

EE&I

ELECTRONIC EYELET & INTERCONNECT

911 Bern Court, Suite 100, San Jose CA 95112-1236 PH: 408/437-5750 FAX: 408/437-2439

Manufacturer and Distributor Specializing in Electronic Hardware
COMMERCIAL – MILITARY – AEROSPACE

Build and define your own American Standard or Metric Handles for Electronic packaging assemblies.

Use the following indexes and attached tables for defining type, size, clearance or thread size, material and finish.

HANDLES

DATA SHEET #	DESCRIPTION
mec10535	Solid & Folding Handles (Round, Oval, Rectangular, Free fall)
mec10543	Folding Handles (Round, Oval, 2 & 3 Position, Free Fall)
mec10540	Material & Finish Specifications
mec10541	Thread Sizes, & Clearances (American Standard Thread sizes see Tables I or II) (Metric Thread size see Tables IV or V)

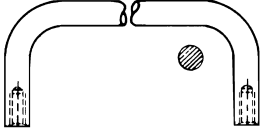
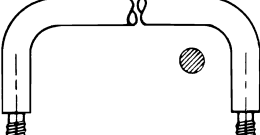
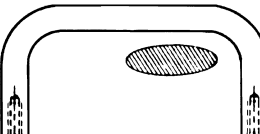
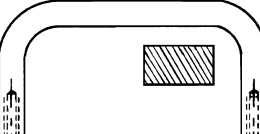
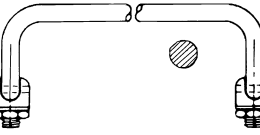
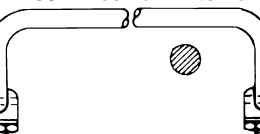
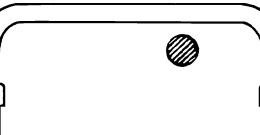


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HANDLES

Round – Internal Thread	Diameter or Material Size	Height	Mounting Centers	Material	Threads
	1/8	1/2" to 2"	3/4" to 3"	A-B-SS	256
	5/32	3/4" to 1"	1" to 3"	A-B-SS	256 - 440
	3/16	5/8" to 1-1/2"	1" to 5-1/4"	A-B-SS	440 - 632
	1/4	1" to 4-1/4"	1-1/8" to 8"	A-B-SS	632 - 832
	5/16	1" to 7"	2" to 12"	A-B-SS	832 - 1032
	3/8	1-5/16" to 4"	2" to 12"	A-B-SS	1032 - 1/4-20
	1/2	2"	4" to 10"	A-B-SS	1/4-20 - 5/16-18
Round – External Thread	Diameter or Material Size	Height	Mounting Centers	Material	Threads
	3/16	1" to 2"	2" to 6"	A-B-SS	440 - 632
	1/4	1" to 2"	2" to 6"	A-B-SS	832 - 1032
	5/16	1 13/16" to 2 1/4"	2" to 9"	A-B-SS	1032 - 1/4-20
<i>Nuts & Washers not Supplied</i>					
Handle – Oval Internal Thread	Diameter or Material Size	Height	Mounting Centers	Material	Threads
	7/16 x 9/32	1" to 2"	2" to 12"	A-B-SS	832 – 1032
	*5/8 x 9/32	1" to 2"	2" to 12"	A-B-SS	1024 - 1032
		1" to 4"	2-1/2" to 12"	A-B-SS	1024 – 1032
	5/8 x 3/8	1-9/32" to 4"	2-1/2" to 12"	A-B-SS	1024 – 1032
<i>Brass Special Order Only</i>					
Rectangular – Internal Thread	Diameter or Material Size	Height	Mounting Centers	Material	Threads
	1/2 x 3/16	1-1/2" to 2"	2" to 10"	Alum	440 – 632
	1/2 x 1/4	1-1/2" to 2"	2" to 10"	A-B	632 - 832
	1/2 x 5/16	1" to 2"	2" to 10"	A-B	832 – 1032
	5/8 x 1/4	1" to 4"	2" to 10"	A-B	632 - 832
	1" x 1/4	1" to 4"	2" to 10"	A-B	632 - 832
Round – 90° Free Fall External Thread	Diameter or Material Size	Height	Mounting Centers	Material	Threads
	1/4	1.46"	3" to 6"	A-B-SS	1/4 - 28
	5/16	1.53" to 1.81"	3" to 6"	A-B-SS	5/16-24 – 3/8-24
	3/8	1.53" to 1.85"	3" to 6"	A-B-SS	5/16-24 – 3/8-24
Round – 180° Free Fall External Thread	Diameter or Material Size	Height	Mounting Centers	Material	Threads
	1/4	1.46"	3" to 6"	A-B-SS	1/4 - 28
	5/16	1.53" to 1.81"	3" to 6"	A-B-SS	5/16 - 24
Round – 90° Infinite Pos. Folding Handle External Thread	Diameter or Material Size	Height	Mounting Centers	Material	Threads
	1/4	1.46"	3" to 9"	A-B-SS	1/4-28 - 5/16-24
	5/16	1.62"	3" to 9"	A-B-SS	5/16-24 – 3/8-24
	3/8	1.81"	3" to 9"	A-B-SS	5/16-24 – 3/8-24



