



**OVER  
17,000  
PRODUCTS**

# WHY ESSENTRA COMPONENTS?



**65+**  
YEARS  
solving  
customer  
challenges



Operations in  
**29 COUNTRIES**  
worldwide



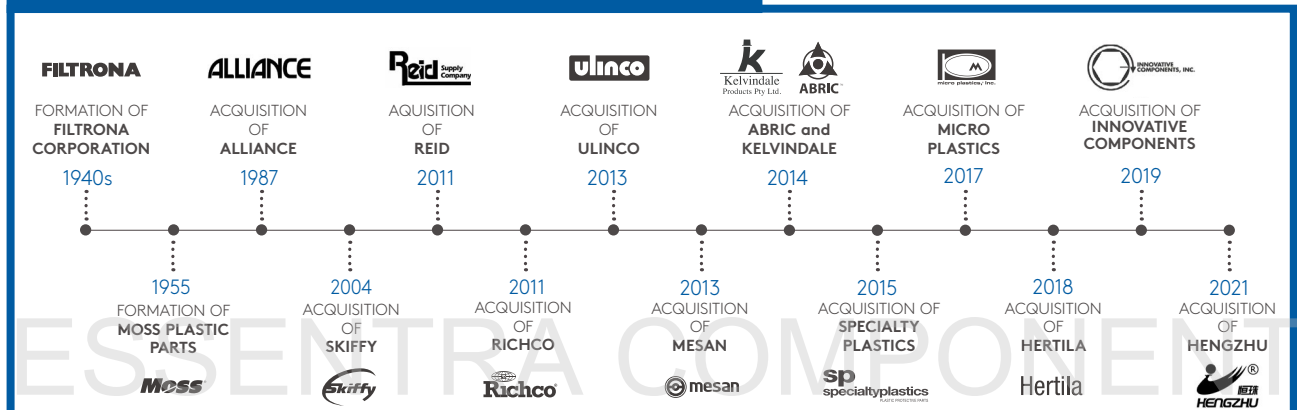
**45,000**  
products  
available



**80 MILLION**  
parts produced  
each week

We combine the expertise and flexibility of a manufacturer with the service and range of a distributor.

## THIS IS ESSENTRA COMPONENTS



**2500**  
EMPLOYEES  
ACROSS THE  
WORLD

**29**  
LOCAL LANGUAGE  
E-COMMERCE  
SITES

**AMERS**  
7 manufacturing  
sites

**EMEA**  
4 manufacturing  
sites

**APAC**  
3 manufacturing  
sites



### STABILITY & GLOBAL GROWTH

- 2021 - £301.7M revenue
- £56.9M operating profit

**34**  
DISTRIBUTION  
CENTRES

**40**  
SALES  
AND SERVICE  
LOCATIONS

# HASSLE FREE SERVICE

EQUIPMENT MANUFACTURERS • AUTOMOTIVE • ELECTRICAL MANUFACTURERS  
• TRANSPORT/LOGISTICS • POS/RETAIL

**1 BILLION**  
PARTS  
IN STOCK

**70%**  
OF TOP 100 GLOBAL  
MANUFACTURERS

**90%**  
OF ELECTRONICS  
MANUFACTURERS

**100%**  
OF TOP 15 GLOBAL  
AUTO TIER 1 SUPPLIERS

**17**  
PRODUCT  
RANGES

**5.6**  
MILLION  
CUSTOM SOLUTIONS  
PRODUCED  
TO DATE

SHIPPING OVER  
**17,000**  
ORDERS EACH WEEK

PROCESSING  
**1.8M**  
ORDER LINES A YEAR

SENDING OVER  
**300,000**  
SAMPLE ORDERS  
TO CUSTOMERS

**80,000**  
CUSTOMERS  
WORLDWIDE



CAPS  
& PLUGS



ACCESS  
HARDWARE



CABLE  
MANAGEMENT



FASTENERS



PIPE & FLANGE  
AND HOSE  
PROTECTION



CIRCUIT BOARD  
HARDWARE



HIGH  
TEMPERATURE  
MASKING



KNOBS,  
HANDLES  
& GRIPS



**FREE**  
CAD



**FREE**  
SAMPLES



**FREE**  
DESPATCH



**CUSTOM**  
SOLUTIONS

## WORKING FOR A BETTER LIFE

All principal manufacturing sites are **ISO 14001** accredited.

**ISO 14001**  
ACCREDITED



**SUPPORT** the creation of prosperous, educated, sustainable and healthy **COMMUNITIES** wherever we operate.

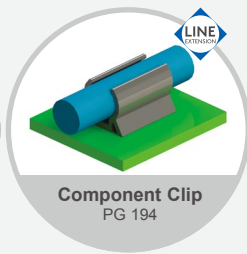
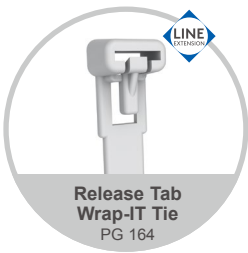
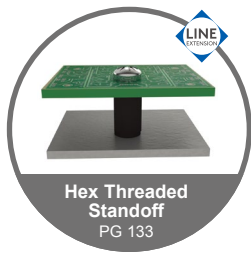
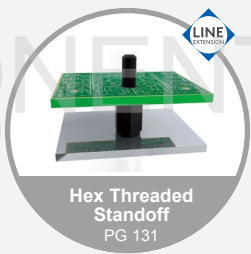
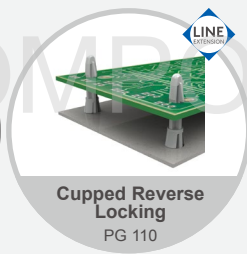
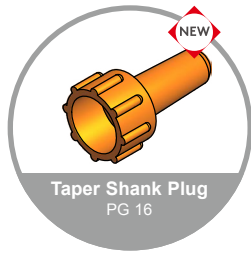
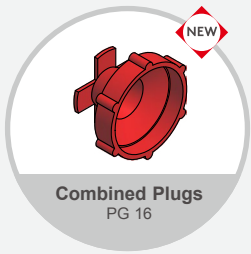


**DEVELOPED TARGETED PROGRAMMES** often involving commercial sponsorship and significant **EMPLOYEE ENGAGEMENT.**



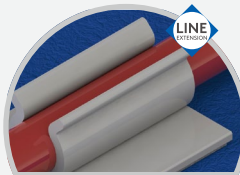
**79%**  
EMPLOYEE  
ENGAGEMENT

# NEW PRODUCTS AND EXPANDED LINES

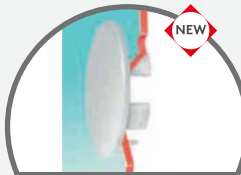




# NEW PRODUCTS AND EXPANDED LINES



**U Style Clamp on Adhesive Base**  
PG 224



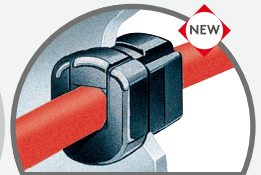
**Street Hole Plug**  
PG 256



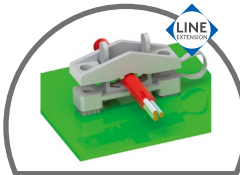
**Domed Blanking Plugs**  
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**Body Plugs IP67**  
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**Strained Relief Bushes**  
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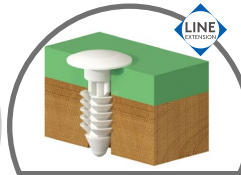
**Hinged Locking Clamp**  
PG 266



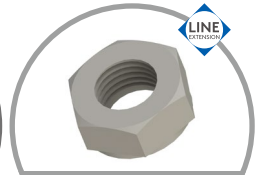
**Spacer Column Expanded**  
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**Pawl Lock**  
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**Hex Nut**  
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**Cylinder Cam Locks**  
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**Quarter Turn Locks**  
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**Quarter Turn Lock - Knob**  
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**Clip On Quarter Turn**  
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**Quarter Turn Knob**  
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**Mini Quarter Turn**  
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**T & L Quarter Turn Blind Latch**  
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**Swing Handle Lock**  
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**Crank Lock**  
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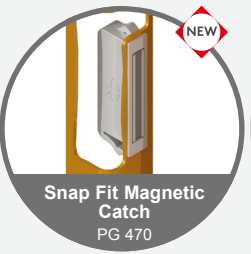


**Raised Trigger Handle Latches**  
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# NEW PRODUCTS AND EXPANDED LINES



# NEW PRODUCTS AND EXPANDED LINES



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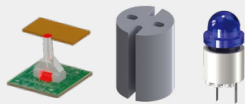
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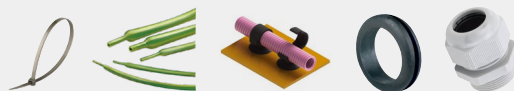
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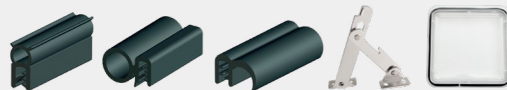
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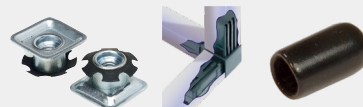
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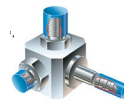
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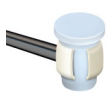
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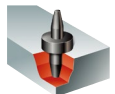
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## Circuit Board Hardware



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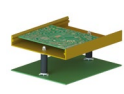
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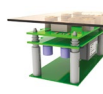
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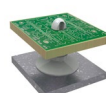
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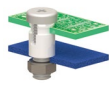
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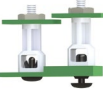
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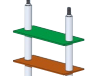
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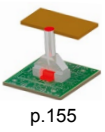


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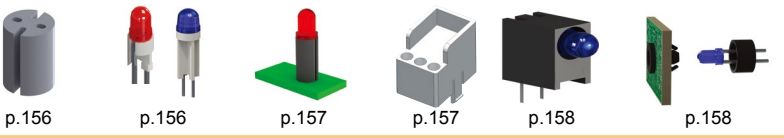




## LED Hardware



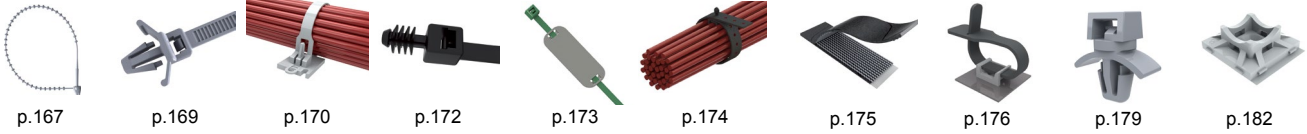
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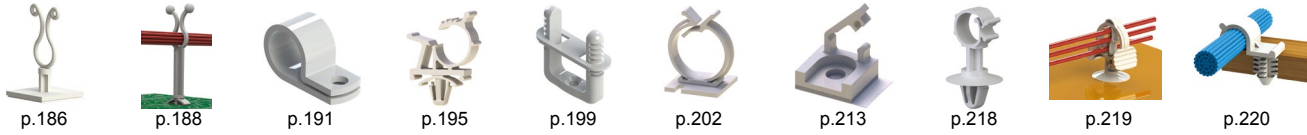
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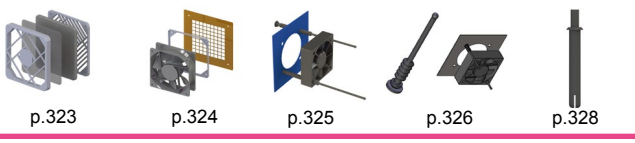
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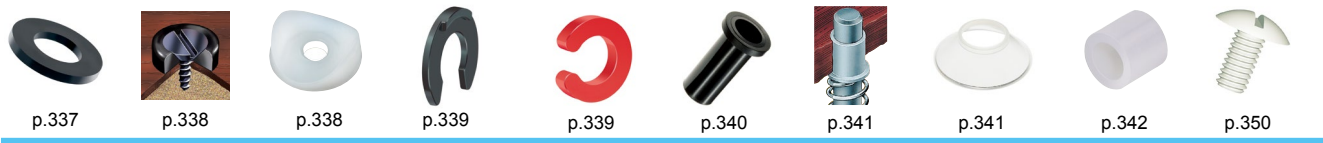
## Fan Accessories



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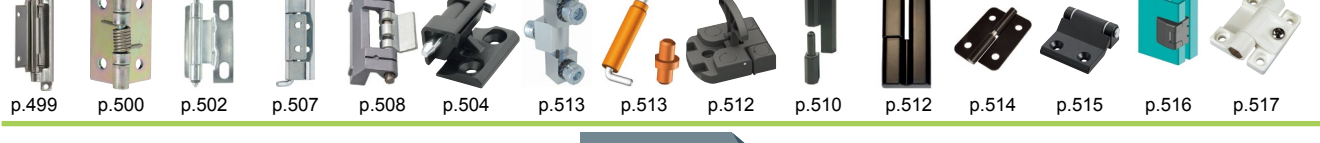
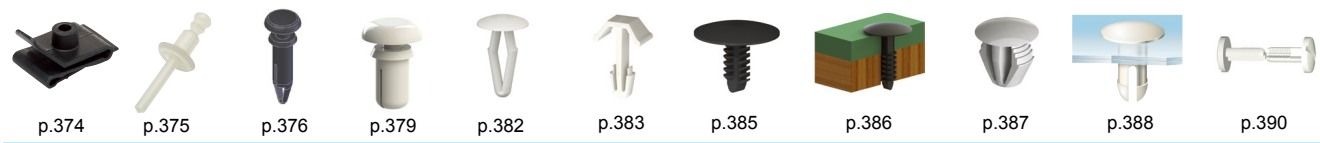


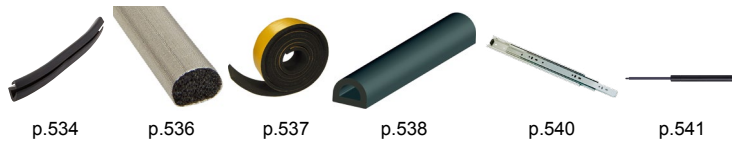
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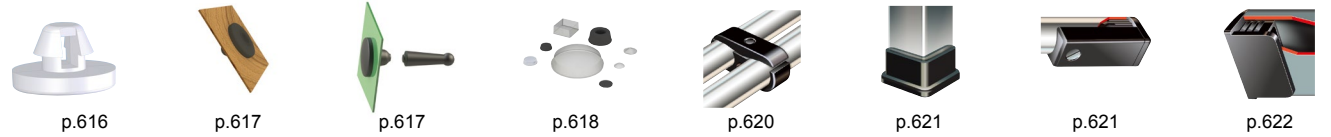
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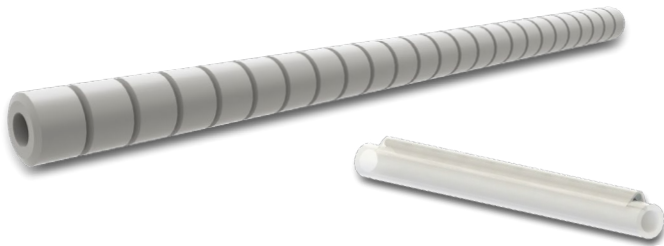
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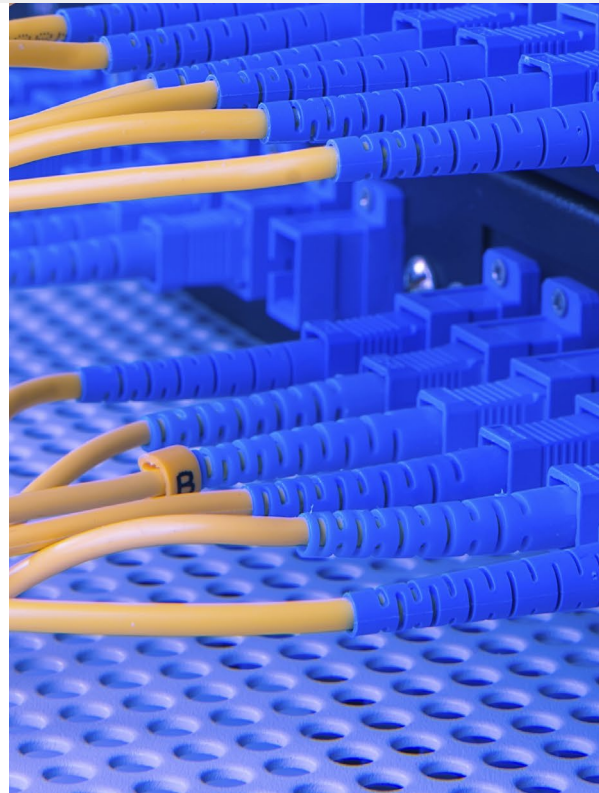
# OPTIMAL SOLUTIONS

Protect vulnerable optical fibres, particularly where fibre breakout is required, and you'll avoid costly signal failure and data errors.

Essentra offers an extensive range of fibre optic products, meeting telecom and datacom application requirements at all levels. Our products help eliminate potential hazards such as macro and micro bends caused by mishandling of optical fibres during installation, maintenance and upgrade.



Please refer to the back cover of this catalogue for contact details of Essentra Components Asia Pacific offices.

