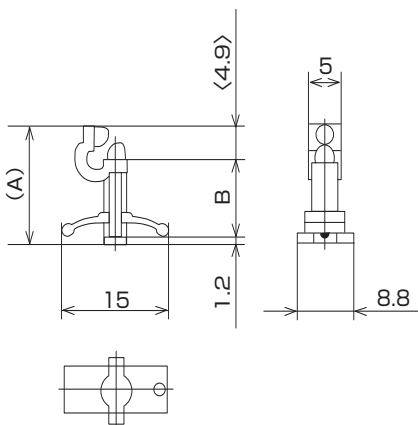
**Material**

- Nylon 66 (Color : Natural) **UL94 V-2**

**Specification drawing**



Can be used with RES series  
Mount and dismount of PCB by pushing down the lever.



Part No.	(A)	B	Mounting hole size	Panel thickness	Std. Package
RPH-6	12.1	6	Refer to Specification drawing	Top 1.6±0.1 Bottom 0.8~1.6	100 pcs.
RPH-8	14.1	8			
RPH-10	16.1	10			
RPH-12	18.1	12			
RPH-14	20.1	14			

(Unit : mm)

TAPPING CARD SPACER / KGTS-T, K



Spacer of PCB that allows for screw mount onto the chassis

Features

- Provides simultaneous functions of spacing and supporting for PCB and chassis.

Material

- Nylon 66 (Color : Natural)

UL94 V-2



Top : Snap Mounting



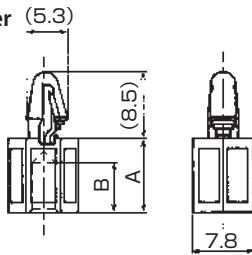
Round hole



Bottom : Screw Mounting

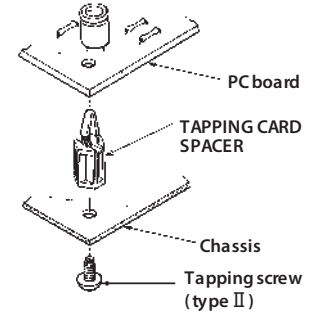
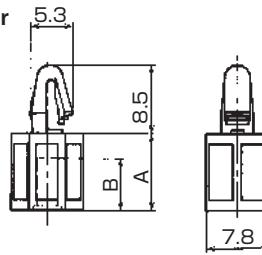
KGTS-T type

(Nominal diameter 3.5mm type)



KGTS-K type

(Nominal diameter 3mm type)



Part No.	A	(Depth of screw hole)	Mounting hole size	Panel thickness	Std. Package
KGTS-4T	6.4	5.2	$\phi 4^{+0.1}_0$	1.6~2.0	100 pcs.
KGTS-5T	7.5	6.4			
KGTS-6T	9.5	6.4			
KGTS-8T	12.7	9.6			
KGTS-10T	15.9	12.8			
KGTS-12T	19.1	16.0			
KGTS-14T	22.2	19.1			
KGTS-18T	28.6	25.5			
KGTS-22T	35.7	32.6			

(Unit : mm)

Part No.	A	(Depth of screw hole)	Mounting hole size	Panel thickness	Std. Package
KGTS-4K	6.4	5.2	$\phi 4^{+0.2}$	1.6~2.0	100 pcs.
KGTS-5K	7.5	6.4			
KGTS-6K	9.5	6.4			
KGTS-8K	12.7	9.6			
KGTS-10K	15.9	12.8			
KGTS-12K	19.1	16.0			
KGTS-14K	22.2	19.1			
KGTS-18K	28.6	19.1			
KGTS-22K	35.7	19.1			

(Unit : mm)

COLLAR BUSHING / KCB-310-V0



Screw fixing collar bush functions as a spacer for PCB's

Features

- One-piece structure for good workability.
- Screw fixing is suitable for installing heavy PCB's.
- The bush covers screwheads to protect and insulate the screw.

Material

- PA66 (Color : Natural)

UL94 V-0

■ Dimensions

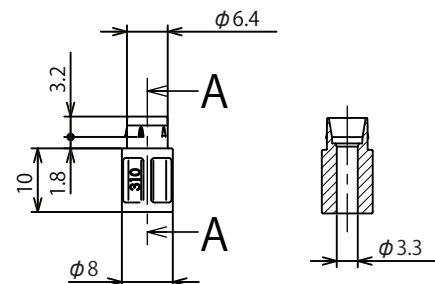
● Installation Specifications

Mounting hole :  $\phi 6.6 \pm 0.1$ mm

Panel thickness :  $t1.6 \pm 0.1$ mm

Applicable screw: M3 pan head screw(JIS B1111)

Recommended torque : 0.686 ~ 0.784 N · m



A-A



Height adjustable collar bushing for PCB protection

Features

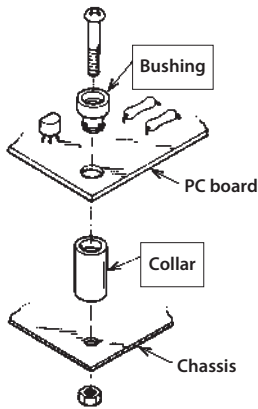
- Combination of a bushing and a collar provides various spacing height.



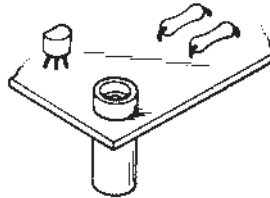
Screw Mounting

Material

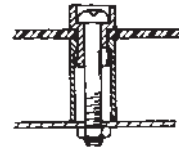
- ABS (Color : Natural) **UL94 HB**
- Poly-carbonate\* (Color : Black) **UL94 V-O**



<When temporary mounted on PCB>

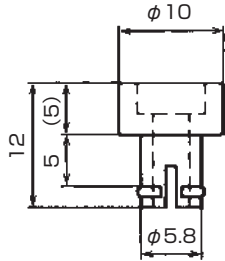


<When screw is tightened>



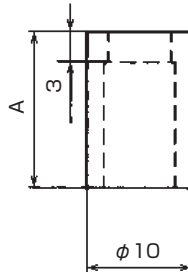
Bushing for 3mm screw

**NB-300**



Collar for 3mm screw

**NA-3\*\***

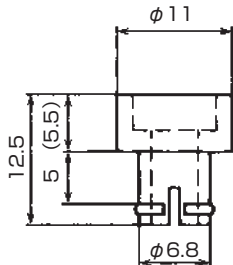


Collar No	Spacing height A	Mounting hole size	Std. Package
NA-305	5.7	$\phi 6.5$	200 pcs.
NA-307	7.5		
NA-310	10.0		100 pcs.
NA-315	15.0		
NA-320	20.0		

(Unit : mm)

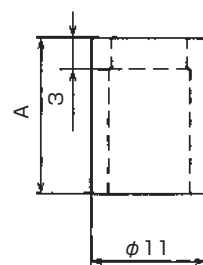
Bushing for 4mm screw

**NB-400**



Collar for 4mm screw

**NA-4\*\***

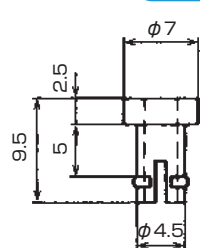


Collar No	Spacing height A	Mounting hole size	Std. Package
NA-405	5.7	$\phi 7.5$	200 pcs.
NA-407	7.5		
NA-410	10.0		100 pcs.
NA-415	15.0		
NA-420	20.0		

(Unit : mm)

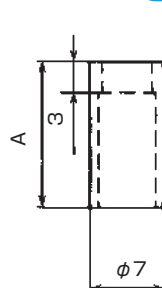
Bushing for 3mm screw

**TB-300**



Collar for 3mm screw

**TA-3\*\***



Collar No	Spacing height A	Mounting hole size	Std. Package
TA-305	5.7	$\phi 5.2$	200 pcs.
TA-306.4	6.4		
TA-307	7.5		
TA-308	8.0		
TA-309	9.0		
TA-310	10.0		
TA-314	14.0		
TA-320	20.0		
TA-329	29.0		

(Unit : mm)

\*\* Please order in unit of a bushing and collar set.



Screw mount PCB spacer that keeps components and panel in place

Features

- Provides fixation of panel to panel and component to panel, as well as spacing between them.
- Tightening screw provides secure fixation by swelling of the middle part of the nut.
- Plastic nut surrounds the screw for high insulation and corrosion protection.



Screw Mounting

(Applicable screw:  $\phi 4.5$ mm Tapping screw Type 1)

Top



Round hole

Bottom

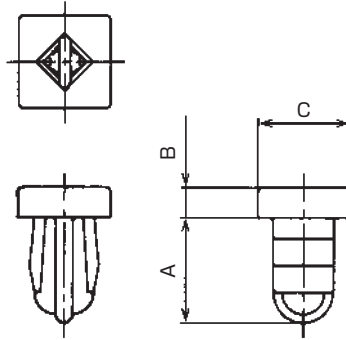


Square hole

Material

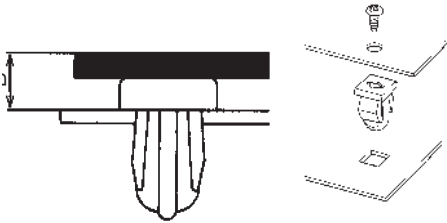
- Nylon 66 (Color : Natural)

UL94 V-2



Part No.	A	B	□C	Mounting hole size	Panel thickness	Screw diameter	Screw length (Nominal length)	Std. Package
ES-1K	11.0	0.8	9.7	$\square 6.7^{+0.3}$	0.5~2.0	4.5	D+9.5	500 pcs.
ES-2K		1.6						
ES-3K		3.2						
ES-4K		4.8						
ES-5K		6.4						

(Unit : mm)



TOGGLE FIXER / TFR



Screw mount PCB spacer that keeps components and panel in place

Features

- Spacing and fixation for panels and components.
- Locking tabs open to secure by tightening the screw.



Screw Mounting

(Applicable screw:  $\phi 4$ mm Tapping screw Type 1)

Top



Round hole

Bottom

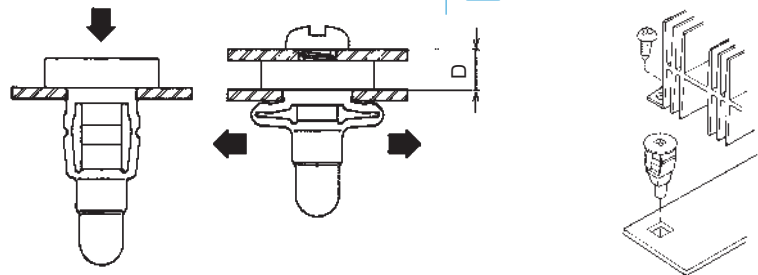
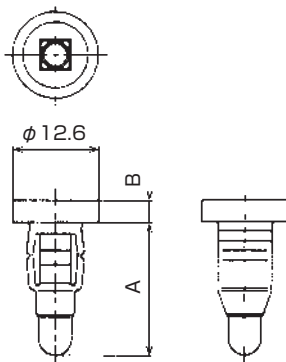


Square hole

Material

- Nylon 66 (Color : Natural)

UL94 V-2



Part No.	Screw diameter	Screw length (Nominal length)	A	B	Mounting hole size	Panel thickness	Std. Package
TFR-1	$\phi 4$	D + 12.5	19.4	0.8	$\square 7.9^{+0.2}$	0.5~2.8	500 pcs.
TFR-3				3.2			
TFR-4				4.8			

(Unit : mm)





### Snap-mount rivet series to fix 2 chassis plates together

#### Features

- Permanent fixation of two chassis by simply pushing down the rivet.



Snap Mounting (by Pushing rivet)

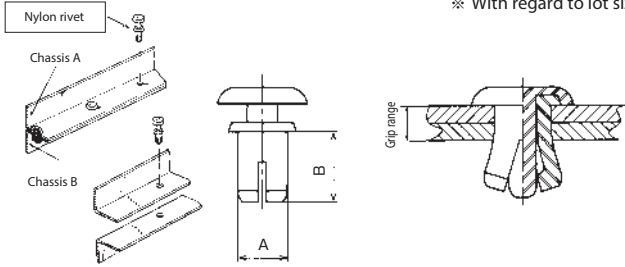


Round hole

#### Material

- Nylon 6 (Color: Black, White ※) **UL94 V-2**
- Nylon 46 (Color: Beige) **UL94 V-2**

※ With regard to lot size and lead time for the white type, please contact us.



#### Made of Nylon 46

Part No.	Axis diameter A	Length B	Grip range	Mounting hole size	Std. Package
P3045SN	3	4.5	2.0~3.0	φ 3.1	1,000 pcs.
P3055SN		5.5	3.0~4.0		
P4060SN	4	6.0	3.5~4.5	φ 4.1	

(Unit : mm)

#### Made of Nylon 6

Part No.	Axis diameter A	Length B	Grip range	Mounting hole size	Std. Package
P2024	2.0	2.4	0.6~1.2	φ 2.1	1,000 pcs.
P2032		3.2	1.3~2.0		
P2040		4.0	2.1~2.8		
P2048		4.8	2.9~3.6		
NRP-232	2.6	3.2	1.0~2.0	φ 2.7	
NRP-242		4.2	2.1~3.0		
NRP-335	3.0	3.5	1.0~2.0	φ 3.1	
NRP-345		4.5	2.0~3.0		
NRP-355		5.5	3.0~4.0		
NRP-365		6.5	4.0~5.0		
NRP-380		8.0	5.5~6.5		
NR-354		3.5	5.5		

Part No.	Axis diameter A	Length B	Grip range	Mounting hole size	Std. Package
NRP-450	4.0	5.0	2.5~3.5	φ 4.1	1,000 pcs.
NRP-460		6.0	3.5~4.5		
NRP-470		7.0	4.5~5.5		
NRP-480		8.0	5.5~6.5		
NRP-504	5.0	4.5	1.5~2.5	φ 5.1	
NRP-505		5.5	2.5~3.5		
NRP-506		6.5	3.5~4.5		
NRP-507		7.5	4.5~5.5		
NRP-508		8.5	5.5~6.5		
NRP-509		9.5	6.5~7.5		
NRP-510	10.5	7.5~8.5			

(Unit : mm)

## RIVET / RVT



### Resin rivet to provide vibration damping

#### Features

- Quick insertion in mounting holes in flanges of fans etc with no screw needed.
- Elastomeric material provides effective vibration control.



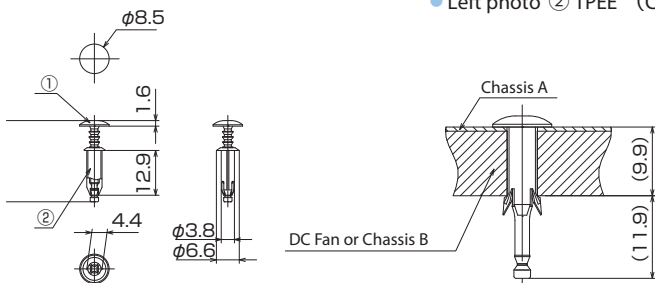
Snap Mounting (by Pushing rivet)



Round hole

#### Material

- Left photo ① Nylon 66 (Color : Black) **UL94 V-O**
- Left photo ② TPEE (Color : Natural) **UL94 HB**



Part No.	Mounting hole size	Panel thickness	Std. Package
RVT-9943	φ 4.3±0.2	9.9±0.3	100 pcs.



Resin push mount rivet that snaps into a hole with low insertion force

**Features**

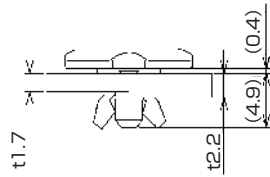
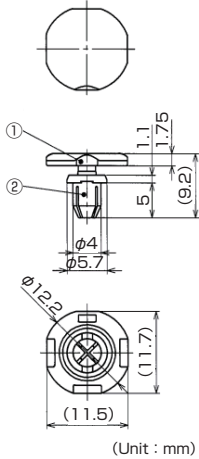
- Insertion forces realized in consideration of assembly.
- Structure easier to remove from mounting side for rework.
- Use Materials having a high reflectance in the visible light region on the top surface.
- Corresponding structure even if you use a reflection sheet on the PCB.

**Material**

- ① PC (Color : Natural)
- ② Nylon 6 (Color : Natural)

UL94 V-0

UL94 V-0



Part No.	Mounting hole size	Panel thickness	Std. Package
NRK-450L WT	$\phi 4.1^{+0.1}_0$	t1.7~2.2mm	500 pcs.

(Unit : mm)

Mounting hole size :  $4.1^{+0.1}_0$   
Panel thickness : t1.7~2.2mm

Std. Package : 500pcs.

CARD CORNER HOLDER / KGCH



Locking mechanism for PCB removal.

Sub-PCB holder to mount onto chassis or main PCB

**Features**

- Space-saving holder allows mounting of sub-PCB onto chassis or main-PCB.
- Sub-PCB can be removed due to the locking mechanism.



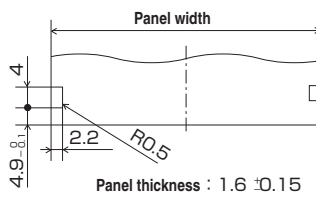
**Material**

- Nylon 6 (Color : Natural)

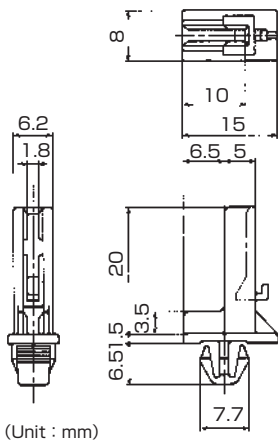
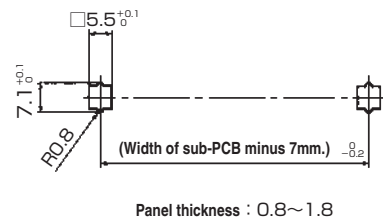
UL94 V-2(V-0\*)

※ For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

**Specification drawing for sub-PCB**

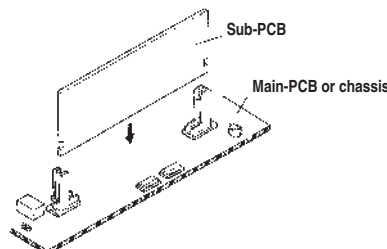


**Specification drawing**



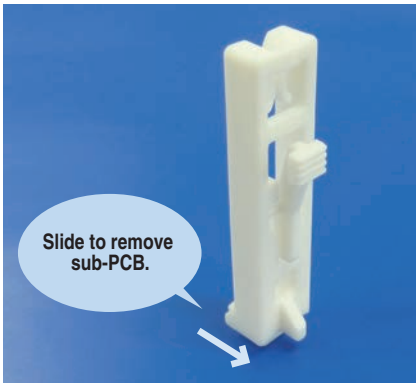
(Unit : mm)

Std. Package : 1000pcs.



Part No.	Mounting hole size	Std. Package
KGCH-20-OT	refer to the specification drawing	1000 pcs.

(Unit : mm)



PCB spacer that enables easy PCB / chassis release

Features

- Space-saving, sub-PCB holder for installation on chassis or main-PCB.
- Sub-PCB can be removed due to the locking mechanism.
- Detachable holder requires no tools for maintenance and disassembling.

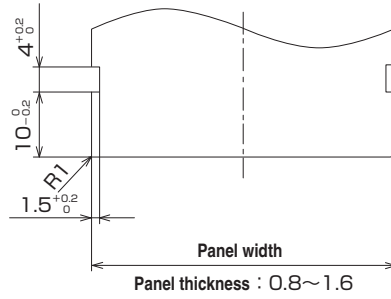


Material

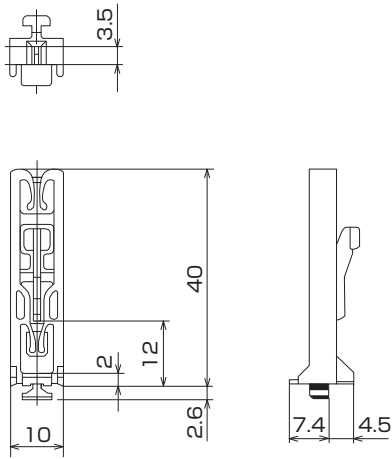
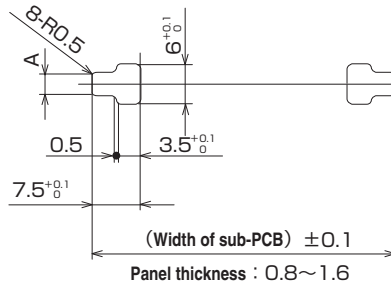
- Nylon 66 (Color : Natural)

UL94 V-0

Specification drawing for sub-PCB



Specification drawing

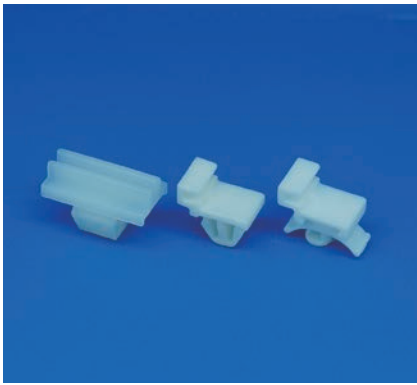


(Unit : mm)

Std. Package : 250pcs.

Part No.	Panel thickness	A	Std. Package
RCH-40-V0	0.8 <sup>+0.1</sup> <sub>0</sub>	2.0 <sup>+0.1</sup> <sub>0</sub>	250 pcs.
	1±0.1	2.6 <sup>+0.1</sup> <sub>0</sub>	
	1.2±0.1	3.2 <sup>+0.1</sup> <sub>0</sub>	
	1.4±0.1	3.8 <sup>+0.1</sup> <sub>0</sub>	
	1.6 <sup>+0.1</sup> <sub>-0.1</sub>	4.4 <sup>+0.1</sup> <sub>0</sub>	

(Unit : mm)



PCB guide for limited space

Features

- Low-cost and space saving card guide.
- Reusable type, requires no tools for mount/dis-mounting.

Material

- Nylon 66 (Color : Natural)



**Snap Mounting**  
UEGR-※※-0  
UEGR-08Y, RUEGR-08Y-V0



**Round hole**



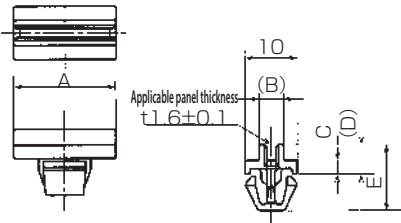
**Slide Type**  
RUEGR-08Y-V0



**Odd-shaped hole**

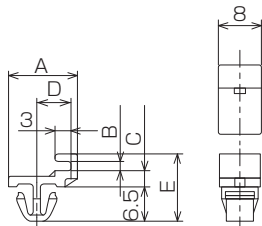
UEGR-※※-0

For mounting on vertical plane

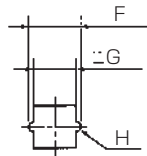


UEGR-08Y

For mounting on horizontal plane



Specification drawing



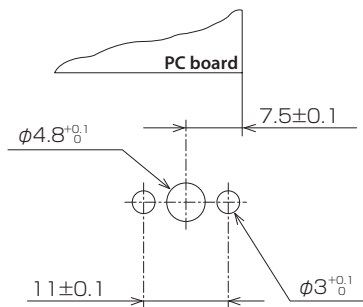
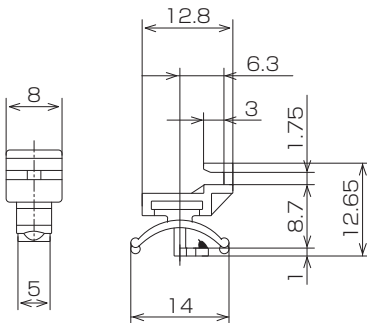
Part No.	A	B	C	D	E	F	G	H	Panel thickness	Std. Package
UEGR-08-0	8	5.5	1.6	4.6	10.1	7.1 <sup>+0.1</sup> <sub>0</sub>	□5.5 <sup>+0.1</sup> <sub>0</sub>	R0.8	1~2	1,000 pcs.
UEGR-19-0	19	4.7	2.5	5.5	12.5	9.8 <sup>+0.1</sup> <sub>0</sub>	□8 <sup>+0.1</sup> <sub>0</sub>	R0.9	0.8~1.2	
UEGR-08Y	12.8	1.6	3.0	6.3	12.5	7.1 <sup>+0.1</sup> <sub>0</sub>	□5.5 <sup>+0.1</sup> <sub>0</sub>	R0.8	1.5±0.1	500 pcs.

(Unit : mm)

RUEGR-08Y-V0



Specification drawing



Part No.	Panel thickness	Std. Package
RUEGR-08Y-V0	0.8~2.0	1,000 pcs.

(Unit : mm)



Slide and remove

Reusable Snap (Slide type)



Easy Operation!

Simply slide the body to install and remove.

Space saving

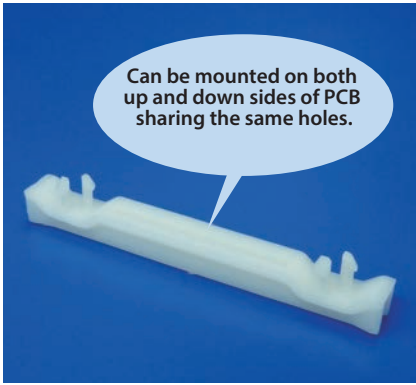
Greatly reduces the snap protrusion on the underside of PCB

Also suitable for application in limited spaces.

Round hole mounting



No odd-shaped hole required  
Drilling 3 holes only.



### Compact guide rail to 1mm thick PCB

#### Features

- Space-saving card guide can be installed on both sides of PCB by using the same holes.
- Card guide for 1mm thick PCB, improved stable holding without making clattering of PC board.



Snap Mounting



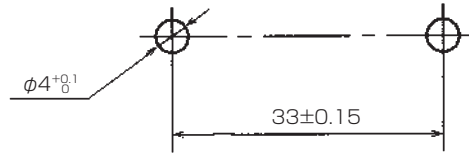
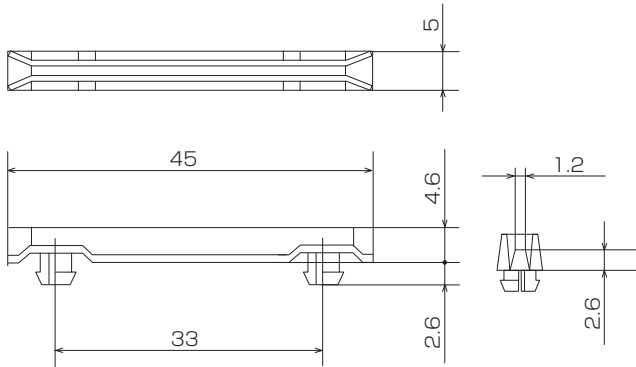
Round hole

#### Material

- Nylon 66 (Color : Natural)

UL94 V-0

#### Specification drawing



Part No.	Mounting hole size	Panel thickness	Applicable panel thickness	Std. Package
GR-45A	Refer to Specification drawing	1 <sub>-0.1</sub> <sup>0</sup>	1±0.2	100 pcs.

(Unit : mm)



### Standard PCB guide rail

#### Features

- Slim PCB guide.

#### Material

- Poly-carbonate (Color : Black)

UL94 V-2

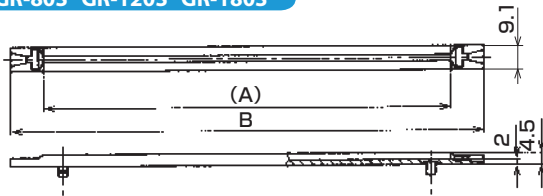


Snap Mounting

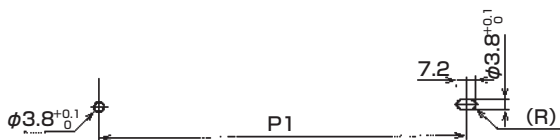


Round hole

#### GR-80S · GR-120S · GR-180S



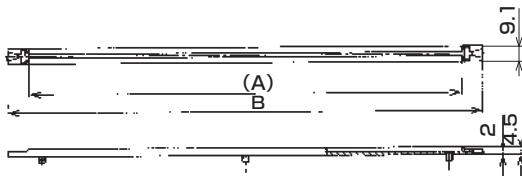
Specification drawing



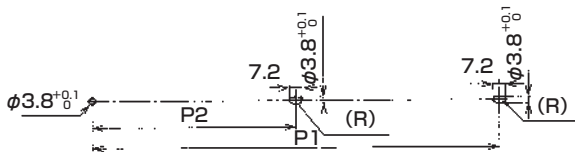
Part No.	(A)	B	Pitch of mounting hole		Panel thickness	Std. Package
			P1			
GR-80S	55	80	40±1		1.6±0.1	100 pcs.
GR-120S	95	120	80±1			
GR-180S	155	180	140±1			

(Unit : mm)

#### GR-280S

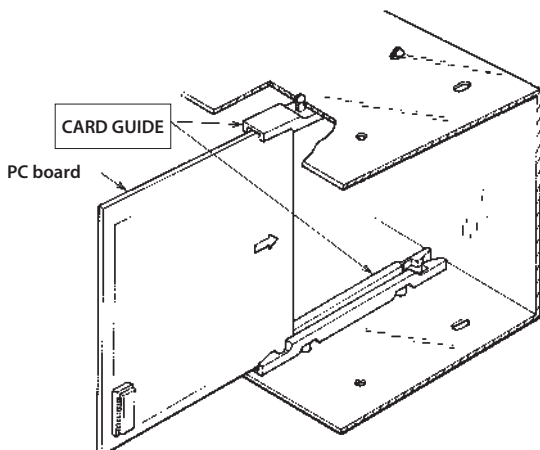


Specification drawing

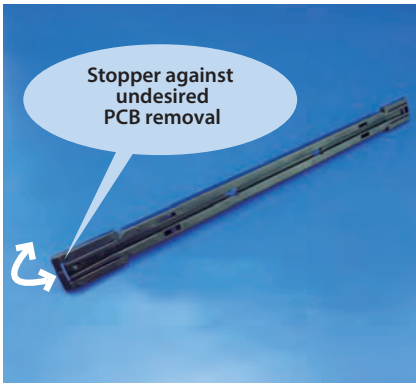


Part No.	(A)	B	Pitch of mounting hole		Panel thickness	Std. Package
			P1	P2		
GR-280S	255	280	240±1	120±1	1.6±0.1	100 pcs.

(Unit : mm)



CARD GUIDE WITH STOPPER / GR-170SS



PCB guide with end-stopper that prevents sliding

Features

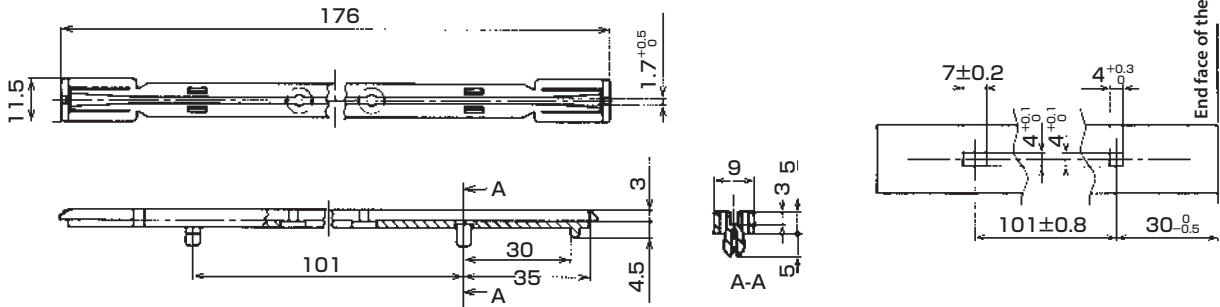
- Stopper prevents PCB from undesired removal.
- Can hold 60 and 110 mm PCB by using NYLON RIVET (P30) in the middle of the guide.
- PCB can be removed with one hand using a special ejector.

Material

- Noryl (Color : Black) **UL94 V-O**



Specification drawing



Part No.	Mounting hole size	Panel thickness	Std. Package
GR-170SS	Refer to Specification drawing	1.6±0.1	200 pcs.

(Unit : mm)

EJECTOR / CBE-15



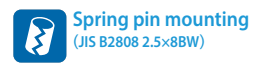
PCB card ejector for GR-170SS

Features

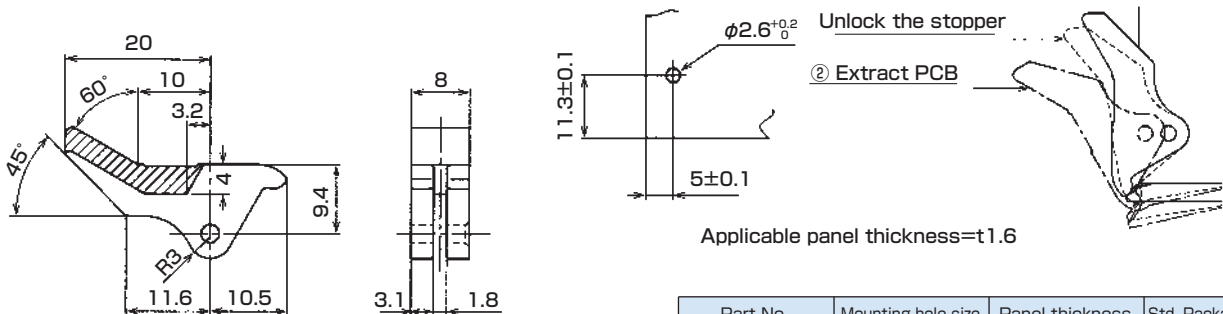
- Special ejector for CARD GUIDE WITH STOPPER Easy extraction of PCB.

Material

- Noryl (Color : Black) **UL94 5VA**



Specification drawing



Part No.	Mounting hole size	Panel thickness	Std. Package
CBE-15	$\phi 2.6^{+0.2}$	1.6±0.1	500 pcs.

(Unit : mm)

# EJECTOR / EJC-1A



PCB card ejector for the 1-mm thick PCB that uses no spring pins

### Features

- Compact ejector for 1mm thick PCB.
- Quick, snap in installation without using spring pin.

### Material

■ PPHOX (Black)

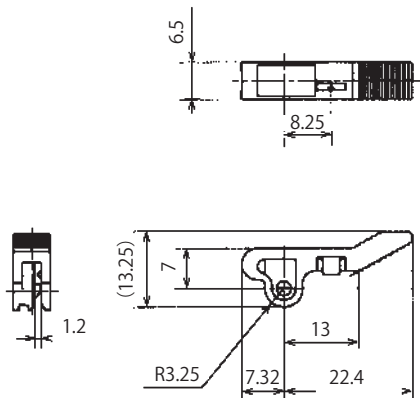
UL94 V-O



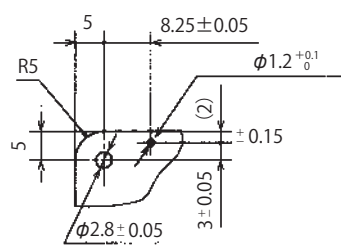
Snap Mounting



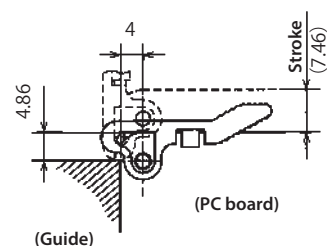
Round hole



### Specification drawing



Panel thickness : 1± 0.2



(Unit : mm)

Std. Package : 500pcs.

# EJECTOR / CBE-18



PCB card ejector for center mount

### Features

- CBE-18 provides easy dismounting of PCB for maintenance.
- Quick, snap in installation without using spring pin.

### Material

• Nylon 66 (Color : Natural)

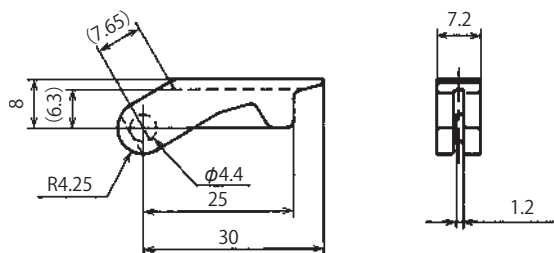
UL94 V-2



Snap Mounting

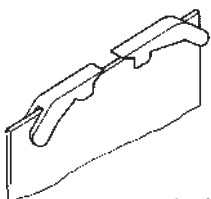
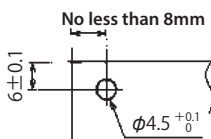


Round hole



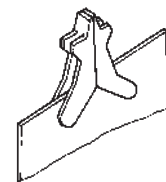
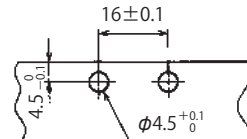
### Specification drawing

■ A type



Mounting example of A type

■ B type



Mounting example of B type

Part No.	Mounting hole size	Panel thickness	Std. Package
CBE-18	φ4.5 <sup>+0.1</sup> / <sub>0</sub>	1.6±0.1	500 pcs.

(Unit : mm)

● Can be used as a handle for transport, when mounted on the middle edge of PCB.





### Standard PCB card ejector



Round hole



Spring pin mounting

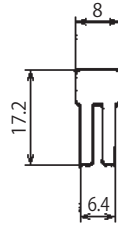
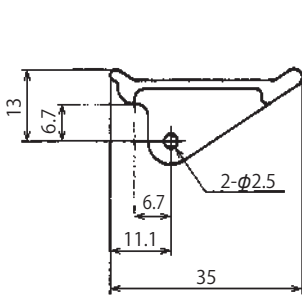
#### Features

- Provides easy extraction of a connected PCB by using leverage.

#### Material

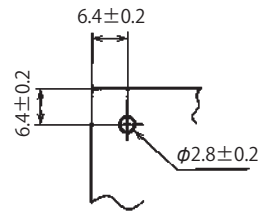
- Nylon 6 (Color : Natural) **UL94 V-2** : CBE-12
- Polyacetal (Color : Natural) **UL94 HB** : CBE-14
- Polyethylene terephthalate (Color : Natural) **UL94 V-0** : CBE-2P

#### CBE-12



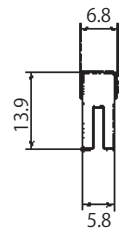
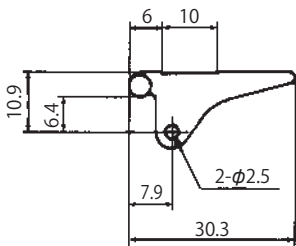
Std. Package : 100pcs.

#### Specification drawing



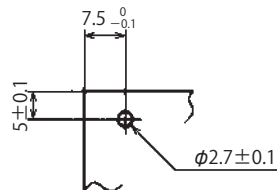
Applicable panel thickness : = 1.6

#### CBE-14



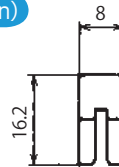
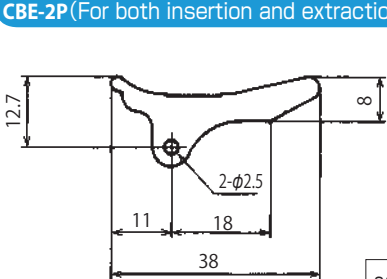
Std. Package : 100pcs.

#### Specification drawing



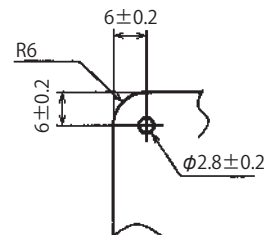
Applicable panel thickness : = 1.6

#### CBE-2P(For both insertion and extraction)



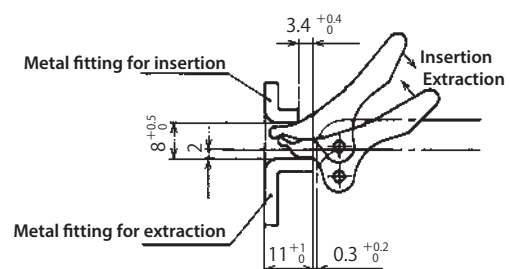
Std. Package : 100pcs.

#### Specification drawing



Applicable panel thickness : = 1.6

#### Specification drawing for metal fitting



(Unit

For Cables

and Tubing, Optic fibers, etc.

Binding and fastening



Snap Mounting



GRBWS-E  
P31  
RE-USE CLAMP



RBWS-E-F  
P31  
RE-USE CLAMP



RBWS-S-N  
P32  
RE-USE CLAMP



RBWS-D,-TD  
P33  
RE-USE CLAMP



RBWS-T,-TL  
P34  
RE-USE CLAMP



RTMC-01 T V0  
P35  
TENSION MINI CLAMP



RLMC  
P35  
RE-USE CLAMP



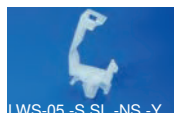
RLWS-T,-TL,-S  
P36  
RE-USE CLAMP



LBWS  
P37  
LOCKING CLAMP



LAMS-05/ LMC-05N  
P37  
LOCKING MINI CLAMP



LWS-05,-S,-SL,-NS,-Y  
P38  
LOCKING WIRE SADDLE



VLUAMS  
P39  
SCREW-LESS CLAMP



VLBWS  
P39  
SCREW-LESS CLAMP



UAMS  
P43  
MINI CLAMP



WS  
P43  
MINI CLAMP



NXT  
P44  
WIRE MOUNT



NXT  
P45  
WIRE MOUNT



RWS-T,-E  
P46  
RE-USE WIRE SADDLE



YMC/ YMW-16  
P47  
SIDE SLOT MINI CLAMP



NAD  
P47  
SPEED CLAMP



KS  
P50  
KS CLAMP



DMI  
P52  
WIRE MOUNT



PDD  
P53  
WIRE HOLDER



DMN  
P53  
WIRE MOUNT



PDDC  
P54  
WIRE HOLDER



WBC  
P54  
WOOD-USE CLAMP



CKT  
P55  
CKT CLAMP



FLC  
P56  
FREE CLAMP



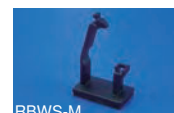
VLC  
P56  
SCREW-LESS CLAMP



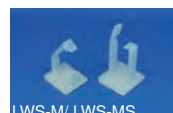
CKS  
P57  
CKS CLAMP



Adhesive Tape Mounting



RBWS-M  
P32  
LOCKING WIRE SADDLE



LWS-M/ LWS-MS  
P41  
LOCKING WIRE SADDLE



MU  
P42  
MINI CLAMP



K  
P48  
CORD KEEP



XDM  
P51  
WIRE MOUNT



XD  
P52  
WIRE MOUNT



CKN  
P58  
CKN CLAMP



CKN-SP  
P58  
CKN CLAMP WITH CUSHION PAD



AC  
P59  
ADJUSTABLE CLAMP



LM  
P40  
OMEGA HOLDER



Screw Mounting



LWS-H,-W  
P41  
LOCKING WIRE SADDLE



NK  
P49  
NYLON CLAMP



KCA  
P50  
HEAT RESISTANT CABLE CLAMP



FXC  
P60  
FLEXIBLE CLAMP



KC  
P60  
CABLE CLAMP



Adhesive Tape and Screw Mounting



MN/ MB/ MNC-4  
P42  
MINI CLAMP

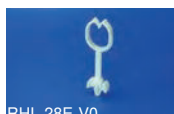


ARC.68  
P59  
CLINCHER

Binding, Fastening and Spacing



Snap Mounting



RHL-28E-V0  
P61  
RE-USE HARNESS LIFTER



HL  
P61  
HARNESS LIFTER



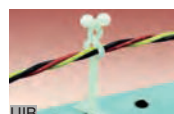
VSC-10  
P62  
SPACING CLIP



LHL-18  
P62  
HARNESS LOCK SPACER



NPL  
P63  
NIPLOCKER



UIB  
P40  
OMEGA HOLDER

Others



Z-2L  
P63  
WIRE LOCK SPACER

Wiring Clamps

For Cables

For Flat cables

Removal prevention for connectors

For Optical fibres

# For Flat Cables

and Flexible Printed Circuits, etc.

 <b>Snap Mounting</b>	 <b>P64</b> FLAT CABLE CLAMP	 <b>P64</b> FLAT CABLE CLAMP	 <b>P65</b> MINI FLAT CABLE CLIP	 <b>P65</b> RE-USE FLAT CABLE CLAMP	 <b>P69</b> FLAT CLAMP	 <b>P69</b> THIN TYPE CLAMP
	 <b>P70</b> FLAT CABLE CLAMP	 <b>P70</b> FLAT CABLE CLAMP	 <b>Adhesive Tape Mounting</b>	 <b>P67</b> FLAT CABLE CLIP	 <b>P67</b> FLAT CABLE CLIP	 <b>P68</b> FLAT CABLE CLAMP
 <b>P71</b> FLAT CABLE CLAMP	 <b>P71</b> FLAT CABLE CLAMP	 <b>Adhesive Tape and Screw Mounting</b>		 <b>P66</b> FCW CLAMP		

Wiring Clamps

# Removal prevention for connectors

Prevention against undesired removal of cable from equipment

 <b>Snap Mounting</b>	 <b>P72</b> USB CONNECTOR COVER	 <b>P73</b> USB CONNECTOR COVER	 <b>P73</b> A.C. CORD CLAMP	 <b>P74</b> RE-USE A.C. CORD CLAMP	 <b>P74</b> CONNECTOR CLAMP
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# For Aluminium electrolytic capacitor holder

for horizontal mount

 <b>Flow Soldering</b>	 <b>P75</b> CAPACITOR HOLDER	 <b>P75</b> CAPACITOR HOLDER	 <b>Snap Mounting</b>	 <b>P77</b> CAPACITOR HOLDER
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For Cables

For Flat cables

Removal prevention for Connectors

For Optical fibres

# For Optical Fibers

and General cables as well

<b>Holding and fastening</b>						
 <b>Snap Mounting</b>	 <b>P78</b> FIBER HOLDER	 <b>P79</b> FIBER HOLDER	 <b>Adhesive Tape Mounting</b>	 <b>P77</b> SLEEVE HOLDER	 <b>P78</b> FIBER CLAMP	 <b>P79</b> DIVERGE MODULE HOLDER
	<b>Holding and maintaining curvature of cables</b>					
 <b>Snap Mounting</b>	 <b>P80</b> WIRE SADOLE WING	 <b>P60</b> FXC WING	 <b>Snap Mounting</b>	 <b>P80</b> STORAGE BOBBIN	 Fiber optics guide	 <b>P76</b> FIBER GUIDE



### Releasable chassis clamp

#### Features

- Can be removed from mounting side for easy disassembly.
- Round mounting hole allows easy fastening and unfastening of clamp.
- Original structure enables stable securing.