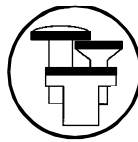
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Round – 180 ° Infinite Pos. Folding Handle External Thread	Diameter or Material Size	Height	Mounting Centers	Material	Threads
	1/4	1.46"	3" to 9"	A-B-SS	1/4-28 – 5/16-24
	5/16	1.62"	3" to 9"	A-B-SS	5/16-24 – 3/8-24
	3/8	1.81"	3" to 9"	A-B-SS	5/16-24 – 3/8-24
Round 90 ° Folding 2 Pos. External Thread	Diameter or Material Size	Height	Mounting Centers	Material	Threads
	1/4	1.43" to 1.46"	3" to 9"	A-B-SS	1/4-28 – 5/16-24
	5/16	1.53" to 1.84"	3" to 9"	A-B-SS	5/16-24 – 3/8-24
	3/8	1.53" to 2.37"	3" to 9"	A-B-SS	5/16-24 – 3/8-24
Round 180 ° Folding 3 Pos. External Thread	Diameter or Material Size	Height	Mounting Centers	Material	Threads
	1/4	1.43" to 1.46"	3" to 8"	A-B-SS	1/4-28 – 5/16-24
	5/16	1.43" to 1.85"	3" to 8"	A-B-SS	1/4-28 – 3/8-24
	3/8	1.53" to 2.37"	3" to 8"	A-B-SS	5/16-24 – 3/8-24
Oval – 90 ° Folding 2 Pos. External Thread	Diameter or Material Size	Height	Mounting Centers	Material	Threads
	7/16 x 9/32	1.695" to 2-1/8"	3" to 8"	A-B-SS	5/16-24 – 3/8-24
	5/8 x 9/32	1.695" to 2-1/8"	3" to 8"	A-B-SS	5/16-24 – 3/8-24
	5/8 x 3/8	1.695" to 2-1/8"	3" to 8"	A-B-SS	5/16-24 – 3/8-24
Oval – 180 ° Folding 3 Pos. External Thread	Diameter or Material Size	Height	Mounting Centers	Material	Threads
	7/16 x 9/32	1.695" to 2-1/8"	3" to 8"	A-B-SS	5/16-24 – 3/8-24
	5/8 x 9/32	1.695" to 2-1/8"	3" to 8"	A-B-SS	5/16-24 – 3/8-24
	5/8 x 3/8	1.695" to 2-1/8"	3" to 8"	A-B-SS	5/16-24 – 3/8-24
Oval – 180 ° Folding Infinite Pos. Internal Thread	Diameter or Material Size	Height	Mounting Centers	Material	Threads
	7/16 x 9/32	2" to 3"	3" to 8"	A-B-SS	832 – 1032
	5/8 x 9/32	2" to 3"	3" to 8"	A-B-SS	832 – 1032
	5/8 x 3/8	2" to 3"	3" to 8"	A-B-SS	832 – 1032
Round – 90 ° Folding Free Fall Internal Thread	Diameter or Material Size	Height	Mounting Centers	Material	Threads
	5/16	2"	3" to 7"	A-B-SS	832 – 1032
	3/8	2"	3" to 7"	A-B-SS	832 – 1032