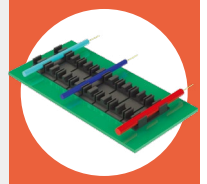
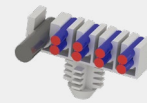




# FIBRE MANAGEMENT

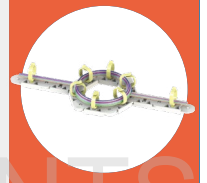
## Fibre Clips and Supports

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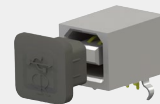
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## Fibre Clips and Plugs

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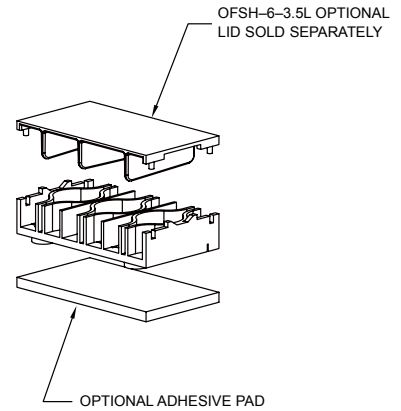
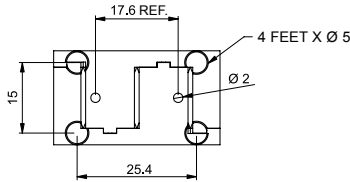
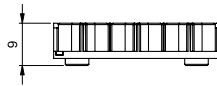
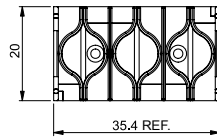
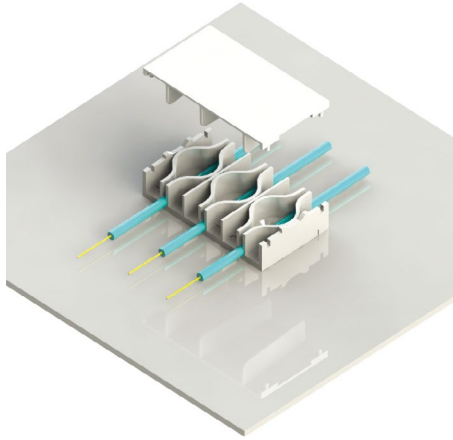


ESSENTRA COMPONENTS

OFSH-6

## Optical Fibre Splice Holder

Natural PP, RMS-150 and TPE, RMS-182



Part Number	Contents	Std Pack Qty
OFSH-6-3.5	No Adhesive	10
OFSH-6-3.5L	Lid Only	10

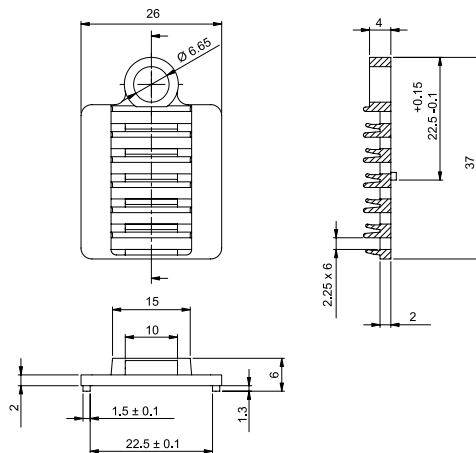
## OFSH-T Splice Holder

Black

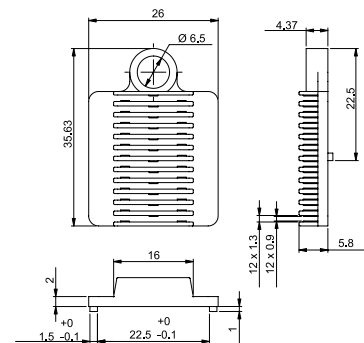
- OFSH-T-6 designed to hold up to 6 x 3mm Fibre or components, i.e. couplers, splice protectors, and WDM's
- OFSH-T-12 designed to hold up to 12 crimp splice protectors
- OFSH-T Splice Holders can be used with OFST Series Splice Trays



OFSH-T-6



OFSH-T-12



Part Number		Std Pack Qty
UL94 V2 Nylon 6/6, RMS-01	UL94 V0 Nylon 6/6, RMS-19	
OFSH-T-6-01BLK	OFSH-T-6-19BLK	100
OFSH-T-12-01BLK	OFSH-T-12-19BLK	100

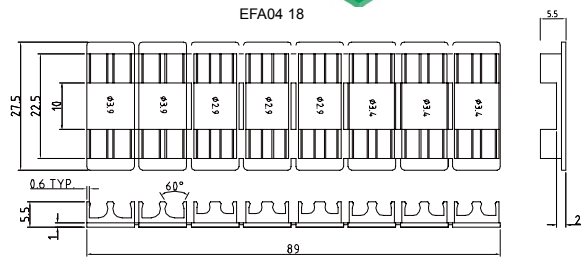
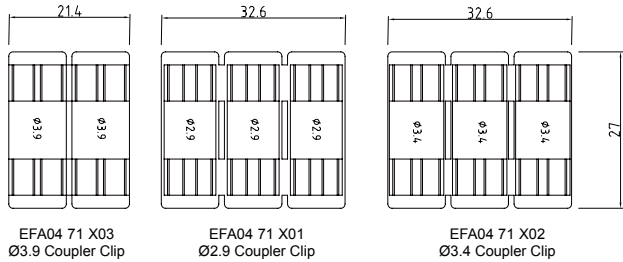
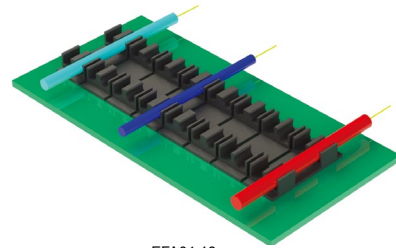


EFA04-18/EFA04-71

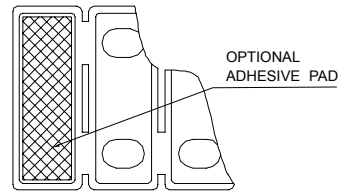
## Coupler Clip

Black UL94 V0 Nylon 6,  
RMS-390; Adhesive RMS-143

- EFA04 18 can be broken apart to form individual clips



Part Number	Contents	Std Pack Qty
EFA04-18-ASS	EFA04 18 001 with 8 adhesive pads	100
EFA04-71-001	6-way 2.9mm coupler clip	100
EFA04-71-P01	EFA04 71 001 with 3 adhesive pads	100
EFA04-71-002	6-way 3.4mm coupler clip	100
EFA04-71-003	4-way 3.9mm coupler clip	100
EFA04-71-P03	EFA04 71 003 with 2 adhesive pads	100

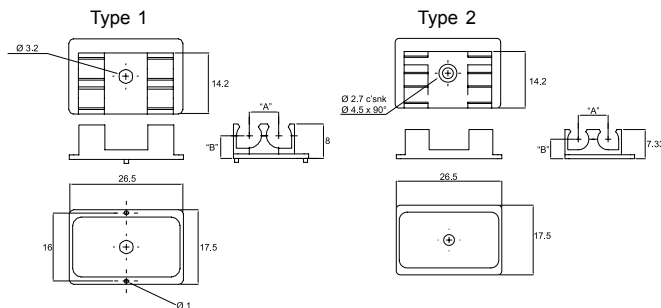
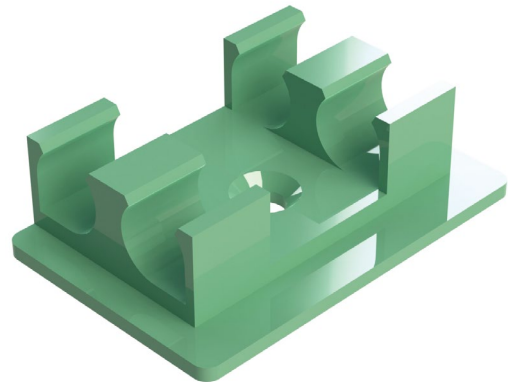


EFA04-6X

## Isolator Clips

UL94 V0 Nylon 6, RMS-390; Adhesive, RMS-143

- Designed for use in the Array Tray EFA04-25-001 (shown above)
- Can be screw or rivet mounted or mounted with self adhesive pads
- EFA04 61 001 has anti-rotation pins to securely mount when using screw or rivet

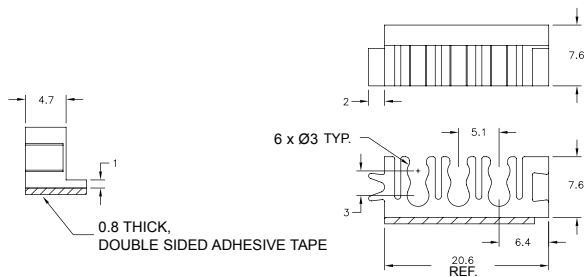
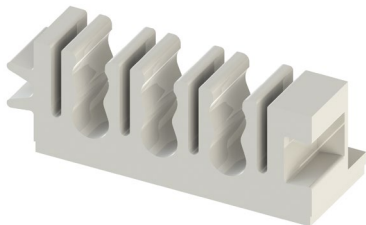


Part Number	Type	Contents	Color	Dimensions (mm)		Std Pack Qty
				"A"	"B"	
EFA04-61-001	1	6MM Isolator Clip	Red	6.9	5.3	100
EFA04-61-ASS	1	6MM Isolator Clip with Adhesive Pad	Red	6.9	5.3	100
EFA04-63-001	2	5.5MM Isolator Clip	Green	7.5	4.9	100
EFA04-63-ASS	2	5.5MM Isolator Clip with Adhesive Pad	Green	7.5	4.9	100
EFA04-64-001	2	4.5MM Isolator Clip	Yellow	8.5	5.3	100
EFA04-64-ASS	2	4.5MM Isolator Clip with Adhesive Pad	Yellow	8.5	5.3	100

OFEB

## Optical Fibre Expandable Bracket

Natural UL94 V-0 Nylon 6/6, RMS-19  
Adhesive backing, RMS-15



Part Number  
OFEB-3-19

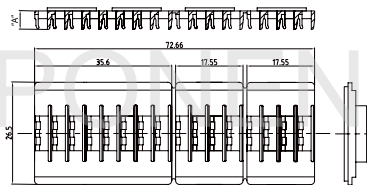
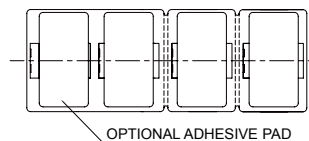
Std Pack Qty  
1000

EFA04-06/EFA04-08

## 16-Way Fibre Clips

UL94 V0 Nylon 6, RMS-390;  
Adhesive, RMS-143

- Can be broken apart to form 3 individual clips holding 4, 4 and 8 components
- A broken apart 4-way can be used in the Splice Tray EFA04 25 001



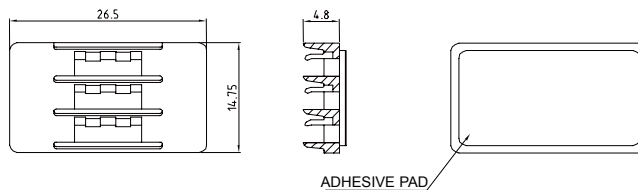
Part Number	Contents	Color	"A" (mm)	Std Pack Qty
EFA04-06-001	16-Way 3mm Fibre Clip	Black	4.8	100
EFA04-06-ASS	16-Way 3mm Fibre Clip With Adhesive pad	Black	4.8	100
EFA04-08-ASS	16-Way 2mm fibre Clip With Adhesive pad	Blue	6.4	100

EFA-04-02-ASS

## Fibre Clip

Black UL94 V0 Nylon 6, RMS-390

- Designed to hold 3mm diameter fibre or components, i.e. couplers, splice protectors, and WDM's

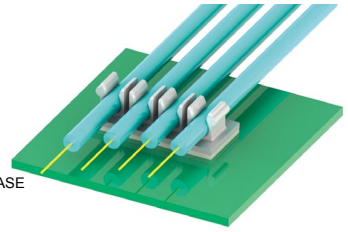
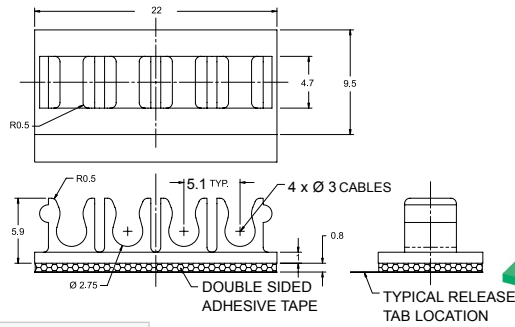


Part Number	Contents	Std Pack Qty
EFA-04-02-ASS	3mm fibre clip with adhesive, RMS-143pad	100

OFHB3

## Optical Fibre Holder on Base, 3mm

Natural UL94 V0 Nylon 6/6, RMS-19  
Adhesive Backing, RMS-15

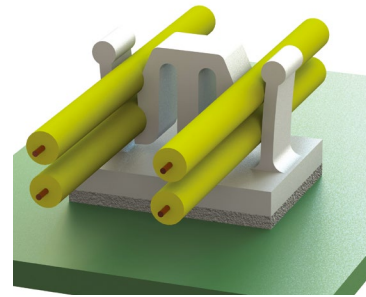


Part Number	Std Pack Qty
OFHB3-4-19A-RT	1000

OFHB2

## Optical Fibre Holder on Base, 2mm

Natural Nylon 6/6, RMS-19



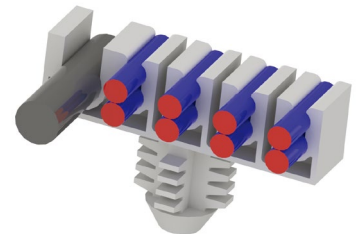
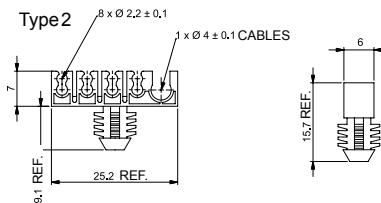
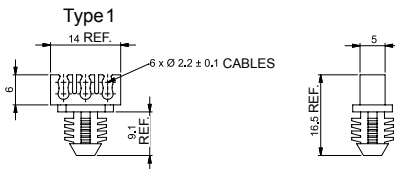
Part Number  
OFHB2-4A1-RT-19

Std Pack Qty  
1000

OFB-BH

## Optical Fibre Bracket, Blind Hole

Natural UL94 V0 Nylon 6/6, RMS-19



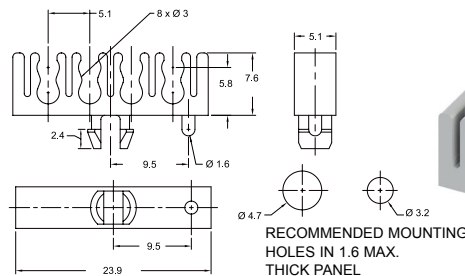
Part Number	Type	Hole Ø	Panel Thickness	Std Pack Qty
OFB-BH-6-19	1	7.92 ± 0.05	6.35 Min.	1000
OFB-BH-9-19	2	7.92 ± 0.05	6.35 Min.	1000

OFB3P

## Optical Fibre Bracket, 3mm, Plug-In, 4 Slot

Natural UL94 V0 Nylon 6/6, RMS-19

- Anti-rotation pin prevents fibre kinking due to bracket turning in the mounting hole

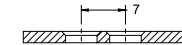
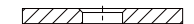
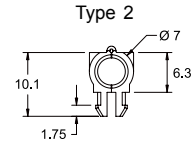
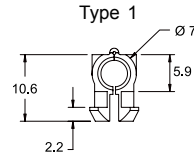


Part Number	Std Pack Qty
OFB3P-4-19	1000

OFTGSP

## OFBLT Mounting Saddle

Natural UL94 V0 Nylon 6/6, RMS-19



Type 1 Mounting Hole Detail

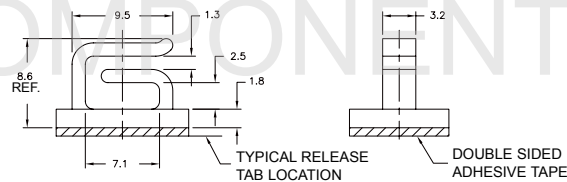
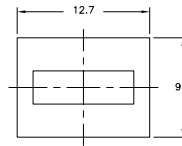
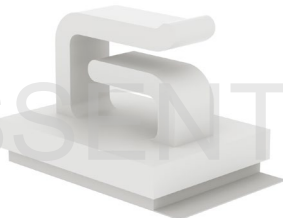
Type 2 Mounting Hole Detail

Part Number	Type	Hole Ø (mm)	Panel Thickness Max (mm)	Std Pack Qty
OFTGSP-1-05-19	1	6.35 ± 0.08	2.4	100
OFTGSP-2-05-19	2	5 ± 0.08	1.8	100

MOFNSB

## Mini Optical Fibre Network Saddle on Adhesive Base

Adhesive Back: RMS-15

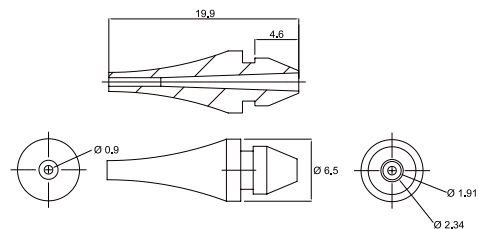
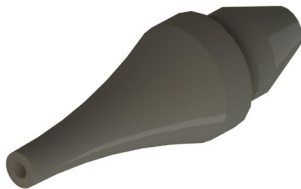


Part Number		Std Pack Qty
Natural Nylon 6/6, RMS-01	Natural UL94 V0 Nylon 6/6, RMS-19	1000
MOFNSB-2-01A-RT	MOFNSB-2-19A-RT	

EFA70-07-001

## Strain Relief Boot 900 Micron Fibre

Black TPE, RMS-185



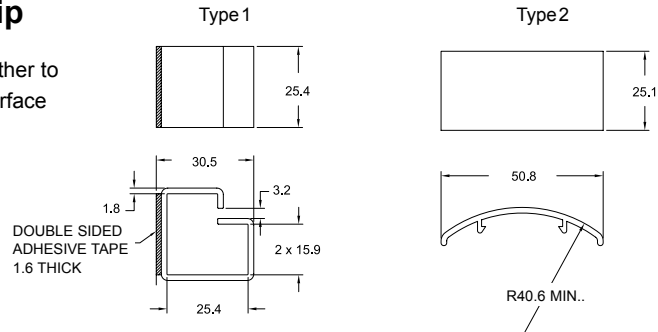
Part Number	Hole Ø (mm)	Panel Thickness (mm)	Std Pack Qty
EFA70-07-001	4	1.6	500

## OFCC/OFCG

### Optical Fibre Coiling Clip

Black Rigid, RMS-04; Adhesive, RMS-15

- Two extruded clips snap into each other to form a clip with a smooth, curved surface to accommodate fibre optic bundles



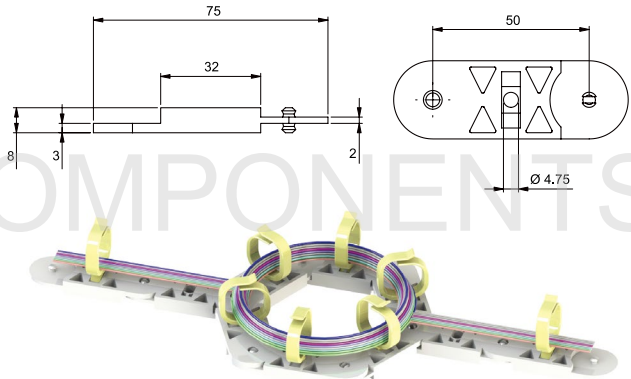
Part Number	Type	Std Pack Qty
OFCC-16A-RT	1	100
OFCG-16	2	100

## OFCP

### Chain Plate

Natural UL94 V0 Nylon 6/6; RMS-19

- Complete the circle for an excess fibre spool to form a "Y" for breakout points
- All connections maintain a bend radius greater than 30mm