#### Material

- Nylon 66 (Color : Natural)

UL94 V-0

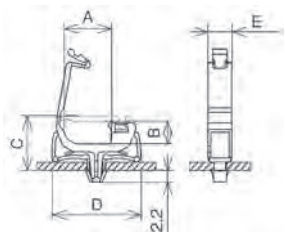


Push Type

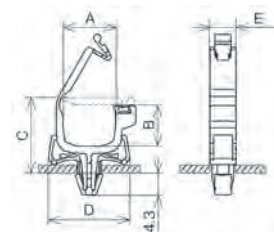


Round hole

type I



type II



Part No.	Type	A	B	C	D	E	Mounting hole size	Panel thickness
UL GRBWS-0306E-V0	I	5.7	2.5	(8.3)	(12.4)	4.5	φ3.5±0.1	t0.5~1.6
UL GRBWS-0409E-V0		9.0	4.0	(10.4)	(16.2)	4.5		

UL ...UL1565 recognized product

(Unit : mm)

Part No.	Type	A	B	C	D	E	Mounting hole size	Panel thickness
UL GRBWS-0610E-V0	II	10.0	6.0	(13.9)	(17.4)	5.5	φ4.8±0.1	t0.5~2.0
UL GRBWS-0911E-V0		11.0	8.5	(16.4)	(17.0)	5.5		
UL GRBWS-1212E-V0		12.0	12.0	(20.3)	(17.0)	5.5		
UL GRBWS-1416E-V0		16.0	14.0	(22.6)	(21.2)	5.5		
UL GRBWS-2020E-V0		20.0	20.0	(28.7)	(25.2)	5.8		

UL ...UL1565 recognized product

(Unit : mm)

### RE-USE CLAMP / RBWS-E-F



### Releasable fluoro resin clamp

#### Features

- The use of Fluoro resin material has excellent heat resistance and cold resistance. And therefore ideal for use in Outdoors, food processing machinery, medical equipment
- The lock, the snap malfunction prevention structure that does not come off easily.

#### Material

- PVDF (Color : Natural)

UL94 V-0

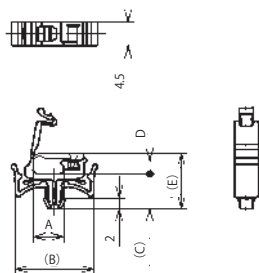


Push Type

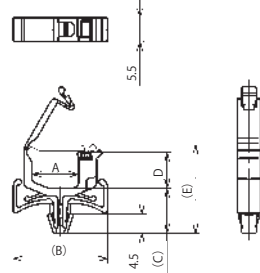


Round hole

A type



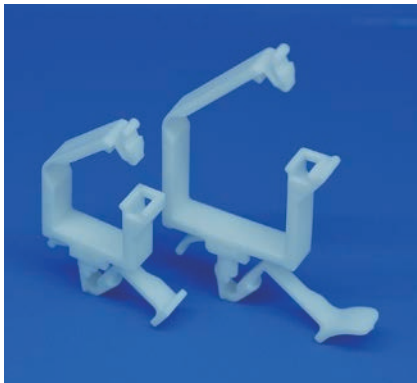
B type



Part No.	Type	A	(B)	(C)	D	(E)	Mounting hole size	Panel thickness
RBWS-0306E-F	A	5.7	14.6	6.5	2.5	10.3	φ3.5 <sup>+0.2</sup>	t0.5~1.6
RBWS-0409E-F		9.0	19.2	7.2	4.0	12.5		

Part No.	Type	A	(B)	(C)	D	(E)	Mounting hole size	Panel thickness
RBWS-0610E-F	B	10.0	21.2	10.5	6.0	18.3	φ4.8 <sup>+0.2</sup>	t0.8~2.0
RBWS-0911E-F		11.0	22.2	10.5	8.5	20.8		
RBWS-1212E-F		12.0	20.6	10.8	12.0	24.6		
RBWS-1416E-F		16.0	25.8	11.0	14.0	26.8		
RBWS-2020E-F		20.0	30.0	12.5	20.0	34.3		

(Unit : mm)



### Releasable chassis clamp

#### Features

- Can be removed from mounting side for easy disassembly.
- Round mounting hole allows easy fastening and unfastening of clamp.



Push Type



Round hole

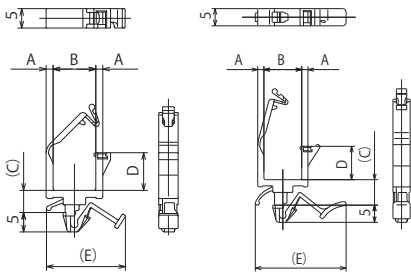
#### Material

- Nylon 66 (Color : Natural)

UL94 V-0

#### RBWS-S

#### RBWS-N



Part No.	A	B	(C)	D	(E)	Mounting hole size	Panel thickness	Std. Package
UL RBWS-3S VO	1.8	11	5.7	9.7	20.4	$\phi 4.8^{+0.2}$	0.5~1.6	1,000 pcs.
UL RBWS-1N VO	1.5		7.1	(5.2)	26.51			
UL RBWS-3N VO	1.8	16.5	7.4	9.7	26.39		0.5~3.2	500 pcs.
UL RBWS-5N VO				(15.5)	29.97			
UL RBWS-8N VO	2.0	(22.5)	30.17					

UL ...UL1565 recognized product

(Unit : mm)

Wiring Clamps

### LOCKING WIRE SADDLE / RBWS-M



### Adhesive locking cable clamp

#### Features

- Lock fastens and releases cables quickly.
- Round inner corners also suitable for halogen-free cables



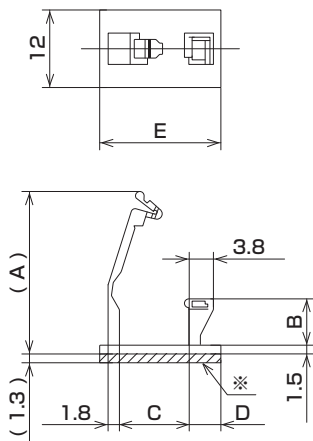
Adhesive tape mounting

※With regard to adhered body which is covered by UL1565, please contact our sales department.

#### Material

- Nylon 66 (Color : Black)

UL94 V-0



※ Double sided adhesive tape

Part No.	(A)	B	C	D	E	Std. Package
UL RBWS-05M-VO BK-R	18.3	4.9	7.0	3.7	13.0	100 pcs.
UL RBWS-1M-VO BK-R	23.1					
UL RBWS-2M-VO BK-R	25.6	7.4	11.0	5.0	19.0	
UL RBWS-3M-VO BK-R	28.1	9.9				

Part No.	(A)	B	C	D	E	Std. Package
UL RBWS-1WM-VO BK-R	27.0	4.9	15.0	4.2	22.0	100 pcs.
UL RBWS-2WM-VO BK-R	29.5	7.4				

UL ...UL1565 recognized product

(Unit : mm)

For Cables

For Flat Cables

Removal prevention for connectors

For Optical fibers



Easy fastening lock

Releasable cable clamp with minimum protrusion on panel

**Features**

- Equipped with a new lock for easy fastening and unfastening.
- Dismounted without any tools required.

**Material**

- Nylon 66 (Color : Natural<sup>※</sup>)

UL94 V-0

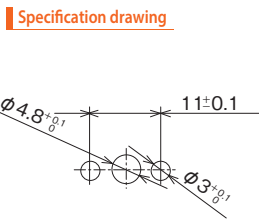
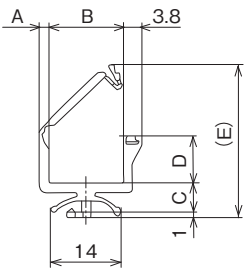
※ Color of RBWS-1TD-V0BK is black.

Slide type

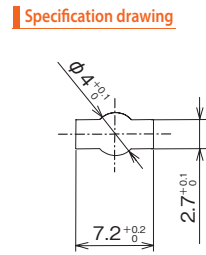
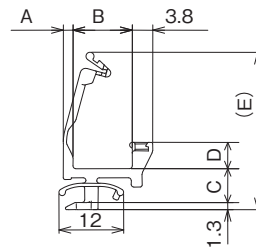
Round hole  
RBWS-D

Odd-shaped hole  
RBWS-TD

**RBWS-D**



**RBWS-1TD-V0 BK**



Part No.	A	B	C	D	(E)	Mounting hole size	Panel thickness	Std. Package
RBWS-0406D VO	1.5	6	4.5	3.7	17.13	Refer to Specification drawing	0.5~1.6	500 pcs.
RBWS-0510D VO		10	5.0	4.7	21.61			
RBWS-1015D VO	1.8	15	6.0	9.7	31.35			
RBWS-1515D VO				14.7	36.35			
RBWS-2020D VO	2.0	20		19.7	45.03			
RBWS-1TD-V0 BK	1.8	11	6.3	4.9	29.21			

...UL1565 recognized product

(Unit : mm)

Slide and remove

**Reusable Snap (Slide type)**

**Easy Operation!**



Simply slide the body to install and remove.  
(Above photo is D type)

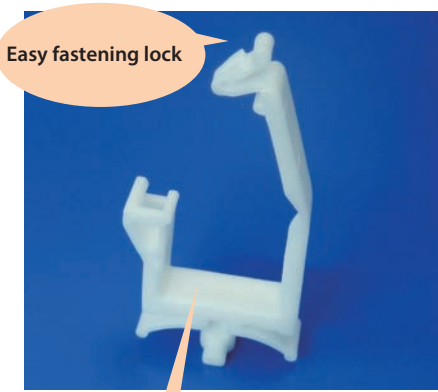
**Space saving**

Greatly reduces the snap protrusion on the underside of PCB  
Also suitable for application in limited spaces.

**Round hole mounting**



No odd-shaped hole required  
Drilling 3 holes only.



Easy fastening lock

## Releasable cable clamp with minimum protrusion on panel

### Features

- Lock fastens and releases cables quickly.
- Detachable with no tools required.

### Material

- Nylon 66 (Color : Natural, Black\*)



Twist Type



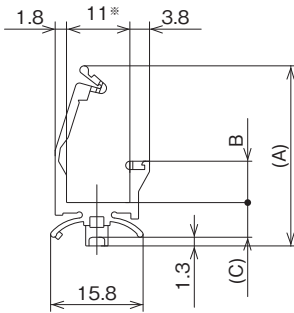
Odd-shaped hole

UL94 V-0

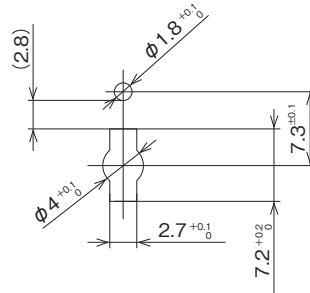
\* Black product has "BK" at the end of the part No.

Round inner corners also suitable for halogen-free cables

### Specification drawing



\* 13mm for RBWS-1.5TL-VO BK



Part No.	(A)	B	(C)	Mounting hole size	Panel thickness	Std. Package
RBWS-1T-VO	28.2	4.9	5.3	Refer to Specification drawing	0.8~1.6	500 pcs.
RBWS-3T-VO	33.7	9.9	5.8			

Part No.	(A)	B	(C)	Mounting hole size	Panel thickness	Std. Package
RBWS-1TL-VO BK	28.6	4.9	5.7	Refer to Specification drawing	0.8~2.0	500 pcs.
RBWS-1.5TL-VO BK	32.0	6.4	5.7			
RBWS-2TL-VO BK	31.6	7.4	6.2			
RBWS-3TL-VO BK	34.1	9.9	6.2			

(Unit : mm)



Turn and remove

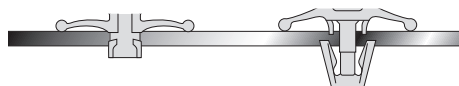
Reusable Snap (Twist type)



### Space saving

Twist type

Conventional type



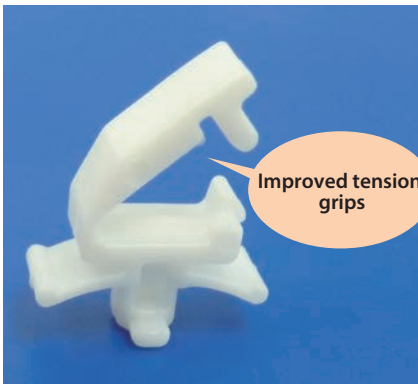
The snap protrusion is greatly reduced

Compared to conventional snap, the protrusion of snap is greatly lowered for application in limited spaces.

### Easy Operation!

For installation and removal, simply turn the body

Can be removed from mounting side with no tool needed, while conventional snap requires cutting by nippers etc from the backside of the panel.



Releasable mini clamp that grips thin cables

Features

- Tensioning clamp grips even thin cables firmly.
- Removed with no tools required for easy maintenance and disassembling.

Material

- Nylon 66 (Color : Natural)

UL94 V-0



Twist Type



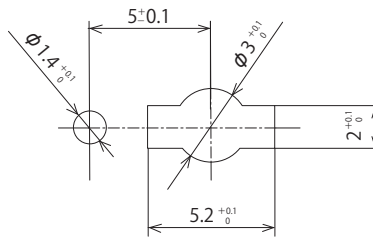
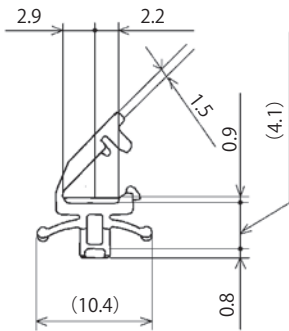
Odd-shaped hole

Reusable Snap

For twist type, refer to

P36

Specification drawing



Part No.	Mounting hole size	Panel thickness	Std. Package
RTMC-01TV0	Refer to Specification drawing	1.2~1.6	1,000 pcs.



UL ...UL1565 recognized product

(Unit : mm)

RE-USE LOCK MINI CLAMP / RLMC



Releasable mini clamp with minimum protrusion on panel

Features

- Fast dismount without any tools for easy maintenance and disassembling.

Material

- Nylon 66 (Color : Natural)

UL94 V-0



Twist Type



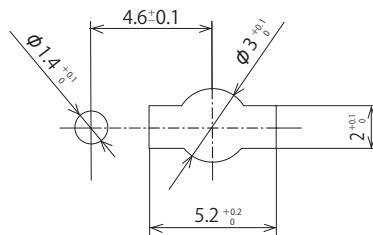
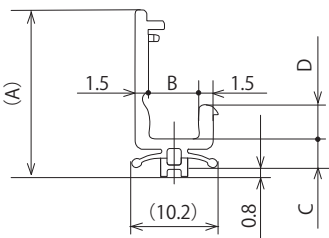
Odd-shaped hole

Reusable Snap

For twist type, refer to

P36

Specification drawing



Part No.	(A)	B	C	D	Mounting hole size	Panel thickness	Std. Package
RLMC-01T V0	17.3	5.6	3.8	1.7	Refer to Specification drawing	0.8~1.2	1,000 pcs.
RLMC-05T V0	19.8	6.0	3.7	4.0			



UL ...UL1565 recognized product

(Unit : mm)





Releasable cable clamp that provides a secure lock

Features

- Snap mounting provides easy maintenance and disassembling with no tools required.
- Both twist type and push type are available for easy dismount.

Material

- Nylon 66 (Color : Natural)

UL94 V-0



Twist Type



Odd-shaped hole



Push Type

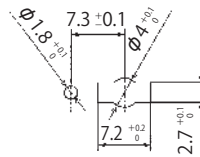
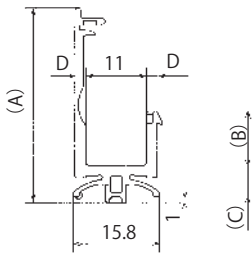


Round hole

RLWS-S

Wiring Clamps

RLWS-T

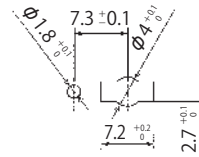
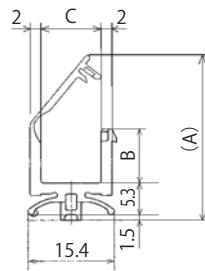


Part No.	(A)	(B)	(C)	D	Mounting hole size	Panel thickness	Std. Package
UL RLWS-1T V0	29.1	4.9	5.3	1.5	Refer to Specification drawing	0.8~1.6	1,000 pcs.
UL RLWS-2T V0	32.8	7.4	5.7	2			500 pcs.
UL RLWS-3T V0	35.6	9.9	5.8				

UL ...UL1565 recognized product

(Unit : mm)

Specification drawing

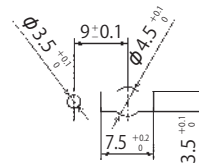
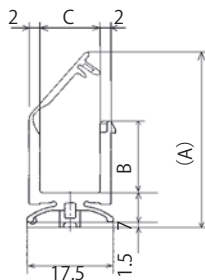


Part No.	(A)	B	C	Mounting hole size	Panel thickness	Std. Package
UL RLWS-1015T V0	32.84	10.4	15	Refer to Specification drawing	0.8~1.6	500 pcs.
UL RLWS-1515T V0	37.84	15.4				
UL RLWS-2020T V0	46.37	20.4				

UL ...UL1565 recognized product

(Unit : mm)

RLWS-TL

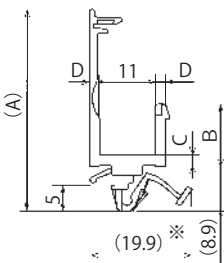


Part No.	(A)	B	C	Mounting hole size	Panel thickness	Std. Package
UL RLWS-0510TL V0	26.00	5.4	10	Refer to Specification drawing	0.8~3.2	500 pcs.
UL RLWS-1010TL V0	31.00	10.4				
UL RLWS-1515TL V0	39.54	15.4				
UL RLWS-2020TL V0	48.07	20.4				

UL ...UL1565 recognized product

(Unit : mm)

RLWS-S



Part No.	(A)	B	C	D	Mounting hole size	Panel thickness	Std. Package
UL RLWS-1S V0	32.8	6.4	1.5	1.5	$\phi 4.8^{+0.1}$	0.5~1.6	1,000 pcs.
UL RLWS-3S V0	39.4	11.9	2.0	2.0			

UL ...UL1565 recognized product

(Unit : mm)

\* (19.9)mm for RLWS-1S V0

For Cables

For Flat Cables

Removal prevention for connectors

For Optical fibers



### Push mount, locking clamp

#### Features

- Compact, space-saving clamp.
- Clamp is open for cable insertion without causing any damage to cables such as optical fibers.

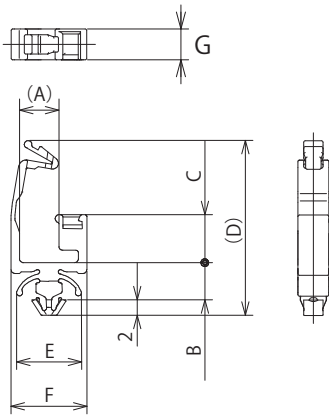


#### Material

- Nylon 66 (Color : Natural / LBWS-0206S, 0605S, 0511S-V0)
- Nylon 66 (Color : Natural / LBWS-0206S-AM-HT-NC)

UL94 V-0  
UL94 V-2

#### LBWS



Part No.	A	B	C	(D)	E	F	G	Mounting hole size	Panel thickness	Std. Package
LBWS-0206S-V0	6.0	3.9	2.1	18.3	10.5	11.4	4.0	$\phi 3.5^{+0.2}_0$	0.5~1.6	1,000 pcs.
LBWS-0206S-AM-HT-NC	6.0	3.9	2.1	18.3	10.5	11.4	4.0		0.5~1.6	500 pcs.
LBWS-0605S-V0	5.1	4.8	6.2	22.6	8.4	9.8	4.0		0.8~2.0	1,000 pcs.
LBWS-0511S-V0	11.7	3.9	5.0	26.8	12.5	16.4	4.5		0.5~1.6	

UL ...UL1565 recognized product

(Unit : mm)

※Operating temperature range : -40°C ~ 125°C (LBWS-0206S-AM-HT-NC)

### LOCKING MINI CLAMP / LAMS-05 • LMC-05N



### Mini push mount clamp for space saving

#### Features

- Compact, space-saving clamp.
- Clamp is open for cable insertion without causing any damage to cables such as optical fibers.



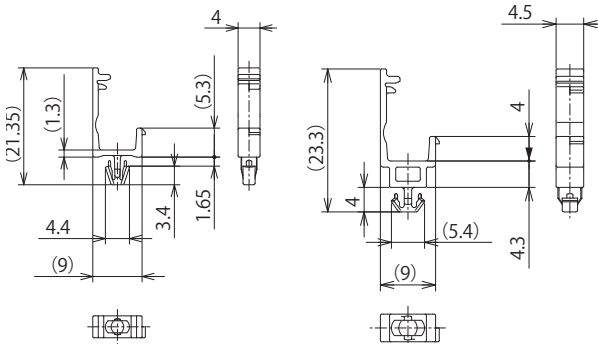
#### Material

- Nylon 66 (Color : Natural)

UL94 V-0

#### LAMS-05

#### LMC-05N



UL

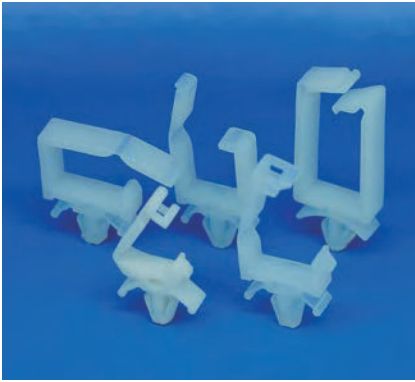
Part No.	Mounting hole size	Panel thickness	Std. Package
LAMS-05	$\phi 3^{+0.1}_0$	1.6±0.1	1,000 / pcs.

UL ...UL1565 recognized product

(Unit : mm)

Part No.	Mounting hole size	Panel thickness	Std. Package
LMC-05N	$\phi 4^{+0.1}_0$	1.6±0.1	100 / pcs.

(Unit : mm)



## Locking snap-mount clamp

### Features

- Secure lock prevents wire/cable bundles from accidental release.



Snap Mounting



Round hole

### Material

- Nylon 66 (Color : Natural, Black\*1)

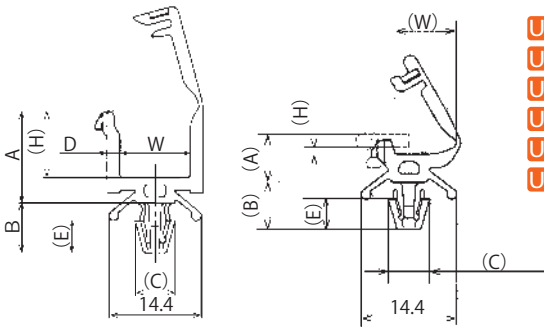
UL94 V-2 (V-0\*2)

\*1 Black product has "BK" at the end of the part No. For natural color, please contact us.

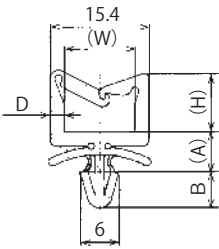
\*2 For V-0 type, "V0" is added to the end of the part No.(LWS-05 is also V-0 type).

LWS-S,SL

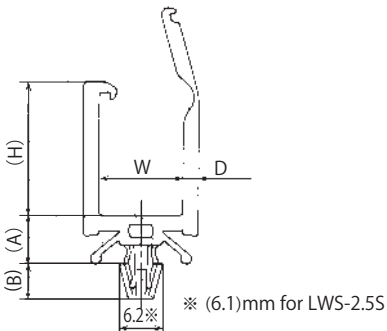
LWS-05



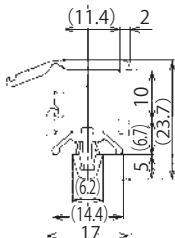
LWS-NS



LWS-S



LWS-Y



Part No.	(H)	(A)	(B)	(C)	D	(E)	(W)	Mounting hole size	Panel thickness	Std. Package
LWS-05	1	7.2	7	6.2	-	4.5	9.2	$\phi 4.8^{+0.1}$	0.5~2	200 pcs.
LWS-1S	5.2	9.2		6						100 pcs.
LWS-3S V0	10.2	14.2	7.7		2.0	4.9	11	$\phi 4.8^{+0.2}$	0.5~2.3	500 pcs.
LWS-3S 2W V0				6.1			16.5			
LWS-5S-2W V0 BK	15.2	19.2			2.5		18			
LWS-8S-2.5W V0 BK	22.7	27.2								500 pcs.

UL...UL1565 recognized product

(Unit : mm)

Part No.	(H)	A	B	(C)	D	(E)	W	Mounting hole size	Panel thickness	Std. Package
LWS-1SL V0 BK	4.2	9.4		6.2	2.0	5	11	$\phi 4.8^{+0.2}$	1.6~3.2	500 pcs.
LWS-1.5SL V0 BK	12.5	16.7	8.6				16.5			
LWS-5SL-2W V0 BK	15.2	19.4		6			18			
LWS-8SL-2.5W V0 BK	22.7	27.4			2.5					

(Unit : mm)

Part No.	(H)	(A)	B	D	(W)	Mounting hole size	Panel thickness	Std. Package
LWS-1NS	9.2						0.5~2.3	100 pcs.
LWS-2NS	14.4	6.2	5.5	2.2	11	$\phi 4.8^{+0.2}$		
LWS-3NS	23.4							
LWS-4NS	31.3					0.5~2.3		

UL...UL1565 recognized product

(Unit : mm)

Part No.	(H)	(A)	(B)	D	W	Mounting hole size	Panel thickness	Std. Package
LWS-1.5S	14.5	6.7	5.0	2.0	10.4	$\phi 4.8^{+0.2}$	0.5~2.3	500 pcs.
LWS-2.5S	19.2	6.9	4.5	2.2	12			

(Unit : mm)

Part No.	Mounting hole size	Panel thickness	Std. Package
LWS-2Y	$\phi 4.8^{+0.2}$	0.5~2.3	1,000 pcs.

(Unit : mm)



Plug-in-mount mini clamp that easily inserts into screw holes

Features

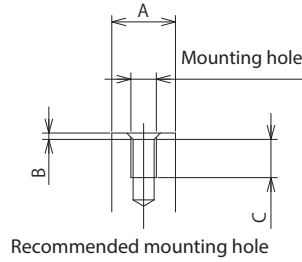
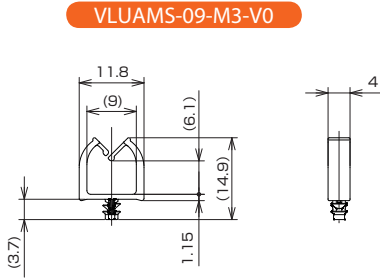
- Plug-in mounting in screw hole is available without tool.
- Compact, space-saving clamp.

Material

- Nylon 66 (Color : Natural)

UL94 V-0

Installation specifications



Part No.	A	B	C	Mounting hole size	Std. Package
VLUAMS-09-M3-V0	$\geq \phi 12$	$\leq 1$	$\geq 5$	M3 screw hole (Thread pitch:0.5)	500 pcs.

(Unit : mm)

SCREW-LESS CLAMP / VLBWS



Plug-in-mount, mini locking clamp

Features

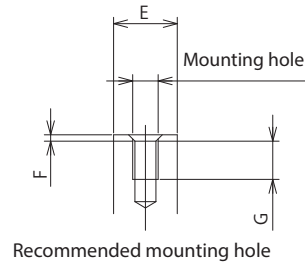
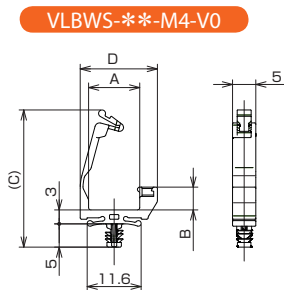
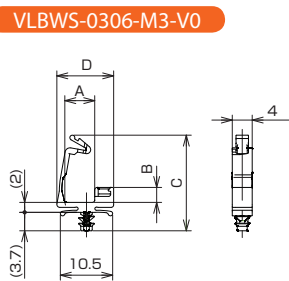
- Plug-in mounting in screw hole is available without tool.
- Compact, space-saving clamp.

Material

- Nylon 66 (Color : Natural)

UL94 V-0

Installation specifications



Part No.	A	B	(C)	D	E	F	G	Mounting hole size
VLBWS-0306-M3-V0	6	3	19.19	11.4	$\geq \phi 12$	$\leq 1$	$\geq 5$	M3 (0.5)
VLBWS-0511-M4-V0	11	4.9	29.49	16.6	$\geq \phi 15$	$\leq 1$	$\geq 6$	M4 (0.7)
VLBWS-1313-M4-V0	13	12.7	39.13	18.6				

(Unit : mm)



### Adhesive-mount clamp with twist locking of cable

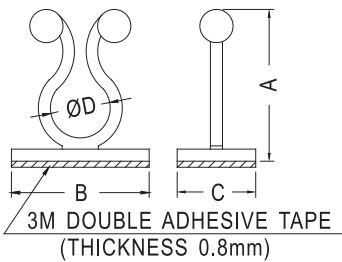
#### Features

- Can be mounted with adhesive tape
- Cost saving and easy locking/un-locking

#### Material

- Nylon 66 (Color: Natural) **UL94 V-2 (V-0\*)**

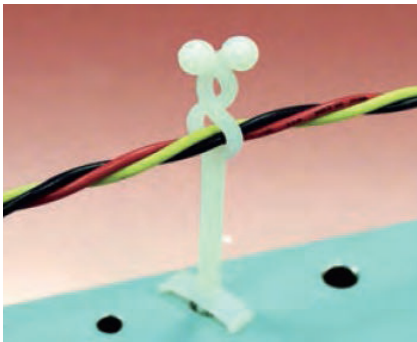
\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)



Part No.	A	B	C	D	CLOSED (D)	Std. Package
LM-1	31.9	20.0	20.0	15.0	13.8	250
LM-2	26.2	20.0	14.0	9.2	8.5	500
LM-2L	27.9	25.0	13.0	9.4	8.2	
LM-3	28.2	21.0	19.0	11.1	10.0	100
LM-5	56.2	38.0	20.0	36.0	34.0	500
LM-6	27.6	10.0	19.8	6.6	5.8	
LM-7	21.9	20.0	13.0	8.5	7.2	250
LM-16	37.0	25.0	13.0	18.0	17.0	
LM-19	39.0	25.0	13.0	21.0	20.0	
LM-22	41.0	28.0	15.0	24.0	23.0	

(Unit: mm)

### OMEGA HOLDER / UIB



### Snap-mount clamp with twist locking of cable

#### Features

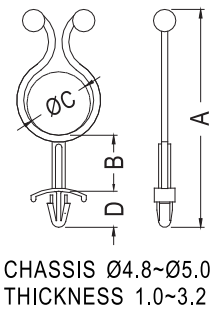
- Can be mounted with snap
- Cost saving and easy locking/un-locking

#### Material

- Nylon 66 (Color: Natural) **UL94 V-2 (V-0\*)**



\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)



Part No.	A	B	C	D	CLOSED (D)	Std. Package
UIB-1	33.8	3.1	7.1	10.6	6.1	1000
UIB-2	51.0	20.0	7.1	10.6	6.1	500
UIB-3	66.0	35.3	7.1	10.6	6.1	
UIB-4	39.6	2.8	10.8	10.6	9.8	1000
UIB-5	56.8	20.0	10.8	10.6	9.8	500
UIB-6	71.5	35.2	10.8	10.6	9.8	
UIB-7	42.0	3.0	15.0	10.6	13.8	1000
UIB-8	59.3	20.4	15.0	10.6	13.8	
UIB-9	74.7	35.8	15.0	10.6	13.8	500
UIB-10	63.5	16.2	20.0	10.6	18.4	
UIB-11	56.8	3.0	24.3	9.8	22.3	
UIB-12	53.1	15.3	11.0	10.6	9.7	
UIB-14	55.3	5.0	20.3	10.6	18.7	
UIB-15	43.8	10.5	8.0	10.6	6.8	
UIB-16	34.7	5.6	8.8	10.0	7.0	

(Unit: mm)



### Adhesive-mount locking clamp

#### Features

- Lock holds cables securely.
- Adhesive tape mounting with no drilling hole required.



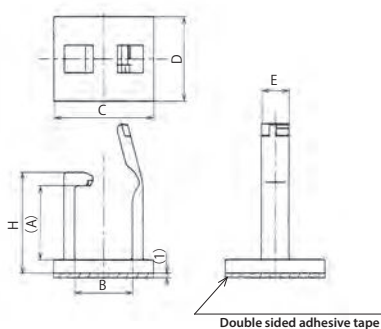
Adhesive tape mounting

#### Material

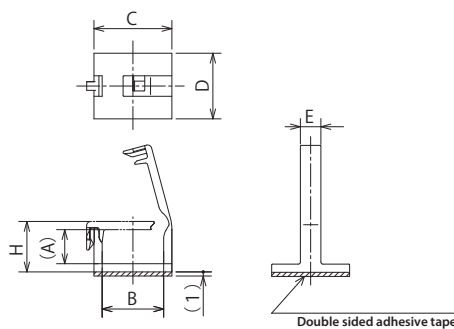
- Nylon 66 (Color : Natural)

UL94 V-2

#### LWS-M



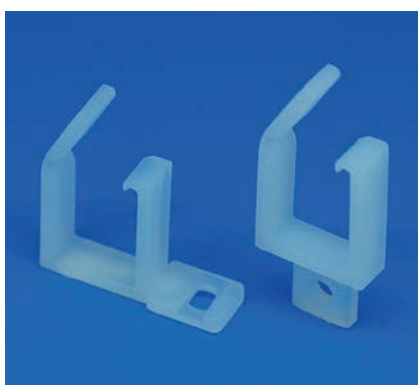
#### LWS-1.5MS-R



Part No.	(A)	B	C	D	E	H	Std. Package
LWS-1M-R	8.0	11.7	19.0	16.0	4.8	12.5	100 pcs.
LWS-1.5MS-R	8.3	15.0	(19.0)		5.0	(12.3)	500 pcs.
LWS-2M-R	14.0	11.0	19.0	19.0	4.8	18.5	100 pcs.
LWS-3M-R	22.3		19.0		5.2	27.0	

(Unit : mm)

## LOCKING WIRE SADDLE / LWS-H, -W



### Screw mount locking clamp

#### Features

- Lock secures cables.



Screw mounting

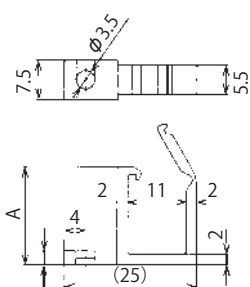
#### Material

- Nylon 66 (Color : Natural)

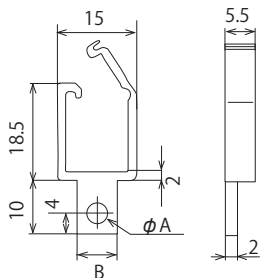
UL94 V-2 (V-0\*)

※ For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

#### LWS-H



#### LWS-W



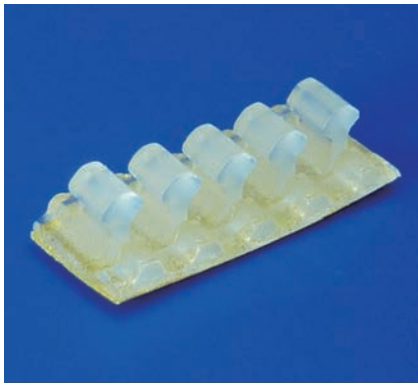
Part No.	A	Std. Package
LWS-2H	18.5	100 / pcs.
LWS-3H	27.5	1,000 / pcs.

(Unit : mm)

Part No.	φA	B	Std. Package
LWS-2W	3.5	8.5	100 / pcs.
LWS-2W-4	4.2		

(Unit : mm)

# MINI CLAMP / MU



## Mini cable clamp for 1 mm diam. cable

### Features

- Low-profile of H 2.9 mm. Can be sub-divided to desired number of mounts.
- 6 types are available from MU-01-1 capable of holding 1 cable of  $\Phi$ 1-1.2mm to Mu-01-8 holding max 8 cables.

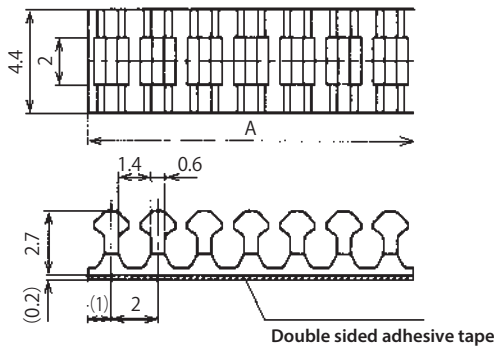


Adhesive tape mounting

### Material

- Nylon 6 (Color : Natural)

UL94 V-2



Part No.	A	Std. Package
MU-01-1	4	1,000 pcs.
MU-01-2	6	
MU-01-3	8	
MU-01-4	10	
MU-01-5	12	
MU-01-8	18	

(Unit : mm)

Wiring Clamps

# MINI CLAMP / MN · MB · MNC-4



## Mini cable clamp in a variety of shapes

### Features

- Space-saving mini clamp.
- Employs easy-to-peel adhesive tape type, with two clamps aligned on one tape.



Adhesive tape mounting

※ With regard to adhered body which is covered by UL1565, please contact our sales department.

### Material

- Nylon 66 (Color : Natural)

UL94 V-2



Screw mounting

※ Specifications are described in the tables below.

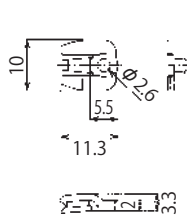
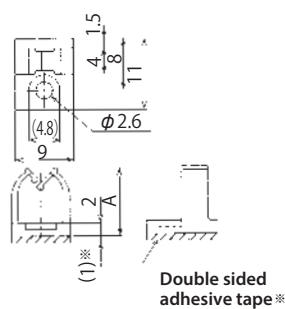
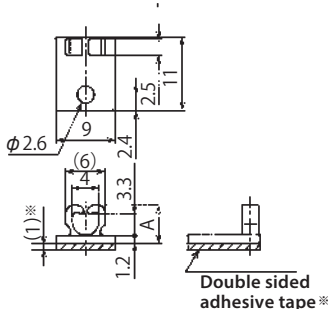
MN-1-R

MB-1

MN-2,3-R

MB-2,3

MNC-4



### Tape mounting

Part No.	A	Std. Package
MN-1-R	5.7	500 pcs.
MN-2-R	8.5	
MN-3-R	10.5	500 pcs.

### Screw mounting

Part No.	A	Screw	Std. Package
MB-1	5.7	M2.5	500 pcs.
MB-2	8.5		
MB-3	10.5		1,000 pcs.
MNC-4	—	M2.6	1,000 pcs.

UL ...UL1565 recognized product

(Unit : mm)

For Cables

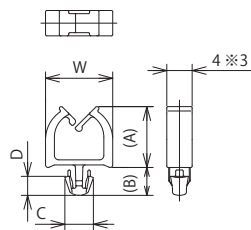
For Flat Cables

Removal prevention for connectors

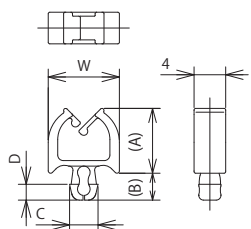
For Optical fibers



■ A type



■ B type



※3 UAMS-02WL-0, -02WH-2 : 3mm

### Snap-mount mini clamp

#### Features

- Space-saving compact type.



Snap Mounting



Round hole

#### Material

- Nylon 66 (Color : Natural, Black※1)

**UL94 V-2 (V-0※2)**

※1 Black product has "-2" at the end of the part No.

※2 For V0 type, "V0" is added to the end of the part No.

(With regard to lot size and lead time, please contact us.)

Part No.	(A)	(B)	C	D	W	Snap type	Mounting hole size	Panel thickness	Std. Package
UAMS-02WL-0	4.4	3.2	4.0	2.5	8.2	A	$\phi 3^{+0.1}_0$	0.8~1.2	1,000 pcs.
UAMS-02WH-2		3.6						1.2~1.6	
UAMS-02-0	3.9	3.0	2.2	1.5	7.0	B	$\phi 1.9_{-0.1}^{+0.0}$	1.6±0.1	
UAMS-03-0	6.0	3.1					9.0	$\phi 1.7^{+0.1}_0$	
UAMS-03W		3.0	$\phi 3 \pm 0.05$	1~1.2					
UAMS-05-0	8.2	3.4	3.6	2.0	9.0	A	$\phi 3^{+0.05}_0$	1.6 <sup>+0.15</sup> <sub>0</sub>	
UAMS-05-2	8.7	2.9						1±0.2	
UAMS-05S-2	7.7	5.0	4.4	3.4	11.0	A	$\phi 3.5^{+0.1}_0$	1.6±0.1	
UAMS-05SN	7.9	3.9						3.0	
UAMS-05SN-W						1,000 pcs.			
UAMS-06L-0	7.7	4.9	4.5	3.5	9.0	A	$\phi 3.5 \pm 0.1$	500 pcs.	
UAMS-07-0	9.6							1,000 pcs.	
UAMS-09-0	11.7	4.4	3.0	3.0	11.8	A	$\phi 3.5 \pm 0.1$	500 pcs.	
UAMS-11-0	13.5							1,000 pcs.	

...UL1565 recognized product

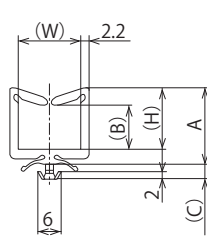
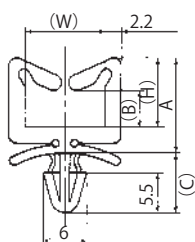
(Unit : mm)



**WS**

**WS-2WC-V0**

Space-saving snap



### Snap-mount clamp for easy insertion and bundle of cables

#### Features

- Easy insertion of wire/cable bundles.



Snap Mounting



Round hole

#### Material

- Nylon 66 (Color : Natural)

**UL94 V-2 (V-0※)**

※ For V0 type, "V0" is added to the end of the part No.

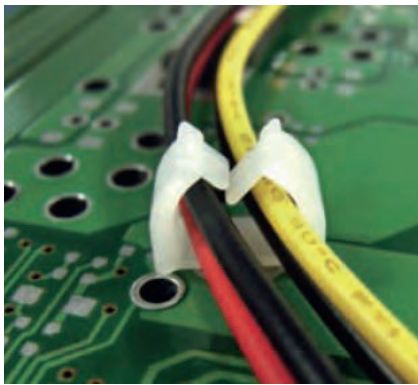
(With regard to lot size and lead time, please contact us.)

Part No.	(H)	A	(B)	(C)	(W)	Mounting hole size	Panel thickness	Std. Package
WS-1NS	9.5	13.0	5.0	8.2	11.1	$\phi 4.8^{+0.2}_0$	0.5~2.0	100 pcs.
WS-2NS	14.7	18.2	10.2					
WS-3NS	23.7	27.2	19.2	9.9	11.1	$\phi 4.8^{+0.2}_0$	2.3~4.1	100 pcs.
WS-4NS	31.6	35.1	27.1					
WS-2WS	15.5	19.0	11.2	3.7	16.0	$\phi 4.8^{+0.2}_0$	0.8~1.3	500 pcs.
WS-2NS-L	14.7	18.2	10.2					
WS-2WC-V0	15.5	19.0	11.2	3.7	16.0	$\phi 4.8^{+0.2}_0$	0.8~1.3	500 pcs.

...UL1565 recognized product

(Unit : mm)





### Snap-mount mini clamp

#### Features

- Space-saving compact type.

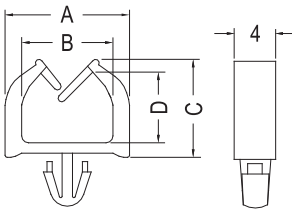
#### Material

- Nylon 66 (Color: Natural)

UL94 V-2



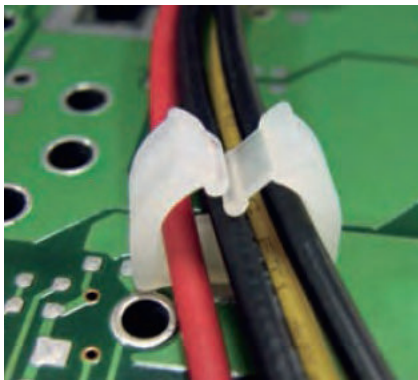
#### NXT-6/7



CHASSIS ØE  
THICKNESS 1.0~1.6

Part No.	A	B	C	D	E	Std. Package
NXT-6	12.0	8.8	11.5	8.5	3.5	1000
NXT-7	9.2	6.8	7.6	5.0	3.0	2000

(Unit: mm)



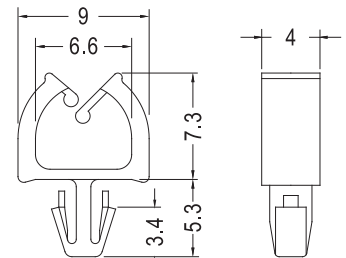
#### NXT-10

#### Material

- Nylon 66 (Color: Natural)

UL94 V-2

Std. Package: 1000 pcs.