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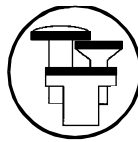
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MATERIAL & FINISHES SPECIFICATIONS

Material	Code Letter	Material Specifications	Material	Code Letter	Material Specifications
Aluminum	A	QQ-A225/3D, 2011-T3	Plastic	PA	A.B.S. ASTM-D-4673-87 Natural, Service temperature 160°F, UL-94 HB
Brass	B	ASTM-B-16-91	Plastic	L	Polycarbonate (Lexan), ASTM-D-3935-87-PC, 110 B34720, Continuous usage temperature 250°F, UL-94 V-2
Copper	C	ASTM-B-301-93	Plastic	PP	P.V.C. round only L.P. 1036, Service temperature 140°F UL-94 VO, Tolerances: ½ Diameter & under +.010 - .000 over ½ diameter + .020 - .000
Delrin	D	ASTM-D-4181-94, Natural, long term service, Temperature 200°F, UL-94 HB	Rulon-Standard Grade	AR	Operating temperature range -400° to 550°F. Color; maroon, non-flammable, UL-94 VO
Fibre	F	ASTM-D-710-95, UL94 HB	Stainless Steel	SS	ASTM-A581, 582-95 (non-magnetic), 303 series condition A. For socket head cap screws ASME/ANSI B 18.3-86 ASTM-F-837
Glass Epoxy G10	GE	MIL-I-24768/2-92 GEE, Maximum recommended continuous operating temperature of 285°F, UL-94-5V	**Alloy Steel	AS	For socket head cap screws ASME/ANSI B 18.3-86 ASTM-A-574
Kel-F	KF	MIL-P-46036, ASTM-D-1430-91A, Type I, Grade I, Class B,C. UL-94 VE-O	Steel	S	ASTM-A-108-93 (12L14)
*Nylon	N	LP-410-Natural 6/6, ASTM-D-4066-94A. Natural. Service temperature 210°F, UL-94-HB	Teflon	T	Virgin rod-ASTM-D-1710-91A, Type I, Grade I, Class A. Continuous service temperature 500°F. UL 94 VO
Phenolic-Paper	PH	MIL-I-24768/11-92 FBG, Service temperature 285°F, UL-94 HB			
Phenolic-Linen	PHL	MIL-I-24768/13-92 FBE, Service temperature 265°F, UL-94 HB			