Part Number	Std Pack Qty
OFCP-50-19	500

## OFSB

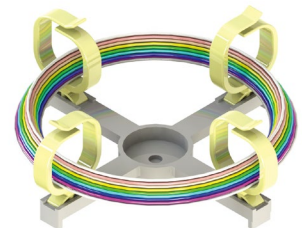
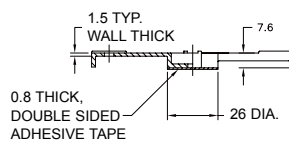
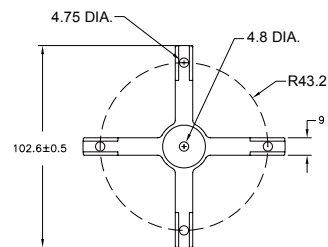
### Optical Fibre Support Base

Natural, RMS-19

- Designed for use in fibre optic patch panel applications

Part Number	UL94 V0	UL94 V0	Mounting Method	Std Pack Qty
Nylon 6/6, RMS-01	UL94 V0	Nylon 6/6, RMS-19		
OFSB-4-85-01A	OFSB-4-85-19A	OFSB-4-85-19A	Adhesive tape, RMS-15	100
OFSB-4-85-01	OFSB-4-85-19	OFSB-4-85-19	Screw or Rivet Mount	100

Mounting Rivets (B-black, W-white)		
Part Number	Hole Ø	Panel Thickness Range
SR-5045	5.1 - 5.2	1.5 - 2.5
SR-5055	5.1 - 5.2	2.5 - 3.5
SR-5065	5.1 - 5.2	3.5 - 4.5
SR-5075	5.1 - 5.2	4.5 - 5.5
SR-5085	5.1 - 5.2	5.5 - 6.5
SR-5095	5.1 - 5.2	6.5 - 7.5
SR-5105	5.1 - 5.2	7.5 - 8.5



## EFA04

### Fibre Reels

UL94 V0 Nylon 6, RMS-390;

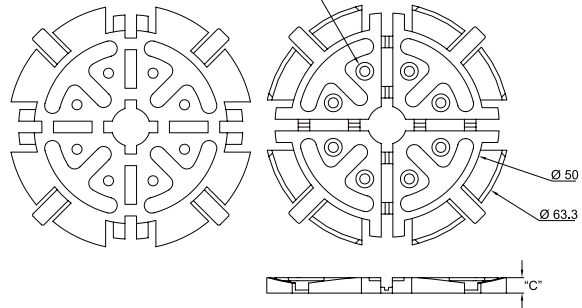
Adhesive: RMS-143

- Board mountable using Stand-off EFA04 27 ASS
- Stackable using Stacking Pillar EFA04 53 ASS
- Type 1 can be broken apart into 4-90° bending control devices



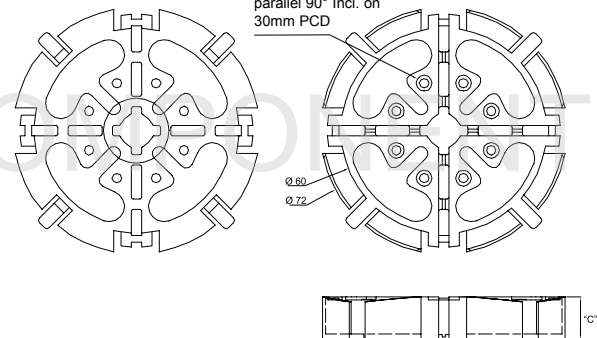
Type 1

8 Holes Ø2.8,  
C/SK Ø4.6 with 0.5  
parallel 90° Incl. on  
30mm PCD



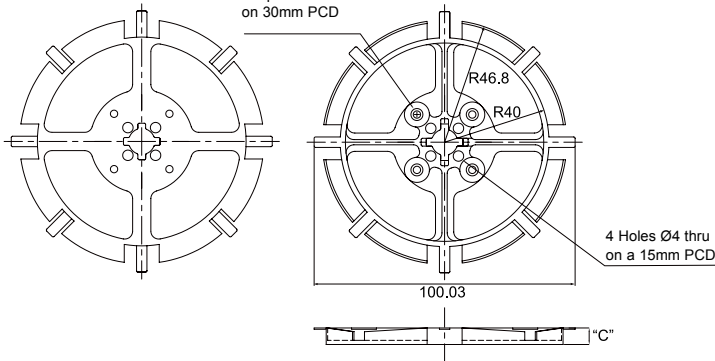
Type 2

8 Holes, Ø2.8 C/SK  
Ø4.6 with 0.5mm  
parallel 90° Incl. on  
30mm PCD



Type 3

4 Holes Ø2.8,  
C/SK Ø4.6 with  
0.5 parallel 90° Incl.  
on 30mm PCD



Part Number	Type	Contents	"C" (mm)	Max. Fibre Storage	Std Pack Qty
EFA04-04-001	1	25 mm radius fibre reel 4 2.5m of 900 micron fibre	4	2.5m of 900 micron fibre	100
EFA04-04-ASS	1	EFA04-04-001 with 4 self-adhesive pads	4	2.5m of 900 micron fibre	100
EFA04-21-001	1	25 mm radius fibre reel 4 2.5m of 900 micron fibre	6.35	4.5m of 900 micron fibre	100
EFA04-21-ASS	1	EFA04-21-001 with 4 self-adhesive pads	6.35	4.5m of 900 micron fibre	100
EFA04-10-001	2	30 mm radius fibre reel 4 2.5m of 900 micron fibre	3.9	3m of 900 micron fibre	100
EFA04-10-ASS	2	EFA04-10-001 with 4 self-adhesive pads	3.9	3m of 900 micron fibre	100
EFA04-14-001	2	30 mm radius fibre reel 4 2.5m of 900 micron fibre	12.4	9m of 900 micron fibre	100
EFA04-14-ASS	2	EFA04-14-001 with 4 self-adhesive pads	12.4	9m of 900 micron fibre	100
EFA04-76-001	2	35 mm radius fibre reel 4 2.5m of 900 micron fibre	8	15m of 900 micron fibre	100
EFA04-76-ASS	2	EFA04-76-001 with 4 self-adhesive pads	8	15m of 900 micron fibre	100
EFA04-23-001	3	40 mm radius fibre reel 4 2.5m of 900 micron fibre	6.35	7m of 900 micron fibre	100

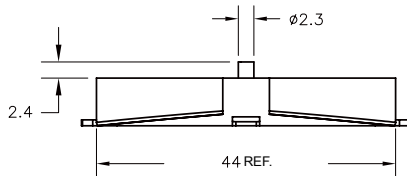


## OFS90

### Optical Fibre Segment 90°, 30mm Radius

Natural UL94 V0 Nylon 6/6, RMS-19

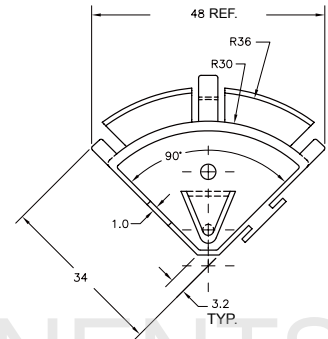
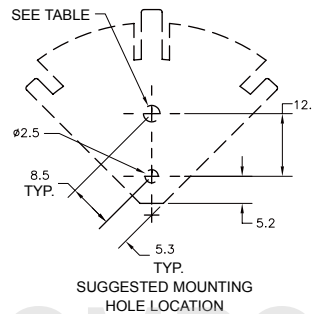
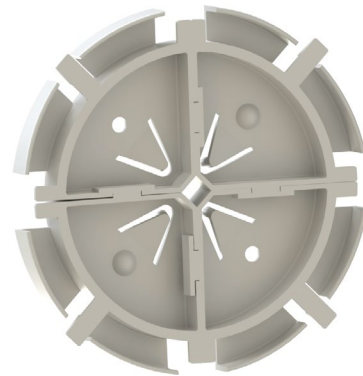
- Assemble two pieces for bend control around a 180° turn
- In a four-piece assembled mode, stores approximately 60m of 900 micron fibre



Part Number	Std Pack Qty
OFS90	100 (25 sets)

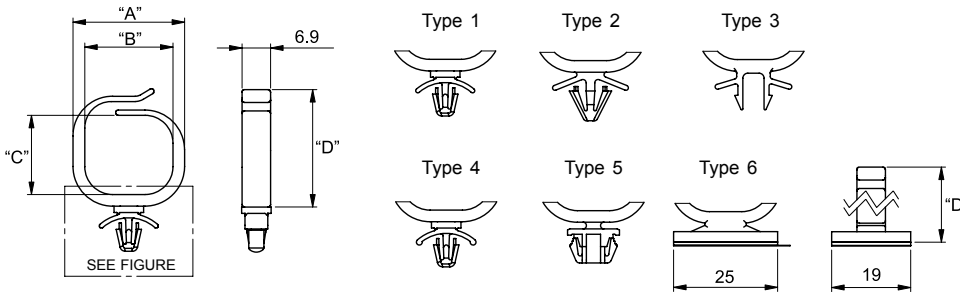
#### Mounting Rivets

Part Number	Thickness Range	Mounting Hole Ø	Std Pack Qty
SRV0-3035B	Up to 1	3.1-3.2	1000
SRV0-3045B	1-2	3.1-3.2	1000
SRV0-3055B	2-3	3.1-3.2	1000
SRV0-3065B	3-4	3.1-3.2	1000
SRV0-3075B	4-5	3.1-3.2	1000
SRV0-3080B	4.5-5.5	3.1-3.2	1000
SRV0-3090B	5.5-6.5	3.1-3.2	1000
SRV0-3100B	6.5-7.5	3.1-3.2	1000



## OFNS

### Optical Fibre Network Saddle



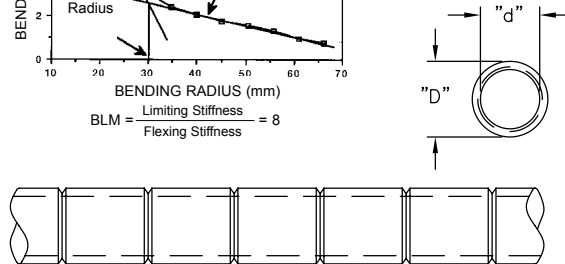
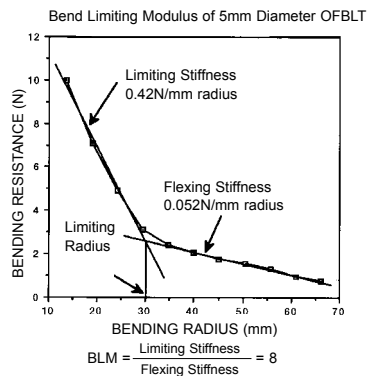
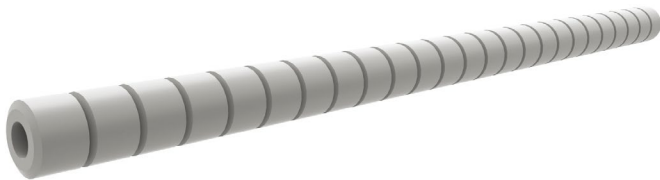
Part Number			Type	Dimensions (mm)				Mounting Hole	Thickness Range	Std Pack Qty
Natural UL94 V2 Nylon 6/6,RMS-01	Black UL94 V2 Nylon 6/6,RMS-01	Natural UL94 V0 Nylon 6/6,RMS-19		A	B	C	D			
OFNS-16-187-01	OFNS-16-187-01B	OFNS-16-187-19	1	34.3	28.7	25.1	34.4	Ø 4.75	0.8 - 2	1000
OFNS-13-187-01	OFNS-13-187-01B	OFNS-13-187-19	1	26.8	21.2	19	28.2	Ø 4.75	0.8 - 2	1000
OFNS-16-312-01	OFNS-16-312-01B	-	2	34.3	28.7	25.1	34.4	Ø 7.92	0.8 - 1.6	1000
OFNS-13-312-01	OFNS-13-312-01B	OFNS-13-312-19	2	26.8	21.2	19	28.2	Ø 7.92	0.8 - 1.6	1000
OFNS-16-S307-01	-	OFNS-16-S307-19	3	34.3	28.7	25.1	34.4	□ 7.8	0.8 - 2	1000
OFNS-13-250-01	OFNS-13-250-01B	OFNS-13-250-19	4	26.8	21.2	19	28.2	Ø 6.35	0.8 - 2	1000
OFNS13-S9.5M-01	-	OFNS13-S9.5M-19	5	26.8	21.2	19	28.2	□ 9.5	0.8 - 2	1000
OFNS16-S9.5M-01	OFNS16-S9.5-01B	OFNS16-S9.5M-19	5	34.3	28.7	25.1	34.4	□ 9.5	0.8 - 2	1000
OFNS28-S9.5M-01	-	OFNS28-S9.5M-19	5	43	35	44	55	□ 9.5	0.8 - 2	500

## OFBLT

### Optical Fibre Bend Limiting Tubing

White PP, RMS-86

- Optical Fibre Bend Limiting Tubing offers the ultimate protection to fibres eliminating problems such as crushing, kinking, and micro bending, while supplying an entire, selfmanaging solution to managing the routing of fibre
- Suitable for blown fibre applications over short distance and for curbside FTTH/FTTB applications

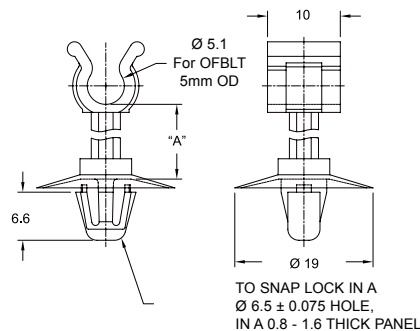
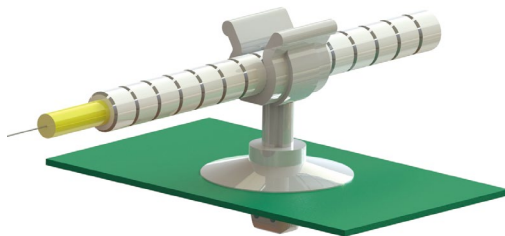


Part Number	Dimensions (mm)		Install Tool Required	Std Pack Qty
	"D" +0.00-0.10	"d" +0.20-0.10		
		Standard Version		
OFBLT-2.6-05-PP	5.05	2.6	-	100
OFBLT-3.1-05-PP	5.05	3.1	-	100
OFBLT-42-635PP	6.35	4.2	-	100
		Pull-Cord Version		
OFBLTP-31-505PP	5.05	3.1	-	100
		Slit Version		
OFBLTS2.6-05-PP	5.05	2.6	OFZT-2-14-RD	100
OFBLTS-42-635PP	6.35	4.2	OFZT-2-14-RD	100

## TPCE

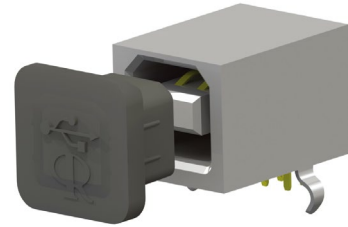
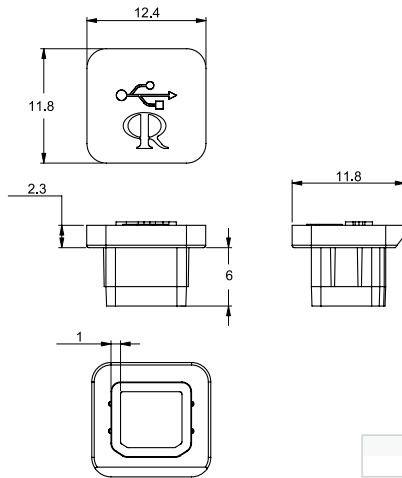
### Tube & Pipe Clip

Natural



Part Number		"A"(mm)	Std Pack Qty
UL94 V2	UL94 V0		
Nylon 6/6, RMS-01	Nylon 6/6, RMS-19		
TPCE5-51-4M-01	TPCE5-51-4M-19	4	1000
TPCE5-51-6M-01	TPCE5-51-6M-19	6	1000
TPCE5-51-10M-01	TPCE5-51-10M-19	10	1000

**CP-USB-B**  
**USB Connector Plug**  
 Black Silicone Rubber, RMS-383

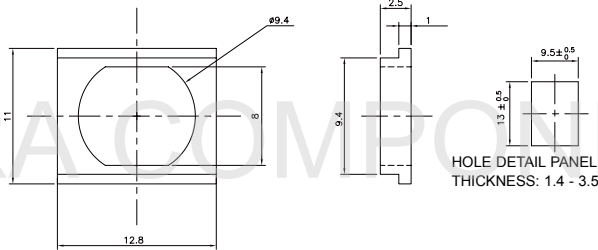


Part Number	Std Pack Qty
CP-USB-B	1000

**OFCA-SC/ST-01**  
**Optical Fibre Connector**  
**Cutout Adapter - SC/ST**

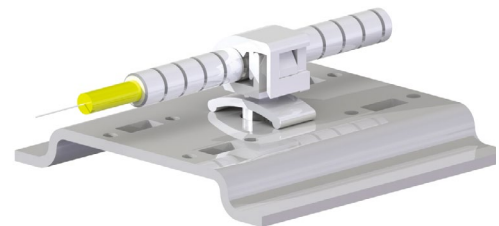
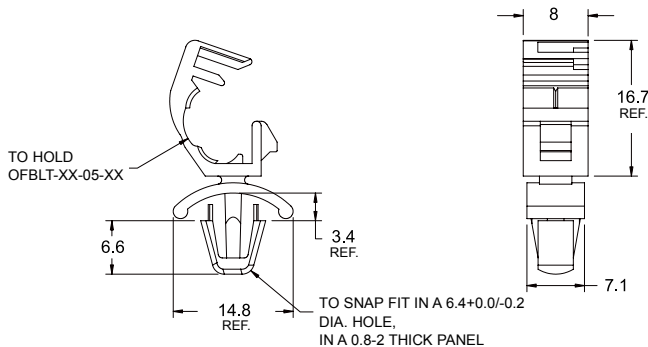
Natural Nylon 6/6, RMS-01

- Converts a hole cut out for an SC connector into a hole cut out for an ST connector



Part Number	Std Pack Qty
OFCA-SC/ST-01	1000

**OFBLT-C1**  
**Optical Fibre Bend**  
**Limiting Tubing Clip**  
 Natural



Part Number	Material	Std Pack Qty
OFBLT-C1-5-01	UL94 V2 Nylon 6/6, RMS-01	1000
OFBLT-C1-5-19	UL94 V0 Nylon 6/6, RMS-19	1000