CHASSIS Ø3  
THICKNESS 1.6

(Unit: mm)

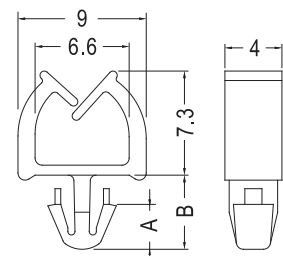


#### NXT-11

#### Material

- Nylon 66 (Color: Natural)

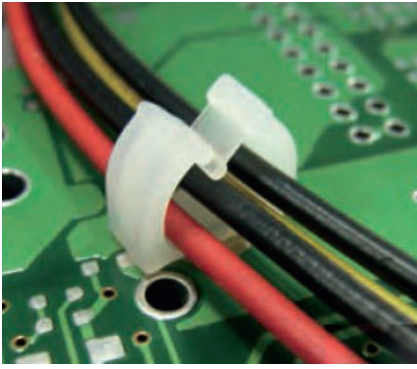
UL94 V-2



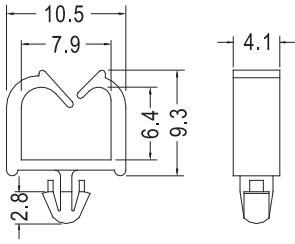
CHASSIS Ø3.5

Part No.	A	B	Chassis Thickness	Std. Package
NXT-11	3.2	5.2	1.6	1000
NXT-11S	2.8	4.15	1.0	

(Unit: mm)



**NXT-12**



CHASSIS Ø3.0  
THICKNESS 0.8~1.6

### Snap-mount mini clamp

**Features**

- Space-saving compact type.

**Material**

- Nylon 66 (Color: Natural)

**UL94 V-2**

Std. Package: 1000 pcs.



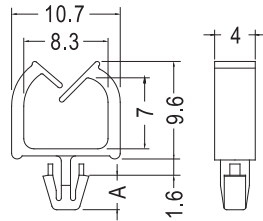
Snap Mounting



Round hole



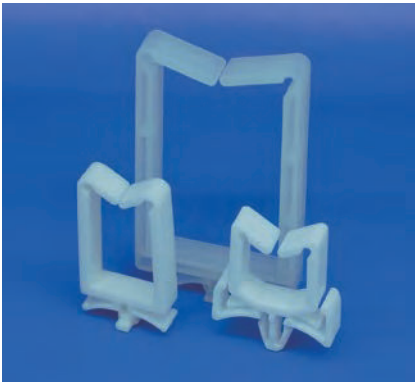
**NXT-15**



CHASSIS Ø3.0  
THICKNESS 1.6

Part No.	A	Std. Package
NXT-15	3.4	1000
NXT-15S	2.4	

(Unit: mm)



## Releasable M-shaped clamp

### Features

- Snap mounting provides easy maintenance and disassembling with no tools required.

### Material

- Nylon 66 (Color : Natural) **UL94 V-0 (V-2\*)**
- ※ For V0 type, "V0" is added to the end of the part No.
- ※ With regard to lead time and lot size of V-2 type, please contact us.



Twist Type



Odd-shaped hole

RWS-T



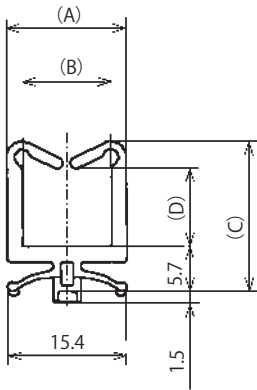
Push Type



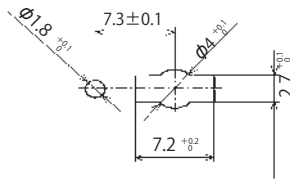
Round hole

RWS-E

RWS-T



### Specification drawing

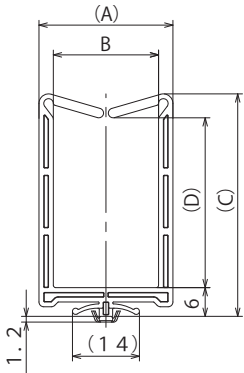


Part No.	(A)	(B)	(C)	(D)	Mounting hole size	Panel thickness	Std. Package
RWS-1T V0	15.5	11.5	14.2	5.0	Refer to Specification drawing	0.8~1.6	200 / pcs.
RWS-2T V0			19.2	10.0			
RWS-3T V0			28.2	19.0			
RWS-4T V0			36.2	27.0			
RWS-1015T-V0	20.0	16.0	20.4	11.2			500 / pcs.

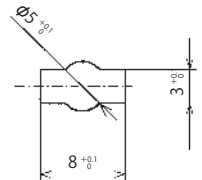
UL ...UL1565 recognized product

(Unit : mm)

RWS-3522T



### Specification drawing

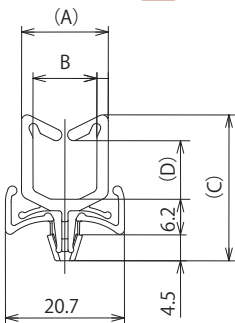


Part No.	(A)	B	(C)	(D)	Mounting hole size	Panel thickness	Std. Package
RWS-3522T	28.0	22.0	46.5	35.5	Refer to Specification drawing	0.8~1.6	100 / pcs.

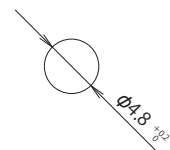
UL ...UL1565 recognized product

(Unit : mm)

RWS-E



### Specification drawing



Part No.	(A)	B	(C)	(D)	Mounting hole size	Panel thickness	Std. Package
RWS-2E-V0	15.1	11.1	25.4	10.2	Refer to Specification drawing	0.5~2.0	500 / pcs.

UL ...UL1565 recognized product

(Unit : mm)



### Snap-mount mini clamp with side slot

#### Features

- Easy insertion from the side slot and secure holding against accidental release of cables.

#### Material

- Nylon 6\* (Color : Natural)

**UL94 V-0**

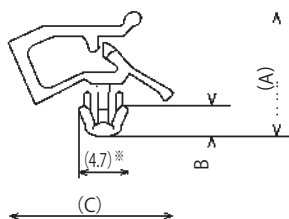


Snap Mounting



Round hole

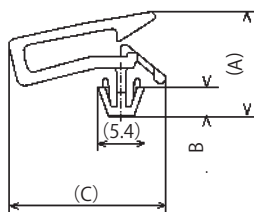
#### YMC



\* YMC-05-H-0 V0 is made of Nylon 66

\* 4.6mm for YMC-10-0V0

#### YMW



Part No.	(A)		(C)	Mounting hole size	Panel thickness	Std. Package
YMC-05-H-0 V0	10.7	3.0	11.8	$\phi 3.5^{+0.1}$	0.5~2	1,000 pcs.
YMC-05-0 V0	10.2		12.7			
YMC-10-0 V0	12.0		15.1			
YMC-15-0 V0	13.8		20.5			
YMW-16	12.2	3.5	17.9	$\phi 4^{+0.1}$	0.8~1.8	

**UL** ...UL1565 recognized product

(Unit : mm)



### Snap-mount cable clamp with flexible strap

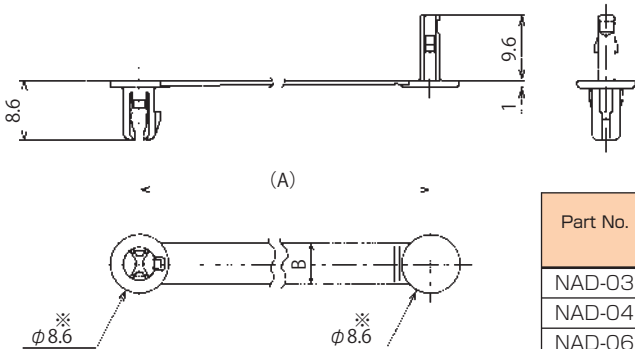
#### Features

- Flexible strap fastens cables quickly.
- Nylon 6 (Color : Black) UL94 V-2



#### Material

※ For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)



※  $\phi$  8.0mm for NAD-03

Part No.	(A)	B	Max bundle diameter	Mounting hole size	Panel thickness	Std. Package
NAD-03	28	4	$\phi$ 5.5	$\phi$ 4.8 $\pm$ 0.1	0.8~2.3	1,000 pcs.
NAD-04	33	6	$\phi$ 6.5		0.8~3.2	500 pcs.
NAD-06	43		$\phi$ 9.5			
NAD-09	63		$\phi$ 14			
NAD-13	89		$\phi$ 22		0.6~3.0	

(Unit : mm)



### Screw mount standard cable clamp

#### Features

- No slipping of screwed area when mounted, since the mating faces have slip stoppers.

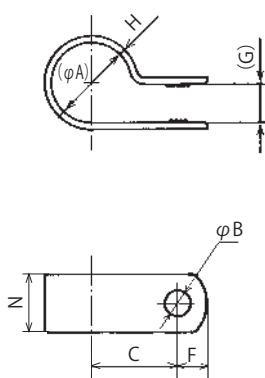


Screw mounting

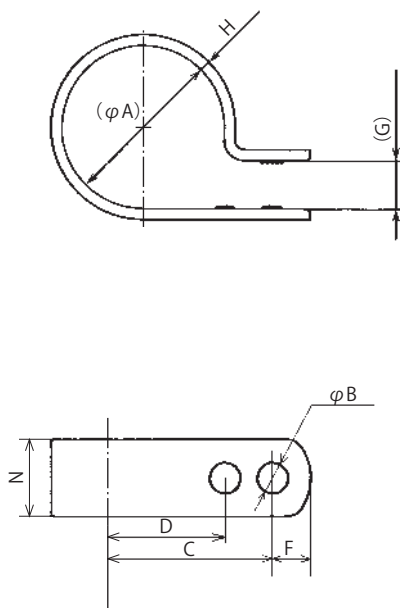
#### Material

- Nylon 66 (Color : Natural) UL94 V-2

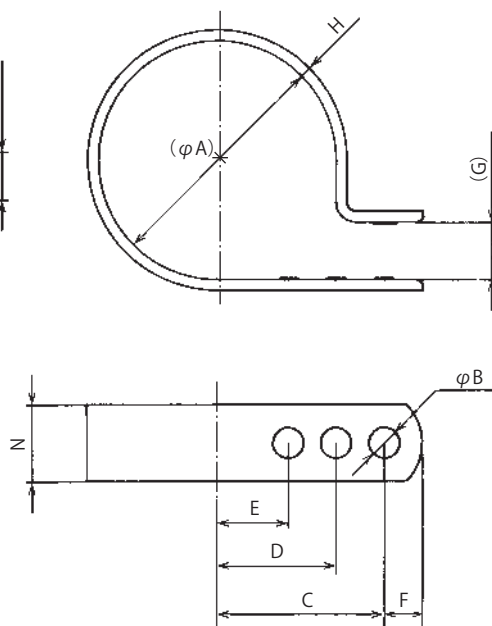
A type



B type



C type



Part No.	Type	Diameter and dimension									Inner diameter			Std. Package			
		(φA)	φB	C	D	E	F	(G)	H	N	Outer hole	Center hole	Inner hole				
NK-2N	A	3.3	4.3	9.5	—	—	4.8	3.2	1.1	9.5	3.0	—	—	100 pcs.			
NK-3N		5.3		10.3	—	—		4.8			1.1	9.5	4.6		—	—	
NK-4N		6.8		11.1	—	—							6.3		1.1	9.5	5.6
NK-5N		8.4		11.9	—	—		6.3			1.1	9.5					7.4
NK-6N		10.6		12.7	—	—							6.3		1.1	9.5	10.0
NK-7N		12.2		13.5	—	—		6.3			1.1	9.5					10.7
NK-8N		13.2		14.3	—	—							6.3		1.1	9.5	11.9
NK-9N		15.2		15.1	—	—		6.3			1.1	9.5					13.5
NK-10N		16.0		15.9	—	—							6.3		1.1	9.5	14.0
NK-11N		19.0		17.5	—	—		6.3			7.9	1.8					12.7
NK-12N	19.8	18.2	—	—	6.3	7.9	1.8		12.7	17.8			—	—			
NK-13N	22.1	19.0	—	—						6.3			7.9	1.8	12.7	20.8	
NK-14N	22.9	19.8	11.9	—	6.3	7.9	1.8		12.7							21.3	
NK-16N	26.9	21.4	13.5	—						6.3			7.9	1.8	12.7	24.4	
NK-18N	29.2	23.0	15.1	—	6.3	7.9	1.8		12.7							26.7	
NK-24N	39.4	27.8	19.8	11.9						6.3			7.9	1.8	12.7	37.3	
NK-32N	52.1	34.1	24.6	13.5	6.3	7.9	1.8		12.7							51.0	

# HEAT RESISTANT CABLE CLAMP / KCA



Fluorocarbon resin, resistant to severe environment.

## UV and heat resistant fluoro resin clamp

### Features

- Made of heat, weather, chemical and radiation resistant fluorocarbon resin.

### Material

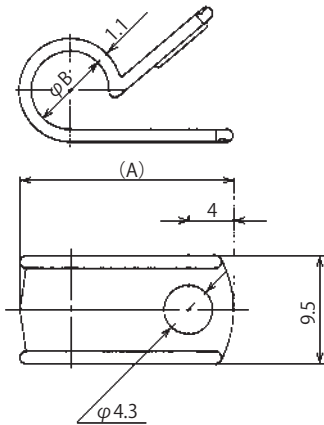
- ETFE (Color : Blue)



Screw mounting

(Applicable screw : Nominal diameter 4mm )

UL94 V-0



Part No.	(A)	$\phi B$	Max bundle diameter	Std. Package
KCA-34	17.5	5.1	$\phi 4.3$	100 pcs.
KCA-44	19.0	6.9	$\phi 5.9$	
KCA-54	20.9	8.8	$\phi 7.5$	
KCA-64	23.7	10.8	$\phi 9.1$	

(Unit : mm)

Wiring Clamps

# KS CLAMP / KS



## Snap-mount standard cable clamp

### Features

- Binding and securing of cables by easy snap mounting.

### Material

- Nylon 66 (Color : Natural)

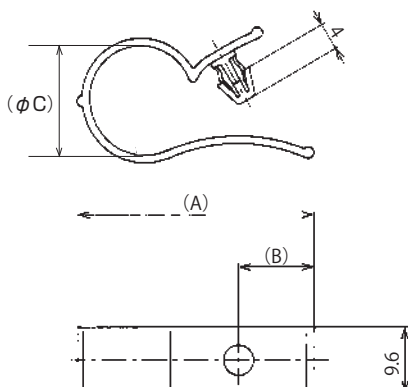


Snap Mounting



Round hole

UL94 V-2



Part No.	(A)	(B)	( $\phi C$ )	Max bundle diameter	Mounting hole size	Panel thickness	Std. Package
KS-2S	18.9	8.0	3.8	$\phi 2.6$	$\phi 4^{+0.2}_0$	0.5~2	100 pcs.
KS-5S	26.6	9.4	9.3	$\phi 7.8$			
KS-8S	34.7	10.5	15.0	$\phi 13.0$			
KS-10S	37.1	11.0	17.8	$\phi 15.0$			

(Unit : mm)

For Cables

For Flat Cables

Removal prevention for connectors

For Optical fibers



Clip with side slot for cable

**Features**

- Can be mounted with adhesive tape

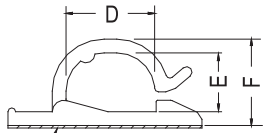
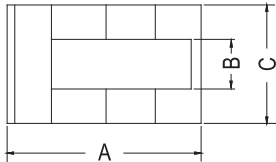
**Material**

- Nylon 66 (Color: Natural)

**UL94 V-2 (V-0\*)**

\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

**XDM-8/9**



3M DOUBLE ADHESIVE TAPE  
(THICKNESS 1.1mm)

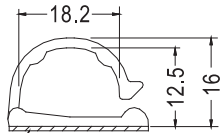
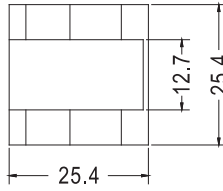
Part No.	A	B	C	D	E	F
XDM-8	25.4	6.5	15.5	11.6	7.8	11.3
XDM-9	25.2	12.7	25.2	11.6	7.6	11.0

(Unit: mm)

Std. Package: 500 pcs.



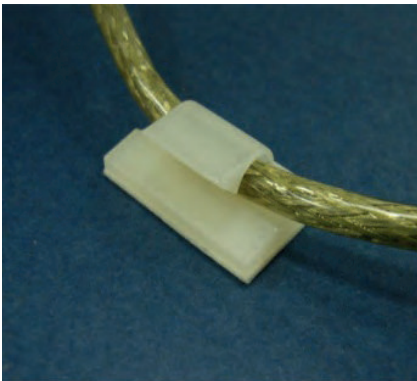
**XDM-10**



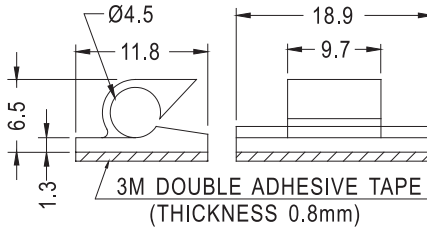
3M DOUBLE ADHESIVE TAPE  
(THICKNESS 1.1mm)

Std. Package: 500 pcs.

(Unit: mm)



**XDM-11**

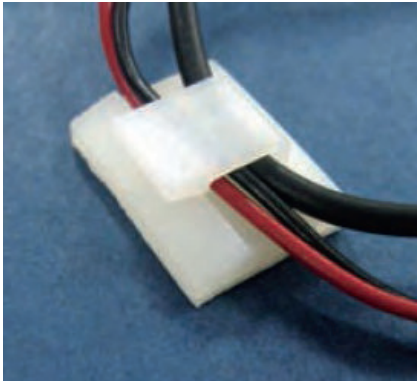


3M DOUBLE ADHESIVE TAPE  
(THICKNESS 0.8mm)

Std. Package: 1000 pcs.

(Unit: mm)





Clip with side slot for cable

Features

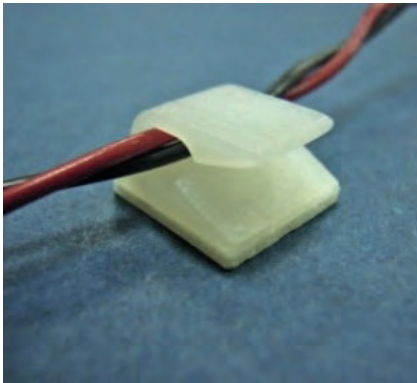
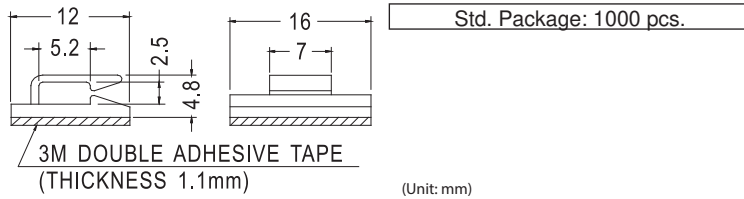
- Can be mounted with adhesive tape

Material

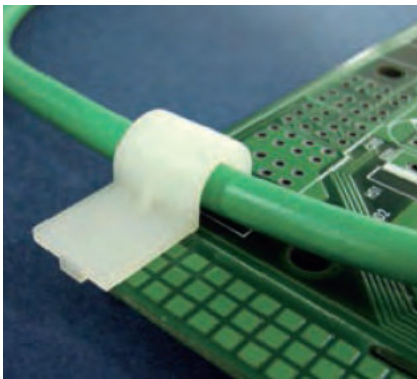
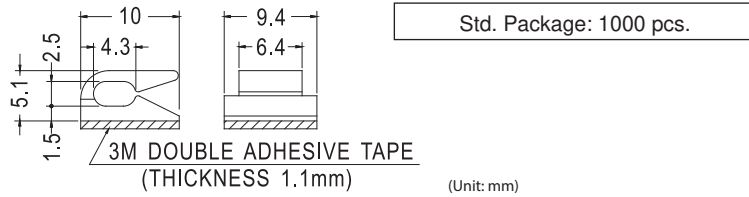
- Nylon 66 (Color: Natural) **UL94 V-2 (V-0\*)**

\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

XD-4



XD-6



Snap-mount standard cable clamp

Features

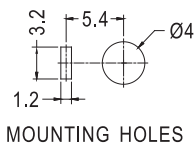
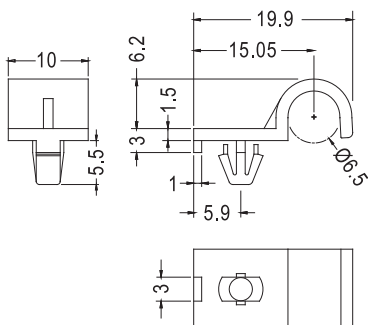
- Snapped on PCB

Material

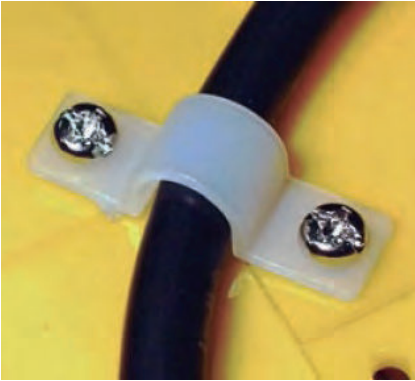
- Nylon 66 (Color: Natural) **UL94 V-2 (V-0\*)**

\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

Std. Package: 500 pcs.



(Unit: mm)



Cable Clip with screw fixation

Features

- Fixed with 2 x M3 screw

Material

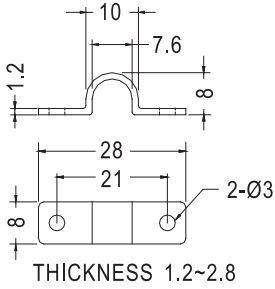
- Nylon 66 (Color: Natural)

UL94 V-2 (V-0\*)

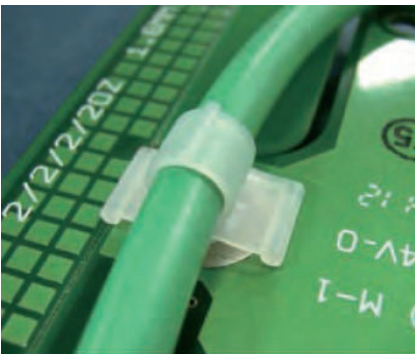
DMN-7.5

Std. Package: 500 pcs.

\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)



WIREHOLDER / PDD



Snap-mount cable clip

Features

- Wireholder on PCB

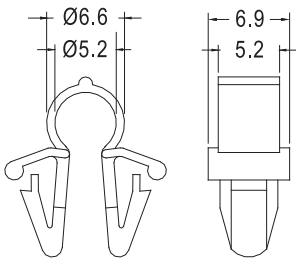
Material

- Nylon 66 (Color: Natural)

UL94 V-2 (V-0\*)

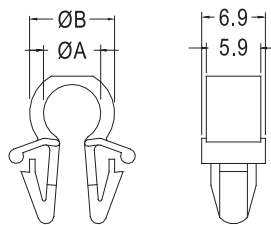
\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

PDD-5



CHASSIS Ø6.0  
THICKNESS 2.0

PDD-6/8/10

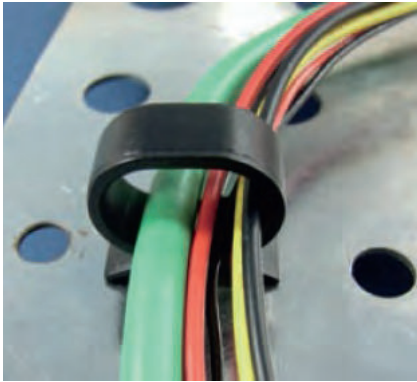


CHASSIS Ø6.0  
THICKNESS 2.0

(Unit: mm)

Part No.	A	B	Standard Package
PDD-5	5.2	6.6	1000
PDD-6	6.2	9.2	1000
PDD-8	8.2	11.2	500
PDD-10	10.2	13.2	500

(Unit: mm)



### Snap-mount cable clip

#### Features

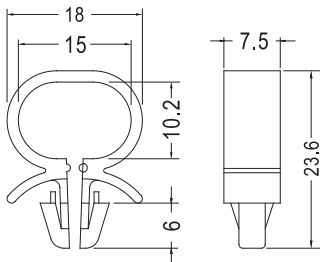
- Wireholder on PCB

#### Material

- Nylon 66 (Color: Natural, Black) **UL94 V-2 (V-0\*)**

**PDDC-15**

\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)



Std. Package: 500 pcs.

CHASSIS  $\varnothing 6.0 \sim \varnothing 6.5$   
THICKNESS 0.8~2.5

(Unit: mm)

## WOOD-USE CLAMP / WBC



### Snap-mount locking clamp to insert into wooden panel

#### Features

- Snap-in structure enables one-touch installation which reduces workload.
- Unique snap structure holds securely onto wooden board.
- Round mounting hole

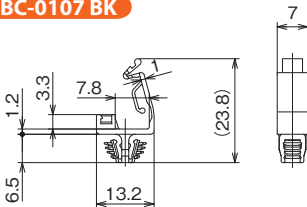


#### Material

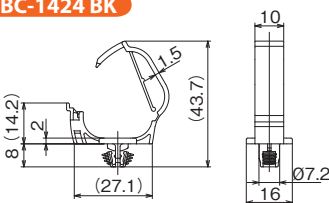
- Nylon 66 (Color : Black)

**UL94 V-2**

**WBC-0107 BK**

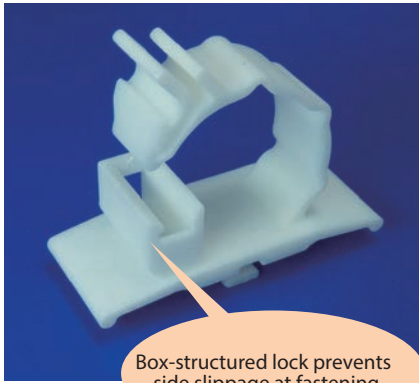


**WBC-1424 BK**



Part No.	Mounting	Mounting hole depth	Max number/diameter of bundle
WBC-0107 BK	$\varnothing 6.7 \pm 0.1$	$\geq 8$	$\varnothing 1 \times 5 \text{ pcs.} \geq$
WBC-1424 BK	$\varnothing 7.7 \pm 0.2$	$\geq 9$	$\leq \varnothing 17$

(Unit : mm)



Box-structured lock prevents side slippage at fastening

### Releasable cable clamp with minimum protrusion on panel

#### Features

- Space-saving snap has a very low 1mm protrusion on the underside of PCB.
- Easy maintenance and recyclable. Snap is detachable from mounting side with no tools required.



Twist Type

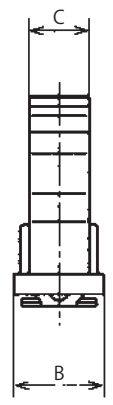
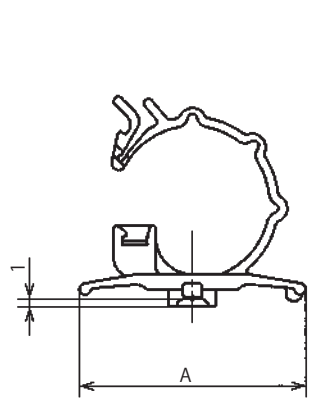


Odd-shaped hole

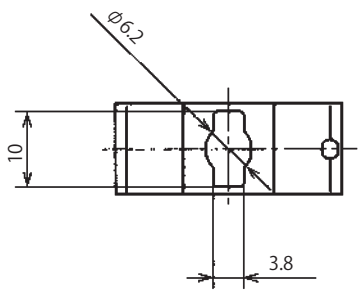
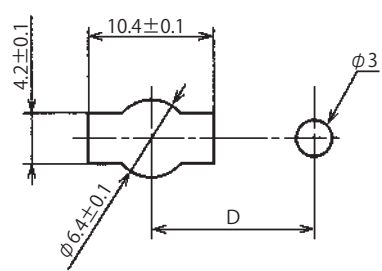
#### Material

- Nylon 66 (Color : Natural)

UL94 V-0



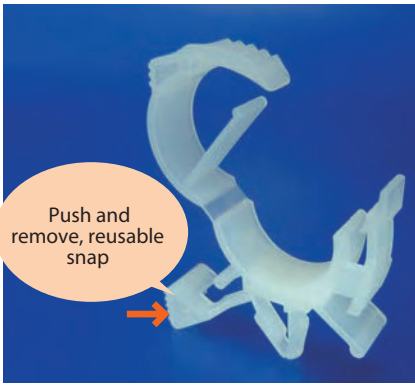
#### Specification drawing



Part No.	A	B	C	D	Max bundle diameter	Mounting hole size	Panel thickness	Std. Package
CKT-05 V0	23.0	10.0	6.0	10.0±0.1	φ5.4	Refer to Specification drawing	1±0.2	100 pcs.
CKT-07 V0					φ6.5			
CKT-10 V0	φ10.0							
CKT-13 V0	φ14.4							
CKT-16 V0	φ17.5							
CKT-20 V0	36.0	14.0	10.0	16.5±0.1	φ20.0			

UL ...UL1565 recognized product

(Unit : mm)



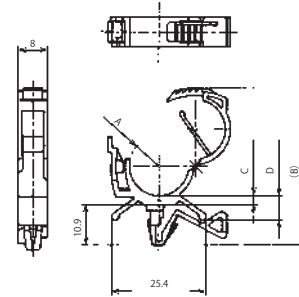
### Adjustable, releasable snap-mount clamp

#### Features

- Clamp diameter can be adjusted to wire bundle. Easy release of cables.
- Dismounted with one hand. Reusable snap is employed for maintenance and recycling.

#### Material

- Nylon 66 (Color : Natural)
- UL94 V-2



Part No.	A	(B)	C	D	Bundle diameter	Mounting hole size	Panel thickness	Std. Package
FLC-10S	R8	42.2	2.4	6.6	φ7~14	φ4.8 <sup>+0.2</sup>	0.8~2	500 pcs.
FLC-20S	R13	59.4	3.4	7.6	φ14~22			100 pcs.

(Unit : mm)

### SCREW-LESS CLAMP / VLC



### Adjustable plug-in-mount clamp that easily inserts into screw hole

#### Features

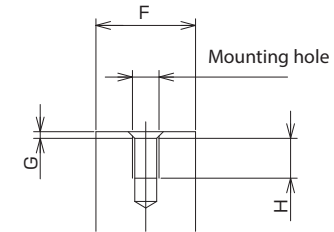
- Plug-in mounting in screw hole is available without tool.
- Clamp porting has locking mechanisms with harness holder.
- Applying heat resistant aging material, both heat resistance and durability are performed.

#### Material

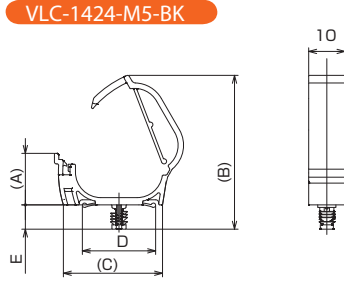
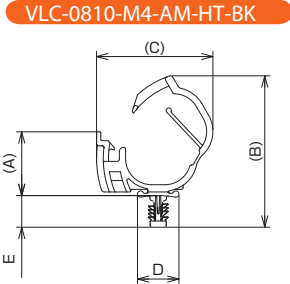
- Nylon 66 (Color : Black)

UL94 V-2

#### Installation specifications



#### Recommended mounting hole



Part No.	(A)	(B)	(C)	D	E	F	G	H	Max bundle diameter	Mounting hole size	Std. Package
VLC-0810-M4-AM-HT-BK*	12.3	28.2	22.5	8	(6.1)	≥ φ10	≤ 1	≥ 7	φ10	M4 screw hole (Thread pitch:0.7)	100 pcs.
VLC-1424-M5-BK	14.2	42.4	27.3	(20.2)	6.7	≥ φ22	≤ 1	≥ 8	φ17	M5 screw hole (Thread pitch:0.8)	100 pcs.

\*Operating temperature range: -40°C to +125°C.

(Unit : mm)



Snap-mount clamp applicable for thick panles (0.5~4.1 mm)

Features

- Box-structured lock prevents side slippage at fastening.
- Applicable to panel thickness from 0.5mm (L-type) to 4.1mm (H-type).

Material

- Nylon 66 (Color : Grey)

UL94 V-2

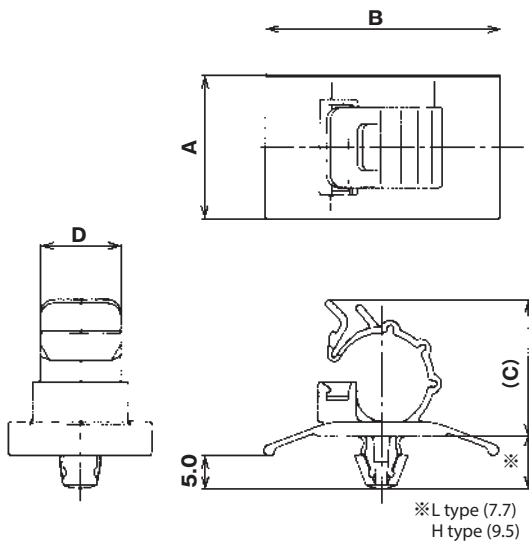


CKN series



For adhesive backed type

Refer to the right page



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Part No.	A	B	(C)	D	Max bundle diameter	Mounting hole size	Panel thickness	Std. Package
CKS-05-L	13.8	23.2	12.8	8.5	φ5.4	φ6.4 <sup>+0.2</sup>	-L type 0.5~2.3  -H type 2.3~4.1	100 pcs.
CKS-05-H								
CKS-07-L	15.1	25.0	15.1	9.8				
CKS-07-H								
CKS-10-L	17.3	28.4	19.7	12.0	φ9.8			
CKS-10-H								
CKS-13-L	19.3	32.0	25.6	14.0	φ14.4			
CKS-13-H								
CKS-16-L	21.3	35.0	26.2	16.0	φ17.5			
CKS-16-H								
CKS-20-L	23.3	37.0	30.8	18.0	φ20.0			
CKS-20-H								
CKS-26-L	31.4	46.0	40.75	24.0	φ28.0			

...UL1565 recognized product

(Unit : mm)



### Cable clamp with a box lock, for adhesive tape fixation

#### Features

- Box-structured lock prevents side slippage at fastening.

#### Material

- Nylon 66 (Color : Grey)

UL94 V-2



Adhesive tape mounting

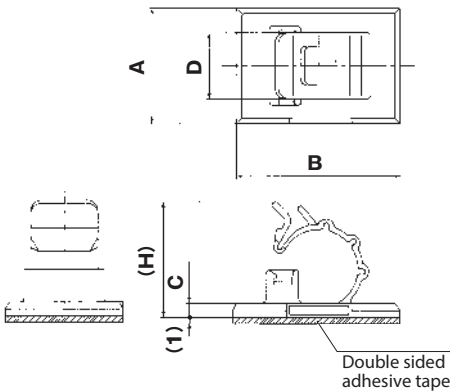
※ With regard to adhered body which is covered by UL1565, please contact our sales department.

CKS series



snap mounting type

Refer to the left page



Part No.	A	B	C	D	(H)	Max bundle diameter	Std. Package
UL CKN-05-R	20.5	17.5	2.0	8.5	13.4	φ 5.4	100 pcs
UL CKN-07-R	17.5	25.5	2.2	9.8	15.9	φ 6.2	
UL CKN-10-R	21.0	30.0	2.5	12.0	20.6	φ 10.0	
UL CKN-13-R	24.0	30.0	2.5	14.0	26.1	φ 14.4	
UL CKN-16-R	25.5	36.0	3.0	16.0	27.0	φ 17.4	
UL CKN-20-R	30.0	40.0	3.0	18.0	31.4	φ 20.0	20 pcs
UL CKN-28-R	43.0	56.0	3.5	24.0	41.7	φ 29.0	
UL CKN-38-R	56.0	76.0	4.1	30.0	57.2	φ 37.4	

UL ...UL1565 recognized product

(Unit : mm)

Wiring Clamps

### CKN CLAMP WITH CUSHION PAD / CKN-SP



### Adhesive cable clamp with protective foam

#### Features

- CKN clamp with foam pad protects cables from vibration etc.

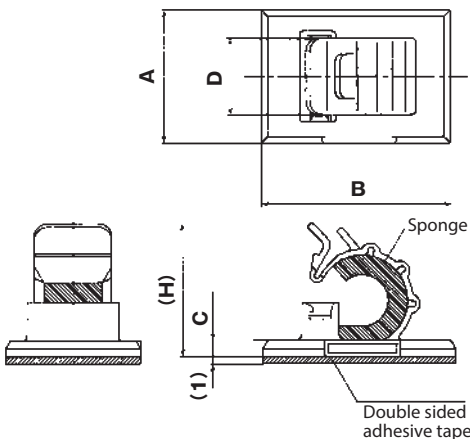
#### Material

- Body / Nylon 66 (Color : Grey)
- Sponge / Natural rubber foam (Color : Black)

UL94 V-2



Adhesive tape mounting



Part No.	A	B	C	D	(H)	Max bundle diameter	Std. Package
CKN-10SP-R	21.0	30.0	2.5	12.0	20.6	φ 8	100 pcs.
CKN-13SP-R	24.0	30.0	2.5	14.0	26.1	φ 10	
CKN-16SP-R	25.5	36.0	3.0	16.0	27.0	φ 13	
CKN-20SP-R	30.0	40.0	3.0	18.0	31.4	φ 14	

(Unit : mm)

For Cables

For Flat Cables

Removal prevention for connectors

For Optical fibers



### Adjustable locking clamp

#### Features

- Bundle diameter is adjustable to cables. Easy fastening clamp.

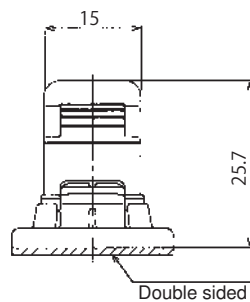
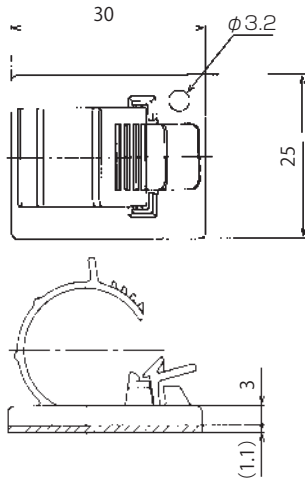
#### Material

- Body / Nylon 66 (Color : Black)

UL94 V-2



Adhesive tape mounting



Part No.	Bundle diameter	Std. Package
AC-13-R	φ12~13.5	100 pcs.

(Unit : mm)

### CLINCHER / ARC.68



### Adjustable locking clamp

#### Features

- Easily releases cables. Bundle diameter is adjustable in wide range.

#### Material

- Polypropylene (Color: Grey)



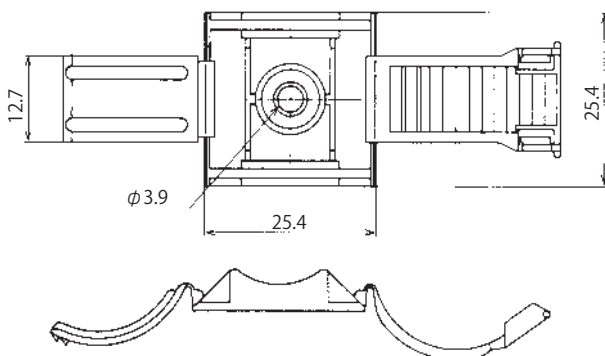
Adhesive tape mounting



Screw mounting

(Applicable screw:Nominal diameter 3.5mm Small flat head screw)

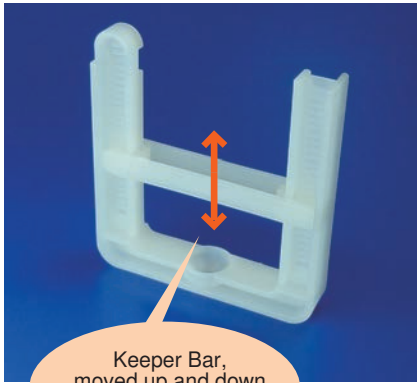
※ Specifications are described in the table below.



Part No.	Mounting method	Bundle diameter	Std. Package
ARC.68-A-14	Adhesive tape	φ4.8~17.3	100 pcs.
ARC.68-S6-14	Screw		

(Unit : mm)





### Large, screw mount clamp with an easy adjustable arm

#### Features

- Pushing down the keeper bar to secure wire bundles.
- Bar height is adjustable to cable volume by small pitch.
- Easily unlock the bar by pinching.



#### Screw mounting

(Applicable screw:Nominal diameter 4mm  
Small flat head or oval head screw)



#### Round hole

FXCW-6040-V0



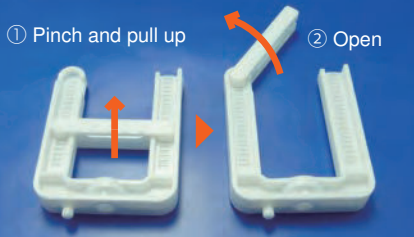
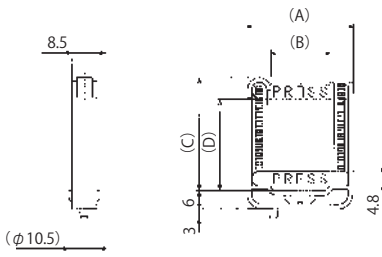
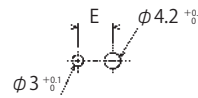
Dedicated accessories for FXC

▶ P81

#### Material

- Nylon 66 (Color : Natural)
  - UL94 V-0 : FXC-2030-V0
  - UL94 V-2 : FXC-3240

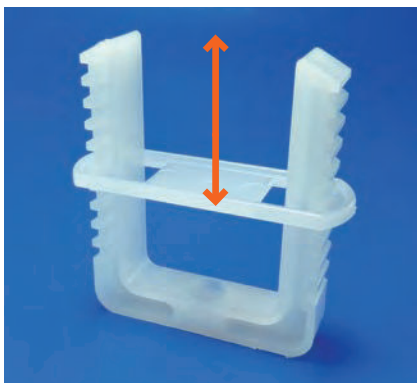
#### Specification drawing



Part No.	(A)	(B)	(C)	(D)	E	Mounting hole size	Std. Package
FXC-2030-V0	36	20	37	30	9±0.1	Refer to Specification drawing	100 pcs.
FXC-3240	48	32	46.3	39.3	15±0.1		

(Unit : mm)

### CABLE CLAMP / KC



### Large, screw mount clamp with an adjustable arm

#### Features

- U structured clamp holds cables from below with the keeper bar pushed down to fasten them. Adding or removing cables is easy.



#### Screw mounting

(Applicable screw:Nominal diameter 4mm  
Small flat head or oval head screw)



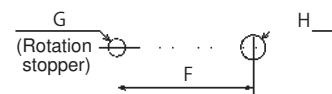
#### Round hole

※ Specifications are described in the table below.

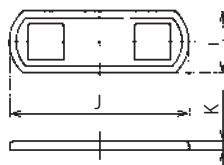
#### Material

- Nylon 66 (Color : Natural)
  - UL94 V-2

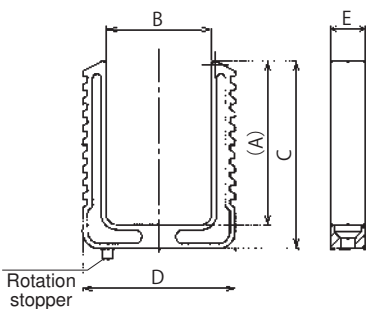
#### Specification drawing



Keeper Bar



Clamp



Part No.	(A)	B	C	D	E	F	G	H	I	J	K	Std. Package
KC-1830	30	18	37	31	8	9±0.1	$\phi 3.4^{+0.1}_0$	$\phi 4.3 \pm 0.1$	15	40	2.25	100 pcs.
KC-3148	48	31	55	45	10	15±0.1	$\phi 3.1^{+0.1}_0$		18	53	2.5	

(Unit : mm)



### Releasable snap-mount spacer clamp

#### Features

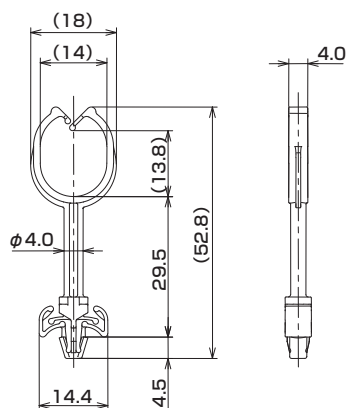
- Spacing and clamping of cables.
- Detachable snap for easy maintenance and disassembling.



#### Material

- Nylon 66 (Color : Natural)

UL94 V-0



Part No.	Mounting hole size	Panel thickness	Std. Package
RHL-28E-V0	$\phi 4.8^{+0.2}_0$	0.5~1.6	1,000 pcs.

(Unit : mm)

### HARNESS LIFTER / HL



### Snap-mount spacer clamp

#### Features

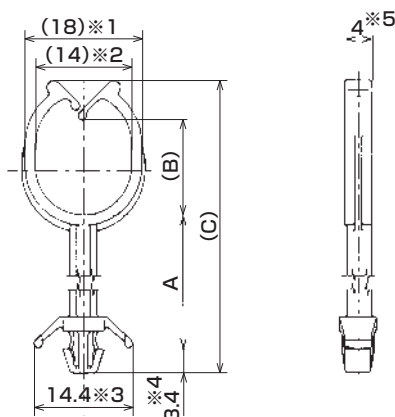
- Dual function, spacing and clamping.



#### Material

- Nylon 6\*1 (Color : Natural)

UL94 V-2 (V-0\*2)



\*1 HL-26L is made of Nylon 66

\*2 For V0 type, "V0" is added to the end of the part No.

(With regard to lot size and lead time, please contact us.)

Part No.	A	(B)	(C)	Mounting hole size	Panel thickness	Std. Package
HL-18-0	19.5	13.8	41.7	$\phi 4.8^{+0.1}_0$	0.5~2.3	1,000 pcs.
HL-28-0	29.5		51.7			100 pcs.
HL-38-0	39.5		62.4			1,000 pcs.
HL-26L*	27.7	16.9	57.2		0.8~2.0	100 pcs.



UL ...UL1565 recognized product

(Unit : mm)

\* HL-26L has a slightly different configuration from the others.