FINISHES

1 No Finish	10 Silver Plate QQ-S-365-D, Type II, Grade B (thickness .0003)	27 Chromium Plating QQ-C-320B (satin finish) Class 1, Type 11
2 Anodize MIL-A-8625F, Type 1, Class 2 (Chromic) Hot water seal (dark gray)	11 Black Oxide MIL-C-13924-C, Amend #1, Class 4. For 300 series corrosion resistant steel alloys only	28 Chromium Plating QQ-C-320B (engineering) Class 2
3 Anodize MIL-A-8625F, Type II, Class 1 (Sulphuric) Hot water seal (clear)	11a Black Oxide MIL-C-13924-C, Amend #1, Class 1 (for plain carbon and low alloy steels)	29 Clear Lacquer
3a Anodize MIL-A-8625F, Type II, Class 2 (Sulphuric) Hot water seal (blue)	12 Passivate MIL-F-14072-C (ER) Amend #1, Type 1 (Finish #E300-passivated per ASTM-A-380-78)	30 Water Dip Lacquer
3b Anodize MIL-A-8625F, Type II, Class 2 (Sulphuric) Hot water seal (red)	12a Passivate QQ-P-35C, Type II	31 Zinc Plate ASTM B633/85 Type 1, Class FE/ZN5-SC-1 (Thickness .00025)
4 Anodize MIL-A-8625F, Type II, Class 2 (Sulphuric) Dichromate seal (yellow, green)	15 Alodine 1200	31a Zinc Plate (Colored Chromate) ASTM B633/ 85, Type II, FE/ZN5-SC-1 (thickness .00025)
4a Anodize MIL-A-8625E, Type II (Sulphuric) Dichromate seal (red)	16 Gold Flash (Thickness .00003 to .00005)	31b Zinc Plate Colorless (clear), Chromate ASTM B633/85, Type III, Class FE/ZN5-SC-1 (thickness .00025)
5 Anodize MIL-A-8625F, Type II, Class 2 (Sulphuric) Hot water seal (black)	17 Gold Flash over Nickel Flash (Thickness .00003 to .00005)	31c Zinc Plate (Phosphate Coate) ASTM B633/85, Type V, Class FE/ZN5-SC-1 (thickness .00025)
6 Cadmium Plate QQ416-F, Type II, Class 2, (Clear chromate)	18 Gold Plate MIL-G-45204-C, Amend #1, Type II, Grade C, Class 2, (Thickness .00010 min)	32 Solder Plate (.0001 to -.0003 thick; solder per QQS-571-F, SN 60 PG 40) over Nickel Plate thickness 0.0001 - 0.0005. in AC/W MILP-81728A plus solderability
6a Cadmium Plate QQ416-F, Type II, Class 2	19 Tin Plate (Hot dipped) MIL-T-10727-C Type II	33 Black Chrome Satin
7 Cadmium Plate Commercial Type I, Class 3	20 Tin Plate (Electro Deposit) MIL-T-10727-C, Type I	34 Black Phosphate
8 Cadmium Plate QQ416-F, Type II, Class 3, (Color chromate finish)	20a Tin Plate (Acid Dip) plus solder ability, MIL-T-10727-C, Type II, bright finish	35 Black Zinc
9 Nickel Plate QQN-290-A, Class I, Grade G (Thickness .0002-SB)	21 Bright Dip (brass finish)	37 Black Satin Finish
9a Nickel Plate QQN-290-A, Class I, Grade F (Thickness .0004-SB)	22 Iridite MIL-C-5541-E, Class 3 (clear)	38 Electro Tin Plate over Copper Flash, MIL-T-10727C, Type II
9b Black Nickel Has little protective value and is used primarily to obtain a dark non-reflective, decorative finish on steel, brass, copper alloy instruments parts and stainless steel	23 Iridite MIL-C-5541-E, Class 1a (gold)	39 Lubricant solid film, heat cured, corrosion inhibiting, MIL-L-46010B, Amend #2, Type I
	24 Gold Flash 0.000015 thick	39a Lubricant Solid film, heat cured, corrosion inhibiting, MIL-L-46010B, Amend #2, Type II
	26 Chromium Plating QQ-C-320B (bright finish) Class 1, Type 1	



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THREAD SIZES / Depths & CLEARANCE HOLES AMERICAN STANDARD