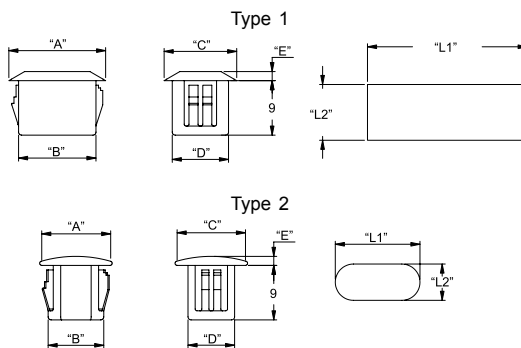
# Fibre Clips and Plugs

BPE

## Blanking Plugs

UL94V-2 Nylon6/6, RMS-01

- ST Series covers "Double-D," "D" or round hole cutouts for unused terminals in fibre optic boxes

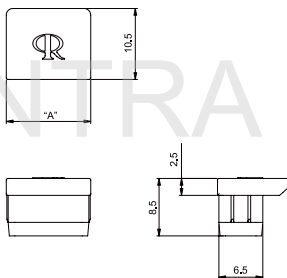


Part Number	Type	Dimensions (mm)					Hole Size		Panel Thickness	Color	Std Pack Qty
		"A"	"B"	"C"	"D"	"E"	"L1"	"L2"			
BPE-SC-1-01	1	21.5	12.8	12	9.3	1.5	13	9.5	1.4 - 3.5	Black	1000
BPE-SC-2-01	1	16	12.8	12	9.3	1.5	13	9.5	1.4 - 3.5	Black	1000
BPE-SC-3-01	1	34.8	25.8	12	9.3	1.5	26	9.5	1.4 - 3.5	Black	1000
BPE-RJ45-01	1	17.7	14.7	22	19.1	1.5	19.3-20	14.9-15	0.75, 1.2, 1.6, 2.7, 3.5	Grey	1000
BPE-RJ45-01BK	1	17.7	14.7	22	19.1	1.5	19.3-20	14.9-15	0.75, 1.2, 1.6, 2.7, 3.5	Black	1000
BPE-RJ45-01WH	1	17.7	14.7	22	19.1	1.5	19.3-20	14.9-15	0.75, 1.2, 1.6, 2.7, 3.5	White	1000
BPE-LC-D-01	1	15	13.2	15	13.2	2	13.5	13.5	0.75, 1.2, 1.6, 2.7, 3.75	Black	1000
BPE-ST-1-01	2	Ø12	Ø9.2	Ø12	7.7	1.5	Ø9.4	7.9	1.4 - 3.5	Black	1000

CP-RJ

## RJ Connector Plugs

Black

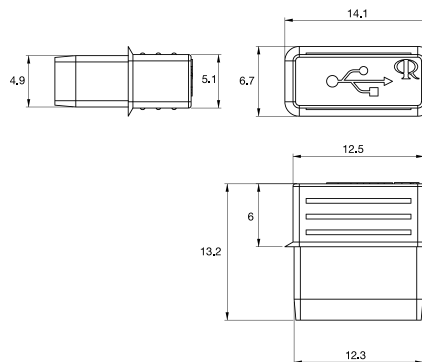
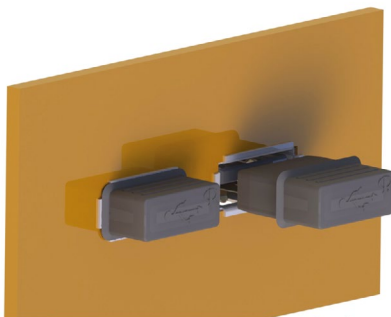


Part Number	"A" (mm)	To Accommodate	Material	Std Pack Qty
CP-RJ11	10.5	RJ11 Connector	Silicone Rubber, RMS-383	1000
CP-RJ11-427	10.5	RJ11 Connector	EPDM Rubber, RMS-427	1000
CP-RJ45	12.5	RJ45 Connector	Silicone Rubber, RMS-383	1000
CP-RJ45-427	12.5	RJ45 Connector	EPDM Rubber, RMS-427	1000

CP-USB-A

## USB Connector Plugs

Black Silicone Rubber, RMS-383



Part Number	Std Pack Qty
1342661	1000



# WE'VE GOT IT! CIRCUIT BOARD HARDWARE



**Push Spacers**  
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**Dual Locking Spacers**  
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**Reverse Locking Spacers**  
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**Insulators**  
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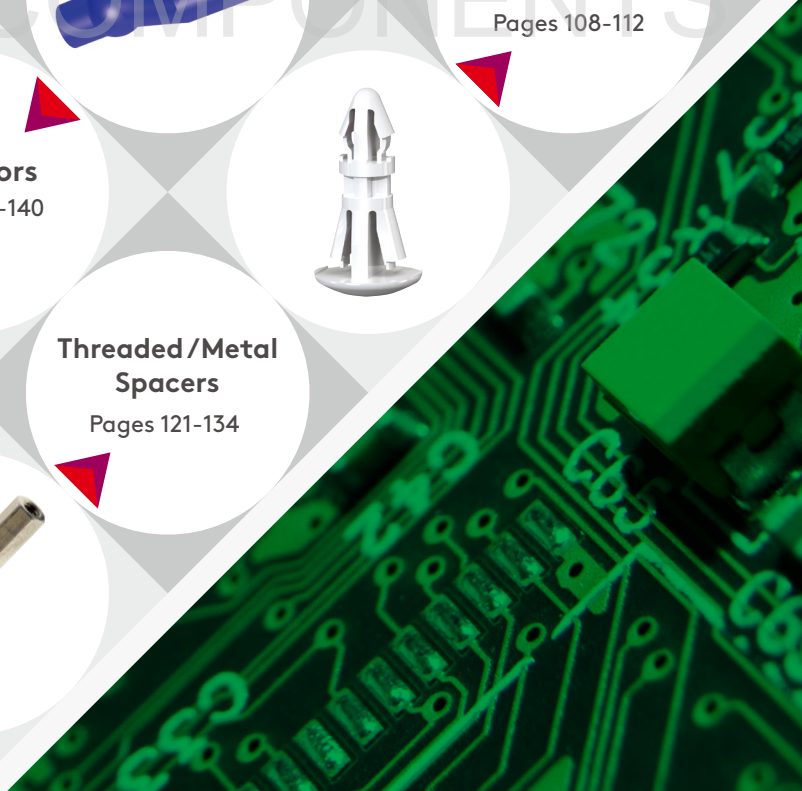
**Threaded/Metal Spacers**  
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**Specialist Spacers**  
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ESSENTIAL COMPONENTS



## Raw Material Information

### UL® File Number & UL® Yellow Cards

Underwriter's Laboratories Inc. (UL®), plastics classification number is used to describe the performance of the material. Tests conducted by UL® may include the determination of material flammability (burning characteristics), ignition characteristics from various thermal and electrical sources, electrical tracking and other electrical characteristics, physical and mechanical characteristics, and analytical tests. In addition, the effect of long-term exposure to elevated temperature (air-oven aging), water, ultraviolet light, cold, etc. on property-retention may be evaluated.

**For more information and to download the UL® Yellow Card for an Essentra Components product, please visit [www.ul.com](http://www.ul.com) and click on "Certifications".**

### UL® Flame Rating

UL94 classifications V0, V1, V2, and HB describe the flame retardancy levels for a given resin. V0 rated resins typically have the highest flame resistance followed by V1, V2, and HB.

**For more information on UL® Flame Ratings and the Vertical Burn Test, please visit [www.ul.com](http://www.ul.com).**

### Material Operating Temperatures

The Material Temperature Ranges shown in the RMS Table are based on datasheets from the respective resin manufacturers and/or UL®RTI values. The values shown are for reference only to assist in material selection for your application. As each resin manufacturer uses different methods to evaluate the performance of their resins, the temperature ranges shown cannot necessarily be used to compare materials directly.

## Adhesive Tape Usage Guidelines

### Loads & Product Usage Guidelines

Long-term maximum product application loads generally should not exceed 0.25 psi. The surface area of contact is very critical for bond strength, so the amount of tape used should be maximized based on the application. In general, the tensile strength of the adhesive is higher than the peel or shear strength, so the product should be designed to be loaded in tension whenever possible.

### Nylon & Adhesive Shelf Life

If products are kept under the Ideal Storage Conditions above, shelf life is 1 year from date of shipment.

An asterisk(\*) indicates data was not available at time of publication. Please see our website or contact your local Essentra Components Representative for the necessary documentation.

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## Temperature Considerations

Ideal application temperature for most Essentra Components adhesives is 70° - 100°F (21° - 38°C). Lower application temperatures should be avoided as the adhesive will be too firm and may not 'wet out' sufficiently. Operating temperatures of Essentra Components adhesives are shown in the RMS table.

### Application Guide

**Surface Condition:** The bonding surfaces must be clean, uniform, dry and free of condensation. Do not use on fabric, coarse concrete, loose paint, or rough, loose surfaces.

**Surface Preparation:** For maximum performance, clean the mounting surfaces with a cleaning solvent such as a 50/50 mixture of isopropyl alcohol and water. Be sure to follow the solvent manufacturer's directions for use. Some surfaces may require a sealant or primer to achieve the desired bonding. Test the product on your actual application.

**Application pressure:** Remove the release liner being very careful not to touch the adhesive surface and then quickly and firmly rub the product into place. Firm pressure is needed to ensure full contact and to allow the adhesive to fully wet-out on the mating surfaces.

**Dwell Time:** The bond strength is affected by the substrate surface, application temperature and dwell time. At room temperature approximately half of the bond strength will be obtained within the first half hour with the majority of the strength achieved within 24 hours. Therefore, whenever possible wait 24 hours before applying load.

**Acrylic vs. rubber based adhesives:** In general, rubber based adhesives offer higher initial tack whereas acrylic based adhesives maintain higher mechanical strength over time. One should evaluate the performance of the product on the actual end use application. Contact your local Essentra Components representative for additional physical property and chemical resistance data.

## Common Material Abbreviations

ABS = Acrylonitrile-butadiene-styrene	PPE/PS = Polyphenylene ether/ polystyrene alloy
Acetal/POM = Polyacetal	PPE/SB = Polyphenylene ether/styrene- butadiene alloy
CPVC = Chlorinated polyvinyl chloride	PPS = Polyphenylene sulfide
EPDM = Ethylene-propylene-diene-monomer	PS = Polystyrene
HDPE = High density polyethylene	PSU = Polysulfone
HIPS = High impact polystyrene	PU = Polyurethane
LCP = Liquid Crystal Polymer	PVC = Polyvinyl chloride
LDPE = Low density polyethylene	PVDF = Polyvinylidene fluoride
Nitrile Rubber = Acrylonitrile rubber	SEBS = Styrene-ethylene butylene-styrene block copolymer
Nylon = Polyamide (PA)	SIR = Silicone molding compound
PBT = Polybutylene terephthalate	TPE = Thermoplastic elastomer
PC = Polycarbonate	TPR = Thermoplastic rubber
PE = Polyethylene	
PEI = Polyether imide	
PP = Polypropylene	



RMS No.	Material Description	UL File No.	UL Flame Rating	RoHS Compliance	Material Temperature Range			
					°C		°F	
01	Nylon 6/6	E70062	V-2	Y	-40	- 85	-40	- 185
02	ABS	E38989	HB	Y	-40	- 95	-40	- 203
03	PC	E45587	HB	Y	-40	- 115	-40	- 239
04	PVC - Rigid	E41877	V-0	Y	0	- 50	32	- 122
05	PPE+PS	E121562	V-0	Y	-40	- 110	-40	- 230
06	LDPE	NO U.L.	Not rated	Y	-40	- 65	-40	- 149
07	HDPE	E41877	V-0	N	0	- 50	32	- 122
08	PP	E169973	HB	Y	0	- 65	32	- 149
09	ABS	E44741	HB	Y	0	- 60	32	- 140
10	PP	E169973	HB	Y	0	- 65	32	- 149
11	CPVC	E106426	V-0	Y	0	- 50	32	- 122
12	CAP	E31879	HB	Y	-20	- 50	-4	- 122
13	HDPE	NO U.L.	Not rated	Y	-20	- 65	-4	- 149
14	Acetal - US	E38860	HB	Y	-50	- 100	-58	- 212
14A	Acetal - UK	E42337	HB	Y	-50	- 100	-58	- 212
15	Acrylic adhesive / PU foam tape / PE liner	MH16770	Not rated	Y	0	- 85	32	- 185
16A	HIPS - UK	E141073	HB	Y	-20	- 50	-4	- 122
16B	HIPS - US	E57787	HB	Y	-20	- 50	-4	- 122
17	Nylon 6/6	E41938	V-2	Y	-40	- 85	-40	- 185
18	Nylon 6/6, Heat Stabilized, 33% Glass Filled - US	E41938	HB	Y	-30	- 140	-22	- 284
18A	Nylon 6/6, F.R., 25% Glass Filled - UK	E41938	V-0	Y	-30	- 130	-22	- 266
19	Nylon 6/6, F.R.	E70062	V-0	Y	-40	- 110	-40	- 230
20	PVC - Rigid	E53006	V-0	Y	0	- 50	32	- 122
21	Nylon 66/6	E41938	HB	Y	-40	- 65	-40	- 149
23	PC, F.R.	E121562	V-0	Y	-40	- 130	-40	- 266
24	Rubber adhesive / PE foam tape / HDPE liner	NO U.L.	Not rated	Y	-20	- 60	-4	- 140
25	PVC - Flexible	NO U.L.	Not rated	Y	0	- 50	32	- 122
26	PVC - Flexible	E54709	V-0	Y	0	- 90	32	- 194
27	Nylon 6/6, F.R., 25% Glass Filled	E170540	V-0	Y	-30	- 65	-22	- 149
28	Polyester Felt Fiber	NO U.L.	Not rated	Y	-	-	-	-
29	304 Stainless Steel	NO U.L.	Not rated	Y	-200	- 870	-328	- 1598
30	CAP	NO U.L.	Not rated	Y	-	-	-	-
31	Aluminum	NO U.L.	Not rated	Y	-	-	-	-
32	PVC - Rigid	E41877	V-0	Y	0	- 50	32	- 122
33	Silicone Rubber and Fiberglass, F.R.	E59150	V-0	Y	-60	- 150	-76	- 302
34	Rubber adhesive / PE foam tape	NO U.L.	Not rated	Y	-40	- 71	-40	- 160
35	Nylon 6/6, 14% Glass Filled	E41938	HB	Y	-20	- 65	-4	- 149
38	Nylon 6, 30% Glass Filled	NO U.L.	Not rated	Y	-20	- 140	-4	- 284
39	Acetal	E41938	HB	Y	-40	- 95	-40	- 203
42	TPE	E80017	HB	Y	-60	- 95	-76	- 203
43	Nylon 6/6, F.R.	E53898	V-0	Y	-40	- 120	-40	- 248
45	Nylon 6/6, Heat Stabilized	E41938	HB	Y	-40	- 85	-40	- 185
46	Nylon 6/6, UV Stabilized	E70062	V-2	Y	-40	- 85	-40	- 185
47	Nylon 6/6, Heat Stabilized	E41938	V-2	Y	-40	- 125	-40	- 257
48	Nylon 6/6	E41871	V-2	Y	-40	- 90	-40	- 194
49	Nylon 6/6, F.R., 25% Glass Filled	E41871	V-0	Y	-40	- 130	-40	- 266
50	PPS, 40% Glass Filled	E54700	V-0	Y	-40	- 220	-40	- 428
51	PSU	E41871	V-2	Y	0	- 155	32	- 311
52	Nylon 6	E41871	V-2	Y	-40	- 115	-40	- 239
53	PBT	E121562	V-0	Y	-30	- 140	-22	- 284
54	PP	E169973	HB	Y	0	- 65	32	- 149
55	PVC - Flexible	E137220	V-0	Y	-35	- 50	-31	- 122
56	Nylon 4/6, Heat Stabilized	E172082	V-2	Y	-40	- 130	-40	- 266
58	Nylon 6	E148796	HB	Y	-20	- 65	-4	- 149
60	Nylon 6	E36632	V-2	Y	-40	- 65	-40	- 149
62	Nylon 6	E41871	V-2	Y	-40	- 115	-40	- 239
64	PU	E177325	HB	Y	0	- 50	32	- 122
65	Acrylic adhesive / PE coated paper liner	NO U.L.	Not rated	Y	-18	- 121	0	- 250

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**NYLON STORAGE GUIDELINES/SHELF LIFE:**

All nylon parts are packaged in sealed plastic bags and contain an appropriate level of moisture. When stored in the original unopened bags at 73°F (23°C) and 50% RH, parts shelf life is one year from date of shipment.