\*1 : (23) \*2 : (14) \*3 : 17.8 \*4 : 4.9 \*5 : 5



### Snap-mount spacer and locking clamp

#### Features

- Lock secures wire/cable bundles.
- Inner spring fastens wires firmly.



Snap Mounting



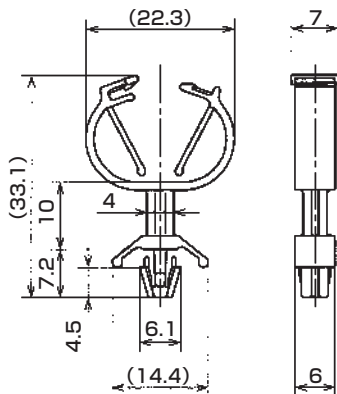
Round hole

#### Material

- Nylon 66 (Color : Natural)

**UL94 V-2(V-0\*)**

※ For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)



Part No.	Applicable bundle diameter	Mounting hole size	Panel thickness	Std. Package
VSC-10	φ9~12	φ4.8 <sup>+0.2</sup> <sub>0</sub>	0.5~2.3	500 pcs.



UL ...UL1565 recognized product

(Unit : mm)

Wiring Clamps

### HARNESS LOCK SPACER / LHL-18



### Snap-mount spacer and locking clamp for space saving

#### Features

- Space-saving spacer holds cables securely by the lock mechanism.



Snap Mounting

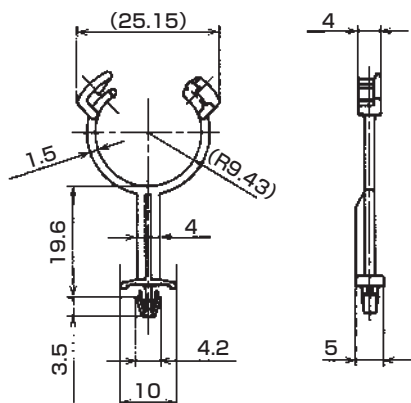


Round hole

#### Material

- Nylon 66 (Color : Natural)

**UL94 V-2**



Part No.	Applicable bundle diameter	Mounting hole size	Panel thickness	Std. Package
LHL-18	φ13	φ3 <sup>+0.1</sup> <sub>0</sub>	1.6±0.15	1,000 pcs.

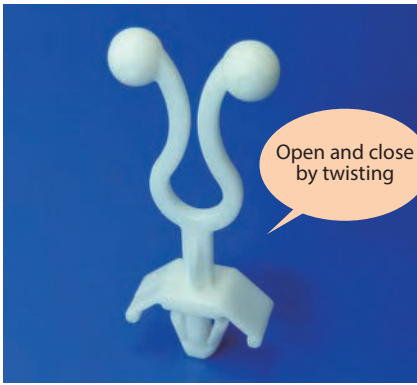
(Unit : mm)

For Cables

For Flat Cables

Removal prevention for connectors

For Optical fibers



## Snap-mount clamp with twist locking of cable bundles

### Features

- Twist lock secures wire/cable bundles.

### Material

- Nylon 66 (Color : Natural)

**UL94 V-2 (V-0\*)**



Snap Mounting



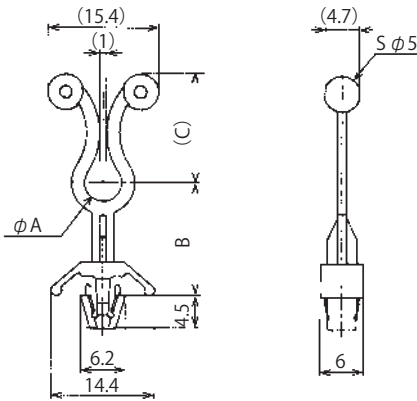
Round hole

OLS series



For twist lock type binding, refer to

**P86**



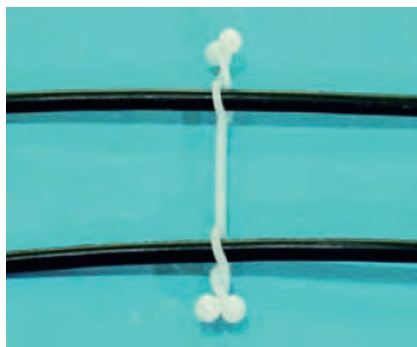
※ For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

	Part No.	φA	B	(C)	Mounting hole size	Panel thickness	Std. Package
<b>UL</b>	NPL-320	3.0	15.8	15.2	φ4.8 <sup>+0.1</sup>	0.5~2	500 pcs.
<b>UL</b>	NPL-510	5.2	8.9				
<b>UL</b>	NPL-520V0	5.2	15.8	21.7			200 pcs.
<b>UL</b>	NPL-1230	11.5	28.0				

**UL** ...UL1565 recognized product

(Unit : mm)

## WIRE LOCK SPACER / Z-2L



## Wire lock spacer snap-mount

### Features

- Can be mounted with snap on PCB

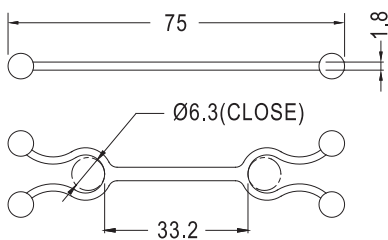
### Material

- Nylon 66 (Color: Natural)

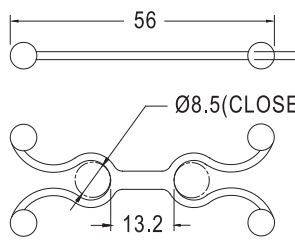
**UL94 V-2 (V-0\*)**

\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

Z 2L-7

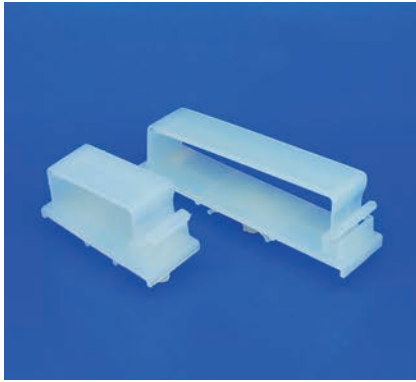


Z 2L-8



(Unit: mm)

Std. Package: 500 pcs.



Releasable snap-mount spacer clamp

Features

- Easy fastening/releasing of cables. Box-structured lock prevents side slippage at fastening.



Snap Mounting



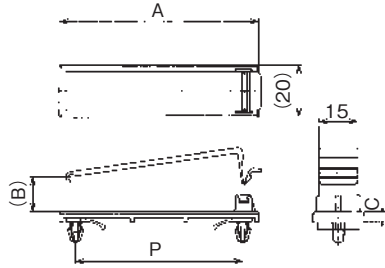
Round hole

Material

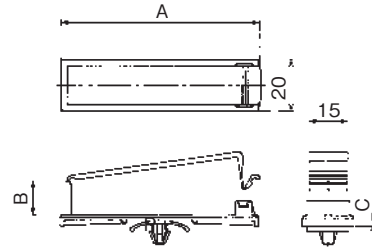
- Nylon 66 (Color : Natural)

UL94 V-2

FCS



FCSS



Part No.	Applicable cable		A	(B)	C	Mounting hole pitch	Mounting hole size	Panel thickness	Std. Package
	Max. width	Max. thickness							
FCS-3010	31.0	6.5	45.5	7.0	4.0	33.0±0.1	φ4.8 <sup>+0.2</sup> <sub>0</sub>	0.5~2.3	100 pcs.
FCS-3015		13.0		13.4					
FCS-6010	63.0	6.5	77.0	7.0	4.0	64.5±0.1	φ4.8 <sup>+0.2</sup> <sub>0</sub>	0.5~2.3	100 pcs.
FCS-6015		13.0		13.4					
FCSS-6010		6.5		7.0	4.2	—	φ6.4 <sup>+0.2</sup> <sub>0</sub>		
FCSS-6015		13.0		13.4					

UL ...UL1565 recognized product

(Unit : mm)

FLAT CABLE CLAMP / FCS-P



Snap-mount clamp with pantograph strip to hold down multiple flat cables

Features

- Pantograph structured strip holds down one to multiple flat cables securely.



Snap Mounting



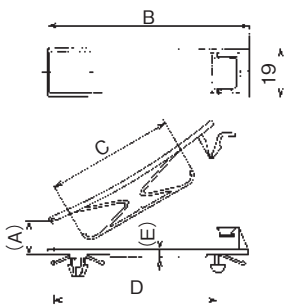
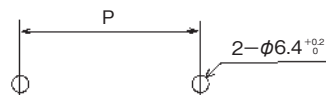
Round hole

Material

- Nylon 66 (Color : Natural)

UL94 V-2

Specification drawing



Part No.	Applicable cable		(A)	B	C	D	(E)	P	Mounting hole size	Panel thickness	Std. Package
	Max. width	Max. thickness									
FCS-25P	32.0	2.6	9.8	47	23	32	3	21 <sup>+0.1</sup> <sub>0</sub>	Refer to Specification drawing	0.8~2.3	100 pcs.
FCS-50P	63.5	7.0	13	79	50	64	3.2	52 <sup>+0.7</sup> <sub>0</sub>			

UL ...UL1565 recognized product

(Unit : mm)



Snap-mount clip for flat cables

Features

- Compact clip for flat cables.
- Rotation stopper secures cables even if they slip.

Material

- Nylon 66 (Color : Natural)

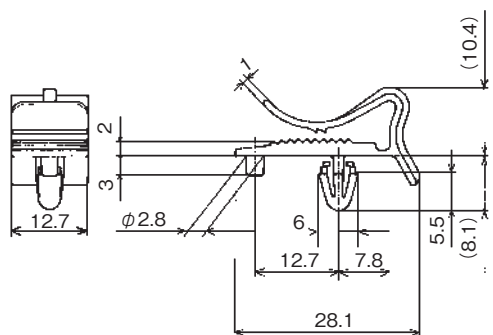
UL94 V-2



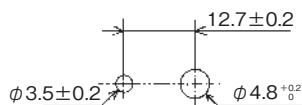
Snap Mounting



Round hole



Specification drawing



Part No.	Mounting hole size	Panel thickness	Std. Package
MFS-1000	Refer to Specification drawing	0.5~2.3	100 pcs.

RE-USE FLAT CABLE CLAMP / RFCS-6015 BK



Releasable snap-mount, flat cable clamp

Features

- New lock employed for quick opening/closing of clamp.
- Reusable type, easy removable with no tools required.

Material

- Nylon 66 (Color : Black)

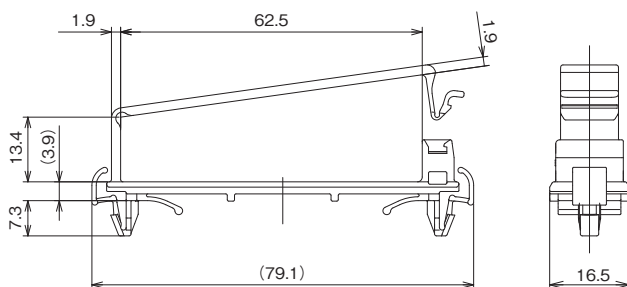
UL94 V-2



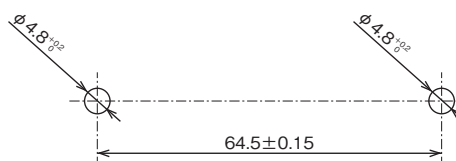
Push Type



Round hole



Specification drawing



Part No.	Panel thickness	Std. Package
RFCS-6015 BK	0.5~2.3	100 pcs.

(Unit : mm)



Adhesive flat cable clamp that secures one or two cables with a screw option

**Features**

- Height of approx. 12mm, applicable to limited spaces. Holds one or two flat cables firmly.

**Material**

- Nylon 66 (Color : Grey)

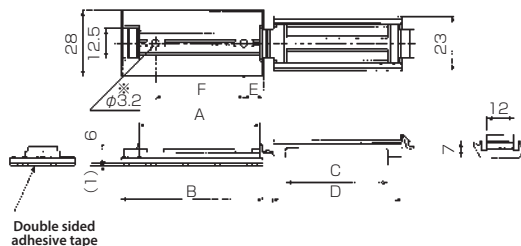
UL94 V-2



Adhesive tape mounting



Screw mounting



Part No.	A	B	C	D	E	F	Applicable cable		Std. Package
							Max. width	Max. thickness	
FCW-26-R	26	35.5	18	29.5	14.5	—※	25.5	2.4	100 pcs.
FCW-52-R	52	61.5	44	55.5	8.45	38.1	51.5		50 pcs.

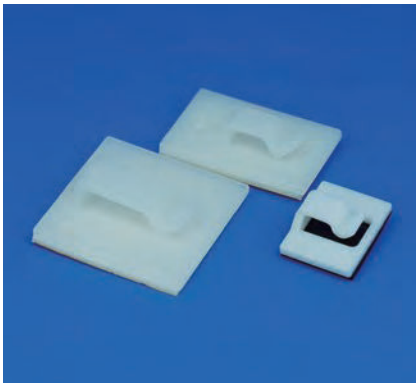


※ FCW-26-R is one screw hole type.



UL1565 recognized product

(Unit : mm)



Clip with side slot for cable

Features

- Compact clamp for flat cables.

Material

- Nylon 66 (Color : Natural)



Adhesive tape mounting

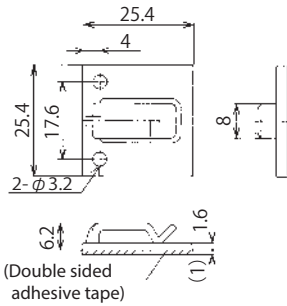


Screw mounting

※Specifications are described.

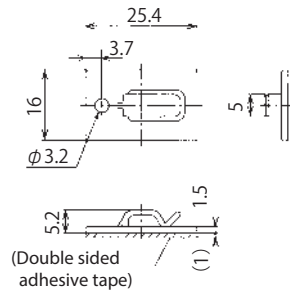
- UL94 V-0 : FCA-07-V0-R
- UL94 V-2 : FCA-10, -16-R

**FCA-16-R** (Both adhesive tape and screw employed)



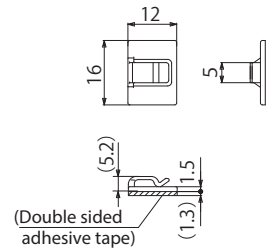
Std. Package : 100 pcs.

**FCA-10-R** (Both adhesive tape and screw employed)



Std. Package : 100 pcs.

**FCA-07-V0-R** (Adhesive tape)



Std. Package : 100 pcs.

(Unit : mm)

MINI FLAT CABLE CLIP / MFC



Mini clip with side slot for flat cable

Features

- Compact clamp for flat cables.

Material

- Nylon 66 (Color : Natural)



Adhesive tape mounting

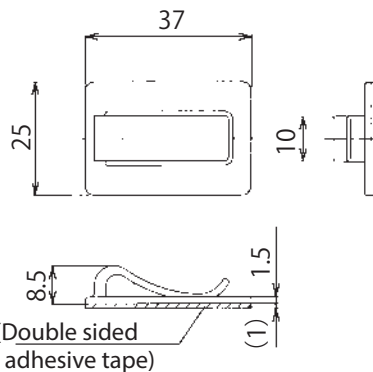
※Specifications are described.

UL94 V-2

**MFC-2000** (No adhesive backing)

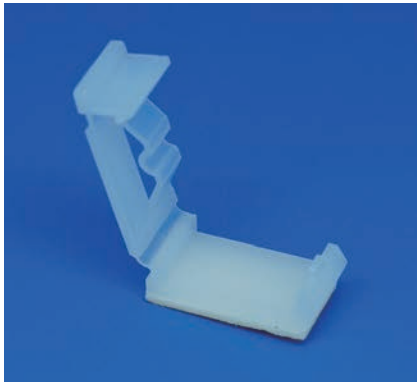
**MFC-3000-R** (With adhesive tape)

Std. Package : 100 pcs.



(Unit : mm)





Adhesive-mount clamp with side locking slot for flat cable

Features

- Space-saving clamp holds down cables safely.

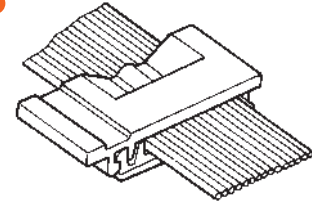
Material

- Nylon 66 (Color : Natural)

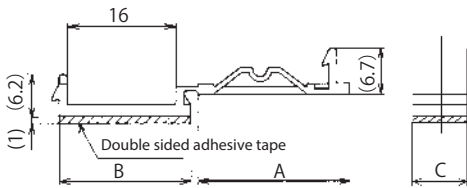
UL94 V-2

Adhesive tape mounting

※ With regard to adhered body which is covered by UL1565, please contact our sales department.



LFC-16N-O-R



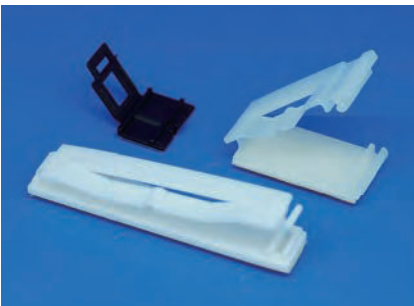
UL

Part No.	A	B	C	Applicable cable		Std. Package
				Max. width	Max. thickness	
LFC-16N-O-R	22.4	19.4	10.0	16	2.7	1,000 pcs.

(Unit : mm)

UL...UL1565 recognized product

THIN TYPE CLAMP / LFC · LBFC



Adhesive-mount clamp with side locking slot for flat cable

Features

- Space-saving clamp holds down cables safely.

Material

- Nylon 66 (Color : Natural)

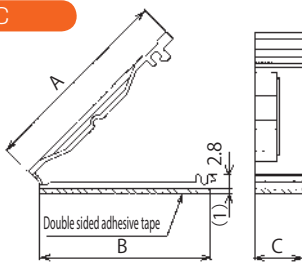
UL94 V-2

UL94 V-0 : LBFC-45N-V0-R

Adhesive tape mounting

※ With regard to adhered body which is covered by UL1565, please contact our sales department.

LFC



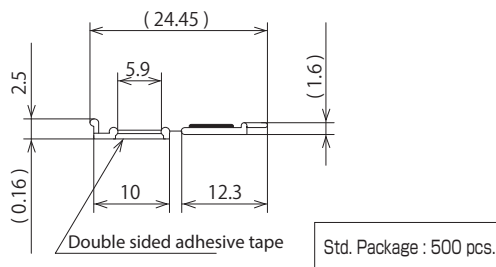
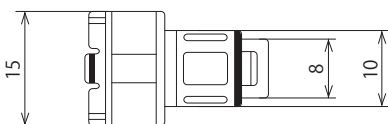
UL  
UL  
UL

Part No.	A	B	C	Applicable cable		Std. Package
				Max. width	Max. thickness	
LFC-20W-R	30.4	25.6	14.0	21	1.2	500 pcs.
LFC-27W-R	37.4	32.6		28		
LFC-30N-O-R	40.0	35.1	10.0	30	1.0	

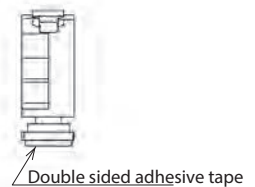
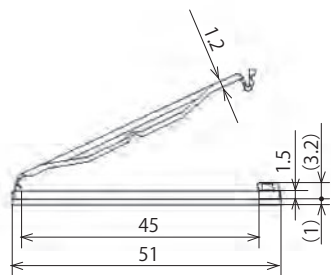
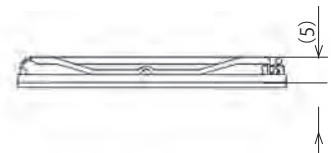
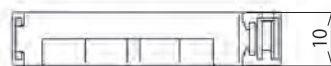
(Unit : mm)

UL...UL1565 recognized product

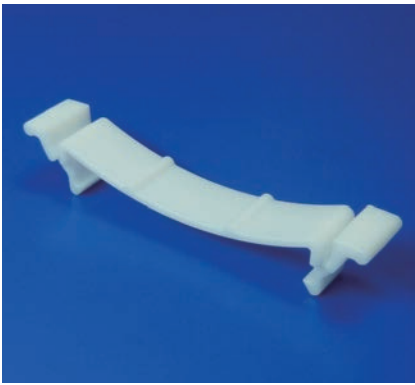
LFC-05BK



LBFC-45N-V0-R



Std. Package : 1000 pcs.



Snap-mount flat clamp to secure cables directly on panel

**Features**

- Low profile clamp secures flat cables directly on mounting panels.
- Reusable type, easy removable with no tools required.



Push Type



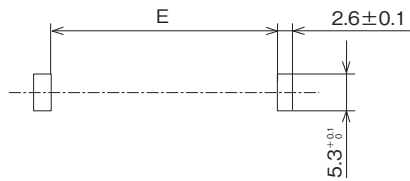
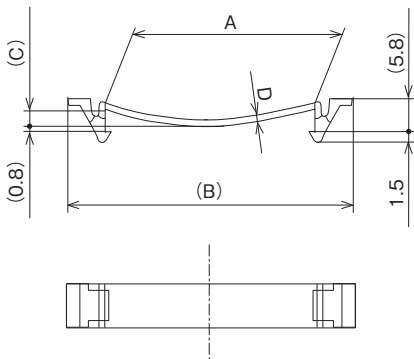
Odd-shaped hole

**Material**

• Nylon 66 (Color : Natural)

UL94 V-0

**Specification drawing**



Part No.	A	(B)	(C)	D	E	Mounting hole size	Panel thickness	Std. Package
FCR-15 VO	15	27	2.9	0.8	15±0.1	Refer to Specification drawing	0.8~1.6	100 pcs.
FCR-30 VO	30	42		1.0	30±0.1			
FCR-35 VO	35	47		1.2	35±0.1			
FCR-45 VO	45	57		1.5	45±0.1			
FCR-60 VO	60	72		1.0	60±0.1			
FCR-30L VO	30	42	3.0	1.0	30±0.1	1.5~2.5		

UL ···UL1565 recognized product

(Unit : mm)

THIN TYPE CLAMP / LFCS-30



Snap-mount flat cable clamp with base to secure cables directly on panel

**Features**

- Space-saving clamp holds down cables safely.



Snap Mounting



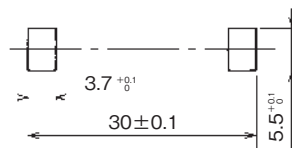
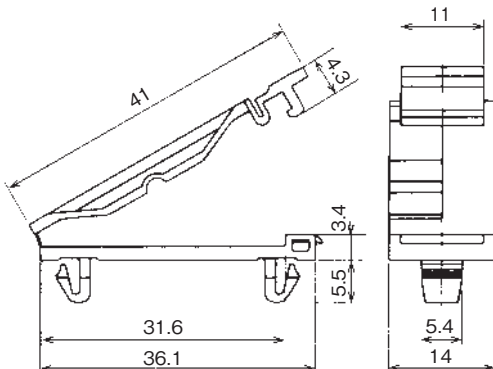
Odd-shaped hole

**Material**

• Nylon 66 (Color : Natural)

UL94 V-0

**Specification drawing**



Part No.	Mounting hole size	Panel thickness	Std. Package
LFCS-30	Refer to Specification drawing	1~1.8	100 pcs.

(Unit : mm)



Snap-mount clamp with side locking slot for flat cable

Features

- Super-low profile clamp.
- Arced fastening strap holds down flat cables.

Material

- Nylon 66 (Color : Natural)

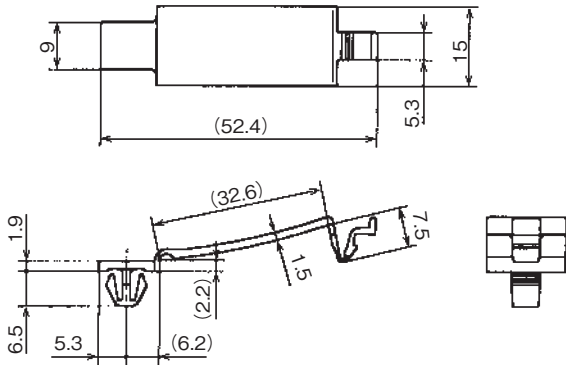
UL94 V-2



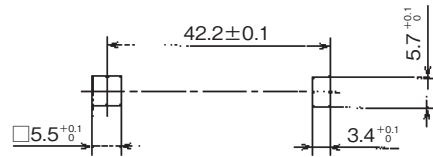
Snap Mounting



Odd-shaped hole



Specification drawing

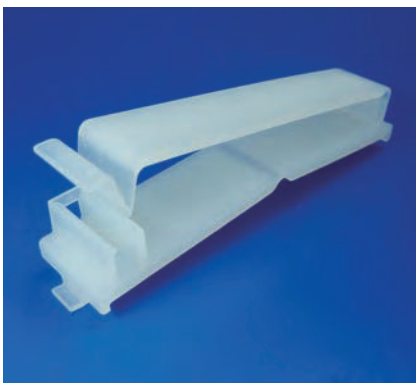


Part No.	Mounting hole size	Panel thickness	Std. Package
KFCS-3002	Refer to Specification drawing	1~1.6	500 pcs.

UL

UL ...UL1565 recognized product

(Unit : mm)



Snap-mount clamp with minimum protrusion on panel

Features

- Space-saving due to low protrusion on the underside of PCB.

Material

- Nylon 66 (Color : Natural)

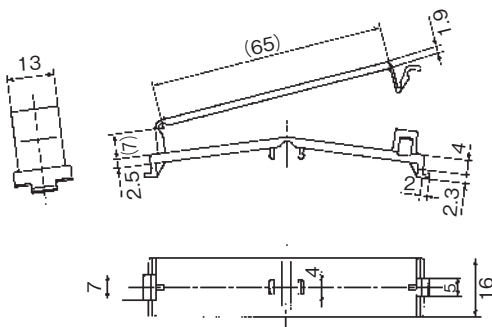
UL94 V-2



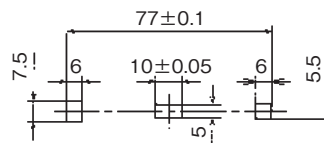
Snap Mounting



Odd-shaped hole



Specification drawing

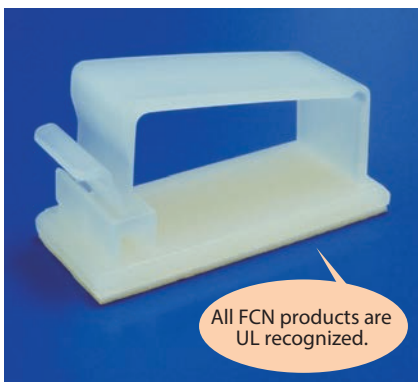


Part No.	Mounting hole size	Panel thickness	Std. Package
FCT-6010	Refer to Specification drawing	1±0.2	100 pcs.

UL

UL ...UL1565 recognized product

(Unit : mm)



### Adhesive-mount locking flat cable clamp

#### Features

- Easy cable fastening and releasing. Box-structured lock prevents side slippage at fastening.

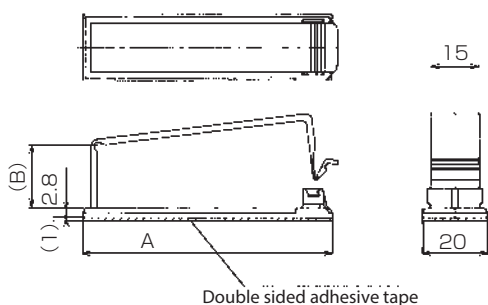
#### Material

- Nylon 66 (Color : Natural) UL94 V-2



#### Adhesive tape mounting

※With regard to adhered body which is covered by UL1565, please contact our sales department.

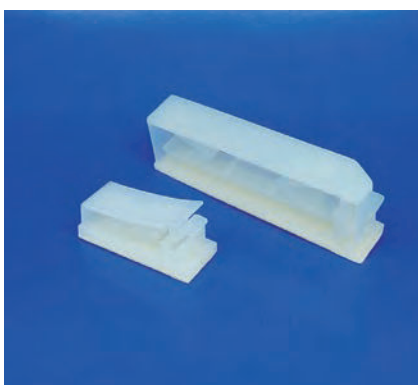


Part No.	A	(B)	Max. width of cable	Max. thickness of cable	Std. Package
FCN-3010-R	45.5	7.0	31.0	6.5	100 pcs.
FCN-3015-R		13.4		13.0	
FCN-6010-R	77.0	7.0	63.0	6.5	
FCN-6015-R		13.4		13.0	
FCN-6020-R		19.1		19.0	

...UL1565 recognized product

(Unit : mm)

## FLAT CABLE CLAMP / FCN-P • FCC-M



### Adhesive-mount clamp with pantograph strip to hold down multiple flat cables

#### Features

- Pantograph structured strip holds down one to multiple flat cables securely.

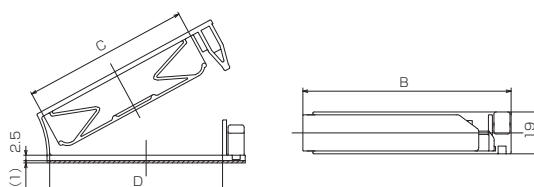
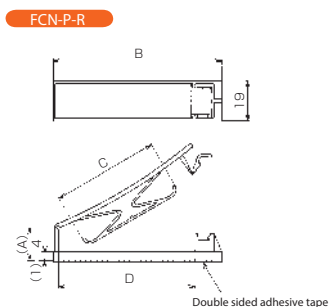
#### Material

- Nylon 66 (Color : Natural) UL94 V-2

FCC-60M-R



#### Adhesive tape mounting



Part No.	(A)	B	C	D	Applicable cable		Std. Package
					Max. width	Max. thickness	
FCN-25P-R	12	47	23	32.0	32.0	2.6	100 pcs.
FCN-50P-R	15	79	50	64.0	63.5	7.0	
FCC-60M-R	—	90	76	78.5	77.0	16.0	

(Unit: mm)



Removal prevention clamp for USB connector (with up-and-down tab)

Features

- Locking tab makes it easy to lock and release USB connector.
- Up-and-down tab enables transverse mounting .



Snap Mounting

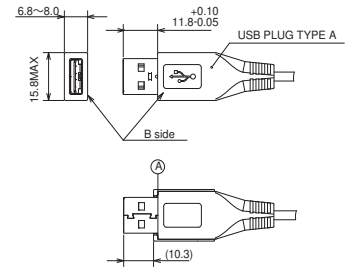
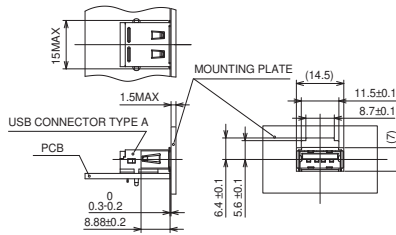
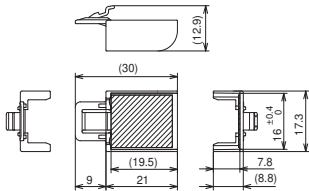


Square hole

Material

- PBT (Color : Black)

UL94 V-0



Application examples



Part No.	Compatible connector	USB plug size	Std. Package
USBCC-A-YR	Type-A USB connector	Refer to Specification drawing	100 pcs.

(Unit : mm)

※This product is assembled on a USB connector with double-sided adhesive.  
Make sure to press the component firmly onto the connector. Assembled product cannot be reused.

USB CONNECTOR COVER / USBCC-B-YR



Removal prevention clamp for USB connector (Upper tab)

Features

- Locking tab makes it easy to lock and release USB connector.
- The upper tab is suitable for USB connectors arranged side-by-side.



Snap Mounting

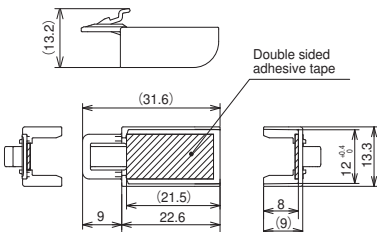


Square hole

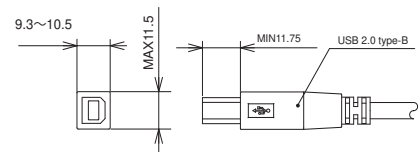
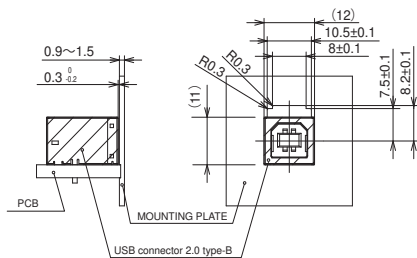
Material

- PBT (Color : Black)

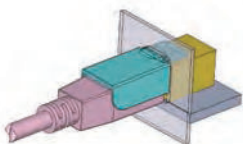
UL94 V-0



Specification drawing



Application examples



Part No.	Compatible connector	USB plug size	Std. Package
USBCC-B-YR	Type-B USB connector	Refer to Specification drawing	100 pcs.

(Unit : mm)

※This product is assembled on a USB connector with double-sided adhesive.  
Make sure to press the component firmly onto the connector. Assembled product cannot be reused.



Removal prevention clamp for USB connector (with side tab)

Features

- Locking mechanism prevents USB from unplugging from slot.
- Locking tab makes it easy to lock and release USB connector.

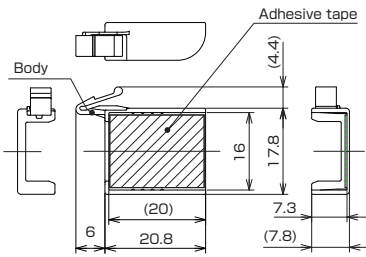


Material

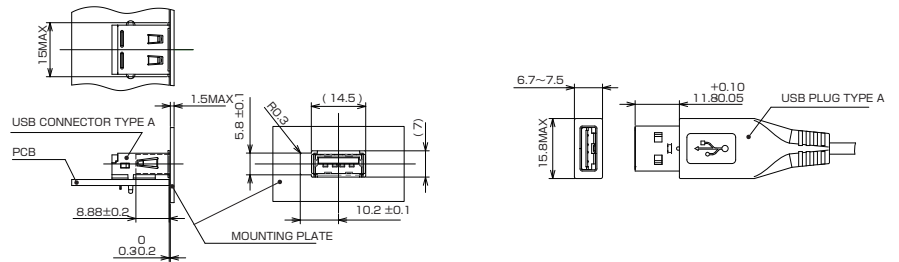
- PBT (Color : Black)

UL94 V-0

Specification drawing



Application examples



Part No.	Compatible connector	USB plug size	Std. Package
USBCC-A	Type-A USB connector	Refer to Specification drawing	100 pcs.

(Unit : mm)

A.C. CORD CLAMP / ACCD



Adjustable, snap-mount clamp that prevents power cord from unplugging

Features

- Prevents power sockets from being removed from inlets.
- Socket holder is adjustable by using the lever.



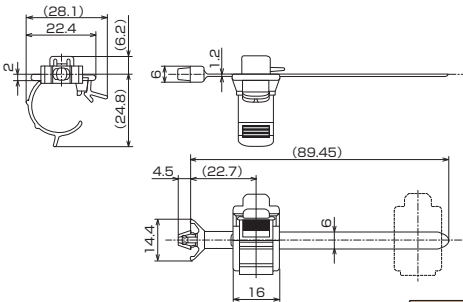
Material

- Nylon 66 (Color : Black)

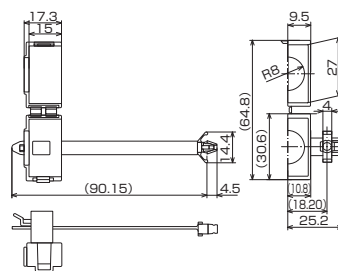
UL94 V-2 : ACCD86AS

UL94 V-0 : ACCD107AS

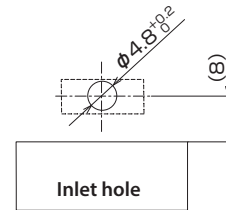
ACCD86AS



ACCD107AS



Specification drawing



Part No.	Bundle diameter	Panel thickness	Compatible plug	Compatible boot diameter	Std. Package
ACCD86AS	$\phi 11 \sim 13.5$	0.8~2.0	-	-	50 pcs.
ACCD107AS	-	0.5~2.3	26×18.5	$\phi 16$	100 pcs.

(Unit : mm)



Releasable, adjustable snap-mount clamp that prevents power cord from unplugging

**Features**

- Prevents power sockets from being removed from inlets.
- Easy detachable, reusable structure enables improved maintenance and disassembly with no tools.



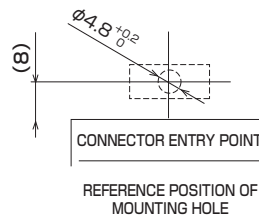
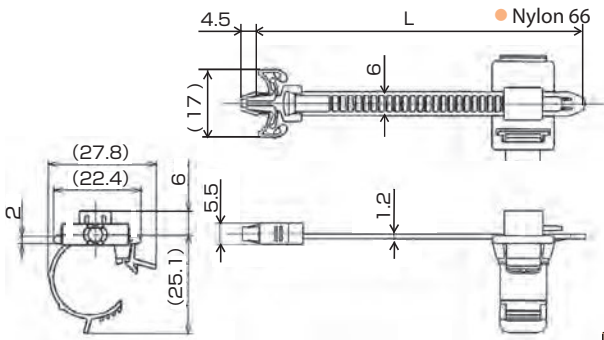
**Material**

• Nylon 66 (Color : Black)

UL94 V-2 : RACCD86-276AS

UL94 V-0 : RACCD86-236AS

Specification drawing



Part No.	Length	Bundle diameter	Panel thickness	Std. Package
RACCD86-236AS	84.5	$\phi 11 \sim 13.5$	0.5~2.0	100 pcs.
RACCD86-276AS	118.5			

(Unit : mm)

Wiring Clamps

CONNECTOR CLAMP / HDCCD-\*\*\*80-V0 BK



Adjustable, snap-mount clamp that prevents USB cord from unplugging

**Features**

- Prevents power sockets from being removed from inlets.
- Socket holder is adjustable by using the lever.

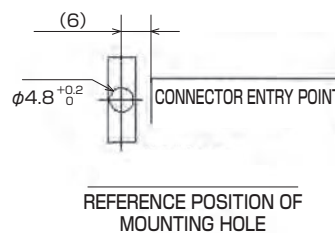
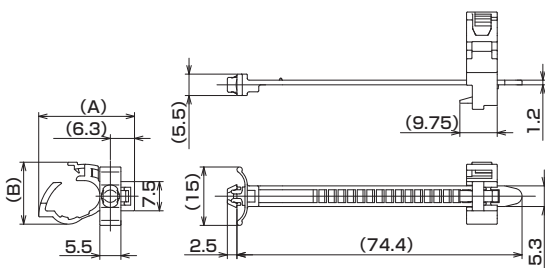


**Material**

• Nylon 66 (Color : Black)

UL94 V-0

Specification drawing



Part No.	(A)	(B)	Bundle diameter	Panel thickness	Std. Package
HDCCD-08-80-V0 BK	25	15.9	$\phi 6.5 \sim 8$	0.8~1.6	500 pcs.
HDCCD-10-80-V0 BK	26.5	18.8	$\phi 8 \sim 10$		100 pcs.

(Unit : mm)

For Cables

For Flat cables

Removal prevention for connectors

For Optical fibres

CAPACITOR HOLDER / RDHL-E

Wiring Clamps



Flow soldering holder that allows for easy mount of capacitors

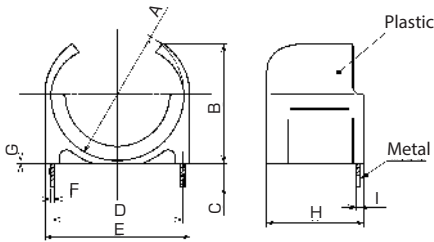
Features

- Because capacitors can be mounted without adhesive, It contributes for reduction of adhesive cost and improvement of workability in the conventional process.
- Capacitor can be mounted from the top of this product.
- Relief loads of vibration and shock applied to leads of capacitors.
- The product can be applied to various length of capacitors by flow soldering.

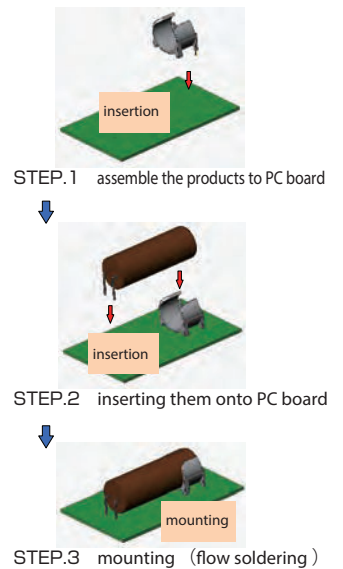
Material

- Plastic part : Nylon66
- Metal part : Low carbon steel wire (□0.6mm)  
Surface treatment : Sn plating on the underplating by Cu

UL94 V-0



Assembling method



Metal portion	Plastic portion	Diameter accommodation		Method of mounting
CP wire □0.6mm	PA66	RDHL-12.5E-V0 : φ12.5mm	RDHL-18E-V0 : φ18mm	For flow soldering

Part No.	A	B	C	D	E	F	G	H	I	Std.Package
RDHL-12.5E-V0	φ13	12	3.3	12.2	14.2	0.6	0.4	13.5	0.6	1000 pcs.
RDHL-16E-V0	φ16.5	15.4	3.3	15.6	17.9	0.6	0.4	13.5	0.6	500 pcs.
RDHL-18E-V0	φ18.5	16.7	3.3	18.1	20.1	0.6	0.4	13.5	0.6	500 pcs.

(Unit : mm)

CAPACITOR HOLDER / RDHL

For Cables

For Flat cables

Removal prevention for connectors

For Optical fibres



Flow soldering holder for vibration damping of capacitors

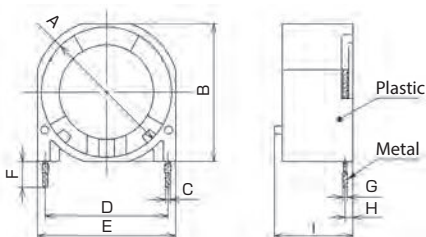
Features

- Excellent resistance in vibration and impact of the product brings relief loads applied to leads of capacitors.
- Because capacitors can be mounted without adhesive, It contributes for reduction of adhesive cost and improvement of workability in the conventional process.
- The product can be applied to various length of capacitors by flow soldering.

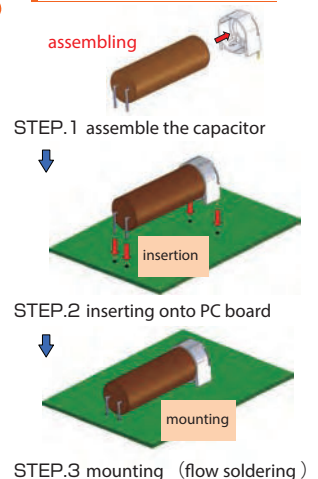
Material

- Plastic part : Nylon66
- Metal part : Low carbon steel wire (□0.6mm)  
Surface treatment : Sn plating on the underplating by Cu

UL94 V-0



Assembling method



Metal portion	Plastic portion	Diameter accommodation	Method of mounting
CP wire □0.6mm	PA66	RDHL-16-V0 : φ16mm	For flow soldering

Part No.	A	B	C	D	E	F	G	H	I	Std.Package
RDHL-16-V0	φ16.6	17.5	0.6	15.6	17.6	3.3	0.6	1.0	10.0	500 pcs.

(Unit : mm)





It maintains safe radius for fibers extending from connector boot.

**Features**

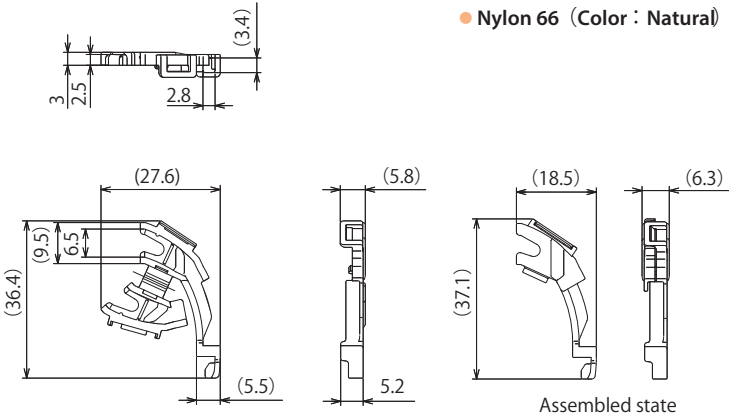
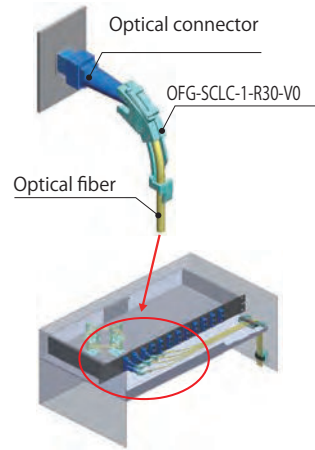
- The GUIDE maintains bend radius of 30 mm or more for optical fibers extending from connector boots.
- Applicable to both SC and LC connectors
- Downsized design is also applicable to LC duplex connectors.
- Lock structure prevents unfastening from the fibers.

**Material**

- Nylon 66 (Color : Natural)

**UL94 V-0**

**Application examples**

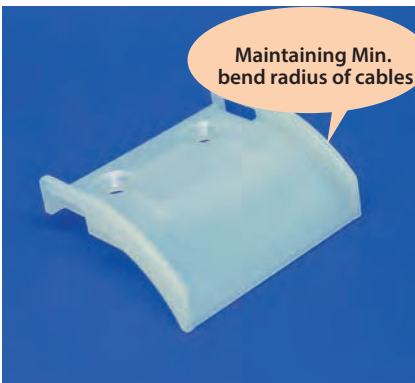


Part No.	Applicable connector	Std. Package
OFG-SCLC-1-R30-V0	SC Connector, LC Connector	100 pcs.