TABLE I				TABLE III				TABLE II		
Thread Sizes - Standoffs				Thread Depths				Clearance Holes - Spacers		
Thread Size	CODE	Thread Size	CODE	Thread Size	Tapped Thru		Blind Tap Depth	Thread Size	Clearance Hole Range	CODE
-	-	-	-	-	Aluminum, Brass, Steel, Nylon	Stainless Steel	Aluminum, Brass, Stainless Steel, Steel, Nylon			
0-80	0080	10-24	1024	0-80	3/8	1/4	3/16	0-80	.062-.072	00
1-64	0164	10-32	1032	1-64 & 1-72	3/8	1/4	3/16	1-64	.075-.085	01
1-72	0172	12-24	1224	2-56 & 2-64	5/8	3/8	3/16	1-72	.075-.085	01
2-56	0256	12-28	1228	3-48 & 3-56	3/4	3/8	3/16	2-56	.088-.098	02
2-64	0264	1/4-20	2520	4-40 & 4-48	1	1/2	1/4	2-64	.088-.098	02
3-48	0348	1/4-28	2528	5-40 & 5-44	1	1/2	5/16	3-48	.101-.111	03
3-56	0356	5/16-18	3118	6-32 & 6-40	1	1	3/8	3-56	.101-.111	03
4-40	0440	5/16-24	3124	8-32 & 8-36	1	1	7/16	4-40	.114-.124	04
4-48	0448	3/8-16	3716	10-24 & 10-32	1	1	1/2	4-48	.114-.124	04
5-40	0540	3/8-24	3724	12-24 & 12-28	1	1	1/2	5-40	.127-.137	05
5-44	0544	7/16-14	4314	1/4-20 & 1/4-28	1	1	9/16	5-44	.127-.137	05
6-32	0632	7/16-20	4320	5/16-18 & 5/16-24	1	1	9/16	6-32	.140-.150	06
6-40	0640	1/2-13	5013	3/8-16 & 3/8-24	1	1	9/16	6-40	.140-.150	06
8-32	0832	1/2-20	5020	7/16-14 & 7/16-20	1	1	9/16	8-32	.166-.176	08
8-36	0836	-	-	1/2-13 & 1/2-20	1	1	9/16	8-36	.166-.176	08
				Notes: 1. Blind tap depth per handbook H-28, part 1, Screw thread standards for Federal services.						
								10-24	.192-.202	10
								10-32	.192-.202	10
								12-24	.218-.228	12
								12-28	.218-.228	12
								1/4-20	.252-.262	25
								1/4-28	.252-.262	25
								5/16-18	.315-.325	31
								5/16-24	.315-.325	31
								3/8-16	.377-.387	38
								3/8-24	.377-.387	38
								7/16-14	.440-.450	43
								7/16-20	.440-.450	43
								1/2-13	.502-.512	50
								1/2-20	.502-.512	50

THREAD SIZES / DEPTHS & CLEARANCE HOLES METRIC

TABLE IV		TABLE V			TABLE VI			
Thread Sizes - Standoffs		Clearance Holes - Spacers			Thread Depths			
Thread Size	CODE	Thread Size	Clearance Hole Range	CODE	Thread Size	Tapped Thru		Blind Tap Depth
-	-	-	-	-	-	Aluminum, Brass, Steel, Nylon	Stainless Steel	Aluminum, Brass, Stainless Steel, Steel, Nylon
M1.6 x 0.35	1635	M1.6 x 0.35	1.7 - 1.9	16	M1.6 x 0.35	9.5	6.4	4.8
2.0 x 0.4	2040	2.0 x 0.4	2.1 - 2.3	20	2.0 x 0.4	9.5	6.4	4.8
2.2 x 0.45	2245	2.2 x 0.45	2.3 - 2.5	22	2.2 x 0.45	15.9	9.5	4.8
2.5 x 0.45	2545	2.5 x 0.45	2.6 - 2.8	25	2.5 x 0.45	15.9	9.5	4.8
3.0 x 0.5	3050	3.0 x 0.5	3.1 - 3.3	30	3.0 x 0.5	25.4	12.7	6.4
3.5 x 0.6	3560	3.5 x 0.6	3.6 - 3.8	35	3.5 x 0.6	25.4	25.4	9.5
4.0 x 0.7	4070	4.0 x 0.7	4.1 - 4.3	40	4.0 x 0.7	25.4	25.4	11.1
5.0 x 0.8	5080	5.0 x 0.8	5.2 - 5.4	50	5.0 x 0.8	25.4	25.4	12.7
6.0 x 1.0	6010	6.0 x 1.0	6.2 - 6.4	60	6.0 x 1.0	25.4	25.4	14.3
8.0 x 1.25	8125	8.0 x 1.25	8.4 - 8.6	80	8.0 x 1.25	25.4	25.4	14.3
10.0 x 1.5	1015	10.0 x 1.5	10.4 - 10.6	100	10.0 x 1.5	25.4	25.4	14.3