# RMS Specifications

RMS No.	Material Description	UL File No.	UL Flame Rating	RoHS Compliance	Material Temperature Range					
					°C		°F			
66	Nylon 6/6, F.R.	E78964	V-0	Y	-40	-	65	-40	-	149
67	TPE	E80017	HB	Y	-60	-	95	-76	-	203
68	Rubber adhesive / PE coated paper liner	NO U.L.	Not rated	Y	-18	-	82	0	-	180
70	PVC, F.R.	E86418	V-0	Y	0	-	50	32	-	122
71	Nylon 6	E36632	V-2	Y	-40	-	85	-40	-	185
72	PC	E123529	V-2	Y	-40	-	80	-40	-	176
73	Nylon 6/6	E41938	HB	Y	-40	-	85	-40	-	185
74	Nylon 6/6	E41938	V-2	Y	-40	-	85	-40	-	185
75	Nylon 6/6, F.R.	E116324	V-0	Y	-40	-	85	-40	-	185
76	TPE	E80017	HB	Y	-50	-	95	-58	-	203
78	Nylon 6/6	E53898	HB	Y	-40	-	105	-40	-	221
79	PC	E50075	V-2	Y	-40	-	105	-40	-	221
80	TPR	E80017	HB	Y	-40	-	50	-40	-	122
81	Nylon 6/6	E41797	V-2	Y	-40	-	85	-40	-	185
83	PVC	NO U.L.	Not rated	Y	0	-	50	32	-	122
84	Nylon 6/6	E36632	V-2	Y	-40	-	85	-40	-	185
85	Nylon 6	NO U.L.	Not rated	Y	-40	-	100	-40	-	212
86	PP	NO U.L.	Not rated	Y	0	-	65	32	-	149
87	Nylon 6, F.R.	E41797	V-0	Y	-40	-	130	-40	-	266
88	Nylon 6	E36632	HB	Y	-40	-	120	-40	-	248
91	Nylon 6/6, F.R.	E88499	V-0	Y	-20	-	120	-4	-	248
92	Acrylic adhesive / Acrylic foam tape / Paper liner	MH17478	Not rated	Y	-40	-	93	-40	-	199
93	Acrylic adhesive / PE foam tape / PE paper liner	NO U.L.	Not rated	Y	-40	-	70	-40	-	158
94	PP	NO U.L.	Not rated	Y	0	-	65	32	-	149
95	Nylon 6, F.R., Heat Stabilized	E147510	V-0	Y	-40	-	65	-40	-	149
96	Hot Melt Adhesive	R6022	Not rated	Y	-	-	-	-	-	-
98	TPE	NO U.L.	Not rated	Y	-40	-	120	-40	-	248
99	Acrylic adhesive / PU foam tape / PE liner	NO U.L.	Not rated	Y	-40	-	100	-40	-	212
100	TPE	NO U.L.	Not rated	Y	-40	-	70	-40	-	158
102	Rubber adhesive / PE foam tape / PE film liner	MH15436	Not rated	Y	-18	-	66	0	-	150
103	Nylon 6/66, F.R.	E41871	V-0	Y	-40	-	120	-40	-	248
104	Nylon 6/6, F.R., Heat Stabilized, 25% Glass Filled	E41938	V-0	Y	-40	-	130	-40	-	266
105	PPE/PS	E148878	V-0	Y	-30	-	100	-22	-	212
106	Nylon 66	NO U.L.	Not rated	Y	-40	-	120	-40	-	248
107	PC	E146413	V-0	Y	-40	-	80	-40	-	176
109	Nylon 4/6, Heat Stabilized	E47960	V-2	Y	-40	-	130	-40	-	266
110	PBT, F.R., 30% Glass Filled	E130155	V-0	Y	-30	-	140	-22	-	284
111	PBT	E45575	V-0	Y	-30	-	130	-22	-	266
112	Nylon 6/6, F.R., 25% Glass Filled	E36632	V-0	Y	-40	-	130	-40	-	266
113	Acrylic adhesive / PE foam tape / PE liner	NO U.L.	Not rated	Y	-18	-	107	0	-	225
114	ABS	E56070	HB	Y	0	-	85	32	-	185
115	Nylon 6/6	E41938	V-2	Y	-30	-	85	-22	-	185
116	Nylon 6/6	NO U.L.	Not rated	Y	-20	-	85	-4	-	185
117	Polystyrene, F.R.	E140692	V-0	Y	-20	-	50	-4	-	122
118	PVC - Flexible	NO U.L.	Not rated	Y	0	-	50	32	-	122
119	Rubber adhesive / PE foam tape / PE liner	NO U.L.	Not rated	Y	18	-	65	65	-	149
120	Nylon 6	E53664	V-2	Y	-40	-	85	-40	-	185
121	Acetal	E41938	HB	Y	-50	-	95	-58	-	203
122	Nylon 6	E41938	V-2	Y	-40	-	85	-40	-	185
123	Silicone Rubber	E224733	HB	Y	-40	-	150	-40	-	302
124	PP	E41877	V-2	Y	0	-	105	32	-	221
126	PP	NO U.L.	Not rated	Y	0	-	65	32	-	149
127	Acetal	NO U.L.	Not rated	Y	-50	-	90	-58	-	194
128	Rubber adhesive/PE foam tape/Silicone coated paper liner	NO U.L.	Not rated	Y	18	-	65	65	-	149
129	Rubber adhesive/PE foam tape/Silicone coated paper liner	NO U.L.	Not rated	Y	18	-	65	65	-	149
130	PPE/PS	E45587	V-0	Y	-40	-	110	-40	-	230
131	Acrylic adhesive / Rubber foam tape	NO U.L.	Not rated	Y	-40	-	85	-40	-	185
132	Adhesive Transfer Tape	MH17478	Not rated	Y	-34	-	150	-30	-	302

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RMS No.	Material Description	UL File No.	UL Flame Rating	RoHS Compliance	Material Temperature Range					
					°C			°F		
133	Nylon 6/6	E53898	HB	Y	-40	-	105	-40	-	221
134	LDPE	NO U.L.	Not rated	Y	0	-	65	32	-	149
135	Acrylic adhesive / Silicone foam	E57750	V-0	Y	-29	-	150	-20	-	302
136	Rubber adhesive / PE foam tape / PE liner	NO U.L.	Not rated	Y	-40	-	60	-40	-	140
138	Nylon 66/6, F.R., Heat Stabilized	E44716	V-0	Y	-50	-	95	-58	-	203
140	PBT	E245249	V-0	Y	-30	-	125	-22	-	257
141	PVDF	E54699	V-0	Y	-30	-	50	-22	-	122
142	LDPE/HDPE	NO U.L.	Not rated	Y	0	-	70	32	-	158
143	Acrylic adhesive / PE foam tape / PP liner	NO U.L.	Not rated	Y	-40	-	70	-40	-	158
144	PVC	NO U.L.	Not rated	Y	0	-	50	32	-	122
145	PPE/PS	E45329	V-0	Y	-30	-	65	-22	-	149
146	Nylon 6/10, F.R.	E41797	V-0	Y	-40	-	65	-40	-	149
147	Nylon 66	E141008	V-2	Y	-40	-	85	-40	-	185
148	Nylon 6/6	E70062	HB	Y	-40	-	65	-40	-	149
149	ASA/AES	E44741	HB	Y	-40	-	50	-40	-	122
150	PP	NO U.L.	Not rated	Y	0	-	65	32	-	149
150A	PP	E231371	HB	Y	0	-	65	32	-	149
151	PP, Conductive	E45195	HB	Y	0	-	65	32	-	149
152	Aluminum	NO U.L.	Not rated	Y	-200	-	400	-328	-	752
153	EPDM Rubber	NO U.L.	Not rated	Y	-40	-	110	-40	-	230
154	Nylon 6	E76261	V-2	Y	-30	-	85	-22	-	185
155	LDPE/HDPE Blend, UV Stabilized	NO U.L.	Not rated	Y	0	-	65	32	-	149
156	Nylon 6/6	E53664	V-0	Y	-40	-	120	-40	-	248
157	Nylon 6, Heat Stabilized	NO U.L.	Not rated	Y	-40	-	130	-40	-	266
158	TPE	E80017	HB	Y	-50	-	95	-58	-	203
159	Nylon 6	E47960	V-2	Y	-30	-	85	-22	-	185
160	Acetal	E45034	HB	Y	-50	-	100	-58	-	212
161	PC	E41179	V-2	Y	-40	-	125	-40	-	257
162	PEI	E247337	V-0	Y	-40	-	200	-40	-	392
163	HIPS	E108538	HB	Y	-20	-	50	-4	-	122
164	Nylon 6/6, Heat Stabilized	E70062	V-2	Y	-40	-	125	-40	-	257
165	Nylon 6/6, UV Stabilized	E70062	V-2	Y	-40	-	85	-40	-	185
166	EPDM Rubber	NO U.L.	Not rated	Y	-40	-	50	-40	-	122
167	TPE	E80017	HB	Y	-40	-	50	-40	-	122
168	TPE	E80017	HB	Y	-40	-	50	-40	-	122
169	Nylon 6/6, F.R.	E53898	V-0	Y	-40	-	120	-40	-	248
170	Ceramic	NO U.L.	Not rated	Y	-40	-	1700	-40	-	3092
171	ABS	E56070	HB	Y	0	-	60	32	-	140
172	Nylon 6/6, Heat Stabilized	E41938	HB	Y	-40	-	110	-40	-	230
173	Nylon 6, 25% Glass Filled	NO U.L.	Not rated	Y	-20	-	140	-4	-	284
174	Nylon 6/6	E86615	V-2	Y	0	-	65	32	-	149
175	Mild Steel	NO U.L.	Not rated	Y	-	-	-	-	-	-
176	PVC/TPE	NO U.L.	Not rated	Y	-30	-	100	-22	-	212
177	PP	E54080	V-2	Y	0	-	65	32	-	149
179	Nylon 6/6	E86615	V-2	Y	-20	-	65	-4	-	149
180	EPDM Rubber	NO U.L.	Not rated	Y	-20	-	90	-4	-	194
181	PC	E121254	V-0	Y	-40	-	80	-40	-	176
182	TPE	E80017	HB	Y	-30	-	95	-22	-	203
183	HDPE	NO U.L.	Not rated	Y	0	-	65	32	-	149
184	LCP	E83005	V-0	Y	0	-	130	32	-	266
185	TPE	NO U.L.	Not rated	Y	-50	-	130	-58	-	266
186	PVC	NO U.L.	Not rated	Y	-10	-	50	14	-	122
187	PVC, UV Stabilized - Rigid	NO U.L.	Not rated	Y	-20	-	70	-4	-	158
188	PVC - Rigid	NO U.L.	Not rated	Y	-20	-	60	-4	-	140
189	Nylon 66, 15% Glass Filled	NO U.L.	Not rated	Y	-20	-	85	-4	-	185
190	Neoprene Rubber	NO U.L.	Not rated	Y	-40	-	50	-40	-	122
191	PVC - Rigid	NO U.L.	Not rated	Y	0	-	50	32	-	122
192	Nylon 11 Coating	NO U.L.	Not rated	Y	-40	-	140	-40	-	284

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# RMS Specifications

RMS No.	Material Description	UL File No.	UL Flame Rating	RoHS Compliance	Material Temperature Range					
					°C		°F			
193	PVC - Rigid	NO U.L.	Not rated	Y	0	-	50	32	-	122
194	Aluminum	NO U.L.	Not rated	Exempt	-	-	-	-	-	-
195	PVC - Rigid	NO U.L.	Not rated	Y	0	-	50	32	-	122
196	PVC Coating	NO U.L.	Not rated	Y	0	-	50	32	-	122
197	30301 Stainless Steel	NO U.L.	Not rated	Y	-129	-	287.8	-200	-	550
198	Cold Rolled Steel	NO U.L.	Not rated	Y	-	-	-	-	-	-
199	Aluminum	NO U.L.	Not rated	Y	-	-	-	-	-	-
200	TPE	NO U.L.	Not rated	Y	0	-	50	32	-	122
201	Nitrile Rubber	NO U.L.	Not rated	Y	-40	-	80	-40	-	176
202	Acetal	E38860	HB	Y	-50	-	100	-58	-	212
203	Soft Steel	NO U.L.	Not rated	Exempt	-	-	-	-	-	-
204	PC	E121562	HB	Y	-40	-	130	-40	-	266
205	Nylon 6/6, 25% Glass Filled	E116324	V-0	Y	-40	-	95	-40	-	203
206	Spring Steel	NO U.L.	Not rated	Y	-	-	-	-	-	-
207	Natural Rubber	NO U.L.	Not rated	Y	0	-	50	32	-	122
208	PVC	NO U.L.	Not rated	Y	0	-	50	32	-	122
209	Silicone Oil	NO U.L.	Not rated	Y	-	-	-	-	-	-
210	Silicone Rubber	NO U.L.	Not rated	Y	-40	-	150	-40	-	302
211	Nylon 66, Heat Stabilized	NO U.L.	Not rated	Y	-40	-	65	-40	-	149
212	Carbon Steel	NO U.L.	Not rated	Y	-	-	-	-	-	-
213	TPE	NO U.L.	Not rated	Y	-50	-	90	-58	-	194
214	TPE	NO U.L.	Not rated	Y	-50	-	90	-58	-	194
215	PC	E157291	V-2	Y	-40	-	120	-40	-	248
216	Black Oxide & Oil Coating	NO U.L.	Not rated	Y	-	-	-	-	-	-
217	Nickel Tin Plating	NO U.L.	Not rated	Y	-	-	-	-	-	-
218	PC	E121562	HB	Y	-40	-	100	-40	-	212
219	Zinc Plating	NO U.L.	Not rated	Y	-	-	-	-	-	-
220	Nylon 6/6	E41938	V-2	Y	-40	-	85	-40	-	185
221	Nylon 6/6, UV Stabilizer	E41938	V-2	Y	-40	-	85	-40	-	185
222	Nylon 6/6, 30% Glass Filled	E84658	V-0	Y	-30	-	140	-22	-	284
223	ABS, F.R.	E162823	V-0	Y	0	-	60	32	-	140
224	Stainless Steel - Passivated	NO U.L.	Not rated	Y	-	-	-	-	-	-
225	Polyolefin	NO U.L.	Not rated	Y	0	-	65	32	-	149
226	Modified PE Adhesive	NO U.L.	Not rated	Y	-	-	-	-	-	-
227	Stainless Spring Steel	NO U.L.	Not rated	Exempt	-129	-	287.8	-200	-	550
228	Stainless Steel	NO U.L.	Not rated	Y	-	-	-	-	-	-
229	Nickel Chrome Plating	NO U.L.	Not rated	Y	-	-	-	-	-	-
230	Stainless Spring Steel	NO U.L.	Not rated	Y	-129	-	287.8	-200	-	550
231	Brass	NO U.L.	Not rated	Exempt	-	-	-	-	-	-
232	Mild Steel	NO U.L.	Not rated	Exempt	-	-	-	-	-	-
233	409 Stainless Steel	NO U.L.	Not rated	Y	-	-	-	-	-	-
234	Nickel Plating	NO U.L.	Not rated	Y	-	-	-	-	-	-
235	Zinc Bichromate Plating	NO U.L.	Not rated	Y	-	-	-	-	-	-
236	Zinc Plating	NO U.L.	Not rated	Y	-	-	-	-	-	-
237	Mild Steel	NO U.L.	Not rated	Y	-	-	-	-	-	-
238	Spring Steel	NO U.L.	Not rated	Y	-	-	-	-	-	-
239	Painted Marking	NO U.L.	Not rated	Y	-	-	-	-	-	-
240	Rubber & Nylon - Fiber	NO U.L.	Not rated	Y	0	-	38	-18	-	100
241	Neoprene Rubber	NO U.L.	Not rated	Y	-40	-	80	-40	-	176
242	Carbon Steel	NO U.L.	Not rated	Y	-	-	-	-	-	-
243	Soft Electrogalvanized Steel	NO U.L.	Not rated	Y	-	-	-	-	-	-
244	Nylon 66	E41938	V-2	Y	-40	-	85	-40	-	185
245	Copper Flat Wire	NO U.L.	Not rated	Exempt	-	-	-	-	-	-
246	Tin Plating	NO U.L.	Not rated	Y	-	-	-	-	-	-
247	Aluminum	NO U.L.	Not rated	Y	-200	-	400	-328	-	752
248	Nylon 66, F.R.	E41938	V-0	Y	-40	-	85	-40	-	185
249	PE Hook	NO U.L.	Not rated	Y	0	-	60	32	-	140
250	Nylon Buckle	NO U.L.	Not rated	Y	-40	-	65	-40	-	149

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RMS No.	Material Description	UL File No.	UL Flame Rating	RoHS Compliance	Material Temperature Range			
					°C		°F	
251	Nylon Loop	NO U.L.	Not rated	Y	-40	- 65	-40	- 149
252	Ferrite Terminal	NO U.L.	Not rated	Exempt	-	-	-	-
253	Nylon 66, Glass Filled	NO U.L.	Not rated	Y	-40	- 65	-40	- 149
254	Stainless Steel	NO U.L.	Not rated	Exempt	-129	- 287.8	-200	- 550
255	PP/Polyester Blend	NO U.L.	Not rated	Y	-	-	-	-
256	ABS/PC	E168806	V-0	Y	0	- 60	32	- 140
257	Phosphor Bronze	NO U.L.	Not rated	Y	-	-	-	-
258	Chrome Plating	NO U.L.	Not rated	Y	-	-	-	-
259	Spring Steel	NO U.L.	Not rated	Y	-	-	-	-
260	Brass	NO U.L.	Not rated	Exempt	-	-	-	-
261	Electroplated Steel	NO U.L.	Not rated	Y	-	-	-	-
262	TPE	E80017	HB	Y	-50	- 95	-58	- 203
263	TPE, F.R.	E80017	V-0	Y	-40	- 90	-40	- 194
264	PE Foam Coating	NO U.L.	Not rated	Y	0	- 65	32	- 149
265	PVC - Flexible	NO U.L.	Not rated	Y	0	- 50	32	- 122
266	Galvanized Steel	NO U.L.	Not rated	Y	-	-	-	-
267	Acetal	E120354	HB	Y	-50	- 100	-58	- 212
268	PP	NO U.L.	Not rated	Y	0	- 65	32	- 149
269	PVC	NO U.L.	Not rated	Y	0	- 50	32	- 122
271	PP	NO U.L.	Not rated	Y	0	- 65	32	- 149
272	Chrome Plating	NO U.L.	Not rated	Y	-	-	-	-
273	PC	E41179	V-2	Y	-40	- 125	-40	- 257
274	Yellow Chromate Zinc Plating	NO U.L.	Not rated	Y	-	-	-	-
275	Polyolefin Writing Surface	NO U.L.	Not rated	Y	0	- 60	32	- 140
276	Brass	NO U.L.	Not rated	Exempt	-	-	-	-
277	ABS	NO U.L.	Not rated	Y	0	- 60	32	- 140
278	Spring Steel	NO U.L.	Not rated	Y	-	-	-	-
279	Neoprene Rubber	NO U.L.	Not rated	Y	-40	- 80	-40	- 176
280	321 Stainless Steel	NO U.L.	Not rated	Exempt	-	-	-	-
281	Masterbatch	NO U.L.	Not rated	Y	-	-	-	-
282	Stainless Steel	NO U.L.	Not rated	Y	-	-	-	-
283	304 Stainless Steel	NO U.L.	Not rated	Y	-	-	-	-
284	HDPE	NO U.L.	Not rated	Y	0	- 60	32	- 140
285	LDPE	NO U.L.	Not rated	Y	0	- 50	32	- 122
286	TPE	NO U.L.	Not rated	Y	-50	- 90	-58	- 194
287	Nylon 6/6	NO U.L.	Not rated	Y	-40	- 65	-40	- 149
289	Brass	NO U.L.	Not rated	Y	-	-	-	-
290	PBT, 6% Glass Filled	NO U.L.	Not rated	Y	-30	- 120	-22	- 248
291	PTFE	NO U.L.	Not rated	Y	-70	- 400	-94	- 752
292	Silicone	NO U.L.	Not rated	Y	-40	- 150	-40	- 302
293	Pressure Sensitive Acrylic Adhesive	NO U.L.	Not rated	Y	-29	- 93	-20	- 199
294	Stainless Steel	NO U.L.	Not rated	Y	-	-	-	-
295	PP	NO U.L.	Not rated	Y	0	- 65	32	- 149
296	Silicone Compound	NO U.L.	Not rated	Y	-	-	-	-
297	Kevlar	NO U.L.	Not rated	Y	-100	- 400	-148	- 752
298	PVC - Flexible	NO U.L.	Not rated	Y	0	- 50	32	- 122
299	Nickel Plating	NO U.L.	Not rated	Y	-	-	-	-
300	Polyester Elastomer	NO U.L.	Not rated	Y	-40	- 140	-40	- 284
301	Epoxy Glue	NO U.L.	Not rated	Y	-	-	-	-
302	Ferrite Core	NO U.L.	Not rated	Exempt	-	-	-	-
303	Ferrite Core	NO U.L.	Not rated	Y	-	-	-	-
304	Ferrite Core	NO U.L.	Not rated	Exempt	-	-	-	-
305	Stainless Steel	NO U.L.	Not rated	Exempt	-	-	-	-
306	Tin Coated Copper Wire	NO U.L.	Not rated	Y	-	-	-	-
307	Tin Coated Copper Wire	NO U.L.	Not rated	Y	-	-	-	-
308	Tin Coated Copper Wire	NO U.L.	Not rated	Y	-	-	-	-
309	Steel Piano Wire	NO U.L.	Not rated	Exempt	-	-	-	-
310	Pressure Sensitive Acrylic Adhesive	NO U.L.	Not rated	Y	-29	- 93	-20	- 199