(Unit : mm)

Wiring Clamps

FIBER GUIDE / OFG-5042-R30



The guide retains the minimum bending radius for optical fibers

**Features**

- Optical fiber bending radius of 30 mm or higher can be retained.
- Hook and loop fastener applicable member is equipped for optical fiber bundle.
- The guide is fixable on a sheet metal with countersunk screws.

**Material**

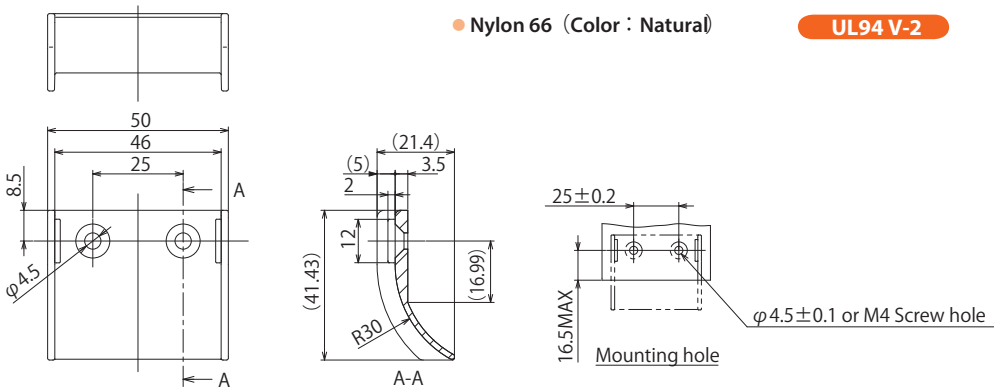
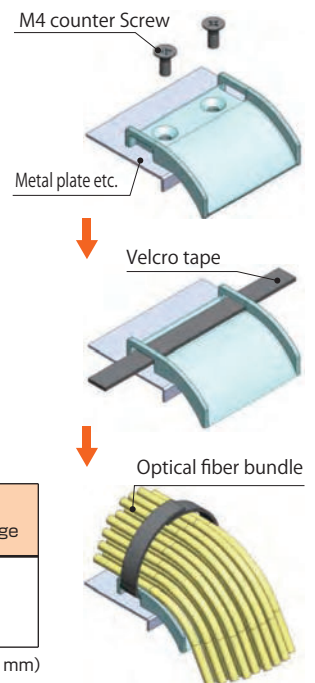
- Nylon 66 (Color : Natural)

**UL94 V-2**



**Screw mounting**

**Application examples**



Part No.	Applicable velcro tape		Applicable screw	Mounting hole size	Std. Package
	Width	Thickness			
OFG-5042-R30	≦ 10	≦ 2	M4 counter screw	Refer to Specification drawing	50 pcs.

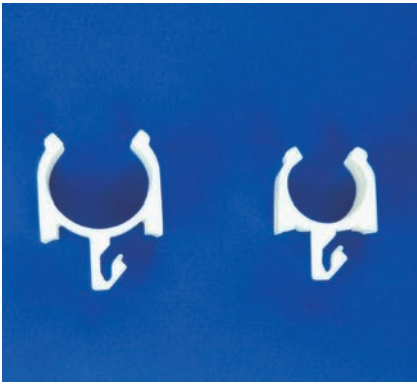
(Unit : mm)

For Cables

For Flat cables

Removal prevention for connectors

For Optical fibres



### Snap-mount capacitor holder

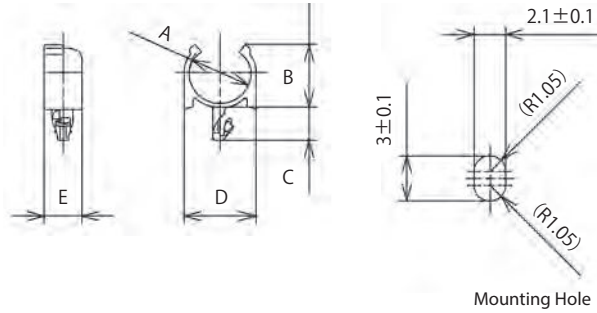
#### Features

- Because capacitors can be mounted without adhesive, It contributes for reduction of adhesive cost and improvement of workability in the conventional process.
- Capacitor can be mounted from the top of this product.
- The product is mounted onto PC board by means of its plastic snap.

#### Material

- Nylon 66 (Color : Natural)

UL94 V-0



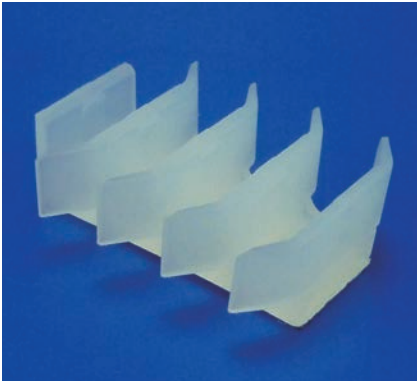
※Because the product is not use for flow soldering process, it is required the masking of plastic snap on the reverse side of PC board.

Part No.	A	B	C	D	E	Diameter accommodation	Mounting Hole	Packaging specification	Panel thickness	Std. Package
CPHL-6.3S-V0	φ6.5	6.7	4.1	7.8	5.0	φ6.3	Refer to Specification drawing	Bulk	1.5~1.7	1000 pcs.
CPHL-8S-V0	φ8.2	8.3	4.3	9.5	5.0	φ8				

(Unit : mm)

### SLEEVE HOLDER / OFSH-4004A

OPTICAL



### Adhesive-mount clip for optical fiber sleeve to hold and support cables

#### Features

- Can hold 4 cables of  $\Phi 3 \sim 4$ mm.
- As well as up to four CS sleeves of  $\Phi 3 \sim 4$ mm.

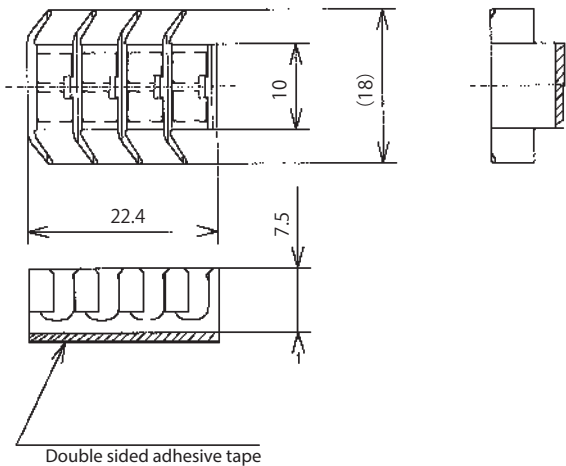


Adhesive tape mounting

#### Material

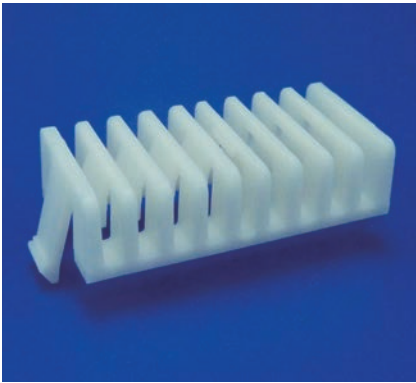
- Nylon 66 (Color : Natural)

UL94 V-2



Part No.	Std. Package
OSFH-4004A	100 pcs.

(Unit : mm)



### Snap-mount clip for optical fiber cables

#### Features

- Holds cables in array.
- Up to 8 cables of  $\Phi 2\text{mm}$  can be held.
- The structure minimizes the risk of damaging optical fibers when fastening and holding.



Snap Mounting



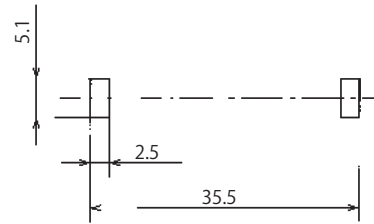
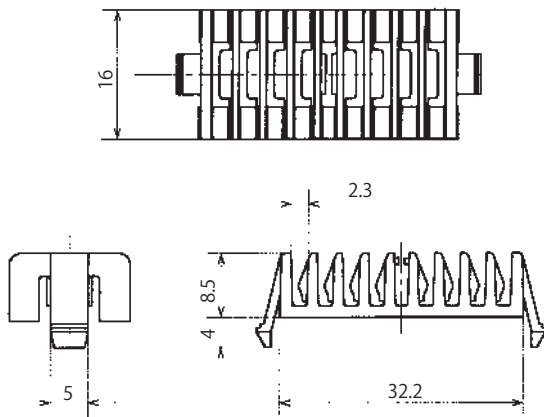
Odd-shaped hole

#### Material

- Nylon 66 (Color : Natural)

UL94 V-0

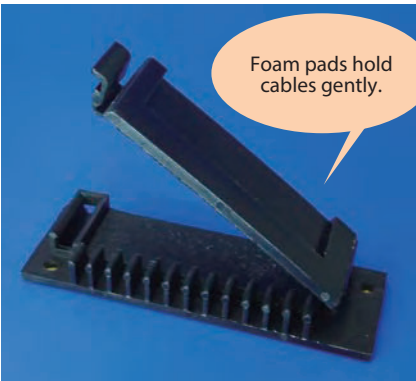
#### Specification drawing



Part No.	Mounting hole size	Panel thickness	Std. Package
OFHP-2008	Refer to Specification drawing	1~1.6	100 pcs.

(Unit : mm)

Wiring Clamps



### Adhesive-mount, locking clamp for optical fiber cables

#### Features

- Foam pads hold cables (temporary fastening) and the arm part closes to lock the cables.
- Can hold 12 cables of  $\Phi 2\text{mm}$  or  $3.2 \times 2$  oval cables.
- Foam pads holds optical fiber cables softly and prevents slippage.



Adhesive tape mounting



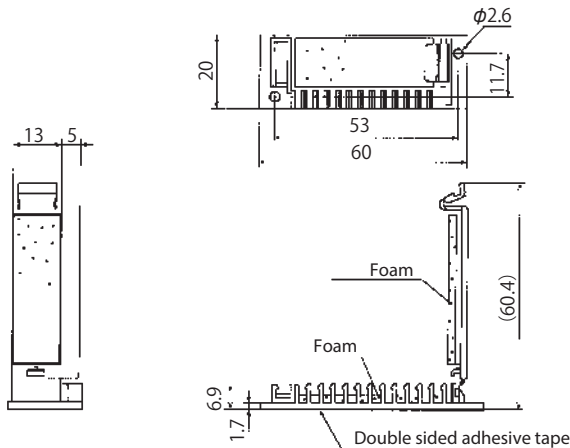
Screw mounting type is also available

(Nominal diameter 2.5mm)

#### Material

- Body/Nylon 6 (Color : Black)
- Sponge/EPDM foam (Color : Black)

UL94 V-2



Part No.	Std. Package
OFC-2012	100 pcs.

(Unit : mm)

For Cables

For Flat cables

Removal prevention for connectors

For Optical fibres



### Adhesive-mount optical fiber holder capable of holding 2 cables at $\phi 7\text{mm}$ diam.each

#### Features

- Can hold up to 2 cables of  $\phi 7\text{mm}$
- Accommodates optical branch modules in limited spaces. Holder prevents accidental release of modules.

#### Material

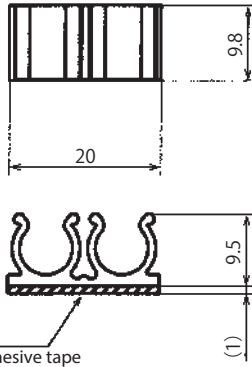
- Nylon 66 (Color : Natural)

UL94 V-2

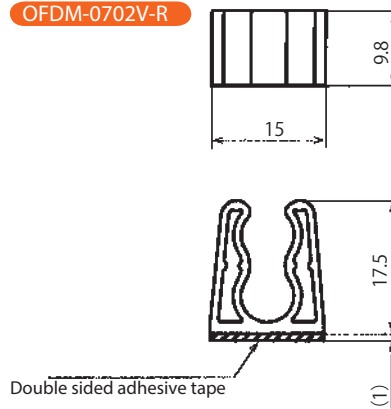


Adhesive tape mounting

OFDM-0702H-R

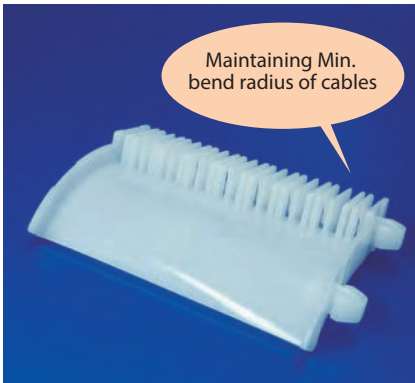


OFDM-0702V-R



Part No.	Std. Package
OFDM-0702H-R	100 pcs.
OFDM-0702V-R	

(Unit : mm)



### Snap-mount optical fiber clip to minimize bend radius cables

#### Features

- Holds cables in array with no load applied.
- 16 cables of  $\phi 1.7 \sim 2\text{mm}$  can be held.
- Maintains minimum bend radius of optical fiber cables.

#### Material

- POM (Color : Natural)

UL94 HB

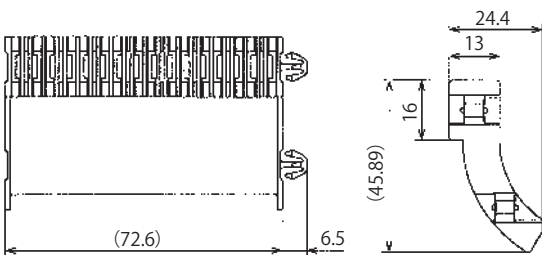


Snap Mounting

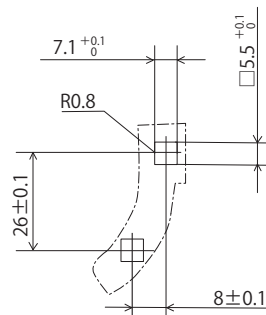


Odd-shaped hole

OFHR-1716R



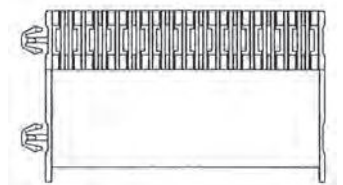
#### Specification drawing



Panel thickness : 1~1.8

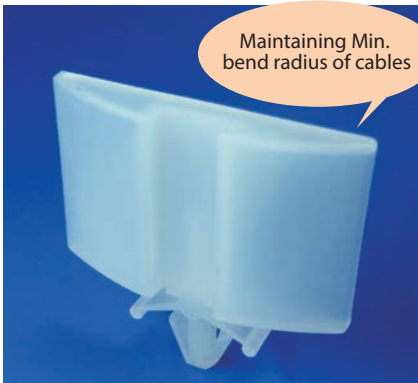
OFHR-1716L

Configuration of "L" type is symmetrical to that of "R".



Part No.	Std. Package
OFHR-1716R	50 pcs.
OFHR-1716L	

(Unit : mm)



### Snap-mount winding guide for optical fiber cables

**Features**

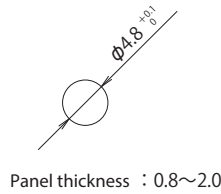
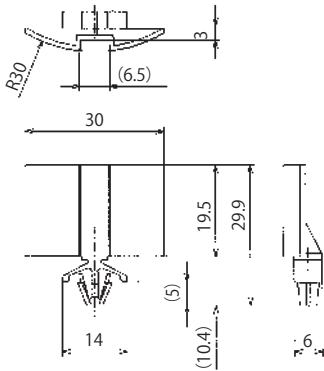
- Long optical fiber cables are kept in place by bending with no damage applied.
- Can be used in combination with WS and/or LWS.



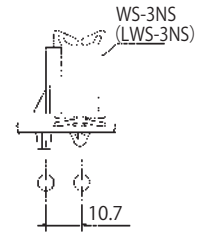
**Material**

- Nylon 66 (Color : Natural) UL94 V-2

Specification drawing



Reference specification



Part No.	Mounting hole size	Panel thickness	Std. Package
WSW-3	$\phi 4.8^{+0.1}_0$	0.8~2.0	100 pcs.

(Unit : mm)



### Optical fiber cable reel

**Features**

- Reels up fiber cables with the bend radius in R30.
- Bobbin cover can open and close.
- Easy maintenance by the bobbin tray.



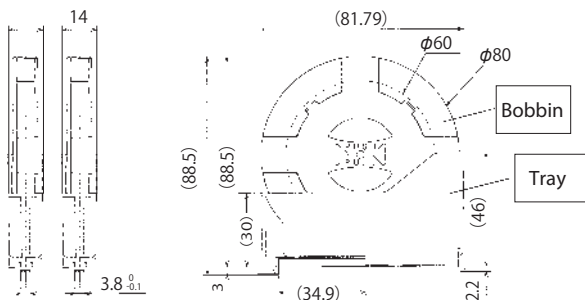
(Bobbin can be mounted with screw)



**Material**

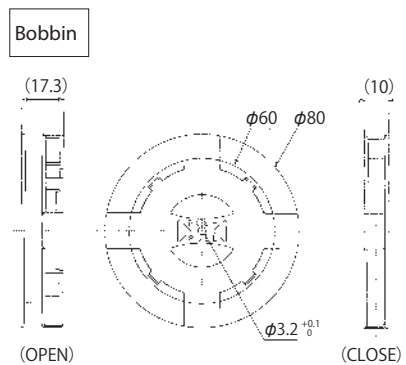
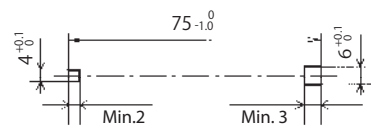
- ABS (Color : Black) UL94 V-2

Reel up amount : Max.  $\phi 2 \times 2M$



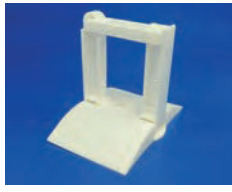
Specification drawing

Panel thickness : 1



Part No.	Configuration	Mounting hole size	Panel thickness	Std. Package
OFSB-8010S	Bobbin + tray	Refer to Specification drawing	1±0.1	10 set.
OFSB-8010	Bobbin	—	—	10 pcs.

(Unit : mm)



### Winding optical fiber cable guide that combines with FXC

#### Features

- In combination with FXC, maintains minimum bend radius of cables when wiring.

#### Material

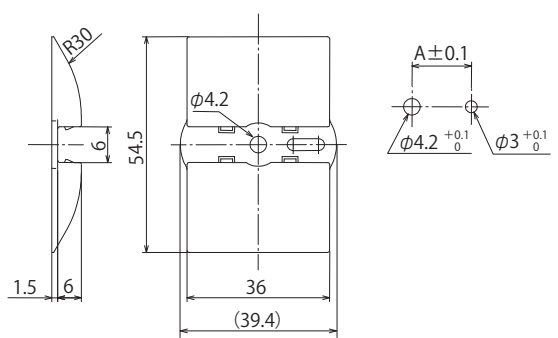
- Nylon 66 (Color : Natural)

UL94 V-0

**FXC**  
Dedicated clamp for  
FXCW-6040-V0

▶ 60

#### Specification drawing



FXC Part No.	A
FXC-2030-V0	9
FXC-3240	15

(Unit : mm)

※ For details, please contact our sales department.

### FLEXIBLE CLAMP / FXC

▶ P60

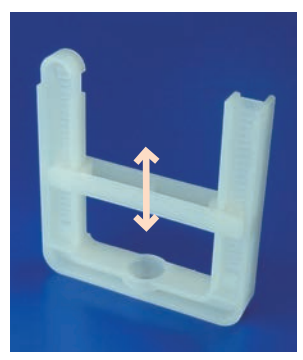
- Number of cables can be adjusted over a wide range.
- Quick operation with one hand.

#### Material

- Nylon 66 (Color : Natural)

UL94 V-2

UL94 V-0



### FK DUCT / FKD

▶ P107

- Holds cables and allows them to bend in all 3D directions without causing damage.

#### Material

- FKD-10 / Nylon 6 (Color : Light gray)
- FKD-10K / Nylon 66 (Color : Black)

UL94 V-2



Maintains Min. bend radius.

# CABLE TIES



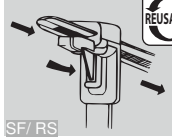


## Plastic Type

Wide ranging lineup of cable ties

### Bundling and securing wire/cable bundles

 RSG <b>P83</b> RE-USE BAND	 SG <b>P84</b> SNAP BAND	 VLSG <b>P84</b> SCREW-LESS BAND	 DN <b>P85</b> CABLE TIE MOUNT	 DDNF-1 <b>P85</b> CABLE TIE MOUNT	 DDNX-1 <b>P85</b> CABLE TIE MOUNT
 OLS <b>P86</b> OMEGA LOCK	 UM <b>P86</b> WIRE LOCK	 TMS <b>P87</b> CABLE TIE MOUNT	 ALFF <b>P87</b> ALUMINIUM FRAME FASTENER	 VLTMS <b>P88</b> SCREW-LESS CABLE TIE MOUNT	 KB <b>P88</b> BUNDLE BAND
 OFTMS <b>P89</b> CLAMP BASE	 NS/ N/ P <b>P90</b> BEADS BAND	 FX-200 <b>P90</b> SOFT TIE	 UL RSG-80E-V0 <b>P93</b> RE-USE BAND		

### Bundling and securing wire/cable bundles (SK Binder)

 SKB <b>P91</b> STANDARD TYPE	 SKB <b>P92</b> OPEN HEAD TYPE	 SF/RS <b>P92</b> REUSABLE TYPE	 SKB <b>P92</b> SCREW MOUNT TYPE	 SKB <b>P92</b> PUSH MOUNT TYPE
---	--	---	--	--



Releasable snap-mount band that allows for easy access and maintenance of cables

**Features**

- Detachable snap and un-lockable band allow easy maintenance and disassembling.

**Material**

- Nylon66 (Color : Black / RSG-150E-BK, -190E-BK)
- Nylon66 (Color : Natural / RSG-100 V0, -130 V0)



Reusable Snap Mounting

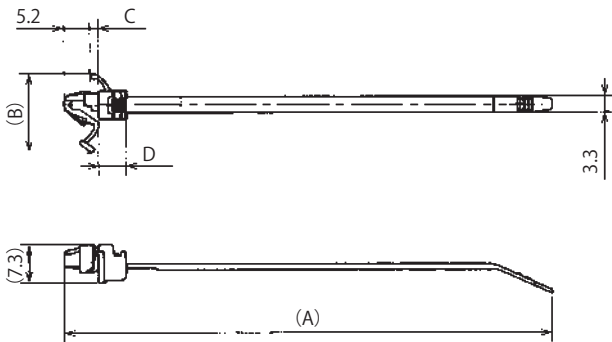


Round hole

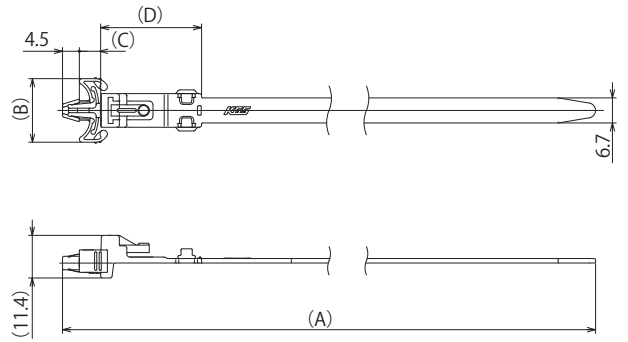
UL94 V-2

UL94 V-0

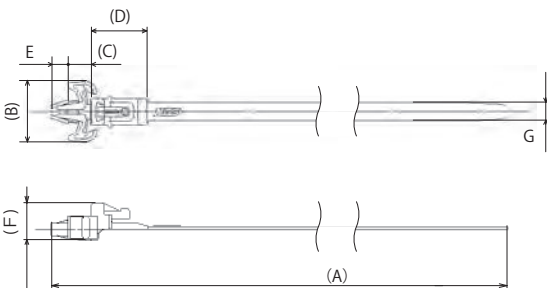
**RSG-100V0,130V0**



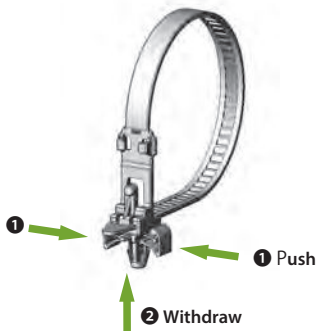
**RSG-190E-BK**



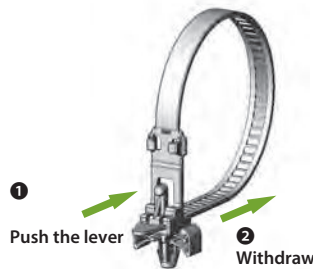
**RSG-150E-BK**



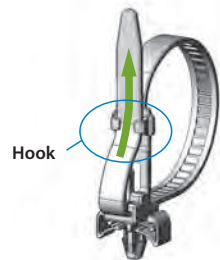
**Snap removal**



**Bundle release**



**Holding remaining part**



※RSG-190E-BK only



Part No.	(A)	(B)	(C)	(D)	E	(F)	G	Mounting hole size	Panel thickness	Bundle diameter	Std. Package
RSG-100 V0	100.0	16.2	1.8	5.9	5.2	7.3	3.3	φ4.8 <sup>+0.2</sup>	0.5~1.6	φ1~20	500 pcs.
RSG-130-V0	133.5	17.9	2.7	6.2	5.2	7.3	3.3		0.6~2.4	φ1~24	
RSG-150E-BK	149.3	16.0	5.9	15.0	4.4	9.5	4.7		0.5~2.3	φ7~30	100 pcs.
RSG-190E-BK	195.2	17.0	5.7	27.0	4.5	11.4	6.7		0.5~2.3	φ10~47	

UL ...UL62275 recognized product

(Unit : mm)





### Screw-mount band that allows for easy bundling of cables

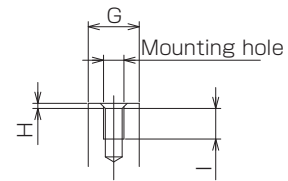
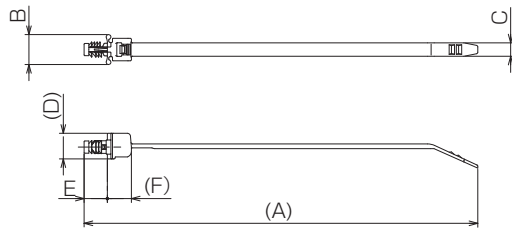
#### Features

- Plug-in mounting in screw hole is available without tool.
- Screw hole of M4 and M5 are available.
- Applying heat resistant aging material for the products that has AM-HT-BK at the end of the part number, both heat resistance and durability are performed.

#### Material

- Nylon 66 (Color : Black / VLSG-\*\*\*-M\*-AM-HT-BK) **UL94 V-2**
- Nylon 66 (Color : Natural / VLSG-130-M5) **UL94 V-2**

#### Installation specifications



Recommended mounting hole

Part No.	(A)	B	C	(D)	E	(F)	G	H	I	Mounting hole size	Bundle diameter	Std. Package
VLSG-100-M4-AM-HT-BK	99.9	7.6	3.4	6.5	5.9	6.1	$\geq \phi 10$	$\leq 1$	$\geq 7$	M4 screw hole (Thread pitch:0.7)	$\phi 1 \sim 20$	100 pcs.
VLSG-130-M5-AM-HT-BK	130.7	8.5	3.6	6.5	6.7	6.1	$\geq \phi 10$	$\leq 1$	$\geq 8$	M5 screw hole (Thread pitch:0.8)	$\phi 1 \sim 24$	100 pcs.
VLSG-130-M5	130.7	8.5	3.6	6.5	6.7	6.1	$\geq \phi 12$	$\leq 1$	$\geq 8$	M5 screw hole (Thread pitch:0.8)	$\phi 1 \sim 24$	500 pcs.

Operating temperature range: -40°C~125°C (VLSG-\*\*\*-M\*-AM-HT-BK)

(Unit : mm)

### SNAP BAND / SG



### Snap-mount band that allows for easy bundling of cables

#### Features

- Simultaneous securing and bundling of cables.

#### Material

- Nylon 66 (Color : Natural) **UL94 V-2 (V-0\*)**



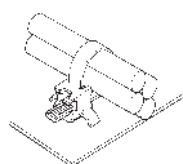
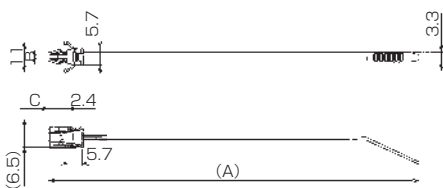
Snap Mounting



Round hole

※

For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

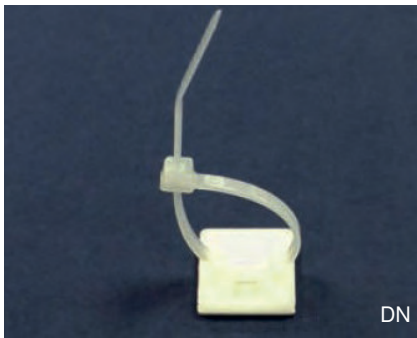


Part No.	(A)	B	C	Mounting hole size	Panel thickness	Bundle diameter	Std. Package
SG-110	110	6.2	3.5	$\phi 4.8^{+0.2}$	0.5~2.0	$\phi 1 \sim 20$	500 pcs.
SG-130	132	5.4	4.5	$\phi 4.0^{+0.2}$		$\phi 1 \sim 24$	

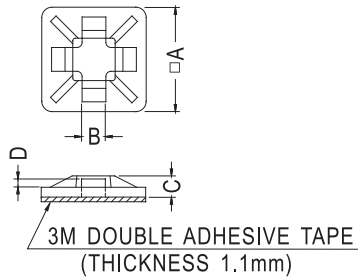


UL ...UL62275 recognized product

(Unit : mm)



DN



## Cable tie mount with adhesive tape

### Features

- Can be mounted with adhesive tape

### Material

- Nylon 66 (Color: Natural) **UL94 V-2 (V-0\*)**

\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

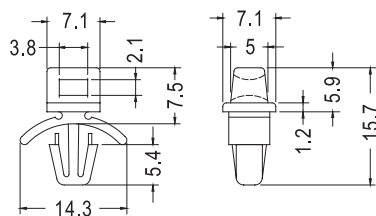
Std. Package: 1000 pcs.

Part No.	A	B	C	D
DN-13	13	3.2	3.2	1.3

(Unit: mm)



DDNF-1



CHASSIS Ø4.8  
THICKNESS 0.8~2.0

(Unit: mm)

## Snap-mount cable tie

### Features

- Can be mounted with snap on PCB

### Material

- Nylon 66 (Color: Natural) **UL94 V-2 (V-0\*)**

\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

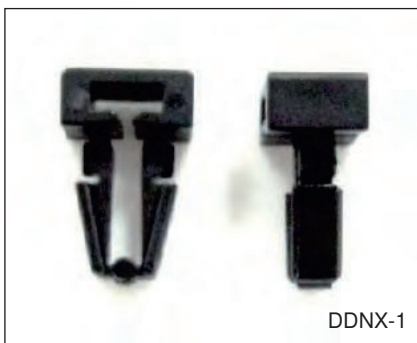


Snap Mounting

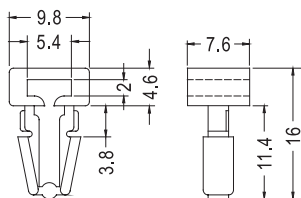


Round hole

Std. Package: 1000 pcs.



DDNX-1



PANEL HOLE DIA 6.4  
PANEL THICKNESS 3.17 MAX

(Unit: mm)

## Snap-mount cable tie

### Features

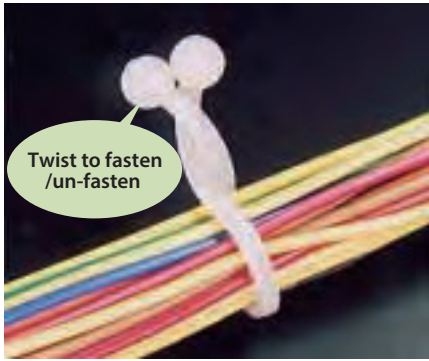
- Can be mounted with snap on PCB

### Material

- Nylon 66 (Color: Black) **UL94 V-2 (V-0\*)**

\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

Std. Package: 1000 pcs.



### Twist locking fastener

#### Features

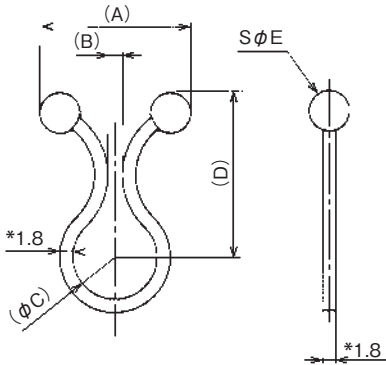
- Cost saving and easy locking /un-locking.

#### Material

- Nylon 66 (Color: Natural\*)

**UL94 V-2**

\* Color of OLS -150 BK is black.



\* 1.9 mm for OLS-115 and OLS-150BK.

Part No.	(A)	(B)	(φC)	(D)	SφE	Std. Package
OLS-50	15.0	1.0	5.2	15.5	5.0	500 pcs.
OLS-80	20.2	1.1	8.2	20.1	5.7	
OLS-115	20.6	2.0	11.5	22.4	5.5	
OLS-150BK	21.0	2.0	15.0	23.75		

(Unit: mm)

### WIRE LOCK / UM



### Twist locking fastener

#### Features

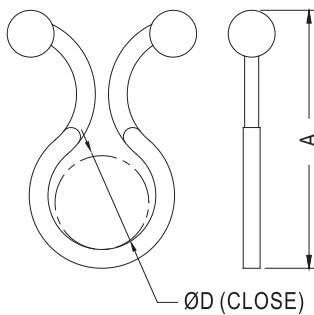
- Cost saving and easy locking/un-locking

#### Material

- Nylon 66 (Color: Natural)

**UL94 V-2 (V-0\*)**

\* For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)



Part No.	A	D	CLOSED (D)	Std. Package
UM-5	35.0	18.8	17.2	500
UM-6	41.4	25.8	24.2	
UM-7	42.0	22.0	19.5	
UM-8	16.5	5.6	5.0	
UM-9	30.0	11.0	9.7	
UM-13	32.5	13.2	11.5	
UM-28	55.5	29.0	26.8	

(Unit: mm)

## Space-saving, Reusable cable tie for $\phi 1 \sim 15\text{mm}$ bundles

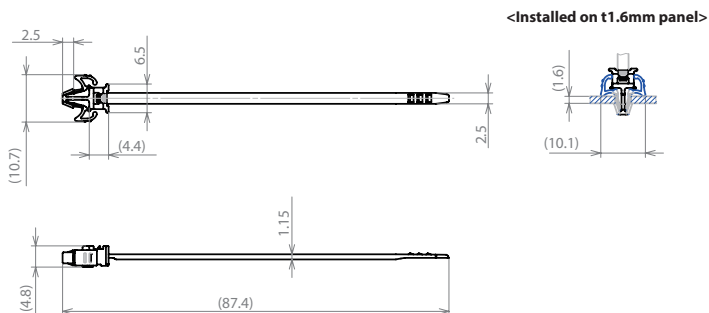
### Features

- Even 1mm diameter ( $\phi$ ) wire / cable can be fixed firmly.
- Installable on  $\phi 3.5\text{mm}$  holes.
- Snap is easily pinched with fingers for removal. No need to cut the band for maintenance and helps reduce waste.

### Material

- PA66 (UL94 V-0) (Color : Natural)

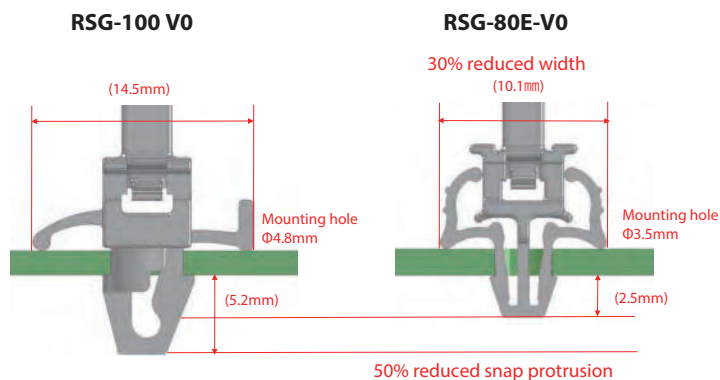
### Dimensions



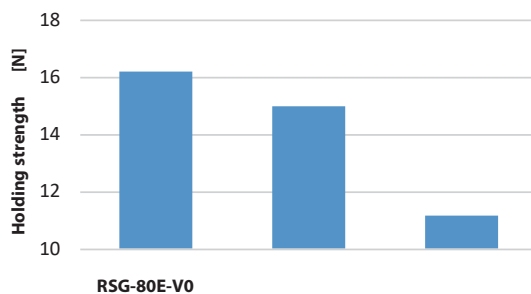
### Specifications

Material	PA66(UL94 V-0)
Mounting hole dia.	$\phi 3.5+0.2/-0.05\text{ mm}$
Panel thickness	t0.5 ~ 1.6 mm
Applicable bundle dia.	$\phi 1 \sim 15\text{ mm}$
Loop bundle strength	80N or more
Operating temperature range	-20 ~ 95°C

### Size comparison with existing product



### Comparison of wire holding strengths



- The specifications are for reference only, and not a guarantee. Information may change without notice.
- Any reprinting or copying of content in this document is prohibited without our prior consent.



Plug-in cable tie mount that insets into screw holes

Features

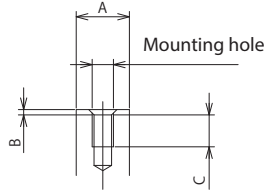
- Plug-in mounting in screw hole is available without tool.

Material

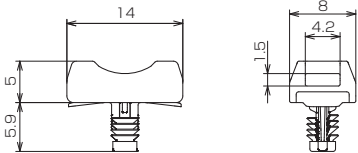
- Nylon 66 (Color : Natural)

UL94 V-2

Installation specifications



Recommended mounting hole



Part No.	A	B	C	Bundle diameter / Cable tie size	Mounting hole size	Std. Package
VLTMS-1408-M4	$\geq \phi 15$	$\leq 1$	$\geq 7$	Max thickness 1.3xWidth 4	M4 screw hole (Thread pitch:0.7)	100 pcs.

(Unit : mm)

BUNDLE BAND / KB



Adjustable band that can be cut to a desired length

Features

- Can be cut to required length out of a rolled band. Economical and minimizes waste.
- Available in four band widths, as well as four kinds of mounting accessories.

Material

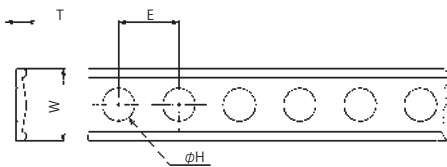
- Nylon 6\* (Color : Black)

\* Mount B is made of PP (Color: Black).

Part No.	W	T	E	$\phi H$	Stopper and Mount	Std. Package
KB-07 / Black	7.1	0.9	6.0	3.2	Snap button, Mount A	2m×50 pcs.
KB-13 / Black	13.0	1.6	10.0	5.5	Snap button, Mount A	5m×10 pcs.
KB-16 / Black	16.0	1.9	12.5	6.5	Buckle	

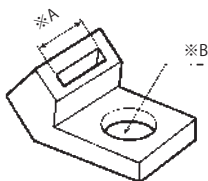
(Unit : mm)

KB-07 ~ 16



Stopper and Mounts for KB

■ Mount A / For KB-07 · KB-13



Secures bundled wires/cables on a panel or wall.

※Dimension A

※Dimension B

KB-07 8.5 mm

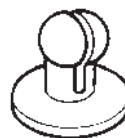
KB-07  $\phi 4.2$  mm

KB-13 16 mm

KB-13  $\phi 5.2$  mm

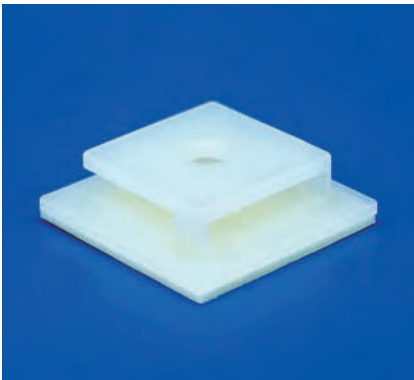
Std. Package : 100pcs.

■ Snap button (Stopper) / For KB-07 · KB-13



Easy and fast mount/dismounting. One end of the band is fixed on the button, and a wire/cable bundle is secured by snapping the hole into the button.

Std. Package : 100pcs.



Clamp base for fastening member without mounting hole

Features

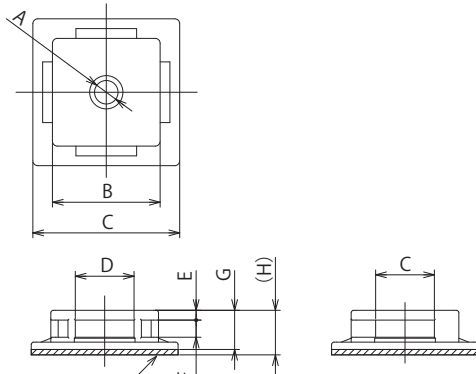
- Our fastener products are applicable fixing with the product.
- Hook and loop fastener applicable in both directions equipped for optical fiber bundle.

Material

- Nylon 66 (Color : Natural)

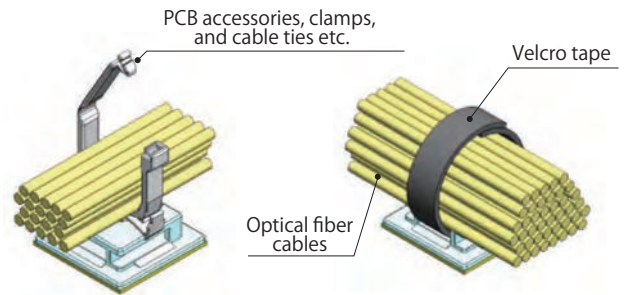
UL94 V-2

(Resin portion of the body)



Double sided adhesive tape

Application examples



Part No.	A	B	C	D	E	F	G	(H)	Applicable fastener specifications			Std. Package
									Cable tie Thickness	Mounting hole diameter	Panel thickness	
OFTMS-30-R	4.8	22	30	12	2	3.5	8	9.1	≤2.0	φ4.8	2.0	100 pcs.

(Unit : mm)

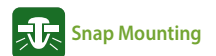
SNAP BAND / DPSG-150-HT-BK



Snap-mount band provides dust proof function.

Features

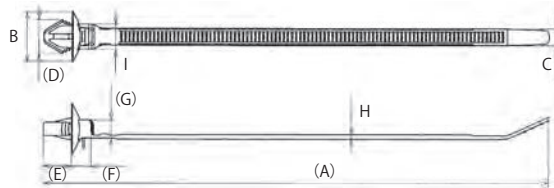
- Mounting hole is covered with the snap for dust proofing.
- Bundle part is removable.
- Applying heat resistant aging material for the products, both heat resistance and durability are performed.



Material

- Nylon 66 (Color: Black)

UL94 V-2



Part No.	(A)	B	C	(D)	(E)	(F)	(G)	H	I	Mounting hole size	Panel thickness	Bundle diameter	Std. Package
DPSG-150-HT-BK	161.9	φ16	5.3	10.8	9	6.3	5.8	1.5	8	Φ7.0±0.2	0.6~2.8	Φ7~38	100 pcs.

Operating temperature range: -40°C~125°C

(Unit : mm)



Releasable beaded tie for easy bundling and removal of cables

**Features**

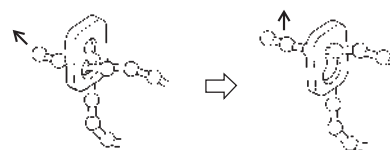
- Reusable beaded tie, easy fastening and releasing.

**Material**

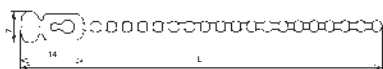
- Refer to the table below since the material varies for each Part No. Only nylon type is UL94 V-2 recognized.

**UL94 V-2**

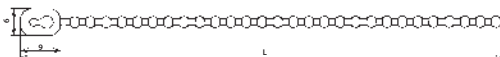
**How to handle**



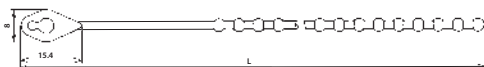
NS-80



N-108, P-108



N-255



Part No.	L	Material	Bundle diameter	Color	Std. Package
NS-80	81	Nylon 66	φ 2~26	Natural	1,000 pcs
N-108	108	Nylon 6		Black	500 pcs
N-255	255			φ 12~73	Natural
P-108	108	Polyethylene	φ 2~26		

(Unit: mm)

Cables Ties

SOFT TIE / FX-200



Releasable beaded tie for easy bundling and removal of cables

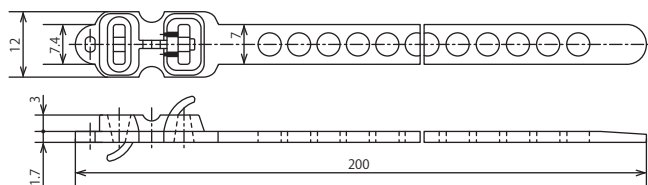
**Features**

- Elastic material secures bundle wires/cables softly.
- Easy bundling and releasing. Double loop fastening is possible.
- Applicable to bundle diameters 3-45mm.

**Material**

- Polyester elastomer (Color : Dark blue,Black)

**UL94 HB**



(Unit : mm)

Std. Package: Dark blue : 100  
: Black : 5,000

**Application example**



Can secure in double loops

**Securing optical fiber cables**

- Elastomer fastens optical fiber cables safely and securely.
- Supports a wide range of bundle diameters and accommodates adjustment of the number of cables.

Plastic type



**Features**

- Various application use for bundling wires, cables and hoses (tubes) etc.
- A range of variations are available to meet requirements.

Plenty of the variations are available in addition to the products in this catalog, as well as in other materials and colors.

● Please contact our sales department for details.