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# RMS Specifications

RMS No.	Material Description	UL File No.	UL Flame Rating	RoHS Compliance	Material Temperature Range			
					°C		°F	
311	Polyethylene Hook	NO U.L.	Not rated	Y	0	- 50	32	- 122
312	Nylon Loop	NO U.L.	Not rated	Y	0	- 50	32	- 122
313	Pressure Sensitive Adhesive	NO U.L.	Not rated	Y	0	- 50	32	- 122
314	Acrylic adhesive / PE film / Silicone paper liner	NO U.L.	Not rated	Y	-80	- 100	-112	- 212
315	Nylon 6/6	E41938	V-2	Y	-40	- 85	-40	- 185
316	Silicone Rubber	NO U.L.	Not rated	Y	-40	- 150	-40	- 302
317	PVC - Flexible	NO U.L.	Not rated	Y	0	- 50	32	- 122
318	Epoxy Cover	NO U.L.	Not rated	Y	-	-	-	-
320	302 Stainless Steel	NO U.L.	Not rated	Y	-200	- 870	-328	- 1598
321	Silicone Rubber	NO U.L.	Not rated	Y	-40	- 150	-40	- 302
322	Silicone Rubber	E111943	HB	Y	-40	- 150	-40	- 302
323	Plastic Washer	NO U.L.	Not rated	Y	-	-	-	-
324	Rubber adhesive / PE foam tape / HDPE liner	NO U.L.	Not rated	Y	-40	- 100	-40	- 212
325	Fiberglass	NO U.L.	Not rated	Y	-	-	-	-
326	Spring Steel	NO U.L.	Not rated	Y	-	-	-	-
327	Spring Steel	NO U.L.	Not rated	Y	-	-	-	-
328	Stainless Steel	NO U.L.	Not rated	Y	-	-	-	-
329	Ferrite - Ceramic	NO U.L.	Not rated	Exempt	-	-	-	-
330	Ferrite - Paper Packaging Carrier Tape	NO U.L.	Not rated	Y	-	-	-	-
331	Wire - 2UEW	NO U.L.	Not rated	Y	-	-	-	-
332	Ceramic Body	NO U.L.	Not rated	Exempt	-	-	-	-
333	Copper Wire	NO U.L.	Not rated	Exempt	-	-	-	-
334	Ferrite K-15	NO U.L.	Not rated	Exempt	-	-	-	-
335	EVOH	NO U.L.	Not rated	Y	-	-	-	-
336	Stainless Steel	NO U.L.	Not rated	Y	-	-	-	-
337	Zinc Plating	NO U.L.	Not rated	Y	-	-	-	-
338	Steel	NO U.L.	Not rated	Y	-	-	-	-
339	Zinc Plating	NO U.L.	Not rated	Y	-	-	-	-
340	Steel	NO U.L.	Not rated	Exempt	-	-	-	-
341	Zinc Plating	NO U.L.	Not rated	Y	-	-	-	-
342	Polyester/PP Hook	NO U.L.	Not rated	Y	0	- 50	32	- 122
343	Hook and Loop	NO U.L.	Not rated	Y	0	- 50	32	- 122
344	Acrylic Adhesive	NO U.L.	Not rated	Y	0	- 50	32	- 122
345	Ferrite - Polystyrene Carrier Tape	NO U.L.	Not rated	*	-	-	-	-
346	Color Code Stripe Printing Ink	NO U.L.	Not rated	Y	-	-	-	-
347	Ferrite - Polyethylene Carrier Tape	NO U.L.	Not rated	*	-	-	-	-
348	Rubber IIR Bromobutyl	NO U.L.	Not rated	Y	-40	- 140	-40	- 284
349	Brass	NO U.L.	Not rated	Y	-	-	-	-
350	Double Coated Polyurethane Foam Tape	NO U.L.	Not rated	Y	-29	- 104	-20	- 219
351	TPE	NO U.L.	Not rated	Y	-40	- 100	-40	- 212
352	Carbon Steel	NO U.L.	Not rated	Y	-	-	-	-
353	Stainless Steel	NO U.L.	Not rated	Y	-	-	-	-
354	Zinc with Clear Dichromate Plating	NO U.L.	Not rated	Y	-	-	-	-
355	Chrome Plating	NO U.L.	Not rated	Y	-	-	-	-
356	Black Phosphate Coating	NO U.L.	Not rated	Y	-	-	-	-
357	Steel	NO U.L.	Not rated	Y	-	-	-	-
358	Zinc Plating	NO U.L.	Not rated	Y	-	-	-	-
359	Acrylic adhesive / PE foam tape / PE paper liner	NO U.L.	Not rated	Y	-40	- 95	-40	- 203
360	Butyl Rubber	NO U.L.	Not rated	Y	-40	- 140	-40	- 284
361	Acrylic adhesive / Acrylic foam / PE film liner	MH17478	Not rated	Y	-35	- 90	-31	- 194
362	PVC	NO U.L.	Not rated	Y	0	- 50	32	- 122
363	Nylon Buckle	NO U.L.	Not rated	Y	-40	- 85	-40	- 185
364	Silicone Rubber	NO U.L.	Not rated	Y	-40	- 150	-40	- 302
365	304 Stainless Steel	NO U.L.	Not rated	Y	-200	- 870	-328	- 1598
366	PE Hook	NO U.L.	Not rated	Y	0	- 50	32	- 122
367	Acrylic adhesive / PE copolymer foam / PE film liner	NO U.L.	Not rated	Y	-40	- 125	-40	- 257
368	Silicone Rubber	NO U.L.	Not rated	Y	-40	- 150	-40	- 302
369	18-8 Stainless Steel	NO U.L.	Not rated	Y	-	-	-	-

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					°C		°F			
370	304 Stainless Steel	NO U.L.	Not rated	Y	-200	-	870	-328	-	1598
371	Nylon 6, F.R., 30% Glass Filled	E140692	V-0	Y	-40	-	65	-40	-	149
372	Black Oxide Finish	NO U.L.	Not rated	Y	-	-	-	-	-	-
373	Brass	NO U.L.	Not rated	Y	-	-	-	-	-	-
374	TPE	E80017	HB	Y	-60	-	95	-76	-	203
375	Rubber adhesive / PE foam / Silicone paper liner	NO U.L.	Not rated	Y	0	-	70	32	-	158
376	Acrylic adhesive / Acrylic foam / PE liner	MH17478	Not rated	Y	-35	-	90	-31	-	194
377	Blue Polyolefin Pin	NO U.L.	Not rated	Y	0	-	50	32	-	122
378	Silicone Rubber	NO U.L.	Not rated	*	-40	-	150	-40	-	302
379	Silicone Rubber	NO U.L.	Not rated	Y	-40	-	150	-40	-	302
380	Nylon Tie	NO U.L.	Not rated	Y	-40	-	85	-40	-	185
381	304 Stainless Steel	NO U.L.	Not rated	Y	-200	-	870	-328	-	1598
382	316 Stainless Steel	NO U.L.	Not rated	Y	-200	-	870	-328	-	1598
383	Silicone Rubber	NO U.L.	Not rated	Y	-40	-	150	-40	-	302
384	TPE	E80017	HB	Y	-50	-	95	-58	-	203
385	Nylon 6/6	E41938	V-2	Y	0	-	85	32	-	185
386	Polyether Sulfone	E108538	V-0	Y	-30	-	190	-22	-	374
387	TPE	NO U.L.	Not rated	Y	-40	-	150	-40	-	302
388	PVC	NO U.L.	Not rated	Y	0	-	50	32	-	122
389	TPE	NO U.L.	Not rated	Y	0	-	60	32	-	140
390	Nylon 6, F.R.	NO U.L.	Not rated	Y	-40	-	85	-40	-	185
391	Acrylic adhesive / PP film / Silicone paper liner	NO U.L.	Not rated	Y	-	-	-	-	-	-
392	Nylon 6, Conductive	NO U.L.	Not rated	Y	0	-	60	-32	-	140
393	PBT	E36632	HB	Y	-30	-	140	-22	-	284
395	TPE	E80017	V-1	Y	-60	-	90	-76	-	194
396	Aluminum	NO U.L.	Not rated	Y	-40	-	115	-40	-	239
397	PP	NO U.L.	Not rated	*	0	-	65	32	-	149
398	Silicone Rubber	E207571	V-0	*	-40	-	150	-40	-	302
399	Nylon 6.6, UV Resistant	NO U.L.	V-2	*	-40	-	65	-40	-	149
400	Acrylic adhesive / PE foam / PE film liner	NO U.L.	Not rated	*	-	-	-	-	-	-
401	PP	NO U.L.	Not rated	Y	-	-	-	-	-	-
402	Polychloroprene Rubber	NO U.L.	Not rated	Y	-	-	-	-	-	-
403	Brass	NO U.L.	Not rated	Y	-	-	-	-	-	-
404	TPE	E80017	HB	Y	-60	-	85	-76	-	185
405	304 Stainless Steel	NO U.L.	Not rated	Y	-200	-	870	-328	-	1598
406	Nylon 6/6	E48285	V-2	Y	-40	-	85	-40	-	185
407	Liquid Silicone	NO U.L.	Not rated	Y	-40	-	150	-40	-	302
408	Magnetic Rubber	NO U.L.	Not rated	Y	-	-	-	-	-	-
409	LDPE	NO U.L.	Not rated	Y	-	-	-	-	-	-
410	Acrylic adhesive / PE foam tape / PE film liner	NO U.L.	Not rated	Y	-40	-	100	-40	-	212
411	PPE+PS, F.R.	E45329	V-0	Y	-30	-	65	-22	-	149
412	LDPE	NO U.L.	Not rated	Y	-	-	-	-	-	-
413	Nylon 6	NO U.L.	Not rated	Y	-	-	-	-	-	-
414	Acrylic Adhesive / Silicone Liner	MH13557	Not rated	Y	-29	-	150	-20	-	302
415	Mild Steel, Zinc Plated	NO U.L.	Not rated	Y	-	-	-	-	-	-
416	TPE	E80017	HB	Y	-60	-	85	-76	-	185
417	Silicone Rubber	NO U.L.	Not rated	Y	-40	-	150	-40	-	302
418	LDPE	NO U.L.	Not rated	Y	0	-	65	32	-	149
420	EPDM	NO U.L.	Not rated	Y	-20	-	-90	-4	-	194
421	LDPE	NO U.L.	Not rated	Y	0	-	65	32	-	149
422	PP, Modified	E111275	HB	Y	0	-	65	32	-	149
423	Nylon 6, Heat Stabilized	E47960	HB	Y	-40	-	65	-40	-	149
424	Nylon 6	E53898	V-0	Y	-40	-	120	-40	-	248
425	Silicone Rubber	E55519	HB	Y	-40	-	150	-40	-	302
426	Silicone Rubber	E55519	HB	Y	-40	-	150	-40	-	302
427	EPDM Rubber	NO U.L.	Not rated	Y	-20	-	90	-4	-	194
428	Neoprene Rubber	NO U.L.	Not rated	Y	-40	-	80	-40	-	176
429	EPDM Rubber	NO U.L.	Not rated	Y	-20	-	90	-4	-	194

An asterisk (\*) indicates data was not available at time of publication. Please see our website or contact your local Essentra Components Representative for the necessary documentation.

**RAW MATERIAL SPECIFICATION/DISCLAIMER OF WARRANTY:**

These Raw Material Specifications shall not be construed as creating an express warranty of description. The specifications are approximate and intended to serve only as guides and not as the basis of any sale, agreement or contract of goods sold by Essentra Components. Essentra Components Incorporated reserves the right to change the raw material on any of its goods contained in this catalog without notice to any buyer. Further, these Raw Material Specifications have been provided by the manufacturer and Essentra Components does not warrant their accuracy.

**NYLON STORAGE GUIDELINES/SHELF LIFE:**

All nylon parts are packaged in sealed plastic bags and contain an appropriate level of moisture. When stored in the original unopened bags at 73°F (23°C) and 50% RH, parts shelf life is one year from date of shipment.

RMS No.	Material Description	UL File No.	UL Flame Rating	RoHS Compliance	Material Temperature Range					
					°C			°F		
430	Rubber Adhesive / PE Foam	NO U.L.	Not rated	Y	-20	-	70	-4	-	158
431	Acrylic Adhesive/PE Foam/Silicone Coated Paper Liner	E327895	Not rated	Y	0	-	50	32	-	122
432	HDPE	NO U.L.	Not rated	Y	-20	-	60	-4	-	149
433	TPE	NO U.L.	Not rated	Y	-60	-	85	-76	-	185
434	Acetal	E36632	HB	Y	-40	-	105	-40	-	221
435	Nylon 6	E86034	V-0	Y	-40	-	119	-40	-	239
436	PVC, UV Stabilized	NO U.L.	Not rated	Y	0	-	50	32	-	122
437	Nylon 6/6	E70062	V-2	Y	-40	-	85	-40	-	185
438	Nylon 6	E47960	V-2	Y	-40	-	85	-40	-	185
439	PVC	NO U.L.	Not rated	Y	0	-	50	32	-	122
440	EPDM Rubber	NO U.L.	Not rated	Y	-20	-	90	-4	-	194
441	EPDM Rubber	NO U.L.	Not rated	Y	-20	-	90	-4	-	194
442	EPDM-CR-SBR	NO U.L.	Not rated	Y	-40	-	93	-40	-	199
448	PVC	E335039/192387	V-0	Y	0	-	50	32	-	122
449	LDPE	NO U.L.	HB	Y	-30	-	50	-22	-	122
450	PP	NO U.L.	Not rated	Y	-25	-	100	-13	-	212
451	PPA, 45% Glass Filled	NO U.L.	HB	Y	-	-	150	-	-	302
452	PVC	NO U.L.	Not rated	Y	-30	-	50	-22	-	122
453	PVDF	NO U.L.	V-0	Y	-	-	110	-	-	230

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ESSENTRA COMPONENTS

## Conditions of Sale

BUYER'S ATTENTION IS DRAWN TO CONDITIONS 5, 11 and 12

### 1. General

- 1.1 The terms and conditions set out below (as amended from time to time by Seller by notice in writing to Buyer or by notice on Seller's Website), (the "Conditions") shall form part of every contract between Seller and Buyer for the sale and purchase of Products or Tooling (a "Contract") and shall apply to any dealings between Seller and Buyer to the express exclusion of any other terms and conditions (including any which Buyer purports to apply under any purchase order, confirmation of order, acknowledgement of delivery, Specifications or any such other documents or by endorsement upon the documents issued by Seller or otherwise).
- 1.2 No addition to, or modification of, any provision of these Conditions, or any representation, advice or recommendation relating to the Products given by any representative of Seller, shall be binding upon the parties unless made in writing and signed by an authorised representative of each of the parties with the intention of modifying or supplementing these Conditions being clearly expressed.

### 2. Interpretation

- 2.1 In these Conditions: "Buyer" means the person who purchases the Products from Seller; "Buyer's Tooling" means any die, mould, pattern, tool or other equipment, which is the property of Buyer and/or which was made, purchased or received by Seller from or at the direction of Buyer; "Custom Products" means any goods, other than Standard Products, supplied or to be supplied by Seller; "Group" means any subsidiary and any holding company of Seller and any subsidiary of any such holding company in each case from time to time; "Intellectual Property Rights" means all intellectual property rights including any patent (including supplementation protection certificates) utility model, rights in invention, copyright, rights in the nature of copyright, database rights, moral right, design right, registered and unregistered designs, registered and unregistered trademark, trade names and get-up, goodwill, know-how and confidential information (whether or not all or any of the same are registered and including all applications and rights to apply therefor) and anything analogous to any of the foregoing in any part of the world; "Losses" means all losses, claims, liabilities, costs, charges, expenses and damages of any kind irrespective of whether they were reasonably foreseeable or avoidable; "Order Acceptance" means a written acceptance of an order issued by an authorised signatory of Seller in accordance with condition 3.2; "Products" means any Standard Products and/or any Custom Products or any part thereof; "Sample" means, in relation to a sale by sample, the sample provided by Seller, subject to any tolerances or other variations reflected in any specifications or guidance notes supplied by Seller in relation to the sample, which an authorised signatory of Seller confirms is applicable to the Contract in the Order Acceptance; "Seller" means Essentra Components Pte Ltd, Essentra Malaysia Sdn Bhd, Essentra (India) Private Limited, Essentra FZE or Essentra Pty Ltd; "Seller's Catalogue" means Seller's product catalogue, as published by Seller from time to time including any catalogue on Seller's Website; "Seller's Tooling" means any dies, moulds, patterns, tools or other equipment other than Buyer's Tooling used or to be used in connection with the manufacture of the Custom Products; "Seller's Website" means [www.essentracomponents.com](http://www.essentracomponents.com) or any successor website; "Specifications" means: 2.1.1 in respect of Standard Products, the specifications for the relevant Standard Product as set out in the latest publication of Seller's Catalogue at the time such Standard Product is ordered; 2.1.2 in respect of Custom Products, the specifications for the relevant Custom Product which an authorised signatory of Seller has confirmed are the final specifications for such Custom Product; and 2.1.3 in the absence of any such specifications, the specifications that Seller may, acting reasonably, determine to be appropriate from time to time; "Standard Products" means any goods which are offered for sale by product number in Seller's Catalogue; and "Tooling" means Seller's Tooling and Buyer's Tooling.

- 2.2 In these Conditions: headings are for convenience only and shall not affect their interpretation; references to a "person" include any individual, company, corporation, firm, partnership, association, organisation, institution, trust or agency, whether or not having a separate legal personality; words in the singular shall include the plural and vice versa as the context admits or requires; any reference to any statute or statutory provision shall, unless the context otherwise requires, be construed as a reference to that statute or statutory provision as time to time amended, consolidated, modified, extended, re-enacted or replaced; and the word "including" shall, unless the context otherwise requires, mean "including without limitation".

### 3. Quotes and Orders

- 3.1 Quotes are valid for 30 days from the date of the quote, unless otherwise specified by Seller, but are not binding until an order is accepted by Seller in accordance with condition.
- 3.2 Each order for Products made by Buyer from Seller shall be deemed to be an offer by Buyer to purchase the Products specified in the order on the terms and conditions set out in these Conditions. An order is not binding on Seller until it is accepted by Seller issuing the Order Acceptance or (if earlier) by Seller either commencing manufacture of the Products or any related Tooling or samples, apportioning the Products to Buyer's order or dispatching the Products to Buyer.
- 3.3 Once accepted, an order may only be cancelled, varied or suspended by Buyer with the express prior written agreement of Seller.
- 3.4 The quantity and type of Products ordered shall be as set out in the order form or, if different, on the Order Acceptance.

### 4. Descriptions, Samples and Literature

- 4.1 All drawings, specifications and advertising issued by Seller and any descriptions, details or illustrations contained in any Seller's Catalogue are issued or published for the sole purpose of giving an approximate idea of the Products described in them and will not be relied on by Buyer or form part of the Contract except as provided in condition and condition.
- 4.2 Any typographical, clerical or other error or omission in any Seller's Catalogue, quote, price list, acceptance of offer, Order Acceptance, label, packaging, invoice or other document or information issued by Seller may be corrected by Seller, without liability to Buyer, at any time either by correcting any such matter in public or by publishing the correction on Seller's Website or by notifying Buyer in writing and such correction shall be binding upon Buyer forthwith.
- 4.3 Except as otherwise required by law, the Contract shall not be: (a) a sale by sample (even if samples have been provided) unless Seller expressly states on the Order Acceptance that the Contract is to be a sale by sample; or (b) a sale by description even if a description has been provided.

### 5. Specifications

- 5.1 Buyer will ensure that it undertakes adequate tests to ensure that where the Product meets the Specifications or, if applicable conforms to the Sample, in all material respects it is of satisfactory quality and fit for all of Buyer's purposes. Subject to condition, Buyer expressly acknowledges that, irrespective of any guidance provided to it by Seller, it is not relying on Seller's skill and judgement in determining whether the Products will be fit for all its purposes.
- 5.2 If Buyer wishes to rely on Seller's skill and judgement in relation to a Custom Product being fit for a particular purpose then prior to placing an order Buyer must expressly advise Seller in writing of the particular purpose and that it wishes to rely on Seller's confirmation rather than conducting its own testing. Seller shall advise Buyer of any additional charges which would apply if such confirmation is given. Buyer shall only be entitled to rely on the Custom Product being fit for that particular purpose if Buyer has provided all the information which Seller would need to undertake the requisite testing and an authorised signatory of Seller has expressly confirmed in the Order Acceptance that the Custom Product can fulfil that particular purpose.
- 5.3 Seller shall be entitled to make any changes to any Specifications which do not materially affect the quality or performance of the Products or, subject to notifying Buyer and at Buyer's cost, any material changes which Seller considers are required to be made to Custom Products to comply with any applicable statutory or European Community safety or other requirements. Seller shall not be responsible for ensuring that any Products comply with any applicable statutory or European Community safety or other requirements if the Specifications for such Products have been provided by, or developed or varied pursuant to a request of, Buyer.
- 5.4 In respect of any Specifications supplied to Seller by or on behalf of Buyer or variations to Specifications made at the request of Buyer and any Tooling either derived from any such Specifications or supplied by or on behalf of Buyer, Buyer warrants, represents and undertakes that such Specifications and/or Tooling: 5.4.1 fully and accurately reflect Buyer's requirements for the Products to be made pursuant to such Specifications or using such Tooling; 5.4.2 are complete and fit for the purpose of Seller producing and/or supplying (if agreed) Products complying with such Specifications and will result in Products which are fit for Buyer's purpose; 5.4.3 will not infringe the Intellectual Property Rights of any third parties and Seller, its Group and agents are entitled to use any Intellectual Property Rights comprised in such Specifications or Tooling or in any product or process described in the Specifications for the purposes of manufacturing the Products; and 5.4.4 will comply with all applicable laws and regulations.
- 5.5 Except as otherwise expressly provided in the Contract or agreed in writing between Seller and Buyer, Seller shall own all of the Intellectual Property Rights created by Seller, its Group or agents in the course of the performance of the Contract or otherwise in connection with the manufacture of the Products or the Tooling.

### 6. Tooling

- 6.1 If Seller agrees to supply Custom Products and it notifies Buyer that it requires Buyer's Tooling to do so, then Buyer shall either supply Buyer's Tooling capable of producing the Custom Products or, if agreed between the parties, Seller shall manufacture Buyer's Tooling or obtain it on Buyer's behalf at a price agreed between the parties and subject to having received payment in accordance with clause 6.2.
- 6.2 Following acceptance of Buyer's first order for the Custom Products to be manufactured using the relevant Buyer's Tooling and subject to receipt of Seller's invoice for such Buyer's Tooling, Buyer shall: 6.2.1 forthwith pay fifty percent (50%) of the whole price of such Buyer's Tooling and shall pay the remaining fifty percent (50%) of such price upon Seller sending samples produced using such Buyer's Tooling to Buyer; or 6.2.2 if requested by Seller, forthwith pay the whole price of such Buyer's Tooling.
- 6.3 Title to any Buyer's Tooling made or purchased by Seller shall remain with Seller until Seller has received the full price due in respect of such Buyer's Tooling in cash or cleared funds whereupon title shall pass to Buyer. Until title to Buyer's Tooling passes to Buyer the terms of conditions 10.3 and 10.4 shall apply to Buyer's Tooling on the same terms as they apply to the Products. Upon title to Buyer's Tooling transferring to Buyer, Buyer shall be entitled to a licence of the Intellectual Property Rights comprised in Buyer's Tooling to the extent necessary to use Buyer's Tooling to make the relevant Custom Products.
- 6.4 Risk of loss or damage to Buyer's Tooling supplied to, or purchased on Buyer's behalf by, Seller shall remain with Buyer. Risk of loss or damage to Buyer's Tooling made by Seller shall pass to Buyer upon completion of its manufacture. Buyer shall ensure that Buyer's Tooling is appropriately and adequately insured with a reputable insurer for so long as it remains at Seller's premises and will bear the costs of any necessary repairs or replacement.
- 6.5 Seller shall notify Buyer of any loss or damage to Buyer's Tooling whilst in Seller's possession. Seller, its Group or agents shall have no liability to Buyer in respect of any loss or damage to Buyer's Tooling whilst such Buyer's Tooling is in their possession of Seller except to the extent caused by their negligence or intentional damage.
- 6.6 Seller shall store Buyer's Tooling free of charge for a period of 2 years from the date of last delivery of Products made using Buyer's Tooling. On expiry of this period, Seller may use for its own purposes or continue to store, return or destroy Buyer's Tooling, the cost of which shall be payable by Buyer.
- 6.7 Where Buyer has indicated that it wishes to purchase a minimum quantity of Custom Products and is aware that Seller will invest or has invested in the manufacture of Seller's Tooling in respect of those Custom Products and Buyer orders or takes delivery of a smaller quantity of such Custom Products than the minimum it previously indicated then Seller may invoice Buyer, pro rata to the quantity of such Custom Products ordered, for the cost of its investment in such Seller's Tooling and for its reasonable administration and handling charges.
- 6.8 The Intellectual Property Rights in and title to any Seller's Tooling shall remain at all times with Seller except as otherwise expressly agreed in writing. If Buyer purchases Seller's Tooling, then title and risk in Seller's Tooling shall pass to Buyer upon payment in full by Buyer of an amount notified by Seller in writing. Buyer acknowledges that any Seller's Tooling which it purchases will have been used by Seller and that Buyer shall be entitled on reasonable notice to inspect it prior to purchasing it and shall be deemed to have satisfied itself that it is of satisfactory quality and fit for its purposes. Upon title and risk in any Seller's Tooling passing to Buyer it shall thereafter be treated as Buyer's Tooling for the purposes of these Conditions.

# Terms and Conditions

- 6.9 If Seller is required to redesign, repair or replace or otherwise incur any expenditure in relation to any Tooling for use in producing Custom Products, Buyer shall promptly reimburse Seller for all such costs incurred by Seller, including any tooling and re-tooling costs, except to the extent such costs were caused by Seller's negligence or wilful abuse.
- 6.10 Seller shall be entitled to utilise the Tooling for any purpose at its discretion including for the purpose of manufacturing the Custom Products.
- 7 Price**
- 7.1 Subject to condition, the price of the Products or the Tooling shall be the price specified in the applicable quote or, in the absence of an applicable quote, the price set out in Seller's price list in force as at the time the order is accepted (the "Price"). The Price is inclusive of standard packaging in accordance with Seller's current practice. The Price reflects the limitations on liability set out in these Conditions but, if requested by Buyer, Seller will advise Buyer of the additional costs which would apply if Seller agrees to any variations to such limitations on liability.
- 7.2 Seller reserves the right, by giving notice to Buyer at any time before delivery, to increase the Price to reflect any increase in the cost to Seller of supplying any Products or Tooling which is due to: 7.2.1 any factor beyond the reasonable control of Seller; 7.2.2 any increase in the cost of labour or materials including any storage costs if the Products are not collected or delivered in accordance with the Contract; 7.2.3 any variation requested by Buyer to delivery dates, quantities, Specifications or the scope of Seller's instructions; 7.2.4 any delay or additional work or materials caused by any instructions, neglect or default of Buyer; or 7.2.5 any failure of Buyer to procure the supply to Seller of adequate and timely information, instructions, specifications or, if applicable, Tooling.
- 7.3 The Price is exclusive of any applicable value added tax or other taxes or duties and of all costs and charges in relation to non-standard packaging, loading, unloading, carriage and insurance or similar costs, which (if any) shall be paid in addition by Buyer at the time it is due to pay for the Products or the Tooling. Where carriage or other costs to be borne by Buyer are initially paid by Seller, Seller shall be entitled to render an invoice forthwith in respect of such costs.
- 8 Payment**
- 8.1 Seller shall at its discretion be entitled to invoice Buyer for payment of the Price or any other amounts payable by Buyer in advance.
- 8.2 Seller shall be entitled to: 8.2.1 offer and withdraw credit accounts at any time; 8.2.2 request references and make credit reference searches in relation to Buyer.
- 8.3 Subject to condition, payment of any Seller's invoice is due (without deduction, discount, abatement or set-off) within 30 days of the date of the invoice, notwithstanding that delivery may not have taken place or that property in the Products or the Tooling has not passed to Buyer. Unless otherwise expressly agreed by Seller, payment shall be made in the same currency as the Price. The time of payment of sums due from Buyer shall be of the essence of these Conditions. No payment will be deemed received until received by Seller in cash or cleared funds. Interest will be payable on overdue amounts at the rate of 3% percent per annum above the Lloyds TSB Bank Plc base rate from time to time.
- 8.4 If any sums are not paid on or before the due date for payment, interest will accrue on the amount unpaid until payment in full is made (both before and after any judgment). The parties agree that the provisions of this condition provide a substantial contractual remedy for the late payment of sums due pursuant to these Conditions.
- 8.5 If Buyer fails to make any payment when due pursuant to these Conditions and/or pursuant to any other contract between Buyer and Seller in accordance with its terms then, without prejudice to any other right or remedy available to Seller, Seller shall be entitled to: 8.5.1 terminate the Contract or any other contract between Buyer and Seller; 8.5.2 deduct outstanding sums from any sums owed by Seller to Buyer under the Contract or otherwise; 8.5.3 require Buyer to pay any costs of storage of the Products and any Tooling; 8.5.4 suspend any further deliveries to Buyer under the Contract or any other contract until paid; 8.5.5 treat the Contract as repudiated and terminated; 8.5.6 resell any Products not yet delivered to Buyer; and/or 8.5.7 retain any sums paid as deposit for the Products.
- 9 Delivery**
- 9.1 Unless otherwise agreed in writing, Products will be sent to Buyer by a carrier service chosen by Seller, acting reasonably. Delivery of the Products to Buyer shall be effected by Seller delivering them to the carrier or by collection by the carrier. Thereafter, transport of such Products shall be subject to the carrier's conditions which shall be notified to Buyer, if requested. Seller may deliver early or inform Buyer. Seller shall be no obligation under laws and regulations.
- 9.2 Where it is agreed in writing that the Products shall be delivered by a method other than that referred to in condition then delivery shall be effected: 9.2.1 where the Products are to be collected by Buyer from Seller's premises, by Seller notifying Buyer that the Products are ready for collection; 9.2.2 where the Products are delivered by Seller, by Seller delivering the Products to the address nominated by Buyer for delivery; or 9.2.3 where the Products are to be transported by a third party, by collection by or delivery to that third party of the Products.
- 9.3 Any periods of time or dates quoted for delivery of the Products are approximate only. Time for delivery shall not be of the essence. Seller shall not be liable for any delay in delivery of the Products. Seller may deliver up to 10 per cent. more or 10 per cent. less than the quantity of Products specified in the order and Buyer shall accept such variation in quantity and shall pay the Price as adjusted to reflect such variation in quantity.
- 9.4 Seller shall not be responsible for any Losses incurred or suffered by Buyer as a result of a failure to deliver the Products or for short delivery unless Buyer has informed Seller in writing within ten working days from the estimated date of delivery in relation to a failure to deliver or the actual date of delivery in relation to a short delivery. In any event, subject always to condition, where for any reason Seller is so liable, Seller's liability shall be limited to: 9.4.1 the amount by which the price in the cheapest available market of similar goods to replace those not delivered exceeds the Price of the Product not delivered; or 9.4.2 if there is no such market, an amount equal to the Price applicable to the Products not delivered.
- 9.5 Where the Products are to be delivered in instalments, each delivery shall constitute a separate obligation and neither any failure by Seller to deliver nor any claim in respect of any one or more instalments by Buyer shall entitle Buyer to treat the Contract as a whole as repudiated.
- 9.6 Where Buyer fails to take delivery of the Products or fails to give Seller adequate delivery instructions in advance of the time stated for delivery (otherwise than by reason of any cause beyond Buyer's reasonable control or by reason of Seller's neglect or default) then the Products shall be deemed to have been delivered at the time stated for delivery and, without prejudice to any other right or remedy available to Seller, Seller may: 9.6.1 store the Products until actual delivery and charge Buyer for the reasonable costs (including insurance) of storage, if applicable but without any obligation on Seller to procure insurance; or 9.6.2 where Buyer has failed to take delivery of the Products on or before the fifth working day following the intended day for delivery, sell the Products at the best price readily obtainable and (after deducting all reasonable storage and selling expenses) shall account to Buyer for the excess over the Price or invoice Buyer for any shortfall below the Price.
- 9.7 If, upon delivery of the Products, Buyer discovers that it has incorrectly ordered those Products, Seller's standard handling charge from time to time will be payable by Buyer if Seller agrees (at its sole discretion) to accept return of those Products.
- 10 Risk and Property in the Products**
- 10.1 Products supplied by Seller shall be at Buyer's risk immediately on and after delivery and so Buyer should arrange appropriate insurance from that point.
- 10.2 Title (legal and beneficial) in all Products supplied or sold by Seller shall be retained by Seller until the earlier of: 10.2.1 Seller having received in either cash or cleared funds all sums due in respect of the Products and on any account whatsoever from Buyer to Seller; or 10.2.2 (on an item by item basis) the Products having been used or incorporated into other products.
- 10.3 Until such time as the property in the Products passes to Buyer, Buyer must: 10.3.1 hold such Products (on a fiduciary basis for and on behalf of Seller) as Seller's bailee and act in good faith to protect Seller's interests in the Products; 10.3.2 store such Products (at no cost to Seller) separately from all other goods of Buyer in such a way that such Products remain identifiable as property of Seller and shall not mix them with any other goods; 10.3.3 not pledge or allow any lien, charge, or other interest to arise over the Products or their documents of title; 10.3.4 not destroy or deface any identifying marks on such Products or relevant packaging and maintain such Products in satisfactory condition; and 10.3.5 keep such Products insured on Seller's behalf and in the event of any claim hold the proceeds of such insurance on trust for Seller.
- 10.4 Seller shall be entitled at any time to require Buyer to deliver up any Products to Seller prior to property in the Products passing to Buyer. Buyer grants Seller and its agents an irrevocable licence at any time to enter any premises where such Products are stored to inspect or, if Buyer has failed to deliver up possession when requested by Seller, to repossess such Products.
- 11 Quality**
- 11.1 Subject to the remaining provisions of these Conditions; Seller warrants that on delivery: 11.1.1 all Products and Buyer's Tooling will be of satisfactory quality; and 11.1.2 where Seller has issued a confirmation in relation to fitness for a particular purpose in accordance with condition, the Products will be reasonably fit for that particular purpose. Buyer expressly agrees that a Product will be deemed to be of satisfactory quality and fit for its purpose if (a) in relation to a sale by sample, the Product complies with the Sample in all material respects; or (b) in all other cases, the Product complies with its Specifications in all material respects.
- 11.2 The warranties contained in condition shall not apply unless: 11.2.1 in respect of defects that are apparent on inspection of the Products or Tooling, Buyer notifies Seller, in writing, setting out in reasonable detail the nature of the breach of warranty within fourteen days after the delivery of the Products; or 11.2.2 in relation to defects that are not apparent on inspection of the Products or Tooling, Buyer notifies Seller in writing setting out in reasonable detail the nature of the breach of warranty within 14 days after the defect became apparent or ought to have become apparent to Buyer, and in any event within 12 months of the date of delivery of the Products; and 11.2.3 after receiving such notice of the defect, Seller is given reasonable opportunity to inspect the Products or Tooling and, at Seller's request (acting reasonably), the Products or Tooling are returned to Seller's place of business for the purposes of such inspection; and 11.2.4 the total price for the Products has been paid by Buyer.
- 11.3 Seller shall not be liable for any breach of any of the warranties in condition if: 11.3.1 the Product conforms to its Specifications, or if applicable Sample, in all material respects; 11.3.2 the breach was caused directly or indirectly by Buyer's breach of condition or by Buyer's Tooling, except to the extent caused by Seller's negligent actions or omissions in respect of the manufacture or use of Buyer's Tooling; 11.3.3 the breach was caused directly or indirectly by the acts or omissions of any persons not expressly authorised by Seller, including repairs, additions or changes made to the Products by or on behalf of Buyer; 11.3.4 the breach was caused directly or indirectly by parts, materials or equipment incorporated into a Product but not manufactured by Seller, in respect of which Buyer shall only be entitled to the benefit of any such warranty or guarantee as was given by the manufacturer to Seller and which is capable of being assigned to Buyer (at Buyer's cost); 11.3.5 Buyer makes further use of or resells the Products after giving notice of a defect or fails to comply with Seller's reasonable instructions in relation to a product hold or recall; or 11.3.6 the breach was caused directly or indirectly by environmental conditions or use or storage or handling of the Products outside the parameters of its Specifications or instructions supplied by Seller or by any matter specifically excluded by Seller by notice in writing including carelessness, mishandling, operating errors, vandalism or unforeseen events.
- 11.4 Subject to conditions and, where Products or parts thereof returned to Seller are found, in the reasonable opinion of Seller, not to conform with the warranty contained in condition or any other warranties, quality standards or conditions implied by law, Seller shall discharge any liability in full by, at its sole discretion, repairing or replacing the whole or part of all or any of the Products or refunding the Price of the non-conforming Products. Any Products which have been so replaced shall be owned by Seller.
- 11.5 Subject to the provisions of condition, the warranties contained in condition shall be the sole extent of Seller's liability arising out of or in connection with the Products.
- 11.6 Buyer shall comply with all reasonable instructions of Seller in relation to any product hold or product recall campaign organised in respect of the Products or any other corrective action reasonably taken by or on behalf of Seller in respect of the Products after delivery to Buyer.
- 12 Limitation of Liability**
- 12.1 For the purposes of this condition 12: 12.1.1 "Claim" means a claim arising out of or in connection with the supply of any Products or Tooling to Buyer or as a result of breach of these Conditions or of any duty of any nature whatsoever by Seller or pursuant to any use made by Buyer or resale by Buyer of any Products (or of any product incorporating any of the Products) or of any Tooling or as a result of any representation, statement, act or omission including negligence arising under or in connection with these Conditions or the Contract; 12.1.2 "Claim Limit" means, in respect of any calendar year, the greater of: 12.1.2.1 the aggregate amount