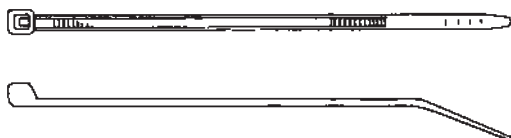
**Standard type**

**Material**

- Nylon 66 (Color: Natural)

UL94 V-2

**A type**



**B type**



Part No.	Configuration type	Max bundle diameter	Length	Width	Loop tensile strength (kgf)	Std. Package
UL SKB-85mm	A	φ 18	85	2.2	10	1,000 pcs.
UL SKB-80M			80	1.9		
UL SKB-1M		φ 21	100	2.5	9	
UL SKB-1.5M						
UL SKB-2M		φ 37	12			
UL SKB-2.2M		φ 58		275	2.6	
UL SKB-2.5M	φ 70	282	4.5			30
UL SKB-2.8M	φ 75			185	4.8	
UL SKB-3M	φ 50	250	5.0			32
UL SKB-3.5M	φ 70			365	7.8	
UL SKB-4M	B	φ 100				
UL SKB-5M						

UL --UL1565 recognized product

(Unit: mm)

**Open head type**

**Material**

- Nylon 66 (Color: Natural)

UL94 V-2



Easy operation!

Insert the end of the strip into the open head to bundle.



Part No.	Max bundle diameter	Length	Width	Loop tensile strength (kgf)	Std. Package
UL SKB-2	φ 32	154	3.4	14	1,000 pcs.
UL SKB-3	φ 44	186	4.0	20	

UL --UL1565 recognized product

(Unit: mm)



Reusable type

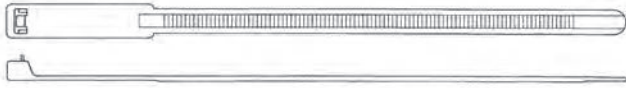


Material

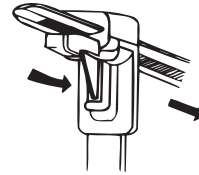
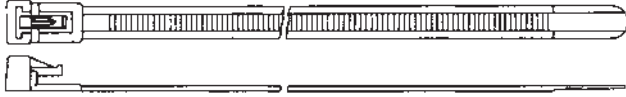
● Nylon 66 (Color: Natural)

UL94 V-2

SF-150R



RS



Part No.	Max bundle diameter	Length	Width	Loop tensile strength (kgf)	Std. Package
SF-150R	φ40	150	6.9	30	3,000 pcs.
RS-145	φ38	145	7.3	35	1,000 pcs.
RS-250	φ70	250			

UL

UL ...UL1565 recognized product

(Unit: mm)

Screw mount type

Material

● Nylon 66 (Color: Natural)

UL94 V-2



Part No.	Max bundle diameter	Length	Width	Loop tensile strength (kgf)	Mounting hole size	Std. Package
SKB-145F	φ32	145	3.5	16	φ4.5	1,000 pcs.

UL

UL ...UL1565 recognized product

(Unit: mm)

Push mount type

Material

● Nylon 66 (Color: Natural)

UL94 V-2



Part No.	Max bundle diameter	Length	Width	Loop tensile strength (kgf)	Mounting hole size	Std. Package
SKB-145P	φ32	157	3.5	16	φ4.8	1,000 pcs.

UL

UL ...UL1565 recognized product

(Unit: mm)



Space-saving, Reusable cable tie for  $\phi 1 \sim 15\text{mm}$  bundles

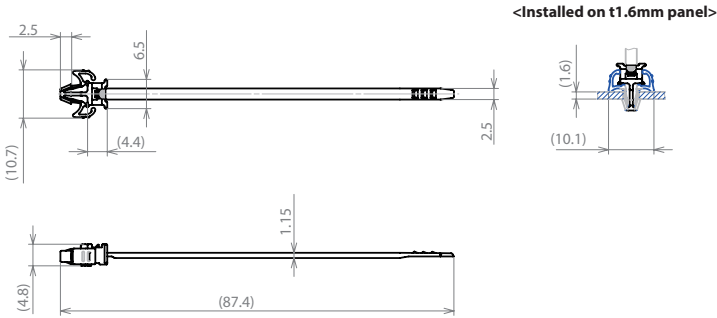
**Features**

- Even 1mm diameter ( $\phi$ ) wire / cable can be fixed firmly.
- Installable on  $\phi 3.5$  mm holes.
- Snap is easily pinched with fingers for removal. No need to cut the band for maintenance and helps reduce waste.

**Material**

- PA66 (UL94 V-0) (Color : Natural)

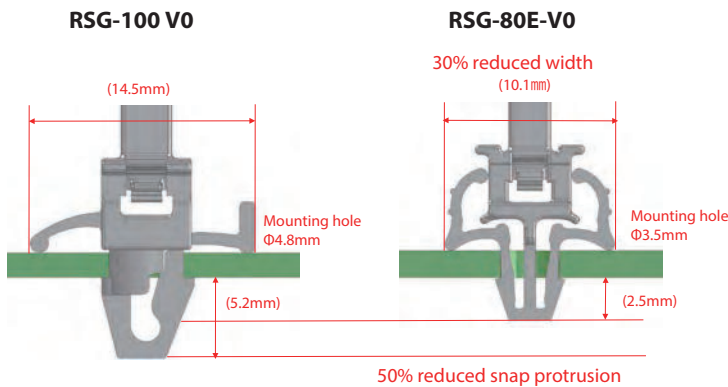
**Dimensions**



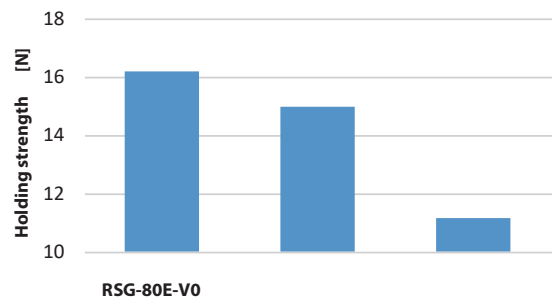
**Specifications**

Material	PA66(UL94 V-0)
Mounting hole dia.	$\Phi 3.5+0.2/-0.05$ mm
Panel thickness	t0.5 ~ 1.6 mm
Applicable bundle dia.	$\Phi 1 \sim 15$ mm
Loop bundle strength	80N or more
Operating temperature range	-20 ~ 95°C

**Size comparison with existing product**



**Comparison of wire holding strengths**



● The specifications are for reference only, and not a guarantee. Information may change without notice.  
 ● Any reprinting or copying of content in this document is prohibited without our prior consent.

# GROMMETS & BUSHINGS

## Edge protection

Protects cables against sharp edges of chassis



KG

**P95**

FLEXIBLE INSULATING  
BUSHING



CSG

**P95**

GROMMET



GEE/ GES

**P96**

FLEXIBLE INSULATING  
BUSHING WITH  
ADHESIVE



CE

**P96**

EDGING



EDS

**P97-100**

LOCK EDGING  
SADDLE



N

**P103**

HOLE PLUGS



TB

**P103**

ONE-TOUCH  
BUSHING

## Securing with protection against dust, water, damage

Cables passing through panels are protected against dust, water, damage and held firmly

### Protection and securing

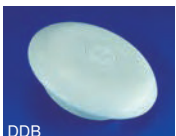


YK

**P101**

YK BUSHING

### Securing with protection against dust, water, damage



DDB

**P102**

DUST PROOF  
BUSHING



WPB

**P102**

DUST PROOF  
BUSHING

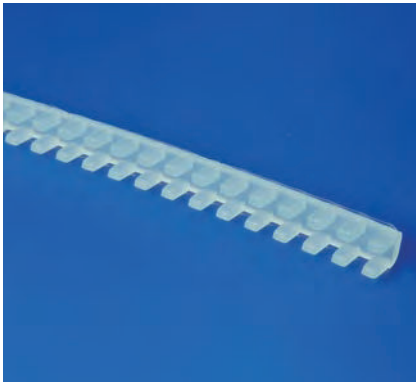
### Securing with protection against dust, water, damage (For cables, passing through panels)



WPC20

**P104**

WATER PROOF  
COVER



Flexible bushing to protect cables from edges of panel

**Features**

- Protects cables against sharp edges of panels and chassis.
- Flexibility allows installation on a variety of shaped holes.



Insertion Mounting

**Cutting available**

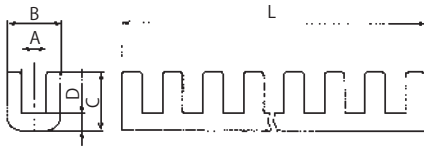
Please contact our sales department for details.

**Material**

- Nylon 6 (Color : Natural)

**UL94 V-2** : KG-008 -032

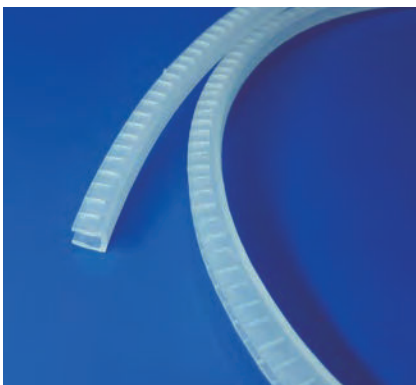
**UL94 HB** : KG-045 ~ -132



Part No.	Panel thickness	A	B	C	D	L	Std. Package
KG-008	0.8±0.1	0.9	2.9	4.0	1.2	250.6	100 pcs.
KG-010	1.0±0.1	1.1	3.1				
KG-012-2	1.2±0.1	1.3	3.3				
KG-016	1.6±0.1	1.7	3.7				
KG-024	2.4±0.1	2.4	4.4				
KG-032	3.2±0.1	3.4	5.5	6.0	2.0	320.0	
KG-045	4.9±0.1	5.0	8.2				
KG-062	6.4±0.1	6.5	9.7	6.5	2.0	320.0	
KG-082	8.1±0.1	8.2	11.4				
KG-107	10.6±0.1	10.7	13.9				
KG-132	13.1±0.1	13.2	16.4				

(Unit : mm)

GROMMET / CSG



100-m grommet strip that protects cables from edges of panel

**Features**

- Protects cables from chafing against sharp edges of panels and chassis.
- Economical long type.
- Fits well even to corners.



Insertion Mounting

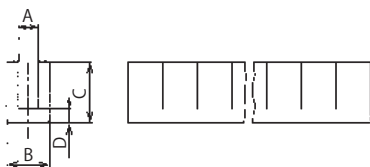
**Cutting available**

Please contact our sales department for details.

**Material**

- Nylon 6 (Color : Natural)

**UL94 HB**



Part No.	Panel thickness	A	B	C	D	Std. Package
CSG-012	1.2	1.3	3.3	5.0	1.0	100m pcs.
CSG-016	1.6	1.7	3.7		1.2	
CSG-024	2.3	2.4	4.4	5.2		
CSG-032	3.2	3.3	5.3			

(Unit : mm)



Secured firmly with adhesive

### Grommet and edging strip with adhesive

#### Features

- Easy and fast installation with adhesive, previously attached in the groove.
- Firm and easy securing.



Insertion Mounting

#### Cutting available

Please contact our sales department for details.

※ Please refer to the specifications below.

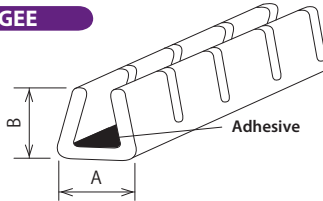
#### Material

- Polyethylene (Color : Natural)
- Weather-resistant Polyethylene (Color : Black)

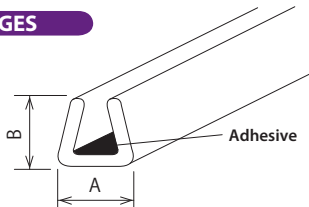
**UL94 HB**

**UL94 HB**

#### GEE



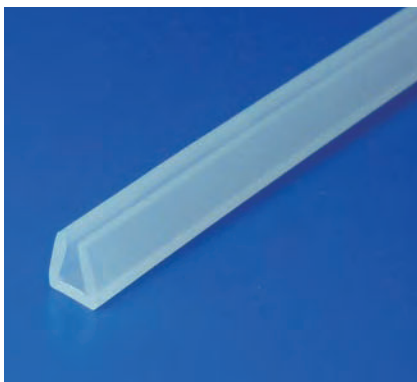
#### GES



Part No.	Panel thickness	A	B	Material	Std. Package
GEE62F-A-C	0.9~1.6	3.3	4.1	Polyethylene	30.48m
GEE99F-A-C	1.57~2.5	4.3	4.7		
GEE144F-A-C	2.5~3.7	5.4	5.7	Weather-resistant Polyethylene	
GEE62F-A-CO	0.9~1.6	3.3	4.1		
GEE99F-A-CO	1.6~2.5	4.3	4.7	Polyethylene	
GEE144F-A-CO	2.5~3.7	5.4	5.7		
GES62F-A-C	0.9~1.6	3.3	4.1	Polyethylene	30.48m
GES99F-A-C	1.6~2.5	4.3	4.7		
GES144F-A-C	2.5~3.7	5.4	5.7	Weather-resistant Polyethylene	
GES62F-A-CO	0.9~1.6	3.3	4.1		
GES99F-A-CO	1.6~2.5	4.3	4.7	Polyethylene	
GES144F-A-CO	2.5~3.7	5.4	5.7		

(Unit : mm)

### EDGING / CE



### Edge protection for cable at panel edges

#### Features

- Protects cables against sharp edges of panels and chassis.
- Economical long type.
- For straight edges and square holes.



Insertion Mounting

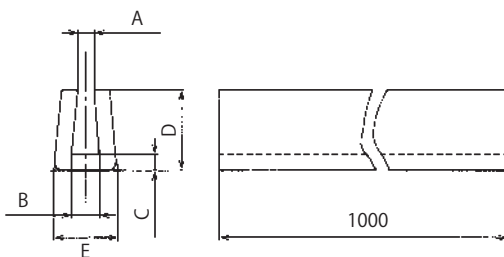
#### Cutting available

Please contact our sales department for details.

#### Material

- Nylon 6 (Color : Natural)

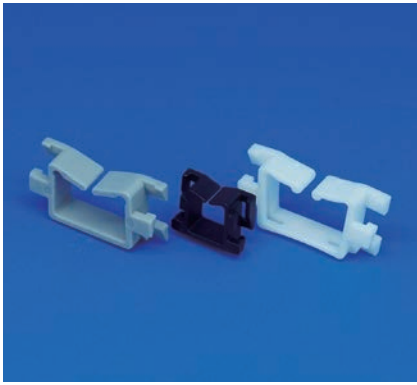
**UL94 HB**



Part No.	Panel thickness	A	B	C	D	E	Std. Package
CE-010L	0.6~0.8	0.3	1.0	1	5	3.0	100 pcs.
CE-012SN		0.5	1.3			3.3	
CE-012N	1.0~1.2	0.6				3.7	
CE-016N	1.2~1.5	0.9	1.7			4.4	
CE-024N	1.6~2.3	1.2	2.4			5.3	
CE-032N	2.3~3.2	1.5	3.3				

(Unit : mm)

※ For products designated with "N" at the end of the part No, the "N" will be eliminated when they are custom-cut. For non-standard products, please contact our sales department



## Edge protection cable clamp

### Features

- Easy insertion of cables through openings and protection of cables from sharp edges of chassis etc.



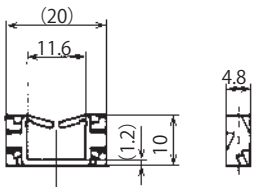
Insertion Mounting

### Material

- Nylon 66 (Color : Natural)
  - UL94 V-2 : EDS-1~3
  - UL94 V-0 : EDS-4, -0607M

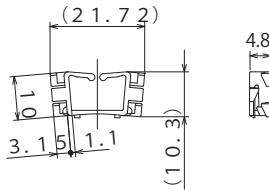
※ For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

#### EDS-1 ~3



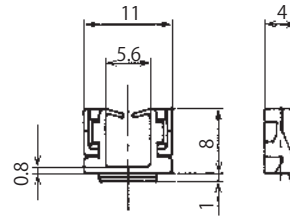
Specification drawing

#### EDS-4

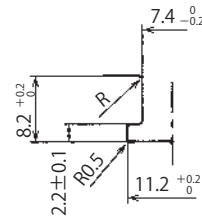
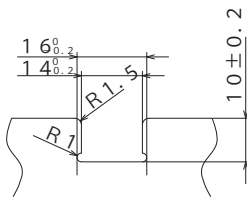
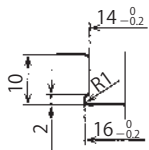


Specification drawing

#### EDS-0607M



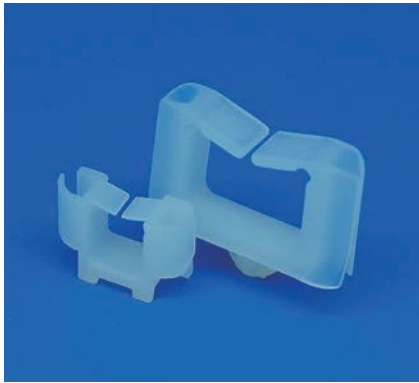
Specification drawing



	Part No.	Panel thickness	Color	Std. Package
	EDS-1	0.8~1.2	Black	100 pcs.
	EDS-2	1.2~1.6	Natural	
	EDS-3	1.6~2.0	Gray	
	EDS-4	0.8~2.0	Natural	1,000 pcs.
	EDS-0607M	0.8~1.2	Black	

...UL1565 recognized product

(Unit : mm)



## Edge protection cable clamp

### Features

- Easy insertion of cables through openings and protection of cables from sharp edges of chassis etc.



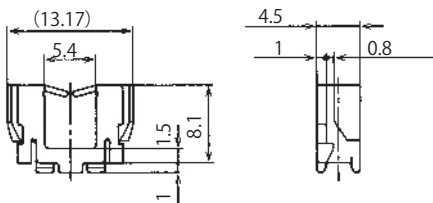
Insertion Mounting

### Material

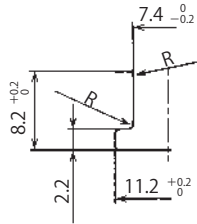
- Nylon 66 (Color : Natural) UL94 V-2 (V-0\*)

※ For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)

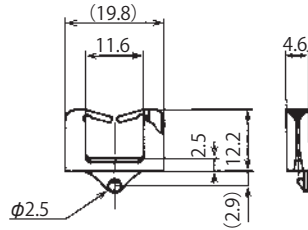
#### EDS-0607U



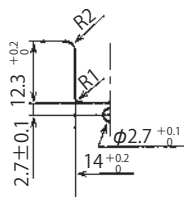
Specification drawing



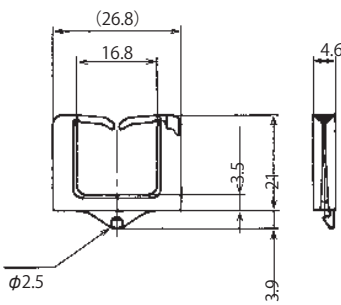
#### EDS-1208U



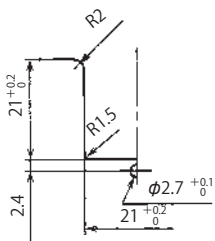
Specification drawing



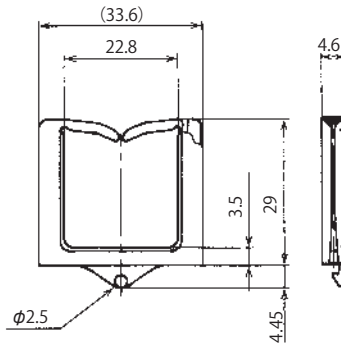
#### EDS-1717U



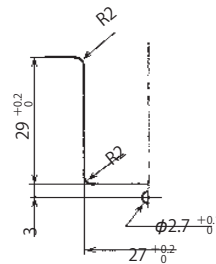
Specification drawing



#### EDS-2323U



Specification drawing



Part No.	Panel thickness	Color	Std. Package
EDS-0607U	0.8~2.0	Natural	100 pcs.
EDS-1208U	0.8~1.6		
EDS-1717U			
EDS-2323U			500 pcs.



UL ...UL1565 recognized product

(Unit : mm)



### Edge protection locking cable clamp

#### Features

- Lock prevents cable bundles from release.
- Original structure of EDS~L-V0 protect cables from damage.



Insertion Mounting

#### Material

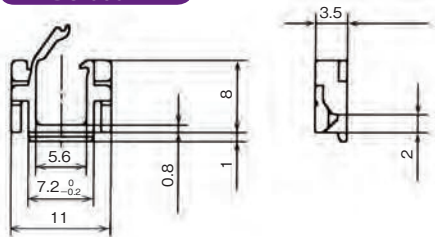
- Nylon 66 (Color : Natural)  
(Color : Black)

UL94 V-0

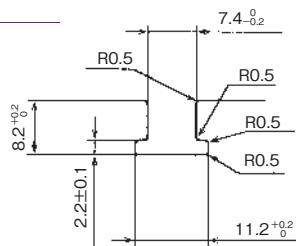
UL94 V-0

: EDS-17L, -25L

#### EDS-0607L



#### Specification drawing



Part No.	Mounting hole size	Panel thickness	Std. Package
EDS-0607L	Refer to Specification drawing	0.8~1.6	1,000 pcs.

UL ... UL1565 recognized product

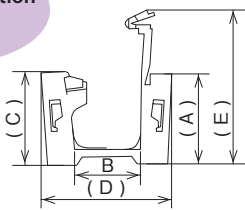
(Unit : mm)

#### EDS~L-V0



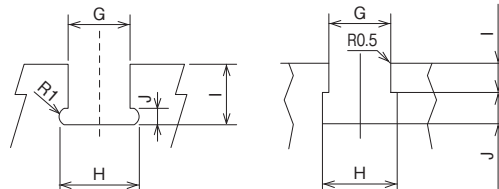
Bite-in protection for cables

Inner round corners protect cables against damage



#### EDS-1L-V0

#### EDS~L-V0



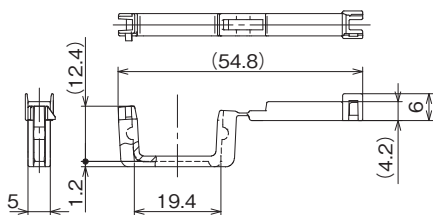
※ EDS-1L-V0 has a slightly different configuration from the others

Part No.	(A)	B	(C)	(D)	(E)	F	Panel thickness	G	H	I	J	Std. Package
EDS-1L-V0	10.0	11.6	10.0	20.0	18.6	4.8	0.6~1.2	14 <sup>0</sup> <sub>-0.2</sub>	16 <sup>0</sup> <sub>-0.2</sub>	10	2	500 pcs.
EDS-0704L-V0	7.1	7.0	7.8	17.9	16.9	3.8	0.6~2.0	12.8±0.1	13.8±0.1	2.7±0.1	3.4 <sup>+0.2</sup> <sub>0</sub>	
EDS-1010L-V0	15.2	10.5	15.9	21.2	25.7	4.2		14±0.1	17±0.1	6.5±0.1	7.5 <sup>+0.2</sup> <sub>0</sub>	
EDS-1710L-V0	15.1	17.8	15.9	29.1	32.9			22±0.1	25±0.1	6.0±0.1	8.0 <sup>+0.2</sup> <sub>0</sub>	
EDS-1720L-V0	24.6	17.8	26.3	31.5	42.6			22±0.1	25±0.1	16±0.1	8.0 <sup>+0.2</sup> <sub>0</sub>	

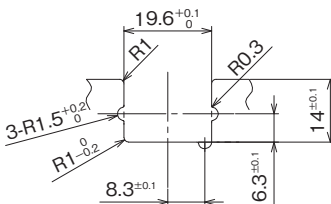
UL ... UL1565 recognized product

(Unit : mm)

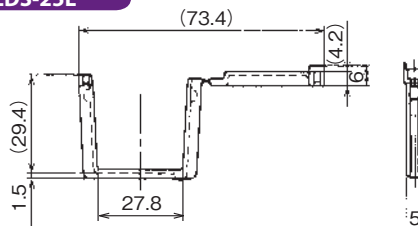
#### EDS-17L



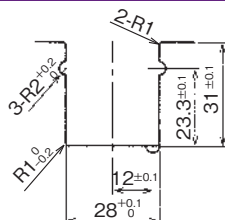
#### Specification drawing



#### EDS-25L



#### Specification drawing



Part No.	Panel thickness	Std. Package
EDS-17L	0.8~2.2	500 pcs.
EDS-25L		

UL ... UL1565 recognized product

(Unit : mm)





Edge and slot protection locking cable clamp

Features

- Available for protection of through hole edge.
- Making easier to fix (Refer to how to install).
- Simplified fixing hole (Refer to Assembly drawing).
- Space-saving design so that protruded part is small when fixing.
- UL94 V-0 recognized materials are used.
- Prevent product removal from fitted panel caused by cable load.



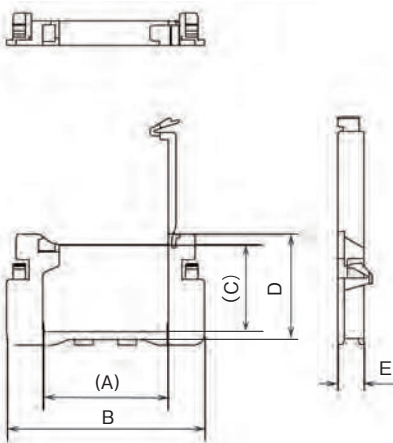
Insertion Mounting

Material

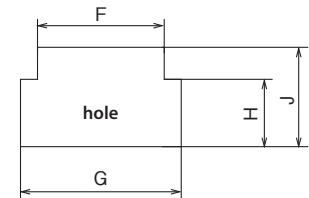
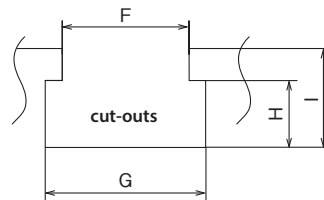
- Nylon 66 (Color : Natural)

UL94 V-0

Specification drawing



new products



(t0.6~2.0mm)  
(panel thickness : t0.6~2.0mm)

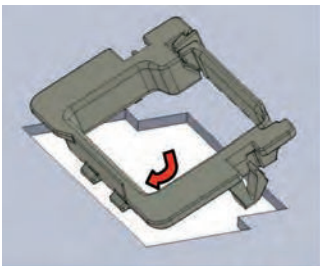
conventional products



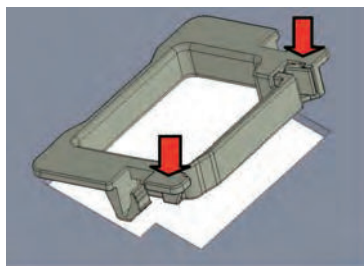
Part No.	(A)	B	(C)	D	E	Fixing hole size				
						F	G	H	I	J
EDS-0305LS-V0	3.7	15.8	5.8	8.8	4.2	10	16.5	3.5	8.5	9.0
EDS-1005LS-V0	10.2	22.3	5.8			16.5	23	3.5		
EDS-2005LS-V0	20.2	32.3	5.8			26.5	33	4.2		
EDS-3005LS-V0	30.2	42.8	5.8			36.5	43.5	4.2		
EDS-4505LS-V0	45.2	57.8	5.7	18.3	4.2	51.5	58.5	4.2	18.5	19.0
EDS-1015LS-V0	10.2	21.8	15.1			14.5	20.5	12.6		
EDS-2015LS-V0	20.2	31.8	15.1			24.5	30.5	12.7		

(Unit : mm)

How to install



STEP.1 Hooked claw on the back of fixing panel



STEP.2 Press the arrow points



## Bushing for power cord that provides a secure grip

### Features

- Flexible YK can hold cables in a Min. bend radius to protect wires/cables from damaging by sharp bend.



Insertion Mounting



Odd-shaped hole

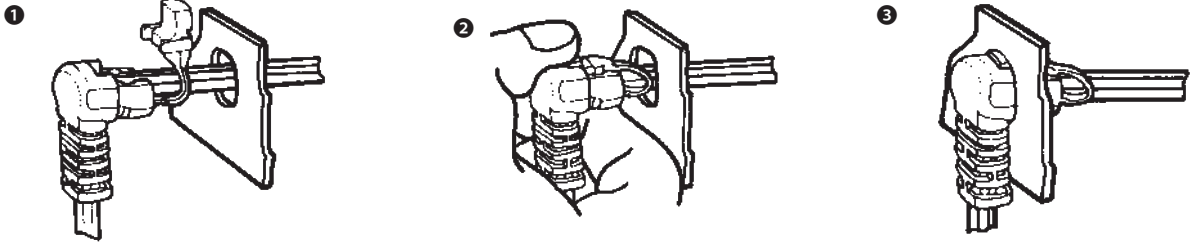
### Material

- Nylon 6 (Color : Black, White \*)

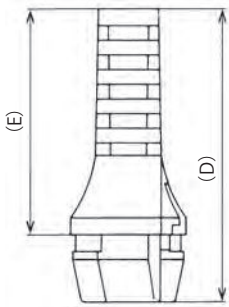
UL94 V-2

\* With regard to lot size and lead time for the white type, please contact us.

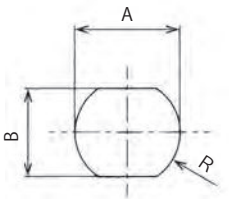
### How to install



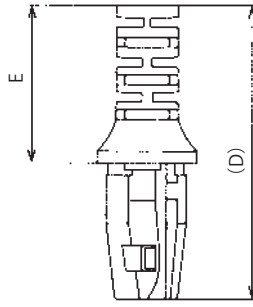
YK-



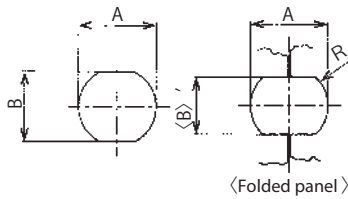
Specification drawing



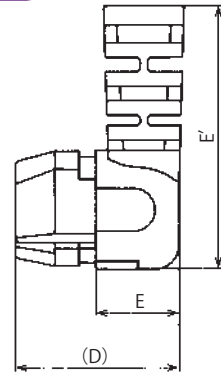
YKA-1



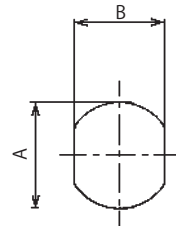
Specification drawing



YKL-1



Specification drawing



Part No.	Applicable wire (dimensions)	Mounting hole specifications				(D)	(E)	Std. Package
		A	B (B')	R	Panel thickness			
YK-1	NNFF0.75mm <sup>2</sup> (3.3×6.6)	14.4 <sup>+0.1</sup>	12.0 <sup>+0.2</sup>	7.2 <sup>+0.1</sup>	2.0	40.0	30.8	500 pcs.
	NNFF1.25mm <sup>2</sup> (3.6×7.2)	14.8 <sup>+0.1</sup>						
YK-2	Vinyl wire 0.75mm <sup>2</sup> (2.8×5.6)	φ10.9±0.1	9.5	—	2.4	23.0	14.0	100 pcs.
YKA-1	VCTFK0.75mm <sup>2</sup> (4.5×6.2)	14.0	13.4 (10.9)	7.2	2.3 (1.2)	56.0	30.0	100 pcs.
	VCTFK1.25mm <sup>2</sup> (5.4×8)	14.5	13.3 (10.9)	7.25				
YKL-1	NNFF0.75mm <sup>2</sup> (3.3×6.6)	12.7	11.1	6.6 <sup>+0.1</sup>	2.0 <sup>+0.05</sup> -0.1	20.4	10.4(E'=32.8)	500 pcs.
	NNFF1.25mm <sup>2</sup> (3.6×7.2)	13.2						

\* Dimensions in ( ) are for folded panel.

\* Since outside diameter and hardness varies in wire manufacture, please confirm the mounting fitness before the purchase.

(Unit : mm)

DUST PROOF BUSHING / DDB



Dust resistant plug that can be pierced with round cables

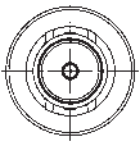
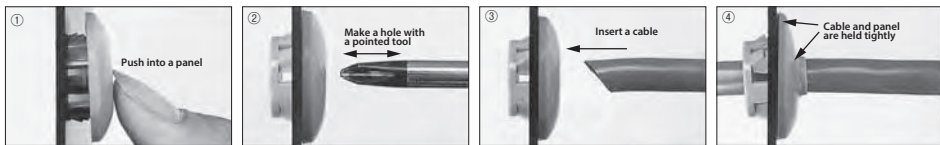
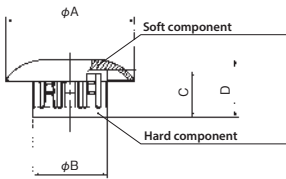
Features

- Consists of soft and hard components for tight hold and secure fixation.
- Can be used as a blind bushing.



Material

- Soft component : Polyurethane Elastomer (Color : Gray)
- Hard component : Polyurethane Resin (Color : Gray)



Part No.	φ A	φ B	C	D	Mounting hole size	Panel thickness	Applicable wire	Std. Package
DDB-1216	26.5	15	9.2	11.6	$\phi 16^{+0.2}$	1.0~3.2	$\phi 3\sim 6$	100 pcs.
DDB-1520	30.0	19	9.0	12.4	$\phi 20^{+0.2}$		$\phi 3\sim 9$	
DDB-2428	38.0	27	9.2	11.8	$\phi 28^{+0.2}$		$\phi 3\sim 16$	

(Unit : mm)

WATER PROOF BUSHING / WPB



Water resistant bushing for snap-mount clamp and spacer

Features

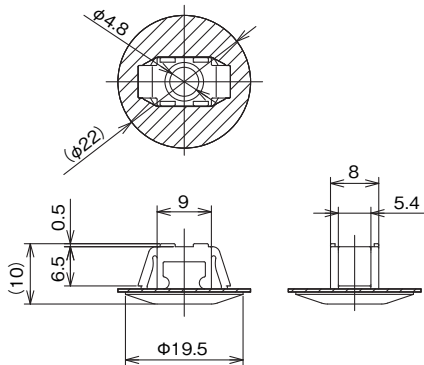
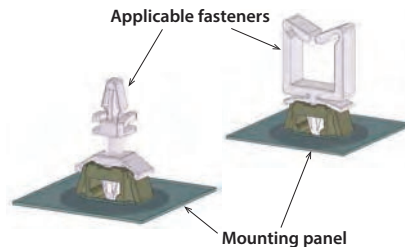
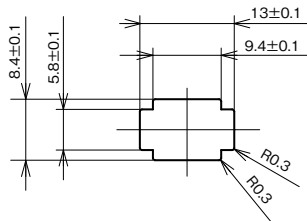
- Combination of resin and elastomer is resized water proof performance of IP X5 equivalent.
- Outdoor application is available with weather resistant material.
- Installation of fastener such as clamp, spacer, etc. are available.

Material

- Resin part : Nylon 66 (Color : Black)
- Sealing gasket : EPDM (Color : Black)

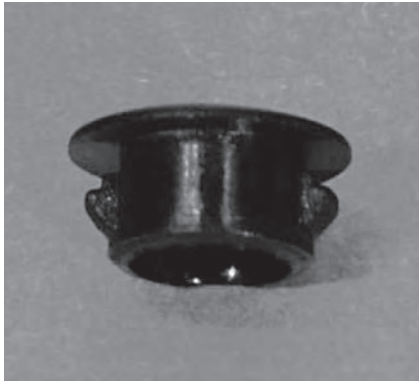
UL94 V-2

Installation specifications



Part No.	Panel thickness	Clamp, spacer, etc.		Std. Package
		Mounting hole size	Panel thickness	
WPB-20-BK	0.8~1.0	$\phi 4.8$	2.0	100 pcs.

(Unit : mm)



Edge protection bushing for round slots

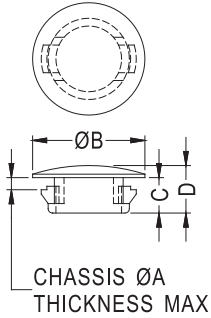
Features

- Snapped on PCB

Material

- Nylon 66 (Color: Black)

UL94 V-2



Part No.	A	B	C	D	Thickness	Std. Package
N04	4.8	6.35	4.5	5.5	1.6	2000
N06	6.4	7.6	4.5	5.6	1.6	2000
N09S	9.5	13.0	4.1	5.5	1.4	1000
N13,5	13.5	15.2	5.0	6.2	2.2	500
N16S	15.9	20.0	6.5	7.7	2.0	500

(Unit: mm)

ONE-TOUCH BUSHING / TB



Edge protection bushing for round slots

Features

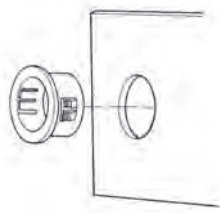
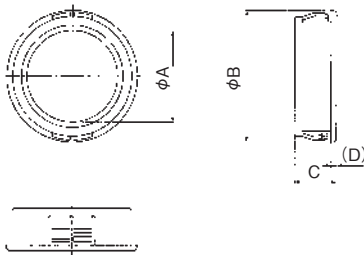
- Firm cable protection with quick installation by snapping in a hole from one side.
- Four locks hold a wide range of panel thickness.



Material

- Nylon 6 (Color : Black)

UL94 V-2



Part No.	φA (Inner diameter)	φB (Head diameter)	C	(D)	Mounting hole size	Panel thickness	Std. Package
TB-0813	8.0	15.0	10.4	1.4	φ 13.0 <sup>+0.2</sup>	0.8~3.2	100 pcs.
TB-9513	9.5	14.5	5.3	1		1.6 <sup>+0.15</sup>	1,000 pcs.
TB-1116	11.0	19.0	11.0	1.4	φ 16.0 <sup>+0.2</sup> φ 16.0 <sup>+0.1</sup> φ 20.0 <sup>+0.2</sup> φ 26.0 <sup>+0.2</sup> φ 33.0 <sup>+0.2</sup> φ 38.0 <sup>+0.2</sup> φ 40.0±0.1 φ 44.5 <sup>+0.2</sup> φ 45.0±0.1	0.8~3.2	100 pcs.
TB-1216	12.0	19.0	6.4	1.5		0.8~1.2	1,000 pcs.
TB-1520	15.0	23.0	11.0			0.8~3.2	100 pcs.
TB-1926	19.0	29.0	12.0				
TB-2533	25.0	36.0	11.5				
TB-2938	29.0	41.4	12.0				
TB-3140	31.0	44.0	12.5				
TB-3545	35.0	48.0	12.0				
TB-4049	40.0	49.0	10.0	2	0.8~3.2	2.6 <sup>-0.1</sup>	

(Unit : mm)



Water and dust resistant cover for USB connectors

Features

- Water sealing cover of a socket.
- Cover with clamp portion prevents cables from releasing.



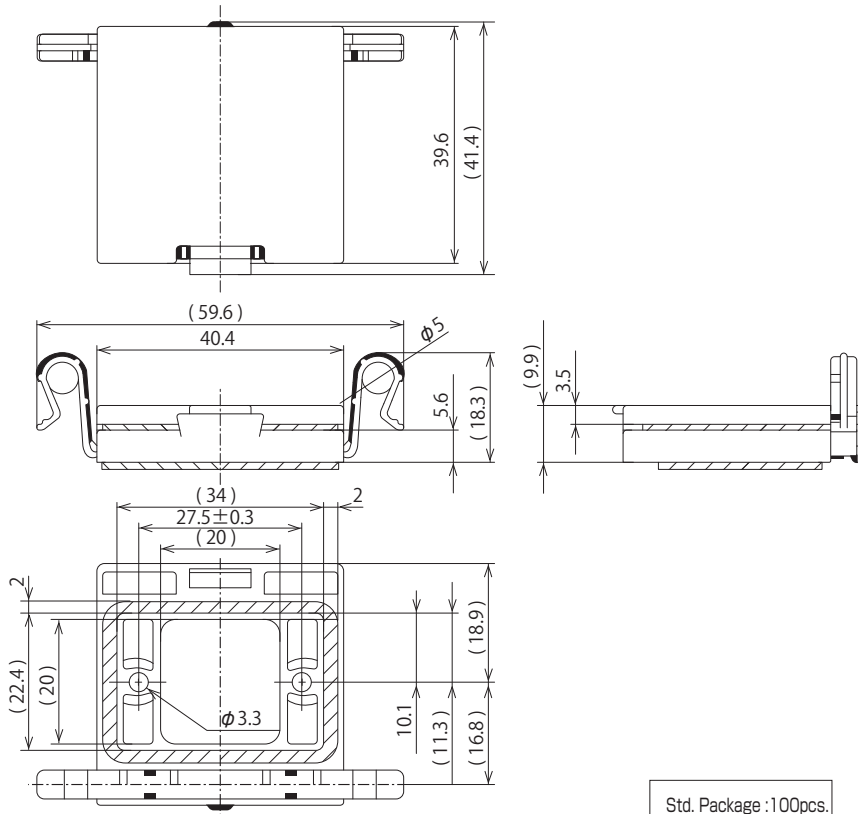
Screw mounting

(Applicable screw : M3 Pan head screw)

Material

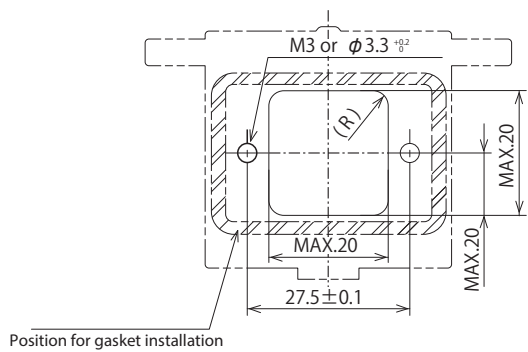
- Body / Polyacetal (Color : Black)
- Gasket / EPDM (Color : Black)

UL94 HB



Std. Package : 100pcs.

Specification drawing



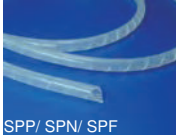
(Unit : mm)

# WIRING TUBES & DUCTS

## Tube

Covering cables to bundle and protect

---



SPP/ SPN/ SPF

**P106**

SPIRAL TUBE

## Ducts

A line of connected ducts holds cables and allows them to move in 3-dimensions

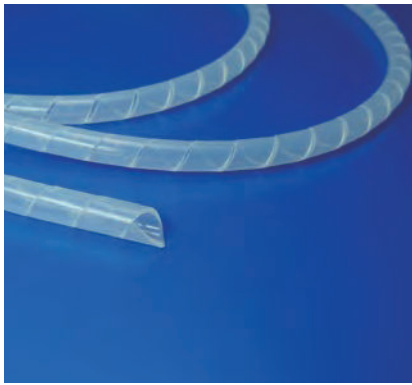
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FKD

**P107**

FK DUCT



### Spiral tube to bundle and protect cables

#### Features

- Bundles and protects cables simultaneously.
- Easy cable bundling by twisting TUBE. Can be used to join or divide cable bundles.

#### Cutting available

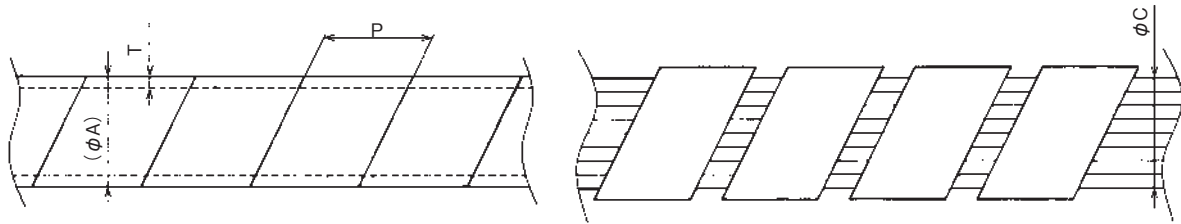
Please contact our sales department for details.

#### Material

- Polyethylene (Color : Natural)
- Nylon 6 (Color : Natural)
- Fluorocarbon resin (Color : Natural)

- : SPP **UL94 HB**
- : SPN **UL94 HB (V-0)\***
- : SPF **UL94 V-0**

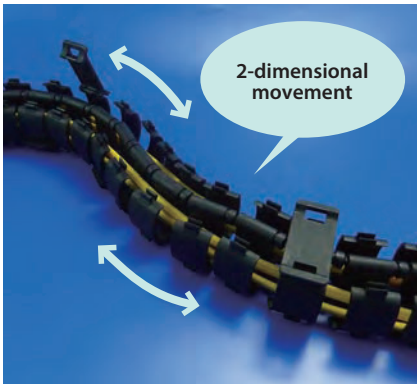
※ For V0 type, "V0" is added to the end of the part No.  
(With regard to lot size and lead time, please contact us.)



Material	Part No.	Outer diameter φA	Thickness T	Pitch P	Bundle diameter φC	Std. Package
Polyethylene	SPP-04L	4.2	0.8	6.0	φ 3~ 7	100m
	SPP-06L	6.0	1.0	8.0	φ 4~12	
	SPP-08L	8.0	1.0	10.0	φ 6~18	
	SPP-11L	11.0	1.5	12.0	φ 8~25	50m
	SPP-12L	12.0	1.5	12.0	φ 9~28	
	SPP-13L	13.0	1.5	12.0	φ10~30	
	SPP-15L	15.0	1.5	15.0	φ12~35	25m
	SPP-18L	18.0	1.5	20.0	φ15~45	
	SPP-24L	24.0	2.0	22.0	φ20~60	
SPP-29L	29.0	2.0	28.0	φ25~75		
Nylon	SPN-04L	3.6	0.5	6.0	φ 3~ 7	100m
	SPN-06L	5.5	0.75	8.0	φ 4~12	
	SPN-08L	7.6	0.8	10.0	φ 6~18	
	SPN-11L	10.6	0.8	12.0	φ 9~28	50m
	SPN-15L	13.6	0.8	15.0	φ12~35	
	SPN-18L	16.6	0.8	20.0	φ15~45	25m
	SPN-24L	21.6	0.8	22.0	φ20~60	
SPN-29L	27.0	1.0	28.0	φ25~75		
Fluorocarbon resin	SPF-04	4.2	0.8	6.0	φ 3~ 7	100m
	SPF-06	6.0	1.0	10.0	φ 4~10	
	SPF-12	12.0	1.5	12.0	φ 9~20	50m

※ Fluorocarbon resin SPIRAL TUBE is only made to order.