- payable to Seller by Buyer for goods of the type that are the subject of the Claims purchased by Buyer from Seller in that year (the "Relevant Goods"); 12.1.2.2 in the first three months of that year, the aggregate amount payable by Seller to Buyer for the Relevant Goods purchased in the previous year; or 12.1.2.3 where no Relevant Goods were purchased in the previous year or the Claim does not relate to the purchase of goods, to an aggregate sum of (a) where the Relevant Goods are exclusively Standard Products, £50,000; or (b) where the Relevant Goods include Custom Products or Tooling, £100,000.
- 12.2 Without prejudice to conditions and, Seller's aggregate liability (including any liability for the acts or omissions of its employees, agents, sub-contractors or other members of its Group) to Buyer for all Claims whether arising in contract, tort (including negligence or breach of a statutory duty), misrepresentation, restitution or otherwise shall be limited as follows: 12.2.1 Seller's aggregate liability for a Claim in relation to any single item of Product shall be limited to the Price payable to Seller by Buyer for that item; 12.2.2 Seller's aggregate liability for a Claim in relation to any item of Tooling shall be limited to the depreciated value of such item or its replacement price, whichever is the lower; and 12.2.3 Seller's aggregate liability to Buyer for all Claims arising in each calendar year shall be limited to the Claim Limit.
- 12.3 Without prejudice to condition 12.6, where a Court adjudicates that the exclusion of liability in condition is for any reason unenforceable, Seller's liability for the matters described in condition or, arising pursuant to the sale and purchase of the goods, tooling and related matters, shall be limited in respect of all Claims arising in any calendar year to the greater of: (a) the aggregate amount payable to Seller by Buyer in respect of the Products or Tooling to which any of the Claims relate; or (b) where the Claims relate exclusively to Standard Products, £100,000 and where the Claims do not exclusively relate to Standard Products, £200,000; in each case in aggregate in that calendar year.
- 12.4 Seller shall not be liable to Buyer or any other party for any (a) indirect Losses, (b) economic loss, (c) loss of profits or anticipated profits, (d) loss of expected future business, (e) damage to reputation or goodwill, nor (f) any claim for consequential compensation whatsoever (however caused), which arises in connection with the supply of Products or Tooling or related services by Seller, in each case whether direct or indirect or consequential and, whether such losses are suffered by Buyer or by any other party.
- 12.5 Subject to condition, unless otherwise expressly provided in these Conditions all implied warranties, terms and conditions are excluded from the Contract to the fullest extent permitted by law and Seller will not be liable to Buyer for any loss of any kind whatsoever which arises out of the breach of implied warranties, terms or conditions, or breach of any duty of any kind imposed on Seller by operation of law.
- 12.6 If Buyer becomes aware that any third party has made or appears likely to make any claim in respect of the Products (including, without limitation, as to defects in them or rights infringed by them) it shall: 12.6.1 promptly notify Seller of such claim or circumstance; 12.6.2 promptly provide such assistance to Seller and take such action as Seller may request to avoid, dispute, defend, mitigate, resist, appeal or compromise such claim or circumstance including but not limited to allowing Seller to take full control of any proceedings or negotiations in connection with the claim; and 12.6.3 not settle or compromise, make any admissions, nor agree any matter in the conduct of any dispute, without the prior written approval of Seller.
- 12.7 Without prejudice to any other provision of these Conditions, Seller will not be in breach of the terms of the Contract for any delay in performing, or failure to perform, its obligations under the Contract if that failure or delay was due to any cause or circumstance beyond Seller's reasonable control, which shall, without limiting the generality of the term, be deemed to include war or other action of military forces, terrorism, riot, civil commotion, sabotage, vandalism, accident, break down or damage to machinery or equipment, fire, flood, acts of God, strike, lock-out or other industrial disputes (whether or not involving employees of Seller) or shortage of materials at the market rates existing when the Agreement is made, legislative or administrative interference or was due to any failure, neglect or delay on the part of Buyer or its agents or representatives.
- 12.8 Seller reserves the right to defer the date of delivery or to terminate the Contract or reduce the volume of the Products ordered by Buyer (without liability to Buyer) if it is prevented from or delayed in the carrying on of its business due to an event referred to in condition occurring, provided that where the event in question continues for a continuous period in excess of 30 days either party shall be entitled to give notice in writing to the other to terminate the Contract with no liability due to or by either party.
- 12.9 Buyer acknowledges that the limitations of liability set out in these Conditions are reasonable and reflect the commercial intentions of the parties in the context of the anticipated earnings of Seller under the Contract and any other contracts and the ability of Buyer to protect itself through insurance. Seller may be willing to vary the limitations on liability in relation to specific Products if requested by Buyer subject to Buyer bearing the additional costs as notified to it by Seller. For the avoidance of doubt, any payment made by Seller to Buyer in any calendar year in respect of any Claim made by Buyer pursuant to any contract or otherwise shall operate to reduce the amount of the Claim Limit, and the limit of liability set out in condition, which is available for further Claims in that calendar year.
- 13. Termination**
- 13.1 Without affecting any other rights and remedies it may have, Seller may terminate the Contract forthwith if: 13.1.1 Buyer breaches any terms of any contract with Seller; 13.1.2 Buyer makes any composition or voluntary arrangement with its creditors or any step, application, order, proceeding or appointment is made or taken by or in respect of Buyer (including, without limitation, the making of an application or the giving of any notice) by Buyer or any other person for a distress, execution, winding up, dissolution, or to appoint an administrator of Buyer or (being an individual or firm) becomes bankrupt or (being a company) goes into liquidation (otherwise than for the purposes of a solvent amalgamation or reconstruction); 13.1.3 an encumbrance takes possession, or a receiver (administrative or otherwise) is appointed, of any of the property or assets of Buyer; or Buyer ceases, or threatens to cease, to carry on business; or 13.1.4 Seller reasonably apprehends that any of the events mentioned in conditions to above is about to occur in relation to Buyer and notifies Buyer accordingly.
- 13.2 Buyer may, on 30 days written notice, terminate: 13.2.1 the Contract within 30 days of receiving notice from Seller pursuant to conditions or that the Price of the Products which are the subject of the Contract is increasing by more than 10% of the original Price specified in applicable to the Products at the time the Contract is concluded; or 13.2.2 that part of the Contract relating to Custom Products on 30 days written notice if it does not wish (acting reasonably) to accept the changes to the Specifications of the Custom Products notified by Seller pursuant to condition.
- 13.3 Where Seller terminates the Contract in accordance with conditions or then, without prejudice to any other right or remedy available to Seller: 13.3.1 Seller shall be entitled to terminate any other contract or suspend any further deliveries under the Contract or any other contract; 13.3.2 where the Products have been delivered, but not paid for, subject to condition, Buyer's right to possession shall terminate and Seller may dispose or use any of the Products as it wishes; and 13.3.3 the Price shall become immediately due and payable notwithstanding any previous agreement or arrangement to the contrary.
- 13.4 Termination of the Contract, for whatever reason, shall not affect any of its provisions which are intended to continue to have effect after it has come to an end, including conditions 6, 10, 11, 12, 13, 14 and 15.
- 14. Indemnity**
- 14.1 Without prejudice to Seller's other rights and remedies, Buyer shall indemnify and keep indemnified Seller, its Group and their employees and agents on demand in full against any Losses incurred or suffered as a result of: 14.1.1 cancellation, variation or suspension of an order by the Buyer pursuant to condition 3.3; 14.1.2 any claim brought by any third party in respect of Losses, injury or damage caused by the Custom Products or Buyer's Tooling or by any Products which, following delivery, have been subjected to any use other than the authorised use for such Products (being the use for which such Products are commonly supplied or a use expressly authorised in accordance with condition) or modified or repaired by a person other than Seller or any event has occurred (including any act or omission) which would result in condition ceasing to apply to those Products; 14.1.3 the use of Specifications or Tooling supplied by or on behalf of Buyer or modified at the request of Buyer; 14.1.4 any breach of condition 5.4 and any claims by any third party in relation to any infringement or alleged infringement of any of its Intellectual Property Rights as a result of the use, possession or supply of any Custom Product or any Specifications and/or Tooling supplied by or on behalf of or modified at the request of Buyer; and 14.1.5 any termination pursuant to conditions 8.6 or 13.1.
- 15. Miscellaneous**
- 15.1 Seller may perform any of its obligations or exercise any of its rights hereunder by itself or through its subcontractors or agents or any member of its Group. Any act or omission of any such subcontractor or agent or member of its Group shall be deemed to be the act or omission of Seller and shall be subject to the exclusions or limitations on liability set out in these Conditions. Buyer shall not transfer, assign or sub-contract any of its rights or obligations under the Contract without Seller's prior written consent and in any event shall remain responsible for the performance of the Contract by any transferee, assign or sub-contractor.
- 15.2 Any notice shall be in writing addressed to the other party at, in the case of Seller, Essentra Components Pte Ltd, 238A Thomson Road #25-04/05 Novena Square Singapore 307684, (65) 6841 5481 or Essentra Malaysia Sdn. Bhd, D5-5-6, Solaris Dutamas 1 Jalan Dutamas 1, 50480 Kuala Lumpur, Malaysia, (60) 3 6207 3232 or Essentra (India) Private Limited No. 3 (Old Plot nos. 18 & 23) 3rd Main Road Peenya Industrial Area, Phase 1 Yeshwantpur Hobli Bangalore 560 058 India, (91) 0 80 4545 3618 or Essentra FZE, PO Box No 261392 Plot No. S20403 Jebel Ali Free Zone (JAFZA) Dubai United Arab Emirates, (971) 4 8806919 or Essentra Pty Ltd 503 Victoria Street Wetherill Park NSW, 2164 Australia, (61) 02 96844521 and in the case of Buyer at its registered address or such other address as may at the relevant time have been notified to Seller. Hand delivered notices shall take effect immediately, postal notices, two working days after posting by first class post and, if sent by fax, at the date and time on the sender's transmission acknowledgement slip or (if lost) on receipt.
- 15.3 No waiver by Seller of any breach of the Contract by Buyer shall be considered as a waiver of any subsequent breach of the same or any other provision. Failure by Seller to enforce any term of the Contract shall not be waiver of Seller's rights.
- 15.4 If any provision of the Contract is held by any competent authority to be invalid or unenforceable in whole or in part, the validity of the other provisions of the Contract and the remainder of the provision in question shall not be affected thereby.
- 15.5 The Contract contains the entire agreement and understanding of the parties and supersedes all prior agreements, understandings or arrangements (both oral and written) in respect of the Products (save that neither party seeks to exclude liability for fraudulent pre-contractual misrepresentation upon which the other party can be shown to have relied).
- 15.6 The Contract shall be governed by the laws. Any dispute shall be referred to the exclusive jurisdiction of the Courts save that Seller shall retain the right to bring proceedings against Buyer in any other court.
- 15.7 Save in respect of the rights, indemnities or warranties expressly stated to be given in favour of the Group, or Seller's agents, all of which shall accrue directly for their benefit, the parties to the Contract do not intend that any term of the Contract will be enforceable under the Contracts by any person that is not a party to it. No such person shall have any rights relating to any extension, waiver and/or amendment to the Contract including but not limited to, any rights to approve any extension, waiver and/or amendment to the Contract.



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ACCESS HARDWARE  
APPLICATION GUIDE

# CABINET BUILDING WITH ACCESS HARDWARE

Our Essentials Guide to cabinet building using Access Hardware is designed to help you find the most appropriate solution for your project.

When building outdoor enclosures, HVAC units, generators and data cabinets there are many different access hardware components you can consider. The solutions you choose can help deliver cabinet security, controlled access, productive operation and a reduction in unnecessary repair costs. Explore our guide.

## HINGES

Often a full, restricted or controlled range of door motion is required when accessing your cabinet. Hinges allow you to vary this range of motion, no matter the door, frame or mounting area. Using the right hinge for your application can easily drive increased functionality for the end user.



Torque Hinge  
(Pg 517)

We recommend:

- Torque hinge
- Metal leaf hinge
- Lift off hinge

## LOCKS

Cabinets can be susceptible to tampering, ingress of dirt or liquids. Using a suitable lock enables peace of mind for you and your customers. A durable polyamide or corrosion resistant stainless steel will offer high potential IP ratings as well as strength, ensuring security is upheld.



Quarter turn latch with spring  
(Pg 398)

We recommend:

- Quarter turn latch with spring
- T-Handle Heavy duty paddle lock
- T & L Handle lock

## SWING HANDLES

For when security is paramount you need to be sure you can trust your cabinet is fully protected. Use a swing handle gear box with a three-point locking system to prevent tampering, keeping your cabinets fully operational.

We recommend:

- Lift & turn cam latches
- Off set compression lever latches
- Flush compression lever latches



Lift & turn cam latches  
(Pg 430)

## PULL HANDLES

Crucial when finishing your cabinet and maintaining quick and seamless functionality. Pull handles can offer ergonomic use and flush fitting installation to help users stay efficient and safe in a busy work space.

We recommend:

- Bridge Handles
- Stainless Steel Cabinet U Handle
- Stainless Steel Bolt on Flush Handle



Bridge Handles  
(Pg 554)

## LATCHES & CATCHES

When your application is in constant use you often require a secure yet easily accessed door. Maintain ease of access and save time in a busy environment using easy open latches and catches.

We recommend:

- Heavy duty magnetic catch
- Recessed Magnetic catches
- Lift and turn compression latch



Magnetic Catch  
(Pg 470)

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# CAPS AND PLUGS APPLICATION GUIDE

The Caps and Plugs edition of the Essentials Guide has been created to outline specific protection solutions for your project, in a number of key industrial manufacturing applications.

Many products that you manufacture are likely shipped to another location or customer, or simply moved along an assembly line as part of your production process. During these transits and end uses, it's important to protect vital parts to ensure efficient processes, safe use and reduced downtime. Explore our guide to see what we recommend when protecting your products.

## EQUIPMENT MANUFACTURING

Ensure smooth assembly and transit to your customers by protecting critical internal and external profiles from damage, maintaining quality and a timely delivery. Key equipment to protect includes enclosures, indoor and outdoor cabinets, HVAC units and generators.

Essentra recommends protecting with:



*Domed  
Blanking Plug  
(Pg 259)*



*Silicone Cap  
(Pg 76)*



## VEHICLES

In applications where precision is everything, it's essential to guard fuel lines from potential debris contamination and protect vital threads from damage during shipment and masking. Key vehicle parts to protect are diesel/petrol pumps, engines, specialist vehicle fittings, powertrains and brake systems.

Essentra recommends protecting with:



*Sealing Slottex Plug  
(Pg 33)*



*Tapered Cap  
(Pg 3)*

## METAL FABRICATION

Guarantee a professional finish every time by masking holes, studs and contact points during painting, blasting, and finishing processes. By protecting important areas of fabricated metal with easy-to-fit caps and plugs, you can successfully increase customer satisfaction and minimise recall of finished products. Key areas to guard include electrical contact points, threaded holes or studs and welding areas.

Essentra recommends protecting with:



*Masking Washer Plug  
(Pg 85)*



*Multi-Flex Caps  
(Pg 19)*

## HOSES & HYDRAULICS

Safe operation of devices using hydraulic fluid calls for specialist hose-fitting protection and coverage. The right cap or plug can help mitigate fluid spills and maintain hose integrity when looking to ensure constant machinery uptime and user safety. Key hydraulic parts that need safeguarding include grease nipples, DKO-compression fittings, fuel lines and banjo unions.

Essentra recommends protecting with:



*Hexagonal Caps  
(Pg 54)*



*Banjo Union Cap  
(Pg 56)*

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## ASIA PACIFIC OFFICES

### AUSTRALIA

Tel : 1800 377 111  
sales@essentracomponents.com.au  
www.essentracomponents.com.au

### MALAYSIA

Tel : +603 5568 1988  
sales@essentracomponents.my  
www.essentracomponents.com.my

### THAILAND

Tel : +66 (2) 819 9501  
sales@essentracomponents.co.th  
www.essentracomponents.co.th

### CHINA

Tel : +86 400 679 3666  
Fax : +86 400 679 3677  
sales@essentracomponents.cn  
www.essentracomponents.cn

### SINGAPORE

Tel : +65 6841 3266  
sales@essentracomponents.com.sg  
www.essentracomponents.com.sg

### INDIA

Tel : +91 (0) 78997 39157  
sales@essentracomponents.co.in  
www.essentracomponents.co.in

### JAPAN

Tel : +81 45 321 2752  
sales@essentracomponents.jp  
www.essentracomponents.jp

### VIETNAM

sales@essentracomponents.vn  
www.essentracomponents.vn

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