(Unit : mm)



### Flexible cable duct

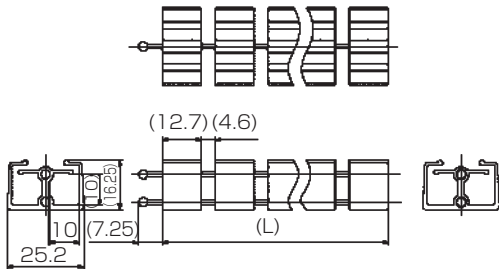
#### Features

- Allows cables to bend in all 3D directions.
- Maintains Min. bend radius for optical fiber cables.
- Can be connected in unit of one piece.

#### Material

- Nylon 6 (Color : Light grey) **UL94 V-2** :FKD-10
- Nylon 66 (Color : Black) **UL94 V-2** :FKD-10K

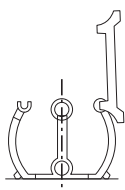
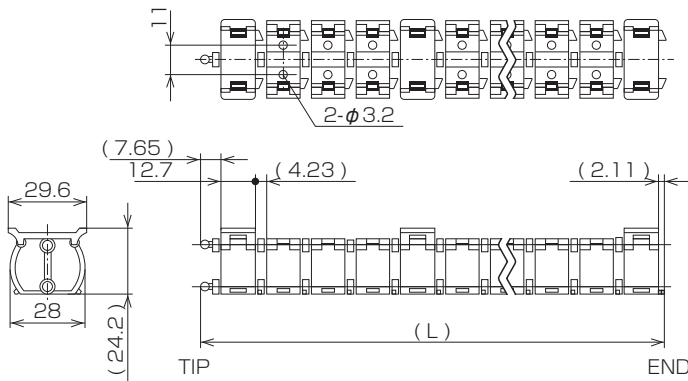
#### FKD-10



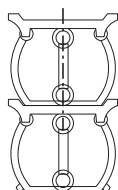
Part No.	Connection number n	Total length : L	Std. Package
FKD-10	58	(998.8)	10 pcs.
FKD-10-n*	n	$(12.7+4.6) \times n - 4.6$	※

※ Required connection numbers available, please contact our sales department for details. (Unit : mm)

#### FKD-10K



Lid can open to insert cables.



Can be connected vertically.

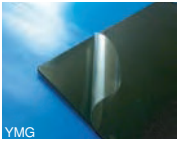
Part No.	Connection number n	Total length : L	Std. Package
FKD-10K	59	(1004.4)	50 pcs.
FKD-10K-n	n	$(L)=16.93n - 5.53$	※

※ Required connection numbers available, please contact our sales department for details. (Unit : mm)

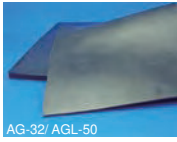


# Functional Materials

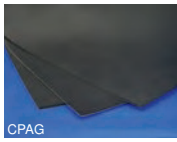
Silicone free material, excellent in impact buffering, vibration control and isolation



**P109**  
Super-low hardness elastomer



**P111**  
High-Vibration damping elastomer (Heat resistant type)



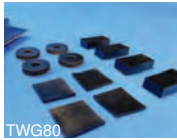
**P112**  
High-vibration damping, thermally conductive rubber

## Sheets / KG-GEL

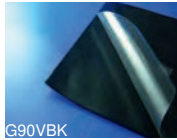
High-performance products for impact buffering, vibration and noise control using KGS' original sheets



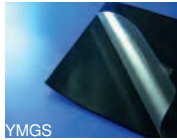
**P113**  
KG-GEL 80TW SHEET



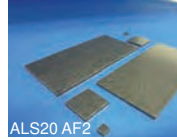
**P114**  
KG-GEL 80TW SHEET



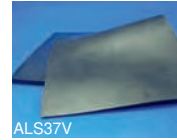
**P114**  
KG-GEL 90VBK SHEET



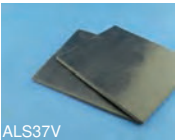
**P114**  
KG-GEL 95T SHEET



**P115**  
LOSTOMER TPS SHEET



**P115**  
LOSTOMER TPS SHEET



**P115**  
LOSTOMER TPS SHEET



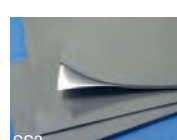
**P116**  
THERMAL DAMPER



**P117**  
LOSTOMER TSEA SHEET



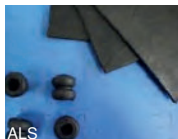
**P118**  
SOUND DAMPER



**P119**  
SOUND DAMPER

## Standard products

### Bushings



**P120**  
HIGH VIBRATION DAMPING



**P121-122**  
SY DAMPER  
•HIGH-END DAMPER + VB



**P126**  
ONE TOUCH VIBRATION DAMPER

### Acoustic noise control for fans



**P123**  
FAN FIXER



**P124**  
FAN HOLDER



**P125**  
FAN HOLDER

### Acoustic noise control for fans



**P126**  
FAN HOLDER

### MIC HOLDER



**P126**  
MIC HOLDER

Solution material for vibration, impact and noise.

- **Vibration energy damping**  
Attenuated vibration energy by conversion into thermal energy.
- **Vibration transmitting control**  
Isolated and attenuated vibration transmitted from vibratory source to equipment.
- **Impact damping**  
Suppressed impact strength at any given stroke.

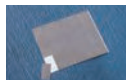
A variety of molding

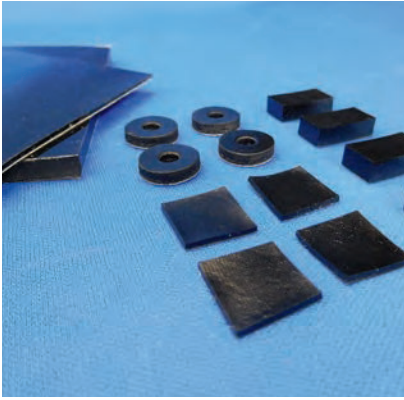


We provide suitable profile of products for specified place and measure based on our production facilities and technology.

Sheet, secondary processing

Custom cutting, punching, adhesive backed type and film attached type are available. Please contact our sales department for details.



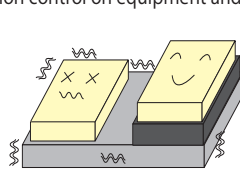


Excellent impact buffering and vibration control

Super low hardness

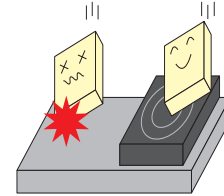
Effective from low-frequency

A special Styrene GEL performs with super low hardness excellent impact and vibration control on equipment and components etc.



Vibration control

Vibration control from low frequency below 100Hz.



Impact buffering

Effective for lightly loaded equipment and components.



Non-Silicone material

Solution for electric-contact failures caused by siloxane.

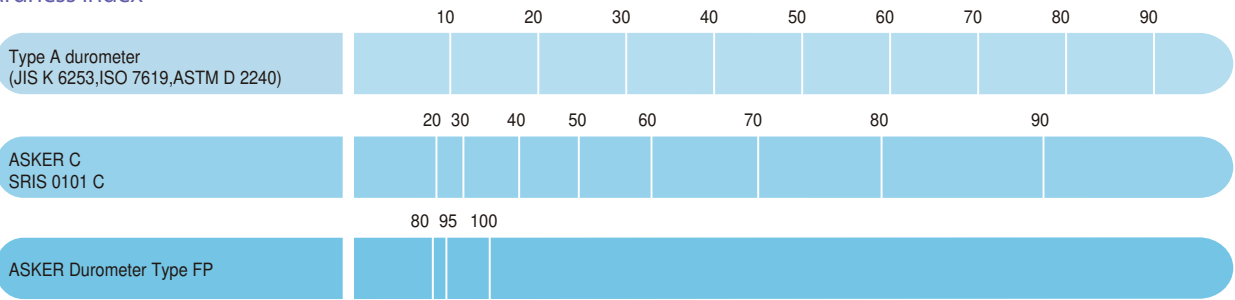
Silicone free KG-GEL is a solution for electric-contact failures caused by siloxane.

UL94-HB recognized

Flame retardant type is also available.

Properties

■ Hardness index



● Actual hardness shall be changed by specimen conditions such as profile, etc. The above index is not conversion purpose but only guide for hardness.

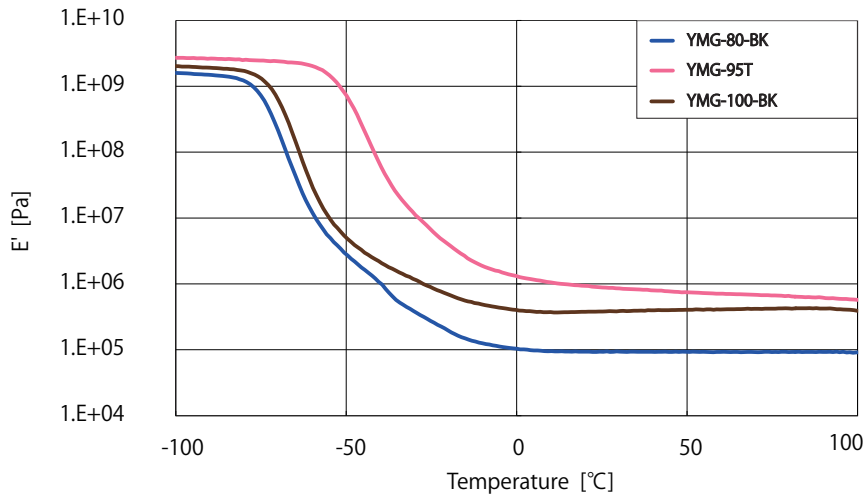
■ Typical Properties

Item	Unit	Standard	Multi-purpose type		Heat resistant type	Flame-retardant and heat resistant type		Thermally conductive type
			YMG-80-BK	YMG-100-BK	TWG-80	YMG-90V-BK	YMG-95T	YMG-30CTR
Hardness	ASKER FP	—	80	100	83	91	95	30 (ASKER C: JIS K7312)
Tensile strength	MPa	JIS K6251	0.81	5.10	1.00	0.41	1.61	0.77
Elongation	%	JIS K6251	1350	970	728	292	492	755
Compression set <sup>※1</sup>	%	JIS K6262	17.0	12.7	—	—	35.0	—
Flame Retardancy	—	UL94	—	—	—	V-0 (Thickness 1.5mm or more)	HB (Thickness 1.5mm or more)	—

※1) JIS K6262 (Room temperature×168hrs)

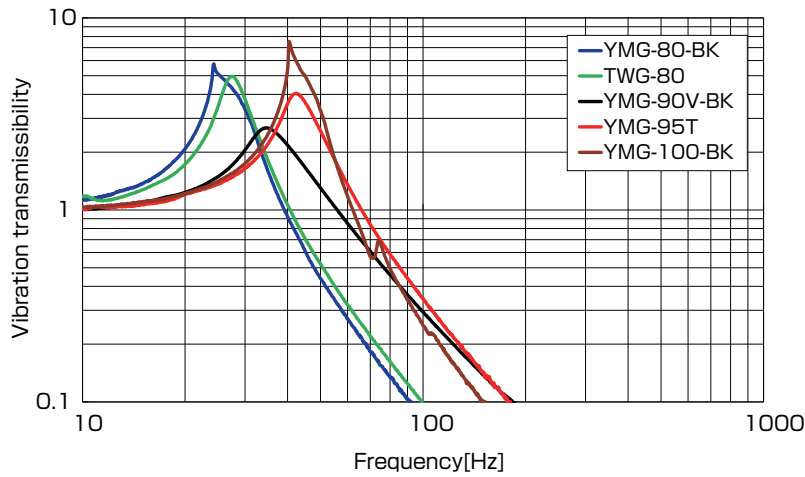
Dynamic Viscoelastic Property

E' : Storage elastic modulus -- It is shown hardness of specimen and the larger number is meant the larger hardness.



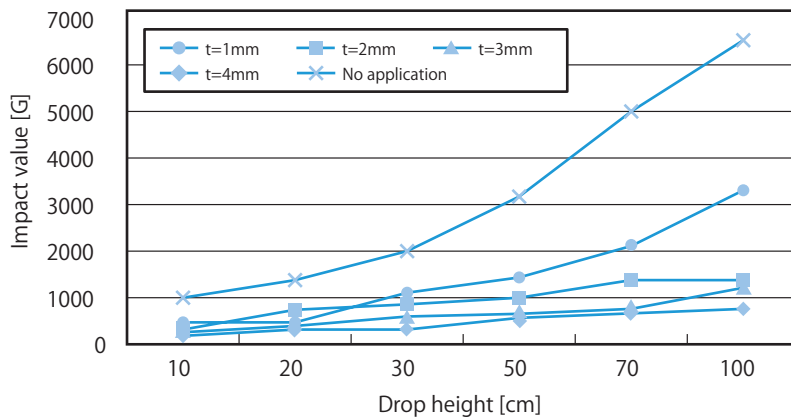
Vibration Properties

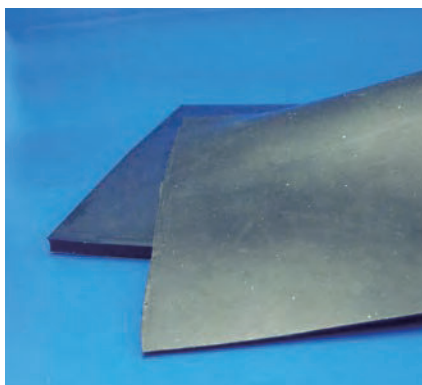
<Testing condition>  
 Sample : □5mm, t=3mm  
 Load : 400g  
 Support point number : Four point mounting  
 Acceleration : 0.4G



Impact Property

2.5mm HDD with YMG-80-BK(□20mm) applied at 4 corners was dropped.





Wide range of applications with high-vibration damping and heat resistance.

**High-vibration damping**

Attenuated vibration energy by conversion into thermal energy.

"LOSTOMER AG" has excellent damping properties

**Improved heat resistance**

Up to 100°C heat resistance by special acrylic rubber

"LOSTOMER AG" performs wider range of applications in combination with improved heat resistance.

**UL94HB recognized**

"LOSTOMER AG" (AGL-32) is UL94HB recognized for thickness 1.5mm or more (Black) (AGL-50 is equivalent of UL94HB)

**Specifications**

**Molded components**

Required shaped components can be produced by transfer molding. KGS offers total support system from design to prototype and mass production to meet your requirement.



**Properties**

**Typical Properties**

Item	Unit	Standard	AGL-32	AGL-50
Hardness	Durometer Type A*2	JIS 6253	32	53
Tensile strength	MPa	JIS K6251	4.33	6.25
Elongation	%	JIS K6251	580	420
Compression set*1	%	JIS K6262	31.8	21.9
Flame Retardancy	—	UL94	HB (Thickness 1.5mm or more)	HB equivalent

\*1) JIS K 6262 (Room temperature × 168hrs)  
 \*2) JIS K 6253 / In conformity to JIS K 6253

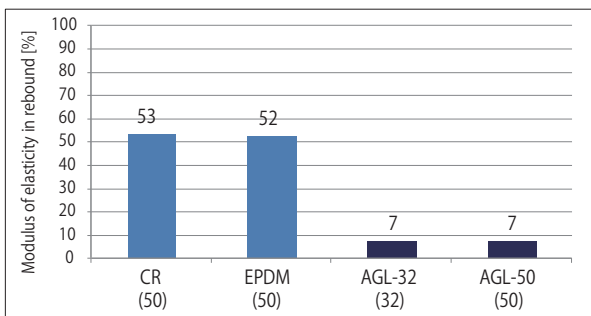
**Vibration Properties**

Item	AGL-32	AGL-50
Resonance frequency (Hz)	158.9	311.3
Maximum vibration transmissibility	1.4	1.6
Loss factor*1	1.44	0.95

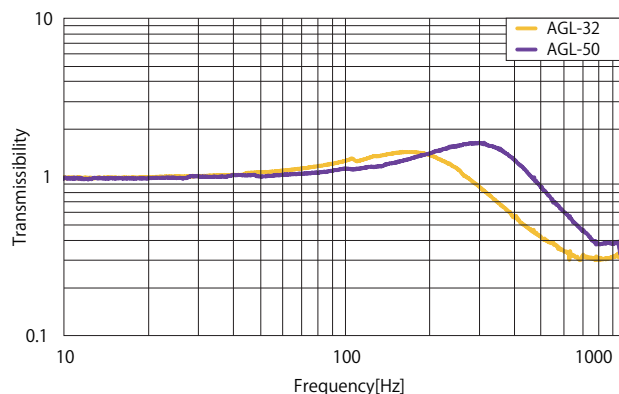
\*1) / The Loss Factor measured according to KGS Test Standard.

Testing condition  
 Sample: φ5mm, t=3mm  
 Load : 400g  
 Support point number :  
 Four point mounting  
 Acceleration : 0.4G

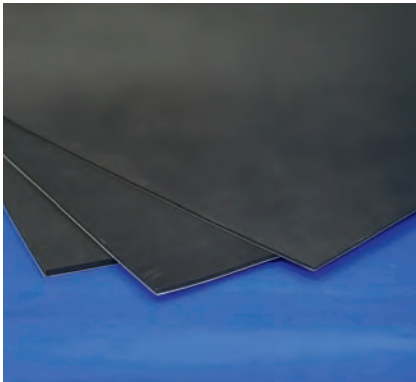
**Elastic property in rebound**



LUPKE TYPE REBOUND RESILIENCE TEST / According to JIS K 6255:1966



Please contact our sales department for installation instructions (precautions) before use. Also please confirm precautions described on the beginning page of the brochure.



High-vibration damping together with improved thermal conductivity allows wider range of applications

High-vibration damping

Attenuated vibration energy by conversion into thermal energy.

The product provides high vibration damping, as well as impact buffering using its softness.

Improved heat resistance

Up to 100°C heat resistance by special acrylic rubber

The product performs wider range of applications in combination with improved heat resistance.

Thermal conductivity properties

Vibration damping solution together with useful for thermal management with its excellent thermal conductivity.

Functional Materials (Impact buffering, vibration and noises control)

Specifications

Molded components

Required shaped components can be produced by compression molding. KGS offers total support system from design to prototype and mass production to meet your requirement.

Properties

Typical Properties

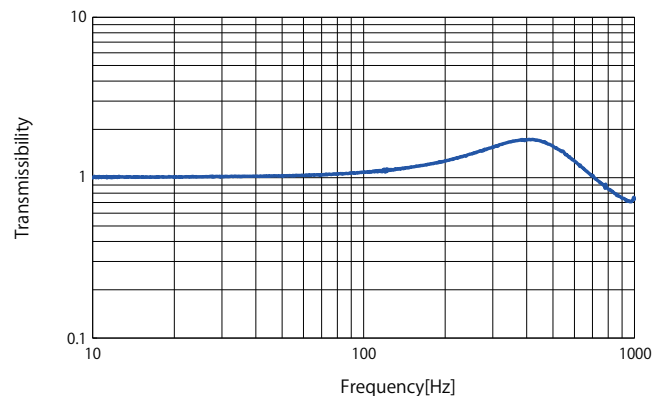
Item	Unit	Standard	CPAG
Hardness	Durometer Type A <sup>※2</sup>	JIS 6253	64
Tensile strength	MPa	JIS K6251	23.7
Elongation	%	JIS K6251	417
Compression set <sup>※1</sup>	%	JIS K6262	24.4
Thermal Conductivity	W / m·K	JIS R2616 (Hot-wire method)	0.8
Flame Retardancy	—	UL94	V-1 equivalent(t2.0mm) V-0 equivalent(t3.0-5.0mm)

※1) JIS K 6262( Room temperature × 168hrs)  
 ※2) JIS K 6253 / In conformity to JIS K 6253

Vibration Properties

Item	CPAG
Vibration transmissibility	1.8
(Hz) Resonance frequency	420.2
Loss factor	1.03

<Testing condition>  
 Sample : □5mm, t=3mm  
 Load : 400g  
 Support point number : Four point mounting  
 Acceleration : 0.4G



Material

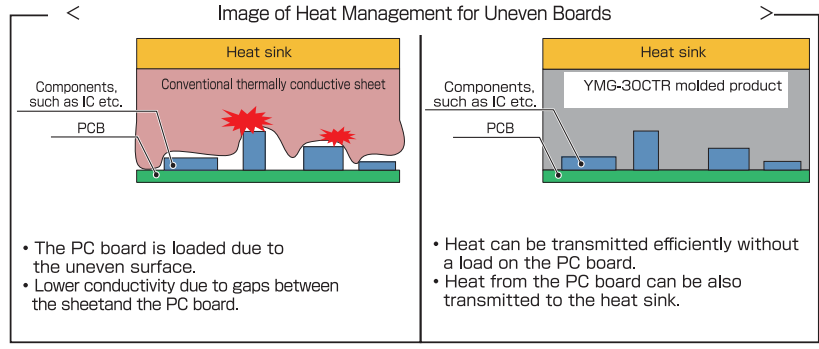
Standard Products

Injection-moldable, thermally conductive elastomer

3D molding

Three-dimensional shape enables heat management with low load for uneven component side of PC boards etc.

The product fits closely on boards to transmit the heat from both components such as ICs, and the board itself to heat sink etc.



Thermal conductivity properties

Vibration and thermal problems are managed simultaneously.

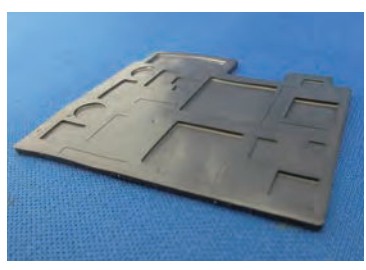
Non-Silicone material Solution for electric-contact failures caused by siloxane.

Silicone free KG-GEL is a solution for electric-contact failures caused by siloxane.

Specifications

Molded components

Required shaped components can be produced by injection molding. KGS offers total support system from design to prototype and mass production to meet your requirement.

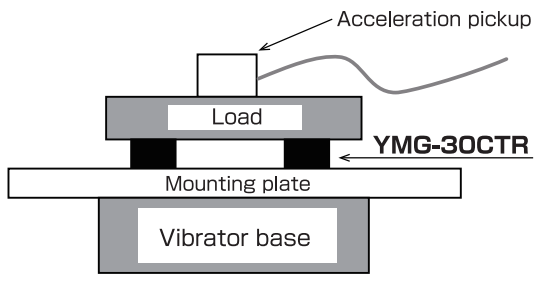


Properties

Item	Unit	Standard	YMG-3OCTR
Hardness	ASKER C	JIS K7312	30
Thermal Conductivity	W/m·K	ISO22007-2 (Hot Disc method)	1.0
Volume Resistivity	Ω·cm	JIS K6911	1.0×10 <sup>13</sup>
Specific Gravity	—	—	1.52
Recommended operation temperature	°C	—	-20~100
Resonance frequency*	Hz	—	257
Crossover frequency*	Hz	—	527
Loss factor*	—	—	0.78
Flame Retardancy	—	UL94	HB equivalent

\* Measured values according to the conditions on the right

< Test method >



< Testing conditions >

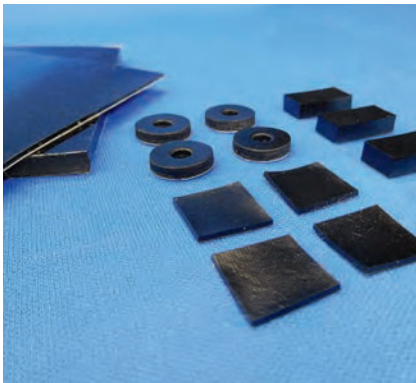
Sample : □5mm, t=1mm  
 Load : 400g  
 Support point number : Four point mounting

Functional Materials (Impact buffering, vibration and noises control)

Material

Standard Products

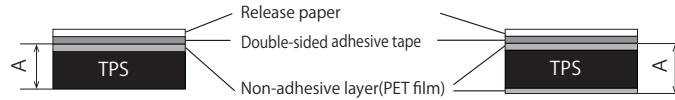
KG-GEL 80TW SHEET / TWG80



Low hardness gel sheet(Heat resistant type)

<TWG80F1>  
With adhesive tape

<TWG80F2>  
With adhesive tape(surface non-adhesive type)



Part No.	Material	A (mm)	Available max. dimension (mm) <sup>※1</sup>	Color	Material hardness
TWG80F1(2)-1.0TC1	TPS (TWG-80)	1	430×310	Black	ASKER FP 83
TWG80F1(2)-2.0TC1		2			
TWG80F1(2)-3.0TC1		3			
TWG80F1(2)-4.0TC1		4			
TWG80F1(2)-5.0TC1		5			

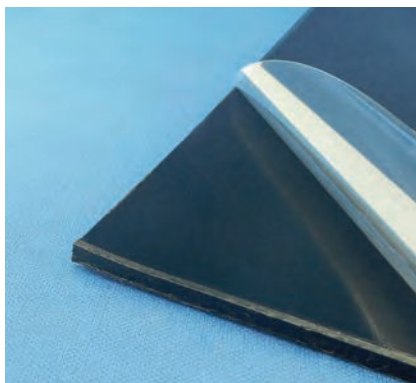
※1) Please contact us for available pcs/sheet.

Functional Materials (Impact buffering, vibration and noises control)

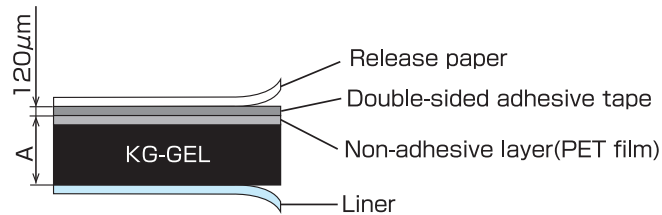
Material

Standard Products

KG-GEL 90VBK SHEET / G90VBK



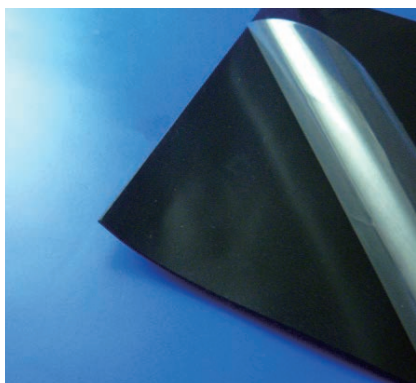
Low hardness gel sheet(Flame-retardant and heat resistant type)



Part No.	Material	A(mm) Thickness	Available max. dimension. (mm) <sup>※1</sup>	Color	Material hardness
G90VBK-1.0TC1	TPS (YMG-90V-BK)	1.0	200×292	Black	ASKER FP 91
G90VBK-2.0TC1		2.0			
G90VBK-3.0TC1		3.0			
G90VBK-4.0TC1		4.0			
G90VBK-5.0TC1		5.0			

※1) Please contact us for available pcs/sheet.

KG-GEL 95T SHEET / YMGS



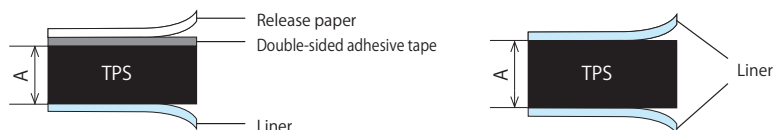
Low hardness gel sheet(Heat resistant type)

<YMGS-95T-0.5T>

<YMGS-95T-1.0>

With adhesive tape

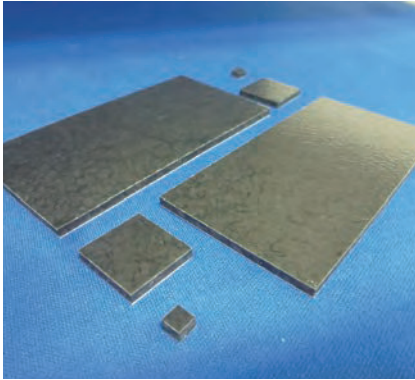
With no adhesive tape



Part No.	Material	A (mm)	Available max. dimension (mm) <sup>※1</sup>	Color	Material hardness
YMGS-95T-0.5T	TPS (YMG-95T)	0.5	400×140	Black	ASKER FP 95
YMGS-95T-1.0		1			

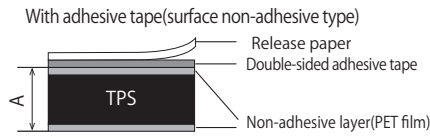
※1) Please contact us for available pcs/sheet.

LOSTOMER TPS SHEET / ALS20AF2



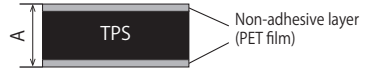
High-Vibration damping elastomer sheet

<ALS20AF2-TC>



<ALS20AF2>

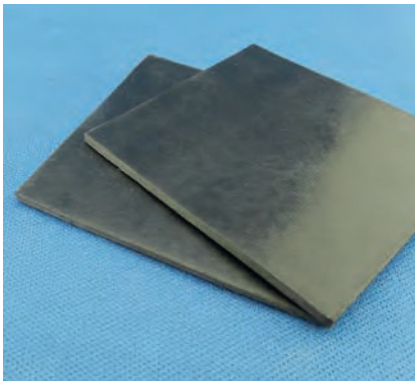
With no adhesive tape(both sides non-adhesive type)



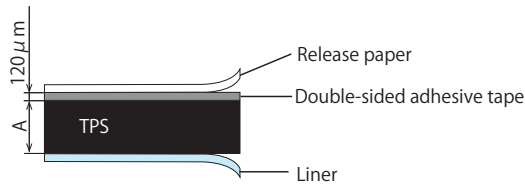
Part No.	Material	A (mm)	Available max. dimension (mm) <sup>※1</sup>	Color	Material hardness
ALS20AF2-1.0(TC)	TPS (ALS-20A-BK)	1.0	297×205	Black	Durometer Type A 20 <sup>※2</sup>
ALS20AF2-2.0(TC)		2.0			
ALS20AF2-3.0(TC)		3.0			
ALS20AF2-4.0(TC)		4.0			
ALS20AF2-5.0(TC)		5.0			

※1) Please contact us for available pcs/sheet.  
 ※2) In conformity to JIS K 6253

LOSTOMER TPS SHEET / ALS37V



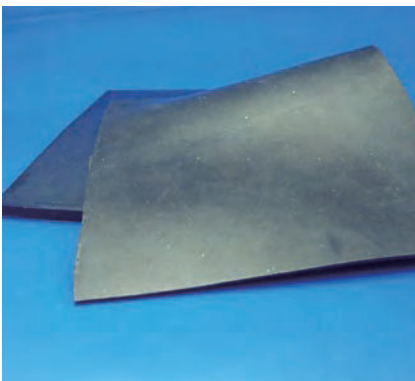
High-Vibration damping elastomer sheet  
(Flame-retardant and heat resistant type)



Part No.	Material	A (mm) Thickness	Available max. dimension. (mm) <sup>※1</sup>	Color	Material hardness
ALS37V-1.0TC	TPS (ALS-37V)	1.0	198×290	Black	Durometer Type A 32
ALS37V-2.0TC		2.0			
ALS37V-3.0TC		3.0			
ALS37V-4.0TC		4.0			
ALS37V-5.0TC		5.0			

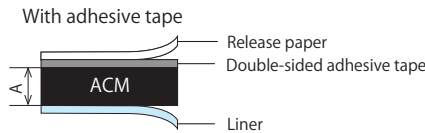
※1) Please contact us for available pcs/sheet.  
 ※2) In conformity to JIS K 6253

LOSTOMER AG SHEET / AGL

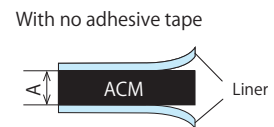


High-Vibration damping rubber sheet

<AGL-T>



<AGL>

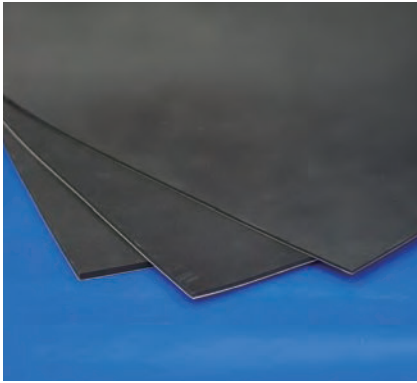


Part No.	Material	A (mm)	Available max. dimension, <sup>※1</sup> (mm)	Color	Material hardness
AGL-32-0.5T	ACM (AGL-32)	0.5	200×200	Black	Durometer Type A 32 <sup>※2</sup>
AGL-32-1.0(T)		1	350×350		
AGL-32-2.0(T)		2			
AGL-32-3.0(T)	3				
AGL-50-1.0T	ACM (AGL-50)	1	350×350	Black	Durometer Type A 53 <sup>※2</sup>
AGL-50-2.0T		2			
AGL-50-3.0T		3			

※1) Please contact us for available pcs/sheet.  
 ※2) In conformity to JIS K 6253



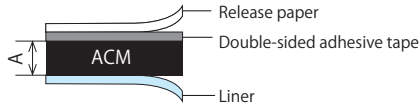
THERMAL DAMPER/CPAG



High-Vibration damping rubber sheet(Thermally conductive type)

<CPAG-T>

With adhesive tape



<CPAG>

With no adhesive tape



Part No.	Material	A (mm)	Available max. dimension. <sup>※1</sup> (mm)	Color	Material hardness
CPAG-0.5(T)	ACM	0.5	350×350	Black	Durometer Type A 64 <sup>※2</sup>
CPAG-1.0(T)		1.0			
CPAG-2.0(T)		2.0			
CPAG-3.0(T)		3.0			
CPAG-4.0(T)		4.0			
CPAG-5.0(T)		5.0			

※1) Please contact us for available pcs/sheet.

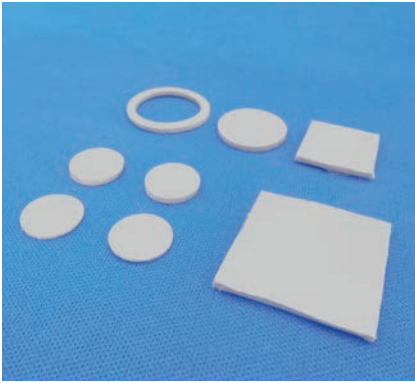
※2) In conformity to JIS K 6253

Functional Materials (Impact buffering, vibration and noises control)

Material

Standard Products

● Custom cutting, punching and other processing are available.



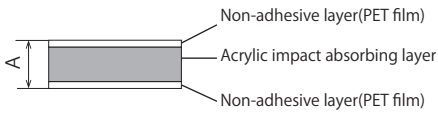
This thin film sheet has both impact absorbing and vibration damping capabilities.

- Converts kinetic energy to thermal energy for excellent shock attenuation.
- Thin profile is useful in limited spaces.
- Single sided non-adhesive film provides easy assembly.
- Silicone-free, no siloxane outgassing.

### Specifications

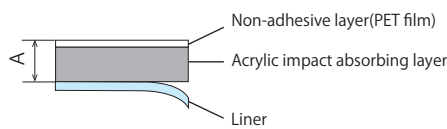
#### <TSEA-F2>

Non-tacky type



#### <TSEA-F>

One-side tacky type



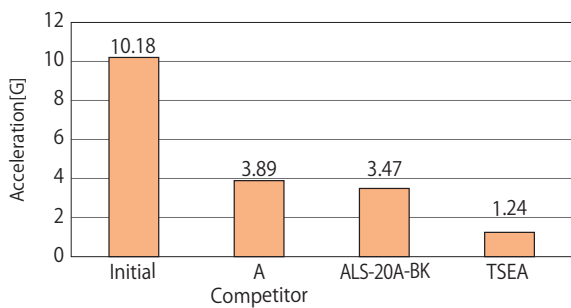
Part No.	A(mm) Thickness
TSEA-0.3F2	0.3
TSEA-0.5F2	0.5
TSEA-1.0F	1.0
TSEA-2.0F	2.0

● Products with double-sided adhesive tape are also available for sheet fixation.

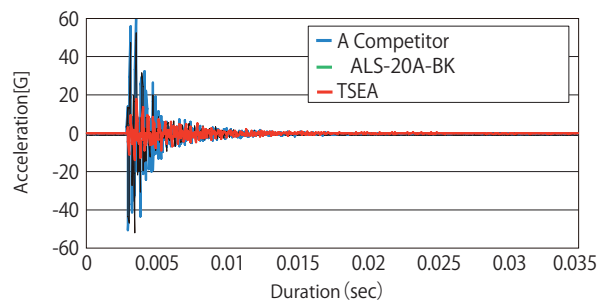
	Standard	Condition	Unit	TSEA
Specific gravity	—	Room Temperature	—	1.54
Hardness	JIS K6253	Room Temperature	ASKER C	9
Loss factor	JIS K6251	Room Temperature	—	1.00
Compression set	JIS K6262	100°C × 22hr	%	31.3
Recommended operation temperature	—	—	°C	-20 ~ 110

### Properties

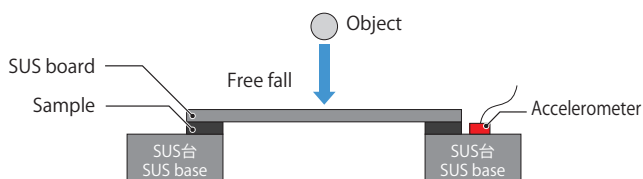
#### Impact drop test



#### Time vs waveform (Attenuation property)

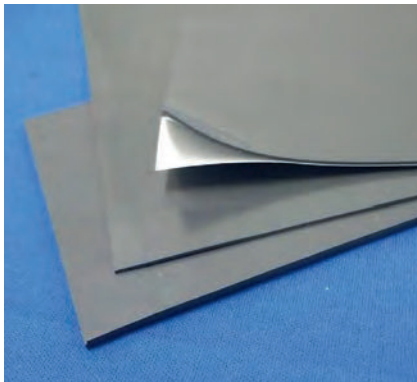


#### <Test method>



<Testing condition>  
 Specimen size : t=2mm×10mm×60mm  
 Object weight : 5g  
 Drop height : 300mm

● Custom cutting, punching and other processing are available.



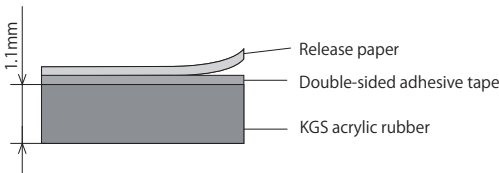
### Sound damper suppresses airborne and vibration sound simultaneously

- Simply by applying damper sheet to surface it reduces sound emission from vibration.
- KGS acrylic rubber gives high sound insulation effect.
- Custom die cut upon request.

## Specifications

### Application

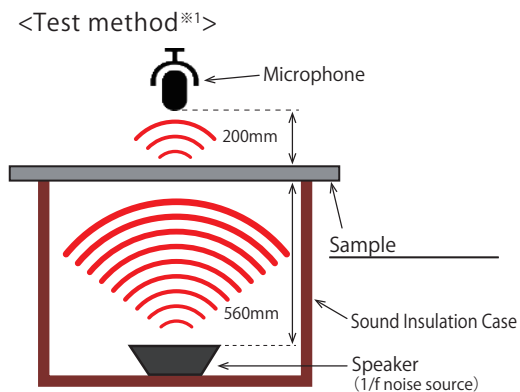
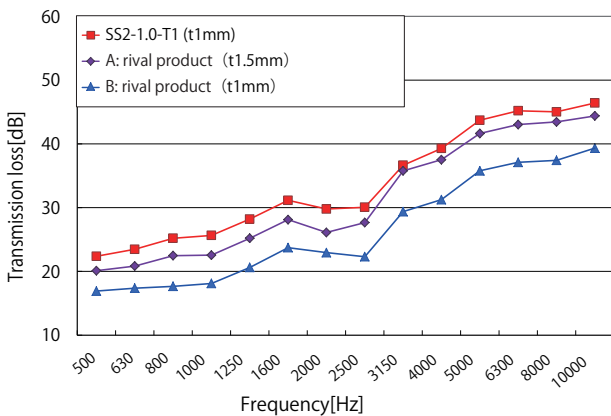
Noise control of motors, fans, relays, inverters, etc



Item	Unit	SS2-1.0-T1	
Gravity	—	3.5	
Tensile Strength	MPa	4.4	
Elongation	%	34	
Sound Insulation Rate	500Hz	22	
	2,000Hz	29	
	10,000Hz	46	
(tan δ) Loss factor	-40°C	0.009	
	20°C	0.053	
	150°C	0.007	
Volume Resistivity	Ω·cm	1 × 10 <sup>11</sup>	
Thermal Conductivity	W/m·K	1.1	
90° Peel Adhesion	N/10mm	6.9	
High Temperature Test 150°C × 1000h	Gravity	—	
	Tensile Strength	MPa	4.1
	Elongation	%	14
Recommended operation temperature	°C	-40~150	
Flame Retardancy	UL94	HB equivalent	

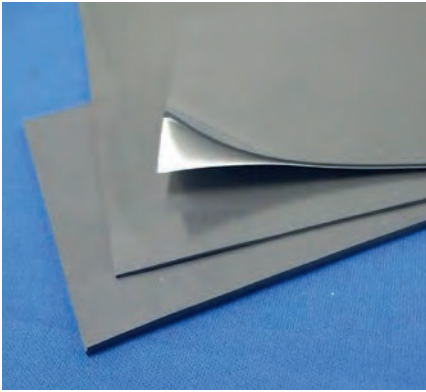
## Properties

### Sound Insulation Rate



※1) KGS test method

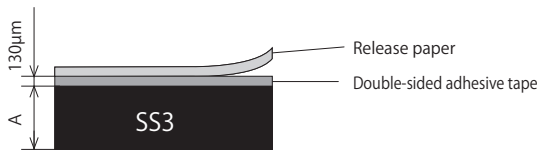
● Custom cutting, punching and other processing are available.



### High vibration damping sheet with light weight

- Control vibration generating by fans and motors
- Improved damping allows for high performance from small sized sheet
- Low specific gravity achieves to weight saving of equipment
- Highly flame-retardant (Equivalent to UL 94 V-0)

### Specifications



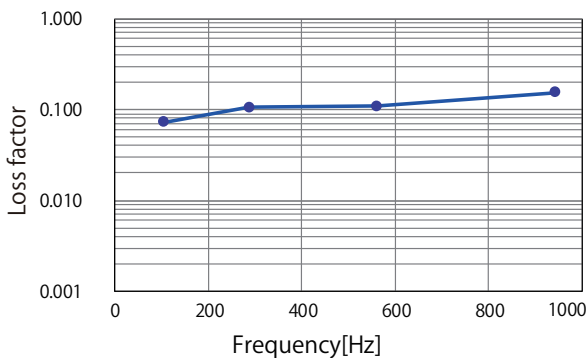
Part No.	A(mm) Thickness
SS3-1.0-T1	1.0

Item	Unit	Standard	SS3
Material	—	—	Acrylic resin
Fixing method	—	—	Adhesive tape
Color	—	—	black
Hardness	Durometer Type D	JIS K 6253-3	61
Specific gravity	—	—	1.67
Loss factor <sup>※1</sup> (20 °C, tertiary mode)	—	JIS K 7391	0.10
Flame Retardancy	—	UL94	V-0 equivalent
Recommended operation temperature	°C	—	-20~85
Available max. <sup>※2</sup> dimension.	mm	—	305 × 425

※1 Calculated based on vibration damping characteristics test using the cantilever method

※2) Please contact us for available pcs/sheet.

### Properties



<Testing conditions>

Method : Vibration damping characteristics test using the cantilever method

Acceleration : 0.4G

Temperature : 20°C

● Custom cutting, punching and other processing are available.



### Damps vibration energy effectively

#### High-vibration damping

By converting vibration energy into thermal energy.

The product provides high vibration damping, as well as impact buffering using its softness.

#### Eco-friendly Halogen-free material

Generates No chlorine gas when burned.

The product employs reusable Halogen-free thermoplastic elastomer. Available in two types of TPS (Styrene elastomer), hardness JIS A 20,32 and 37.

## Specifications

### Molded components

Required shaped components can be produced by injection molding. KGS offers total support system from design to prototype and mass production to meet your requirement.



## Properties

### Typical Properties

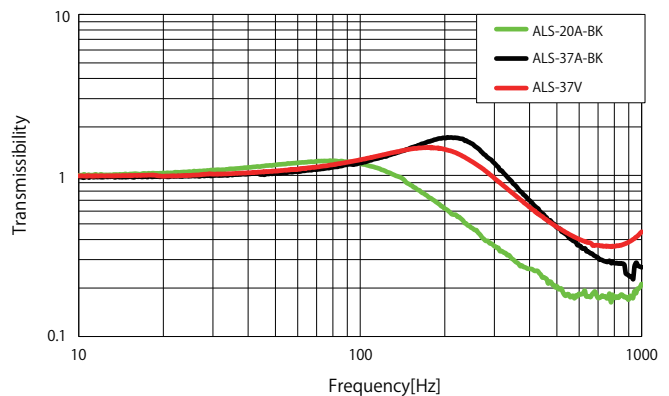
Item	Unit	Standard	Multi-purpose type		Flame-retardant type
			ALS-20A-BK	ALS-37A-BK	ALS-37V
Hardness	Durometer Type A	JIS 6253	20	37	32
Tensile strength	MPa	JIS K6251	6.63	5.54	4.00
Elongation	%	JIS K6251	1119	870	667
Compression set	%	JIS K6262	1.3	33.2	10.8
Flame Retardancy	—	UL94	—	—	V-0 (Thickness 1.5mm or more)

※1) JIS K 6262 (Room temperature × 168hrs)  
 ※2) JIS K 6253 / In conformity to JIS K 6253

### Vibration Properties

Item	ALS-20A-BK	ALS-37A-BK	ALS-37V
Resonance frequency (Hz)	78.3	204.2	176.3
Maximum vibration transmissibility	1.2	1.7	1.5
Loss factor	2.05	0.96	1.31

<Testing condition>  
 Sample : □5mm, t=3mm  
 Load : 400g  
 Support point number : Four point mounting  
 Acceleration : 0.4G



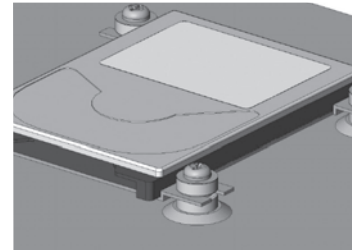
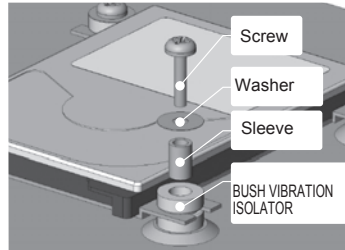
BUSH VIBRATION ISOLATOR / VB



High-performance damper using extremely low-hardness material with high damping performance.

- Extremely low-hardness version and high damping performance version are available.
- Using silicone free material.
- UL 94 certified material version is also available.

Application example



SY DAMPER · HIGH-END DAMPER / SYD · HED



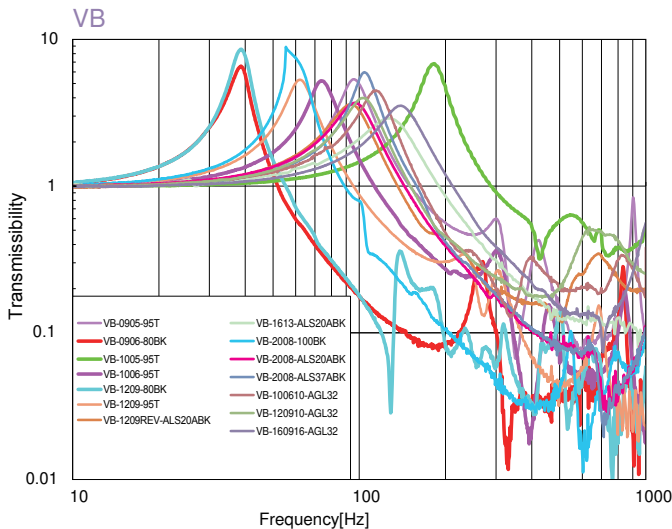
Low resonance damper using high damping material.

- Low resonance is achieved by high damping material.
- Higher damping performance lead to instant damping of vibration and impact.
- Using silicone free material.

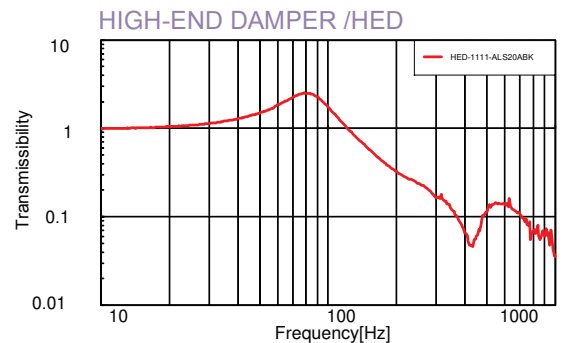
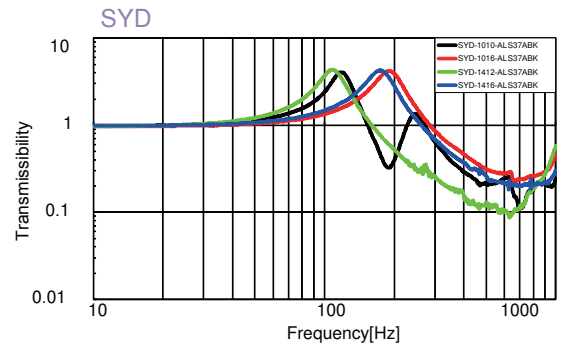
Properties

Vibration transmission

Testing condition  
 Load : 400 g  
 Support point number :  
 Four point mounting  
 Acceleration : 0.4G



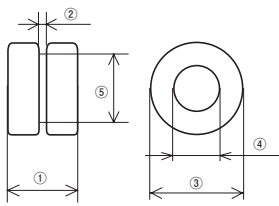
Please contact our sales department for installation instructions (precautions) before use.  
 Also please confirm precautions described on the beginning page of the brochure.



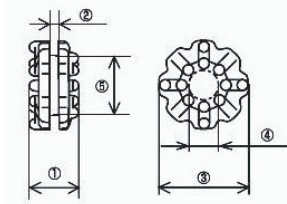
Specifications

Product drawing

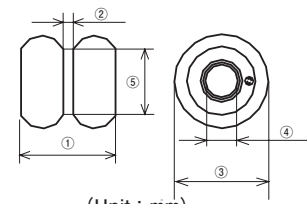
VB



SYD



HIGH-END DAMPER / HED



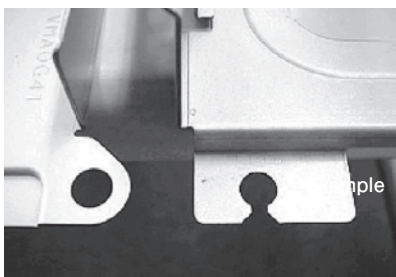
(Unit : mm)

Part No.	Material	Hardness	Color	①	②	③	④	⑤
VB-0905-95T <sup>※1</sup>	TPS (KG-GEL/YMG-95T)	ASKER FP 95	Black	5.2	1.2	φ9.6	φ4.0	φ7.0
VB-0905-90VBK	TPS (KG-GEL/YMG-90V-BK)	ASKER FP 91	Black	5.2	1.2	φ9.6	φ4.0	φ7.0
VB-0906-80 BK	TPS (KG-GEL/YMG-80-BK)	ASKER FP 80	Black	6.4	1.2	φ9.6	φ4.0	φ7.0
VB-1005-95T	TPS (KG-GEL/YMG-95T)	ASKER FP 95	Black	4.8	1.6	φ10.0	φ4.0	φ6.2
VB-1006-95T	TPS (KG-GEL/YMG-95T)	ASKER FP 95	Black	6	1	φ10.0	φ5.3	φ8.3
VB-1006-90VBK	TPS (KG-GEL/YMG-90V-BK)	ASKER FP 91	Black	6	1	φ10.0	φ5.3	φ8.3
VB-1209-80 BK	TPS (KG-GEL/YMG-80-BK)	ASKER FP 80	Black	9	1	φ12.0	φ6.0	φ9.0
VB-1209-95T	TPS (KG-GEL/YMG-95T)	ASKER FP 95	Black	9	1	φ12.0	φ6.0	φ9.0
VB-1209-90VBK	TPS (KG-GEL/YMG-90V-BK)	ASKER FP 91	Black	9	1	φ12.0	φ6.0	φ9.0
VB-1209REV-ALS20ABK	TPS (LOSTOMER TPS/ALS-20A-BK)	Durometer A 20	Black	9	1	φ12.0	φ6.0	φ9.0
VB-1613-ALS20ABK	TPS (LOSTOMER TPS/ALS-20A-BK)	Durometer A 20	Black	13.6	1.6	φ16.0	φ8.0	φ12.0
VB-2008-100 BK <sup>※1</sup>	TPS (KG-GEL/YMG-100-BK)	ASKER FP 100	Black	8	3	φ20.0	φ5.3	φ15.0
VB-2008-ALS20ABK <sup>※1</sup>	TPS (LOSTOMER TPS/ALS-20A-BK)	Durometer A 20	Black	8	3	φ20.0	φ5.3	φ15.0
VB-2008-ALS37ABK <sup>※1</sup>	TPS (LOSTOMER TPS/ALS-37A-BK)	Durometer A 37	Black	8	3	φ20.0	φ5.3	φ15.0
VB-100610-AGL32	ACM (LOSTOMER AG/AGL-32)	Durometer A 32	Black	6	1	φ10	φ5.3	φ8.3
VB-120910-AGL32	ACM (LOSTOMER AG/AGL-32)	Durometer A 32	Black	9	1	φ12	φ6	φ9
VB-160916-AGL32	ACM (LOSTOMER AG/AGL-32)	Durometer A 32	Black	9	1.6	φ16	φ8	φ12
SYD-1010-ALS37ABK	TPS (LOSTOMER TPS/ALS-37A-BK)	Durometer A 37	Black	5.8	1	φ10.0	φ4.3	φ6.4
SYD-1016-ALS37ABK	TPS (LOSTOMER TPS/ALS-37A-BK)	Durometer A 37	Black	5.8	1.6	φ10.0	φ4.3	φ6.4
SYD-1412-ALS37ABK	TPS (LOSTOMER TPS/ALS-37A-BK)	Durometer A 37	Black	8	1.2	φ14.5	φ5.3	φ9.9
SYD-1416-ALS37ABK	TPS (LOSTOMER TPS/ALS-37A-BK)	Durometer A 37	Black	8	1.6	φ14.5	φ5.3	φ9.9
HED-1111-ALS20ABK	TPS (LOSTOMER TPS/ALS-20A-BK)	Durometer A 20	Black	10.8	1	φ11.1	φ3.8	φ7.7

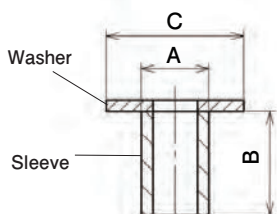
※1) VB-0905 and VB-2008 have slightly different configurations from the others. Please confirm the specifications with formal drawings before use.

Installation Specifications

Mounting hole



Recommended Sleeve



Sleeves are not our products.

Recommended Installation Specifications

(Unit : mm)

Part No.	Installation Specifications		Recommended Sleeve (Reference)		
	Mounting hole size	Panel thickness	A	B	C
VB-0905-***	φ7.0	1.2±0.1	φ3.9	5.2	≧φ9.6
VB-0906-***	φ7.1	1.2±0.1	φ3.9	6.4	≧φ9.6
VB-1005-***	φ6.2	1.6±0.1	φ3.9	4.8	≧φ10.0
VB-1006-***	φ8.3	1.0±0.1	φ5.2	6.0	≧φ10.0
VB-1209-***	φ9.0	1.0±0.2	φ5.9	9.0	≧φ12.0
VB-1209REV-***	φ9.0	1.0±0.2	φ5.9	9.0	≧φ12.0
VB-1305-***	φ10.4	0.8±0.1	φ5.9	5.0	≧φ13.6
VB-1613-***	φ12.0	1.6±0.1	φ7.9	13.6	≧φ16.0
VB-2008-***	φ15.1	3.0±0.1	φ5.2	8.0	≧φ20.0
VB-100610-***	φ8.3	1.0±0.1	φ5.2	6.0	≧φ10.0
VB-120910-***	φ9.0	1.0±0.1	φ5.9	9.0	≧φ12.0
VB-160916-***	φ12.0	1.6±0.2	φ7.9	9.0	≧φ16.0
SYD-1010-***	φ6.5	1.0±0.2	φ4.2	5.8	≧φ10.0
SYD-1016-***	φ6.5	1.6±0.1	φ4.2	5.8	≧φ10.0
SYD-1412-***	φ10	1.2±0.1	φ5.2	8.0	≧φ14.5
SYD-1416-***	φ10	1.6±0.1	φ5.2	8.0	≧φ14.5
HED-1111-***	φ7.7	1.0±0.2	φ3.8	10.8	≧φ11.1

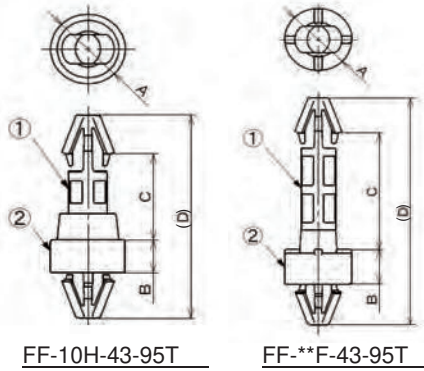
Please contact our sales department for installation instructions (precautions) before use. Also please confirm precautions described on the beginning page of the brochure.



The Fan Fixer is a fixture which reduces the vibrations and noise of cooling fan. It enables to install the fan without screws.

- Resonance and fluttering noise are reduced by damping the vibrations transmitted from the cooling fan.
- A snap structure enables simple one-touch installation. Screws and tools are not necessary.

Specifications



Part No.	A	B	C	(D)	Panel thickness	Mounting hole size	Color
FF-10H-43-95T	φ8	3.8	9.8	23.4	t0.8~1.0	φ4.3±0.1	Black
FF-15F-43-95T		4.5	15.0	29.3	t1.0~1.2		
FF-25F-43-95T		4.5	25.0	39.1	t0.8~1.0		

Material : ①PP (Snap portion and support portion) ②TPS (flexible portion)

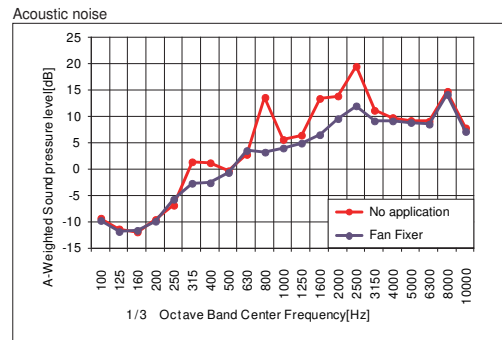
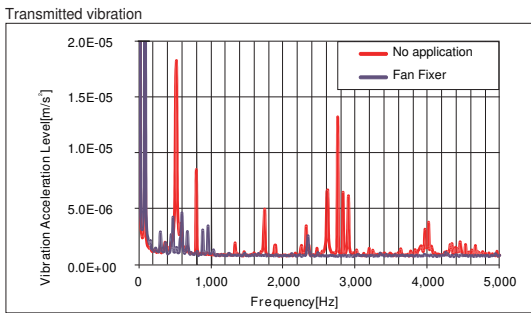
- Recommended fan specifications

Part No.	(mm) Thickness	(mm) Screw hole diameter	Weight(g)
FF-10H-43-95T	t10 <sup>+0.2</sup> / <sub>-0.6</sub>	φ4.3	~40
FF-15F-43-95T	t15 <sup>+0.3</sup> / <sub>-0.5</sub>		
FF-25F-43-95T	t25 <sup>+0.3</sup> / <sub>-0.5</sub>		

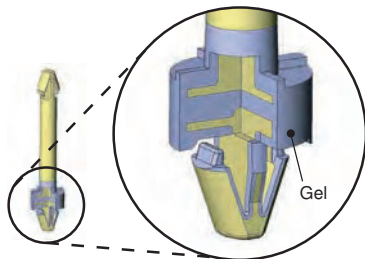
FF-10H-43-95T is dedicated for use with the D05X series made by Nidec Corporation.

Properties

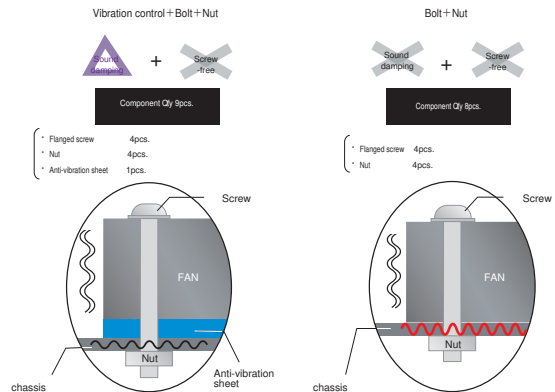
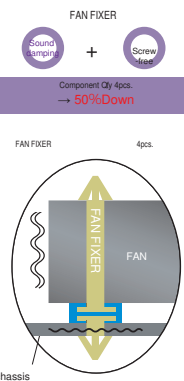
- Example for vibration suppression of vibration and acoustic noise
- Testing condition : Measuring vibration and noise with bladeless fan on chassis.



Structure

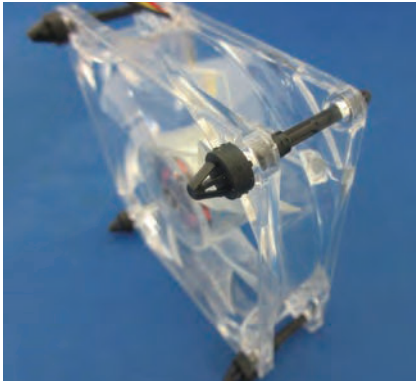


KG GEL Sandwich configuration



Please contact our sales department for installation instructions (precautions) before use. Also please confirm precautions described on the beginning page of the brochure.





### Anti-vibration cooling fan fixture that prevents shear movement of the fan and reduces noise

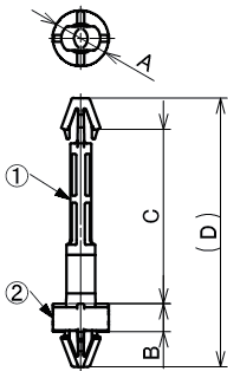
- New rubber and plastic design absorbs vibration from vertical mounted fans, thereby reducing noise
- Snap-mount allows for easy workability
- Operating temperature: -20 ~ 70°C

### Specifications

Unit : mm

Part No.	A	B	C	(D)	Panel thickness	Mounting hole dia.	Color
FF-25FS-43-95T	Φ8	4.0	25.0	38.5	t0.8~1.2	Φ4.3±0.1	Black

Material : ①PP (Snap portion and support portion) ②TPS (flexible portion) (KG-GEL / YMG-95T)



### Recommended fan specifications

Part No.	Thickness (mm)	Fan hole diameter (mm)	Weight(g)
FF-25FS-43-95T	t25 <sup>+0.3</sup> / <sub>-0.5</sub>	Φ4.3 <sup>+0.2</sup> / <sub>-0.1</sub>	~240※1

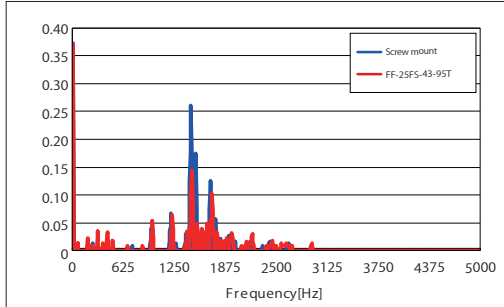
※1 Support point number : Four point mounting

### Properties

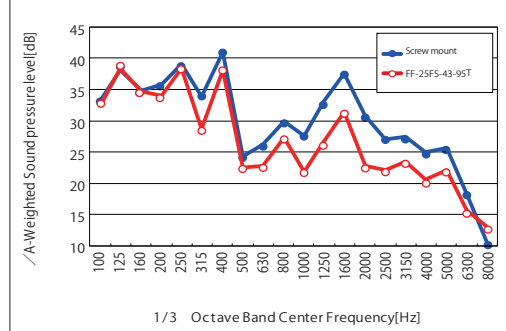
■ Example for vibration suppression of vibration and acoustic noise

Testing condition : Vibration and noise is measured by attached fan (□60mm, t=25mm) on metal panel (t=1mm)

Transmitted vibration

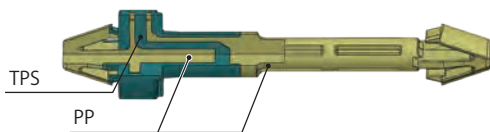


Acoustic noise

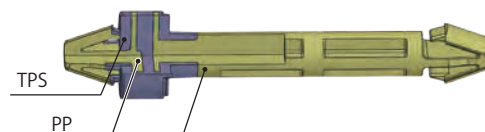


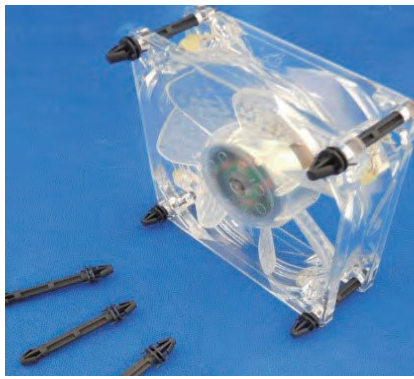
### Structure

<FF-25FS-43-95T>



<EXISTING PRODUCT>



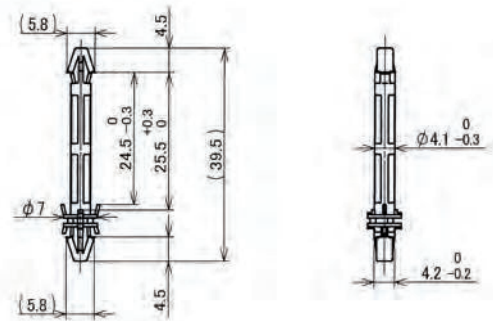


## Plug-in-mount, vibration damping fan fixture

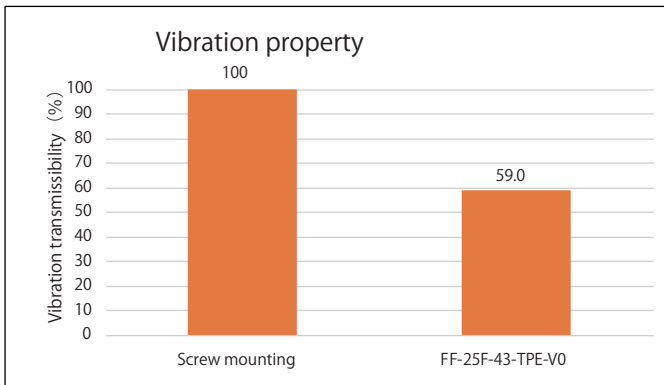
- Screw-less fixing helps to improve work efficiency and reduce number of components.
- The vibration damping material reduces fan chattering and lowers the noise.
- Excellent non-flammability (UL94 V0 recognized materials are used.)

### Specifications

Item	Unit	FF-25F-43-TPE-V0
Material	—	Thermoplastic elastomer
Fan thickness	mm	t25±0.5
Fan hole diameter	mm	φ 4.3±0.2
Weight	g / pcs	70
Panel thickness	mm	t0.8~1.2
Mounting hole dia.	mm	φ 4.3±0.1
Recommended operation temperature	°C	-20~70
Flame Retardancy	—	UL94 V0 recognized materials are used

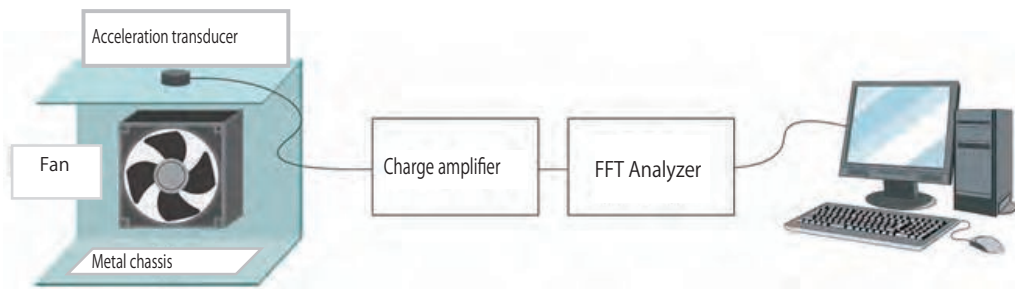


### Properties



<Testing conditions>  
 Fan dimensions : □60mm、t25mm  
 Fan weight : 52g  
 Fan rotation speed : Approx.4500rpm  
 Tested frequency : 1~1000Hz

### Evaluation test setup





### Suppresses noise for cooling fans

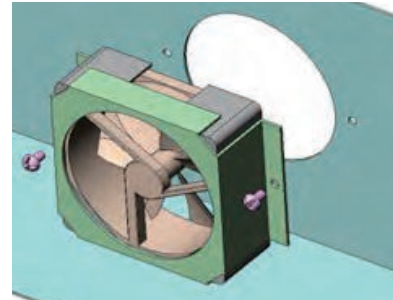
#### Especially for controlling fan noise

- Excellent noise suppression is provided with selection of appropriate material according to vibration frequency which causes fan noise.

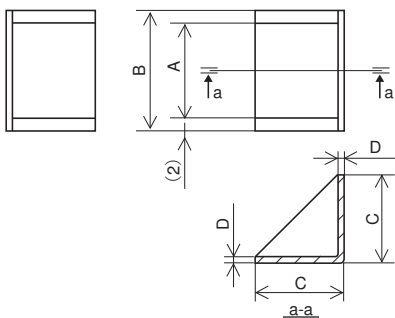
#### Fit to fans

- 3 designs are available to fit fans.

■ Application image



### Specifications



Part No.	A	B	C	D	Color
FH-10M-95T	10.0	12.4	9.0	1.2	Black
FH-15M-95T	14.6	18.6	13.0	1.0	
FH-25M-95T	24.0	28.0	13.0	1.0	

Part No.	Material	Applicable fan / Thickness mm
FH-10M-95T	TPS (KG-GEL/YMG-95T)	10
FH-15M-95T		15
FH-25M-95T		25

This product may not be installed on some manufacturers fans. Please contact us for details such as required size, material and property etc.

### MIC HOLDER / MH

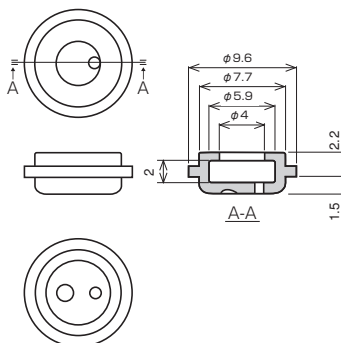


### Improved sound quality for microphone

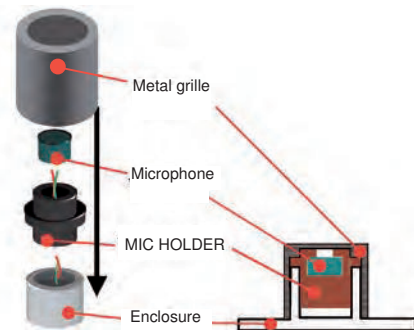
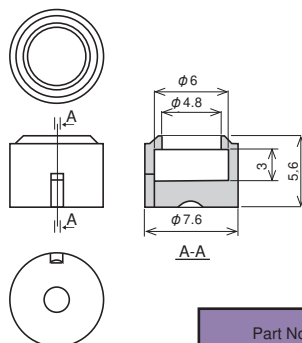
- Propagated external vibration of mechanical noise from motors, enclosures and so on is suppressed.
- Easy to assemble for microphone with connector because of material characteristic of high elongation rate.
- Silicon-free and sulfur-free material, solves electrical contact failures.

### Specifications

MH-62-100BK



MH-6022-100BK



Part No.	Material	Applicable microphone size
MH-62-100BK	TPS (KG-GEL/YMG-100-BK)	φ6mm / Thickness 1.5~1.9mm
MH-6022-100BK		φ6mm / Thickness 2.2~2.9mm

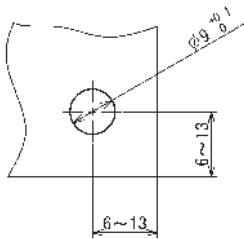
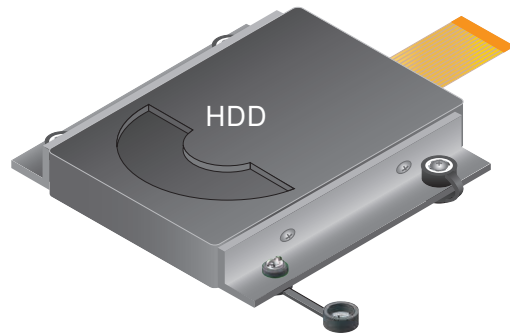
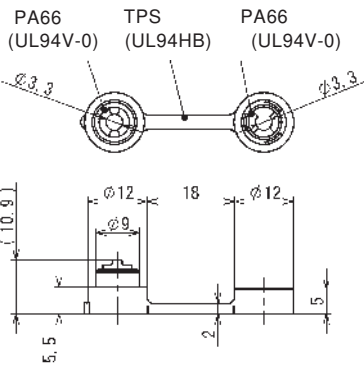
Please contact our sales department for installation instructions (precautions) before use. Also please confirm precautions described on the beginning page of the brochure.



### One touch Vibration Damper effective for Low-frequency

- It is effective for Low-frequency compared with an ordinary rubber damper.
- No sleeves and washers are needed. It enables to reduce the number of components.  
(Only used M3-sized screw to mount. / Shoulder screw isn't needed.)

### Specifications

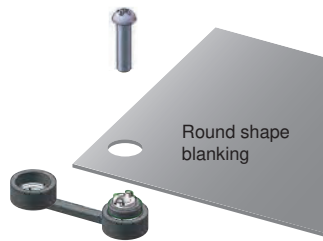


Panel thickness  $t=1\pm 0.1\text{mm}$

#### Solution

Component Qty 2pcs.  
→ 50%Down

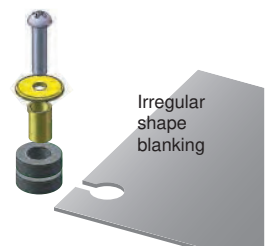
- Screw 1pcs.
- OTVD 1pcs.



#### Past assembly

Component Qty 4pcs.

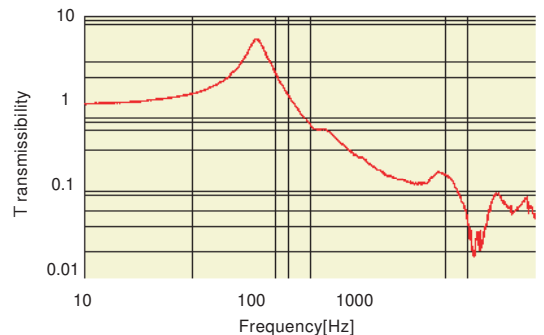
- Screw 1pcs.
- Washer 1pcs.
- Sleeve 1pcs.
- Bush 1pcs.



### Properties

#### ■ Vibration transmission

Testing condition  
Sample:t=3mm  
Load:400g  
Support point number  
Four point mounting  
Acceleration:0.4G



Please contact our sales department for installation instructions (precautions) before use.  
Also please confirm precautions described on the beginning page of the brochure.



SGS TÜV SAAR

Certificate DE12/81839359

The management system of

**KGS KITAGAWA GmbH**  
Birkenwaldstraße 38  
D-61379 Oberthausen

has been assessed and certified as meeting the requirements of

**ISO 14001:2015**

For the following activities

**Trading of electronic components and EMC solutions**

This certificate is valid from 16.06.2018 until 15.06.2021 and remains valid subject to satisfactory surveillance audits.  
Re certification audit due before 18.04.2021  
Issue 3  
The audit leading to this certificate commenced on 16.04.2018  
Previous issue certificate validity date was until 15.06.2018

Authorized by

*J. Meentken*  
Jgs. Jan Meentken  
Director CBE Germany

*Hagen Senne*  
Hagen Senne  
Head of Certification Body

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The management system of

**KGS KITAGAWA GmbH**  
Birkenwaldstraße 38  
D-61379 Oberthausen

has been assessed and certified as meeting the requirements of

**ISO 9001:2015**

For the following activities

**Trading of electronic components and EMC solutions**

This certificate is valid from 16.06.2018 until 15.06.2021 and remains valid subject to satisfactory surveillance audits.  
Re certification audit due before 18.04.2021  
Issue 3  
The audit leading to this certificate commenced on 16.04.2018  
Previous issue certificate validity date was until 15.06.2018

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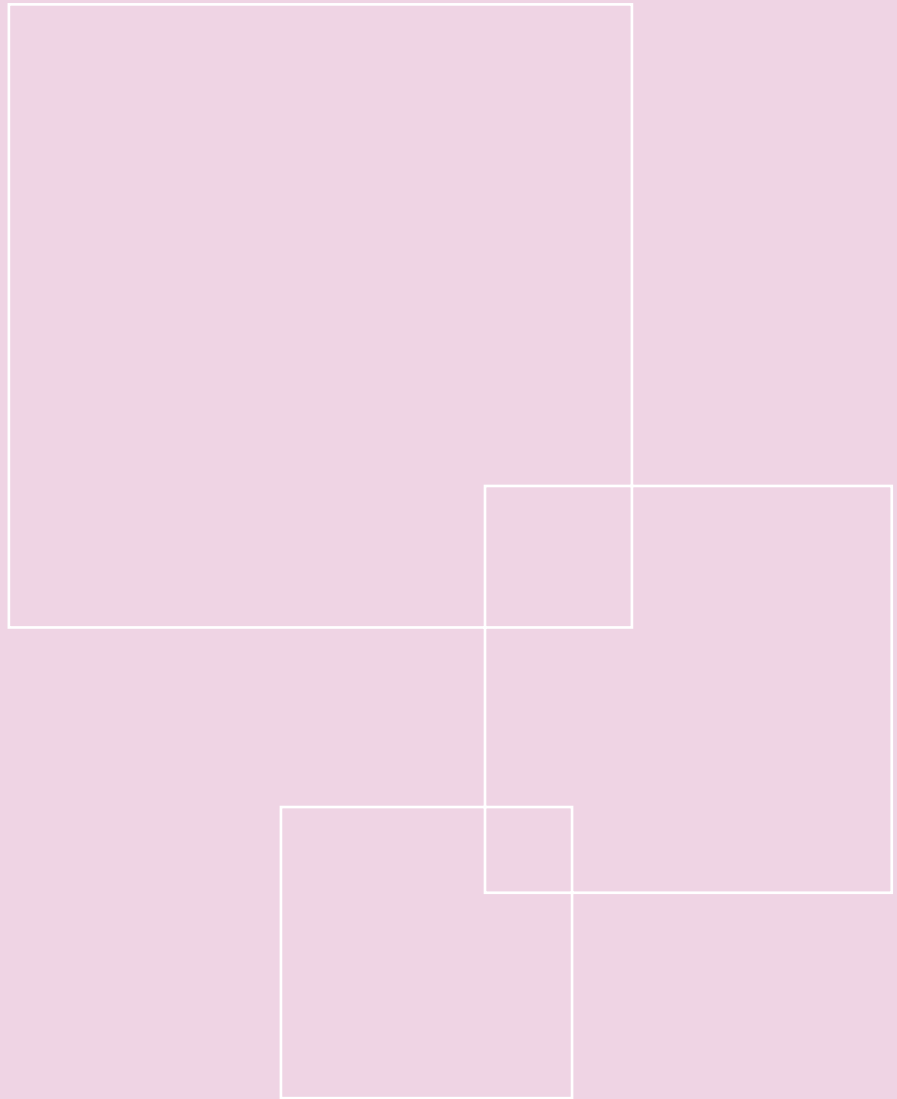
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## 1. Scope

1.1 The following General Terms of Delivery and Payment shall be applicable – provided nothing to the contrary is stipulated in writing – to all of the deliveries and other performance effected by us.

1.2 Deviating General Terms of Business of the Purchaser shall not bind us.

1.3 Amendments and/or supplements to the following terms and to the additionally stipulated agreements upon the conclusion of the contract must be made in writing.

## 2. Conclusion of the Contract

2.1 The offers of Kitagawa GmbH are made without obligation.

2.2 A contract between Kitagawa GmbH and the Purchaser shall only come into effect in accordance with the contents of the written confirmation of order on the part of Kitagawa GmbH or through the delivery of the goods or the rendering of the agreed performance by Kitagawa GmbH.

2.3 The Purchaser shall be bound to its order for three weeks. Kitagawa GmbH reserves the right to deviate from the order specifications in the acceptance of the order if this is necessary for the fulfillment of the order and is acceptable for the Purchaser.

2.4 Kitagawa GmbH shall be entitled to effect an alteration to the goods at any time without prior notification insofar as this does not result in any shortfall of the contractually stipulated characteristics of the goods and the alteration is reasonable for the Purchaser. The alteration of already delivered contract cannot be subsequently demanded.

## 3. Delivery Terms

3.1 The delivery period of the goods shall be determined in accordance with the written confirmation of order of Kitagawa GmbH.

3.2 Indicated delivery periods shall run from the dispatch of the written confirmation or order. If the Purchaser is obliged to effect advance performance, then the delivery period shall commence with the receipt of the contractual advance performance of the Purchaser at Kitagawa GmbH.

3.3 If the Purchaser demands alterations to the contractually stipulated performance after a written confirmation of order has been effected, then Kitagawa GmbH shall be entitled to effect a reasonable extension to the delivery period if necessary.

3.4 In cases of force majeure, interventions by sovereign powers, natural disasters, war, revolts, strikes at its own company, at supply companies or at carriers, Kitagawa GmbH shall be entitled to make up the delivery after the cessation of the

cause of the impediment and the delivery period shall be extended accordingly. The same applies if Kitagawa GmbH does not receive its own supplies in due time or in due form. There shall be no claims due to non-delivery or late delivery. This shall also be applicable if above indicated circumstances arise once the stipulated delivery period was already exceeded.

3.5 If a promised delivery date is not met by Kitagawa GmbH for reasons attributable to Kitagawa GmbH's fault, then the Purchaser shall be entitled to set Kitagawa GmbH a two-week subsequent period after the expiry of the stipulated delivery period by means of registered letter. The Purchaser shall be entitled to withdraw from the agreement after the fruitless expiry of the period. Claims for damages, insofar as is legally permissible, as well as more extensive rights shall be excluded, provided the delay in delivery is neither due to intent nor gross negligence on the part of Kitagawa GmbH. This limitation of claims shall not apply in cases due to loss of life, bodily injury or damage of health. The burden of proof that intent or gross negligence is not applicable shall be borne by Kitagawa GmbH.

3.6 Kitagawa GmbH shall be entitled to effect part deliveries unless they should be unreasonable to be accepted by the Purchaser.

## 4. Shipment and passing of risk

4.1 Kitagawa GmbH shall undertake the shipments of the goods at the Purchaser's expense. Kitagawa GmbH shall select the forwarder/carrier to the best of its knowledge, without, however, assuming corresponding liability. Kitagawa GmbH shall award the shipping order on the customary terms in the sector in each case. Transport insurance shall only be taken out at the Purchaser's request and expense.

4.2 Risk shall pass when the goods leave the warehouse or upon the surrender of the goods to the forwarder/carrier.

The risk shall also pass to the Purchaser, if the goods are ready for shipment and delivery is delayed or fails for other reasons attributable to the Purchaser.

4.3 Any transport damage which occurs must be asserted by the Purchaser in due time to the forwarder/carrier or its insurance company.

## 5. Prices

The prices are indicated in the respective confirmation of order or Kitagawa GmbH and are expressed net in EURO plus the statutory rate of V.A.T. exclusive of packing, freight, postage, delivery charges etc.

## 6. Payment Terms

6.1 Insofar as no other payment terms are indicated in the confirmation of order of Kitagawa GmbH, the invoices are payable after the invoice date within 30 days net without any discount. Decisive for effecting payment on time is the receipt of the payment at Kitagawa GmbH.

Cheques shall only be accepted on account of performance.

6.2 If the Purchaser is a businessman, then it shall be in default upon the exceeding of the due date without a separate warning. Kitagawa GmbH shall be entitled to assert default interest to the amount of 8 percentage points above the basic rate of interest. The assertion of a more extensive loss caused by default remains reserved.

6.3 In the event that the Purchaser should be in default with payment, Kitagawa GmbH may upon its discretion request advance payment before

delivery of the goods. The same shall apply if the Purchaser's economic conditions give reason to concern regarding the due fulfillment of payment obligations.

6.4 The Purchaser shall only be entitled to set off the claims of Kitagawa GmbH against those claims which are undisputed or legally binding.

## 7. Warranty

7.1 Kitagawa warrants for the duration of 12 months that the goods contained not material or fabrication defects at the time the risks passes. This warranty ("Gewährleistung") commences upon delivery of the goods.

7.2 Warranty shall not be effected in the case of improper utilization, faulty installation, incorrect operation etc. No warranty shall similarly be effected for losses which arise through the operation of the goods together with such appliances whose compatibility has not been expressly confirmed in writing by Kitagawa GmbH.

7.3 The Purchaser shall notify Kitagawa GmbH of any defects of the delivery in writing as soon as such defects are detected under conditions of normal business operations. Section 377 German Trade Code applies.

7.4 In the case of defects the warranty shall be effected at the option of Kitagawa GmbH by subsequent rectification or substitute delivery free of charge. If the subsequent rectification also fails on the second attempt or in if the second substitute delivery also contains defects or if Kitagawa GmbH does not meet its subsequent delivery or substitute delivery obligation within a reasonable period, then the Purchaser shall be entitled to a reduction of the purchase price or rescission of the contract.

7.5 Claims for damages caused by defects shall be excluded. This exclusion shall not apply in case a defect has been fraudulently concealed, in the event that life, body or health is injured and acts of Kitagawa GmbH with intention or gross negligence. In the case a guaranteed characteristic of the goods should be lacking, liability shall be restricted to the loss which is to be expected in accordance with the customary course of events. More extensive claims on account of the faulty nature of the goods shall be excluded. This shall also be applicable to the reparation of consequential losses and to the violation of ancillary contractual obligations.

7.6 The afore mentioned exclusion of liability shall also be applicable to claims in tort and in connection with the initiation, conclusion and processing of a contract, not, however, in the case of claims in accordance with the Product Liability Act.

## 8. Retention of Title

8.1 Kitagawa GmbH shall retain title to all goods until the payment in full of all receivables resulting from the business relations with Kitagawa GmbH. If the value of the collateral which is in existence in favour of Kitagawa GmbH should exceed the claims against the contract partner by more than 10 per cent in total, then Kitagawa GmbH shall be obliged to release collateral at the request of the Purchaser

8.2 The Purchaser shall be entitled to resell the goods subject to retention of title in customary business transactions. For this case, the Purchaser hereby assigns all claims arising out of such resale, whether the goods have been processed or not, to Kitagawa. Herewith, Kitagawa accepts this assignment. Notwithstanding Kitagawa's right to claim direct payment, the Purchaser shall be entitled to receive the payment on the assigned claims. To this end, Kitagawa agrees to not demand payment on the assigned claims to the extent the Purchaser complies with all its obligations for payment and does not become subject to an application for insolvency or similar proceedings or to any delay of payments. Moreover, the Purchaser shall not be entitled to pledge the goods subject to retention of title or to assign all claims to which it is entitled from a future sale of the goods subject to retention of title against its purchasers to Kitagawa GmbH by way of security.

8.3 In the case of the processing or reconstruction of the goods subject to retention of title by the Purchaser, this shall always be effected for Kitagawa GmbH. If the goods subject to retention of title are processed with other articles which do not belong to Kitagawa GmbH, then Kitagawa shall acquire co-ownership to the new article in proportion to the value of the goods subject to retention of title to the other processed articles at the time of processing. If the Purchaser sells the goods subject to retention of title together with other goods which do not belong to Kitagawa GmbH, or after joining or processing, then the assignment shall only be effected to the amount of the outstanding invoices sum of the respective goods subject to retention of title.

8.4 The Purchaser shall be entitled to collect the assigned receivable in its own name. Kitagawa GmbH shall, however, be entitled to revoke this collection authority at any time, especially in the case of default in payment by the Purchaser. In the case of revocation the Purchaser shall be obliged to provide Kitagawa GmbH with or to surrender to it all necessary information and documentation for the assertion of the assigned receivables and to disclose the assignments to its purchasers. In the case of default in payment by the Purchaser Kitagawa GmbH shall be entitled to

notify its purchasers of the assignment.

8.5 The Purchaser shall be obliged to provide Kitagawa GmbH with information at any time on the whereabouts of the goods subject to retention of title and on the receivables arising from their resale. The Purchaser shall be obliged to inform Kitagawa GmbH in writing of a seizure by a third party of the goods subject to retention of title or of the receivables assigned to Kitagawa GmbH and it shall be obliged to draw the third party's attention to the rights of Kitagawa GmbH. The Purchaser shall furthermore be obliged to support Kitagawa GmbH upon the assertion and enforcement of its rights against this third party, especially at its expense to lodge the necessary immediate remedies/appeals in order to safeguard the rights of Kitagawa GmbH.

8.6 In case of default in payment on the part of the Purchaser Kitagawa GmbH shall be entitled to take back the goods subject to retention of title. The Purchaser shall accordingly be obliged to surrender these goods. The taking back of the goods subject to retention of title does not constitute a withdrawal from the contract, unless Kitagawa GmbH expressly states such a withdrawal in writing.

8.7 The Purchaser shall be obliged to treat the delivered goods subject to retention of title with care. It shall especially be obliged to take out adequate insurance cover for the goods subject to retention of title at its own expense against loss or damage through fire, water, burglary or theft. The Purchaser hereby assigns its corresponding insurance claim to Kitagawa GmbH. Kitagawa GmbH hereby accepts this assignment and states the reassignment to the Purchaser with the proviso that this shall become effective if and as soon as the retention of title has expired.

## 9. Final Provisions

9.1 The Purchaser shall not be entitled to assign rights and obligations to third parties arising from the contract concluded with Kitagawa GmbH without the prior approval of Kitagawa GmbH.

9.2 The contractual relations between the contracting parties shall be subject to the Law of the Federal Republic of Germany. The provisions of the Convention on Contracts of the International Sale of Goods (CISG, Vienna Convention) shall not apply to the contract concluded with the Purchaser.

9.3 Venue for all disputes and types of proceedings arising from or in connection with the contractual relations between the parties shall be Darmstadt, Federal Republic of Germany, provided the Purchaser is a businessman.

9.4 Kitagawa GmbH shall be entitled to store and to use the personal data to which it has obtained access from the business relations with the Purchaser under the terms of the German Data Protection Act for its own business purposes.

9.5 If a provision of these General Terms of Business or of the contract concluded with the Purchaser should be or become ineffective, then this shall not affect the effectiveness of the remaining provisions of these General Terms of Business or of the concluded contract.

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Notice:

The specifications provided in this catalogue are believed to be accurate and reliable. Kitagawa GmbH reserves the right to make changes to specifications to improve manufacturing process performance and reliability.

This catalogue is intended for representation only and is not to form any part of any order. Engineering specifications are available upon request.

Any information/specification supplied by Kitagawa GmbH is based upon Kitagawa Industries laboratory test data and is believed to be reliable. It is recommended that our products are tested by the customer to ensure suitability for the intended application.

If any Kitagawa product is to be used in a life threatening application (such areas as Medical Automotive and Aerospace etc) the application must be discussed with Kitagawa GmbH and its written approval must be obtained.

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