SAE The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

SURFACE VEHICLE STANDARD

SAE J561

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Superseding J561 JUN1993

Electrical Terminals—Eyelet and Spade Type

1. ***Scope—***This SAE Standard covers general requirements and dimensions of various sizes of eyelet and spade type terminals.

2. ***References***

2.1 **Applicable Publication—**The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply.

2.1.1 SAE PUBLICATION—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J163—Low Tension Wiring and Cable Terminals and Splice Clips

3. ***General Requirements—***The eyelet and spade type terminals listed in Tables 1A and 1B and Figures 1 through 5 of this document may be used for terminating wire ends or for terminating circuits on devices other than wire. Performance requirements for low tension wire terminals are specified in SAE J163.

Terminal sizes other than those listed are permissible, providing they meet the general requirements of this document and the performance requirements of SAE J163.

Terminals shall be free from burrs, corrosion, or any foreign matter, and shall be of a temper that will permit attachment to wires or circuits on devices without fracturing or cracking.

Terminals may be applied to wire by crimping, welding, swaging, soldering, or any combination thereof at the conductor grip. Insulation grips shall be used on all terminals assembled to 8 gage (8 mm^2) and smaller insulated wire except where usage provides other means of relieving strain.

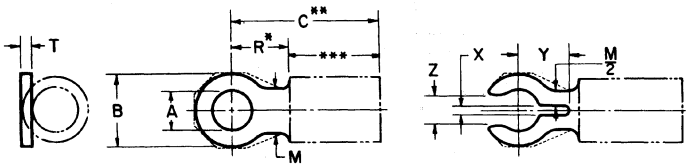
Materials should be of copper, brass, or other copper alloys. Minimum metal thickness is the nominal thickness shown less a standard strip stock tolerance. Thickness is based on SAE CA260 (UNS C26000) brass conductivity and may be adjusted for use with other materials. Unless otherwise noted, all dimensions shall be held to a tolerance of ± 0.25 mm (± 0.010 in).

TABLE 1A—METRIC STUD OR SCREW AND HOLE OR SLOT SIZES

SAE No.	Metric Stud or Screw Size Nominal	Metric Stud or Screw Size Max	Hole or Slot Size For Eyelet or Spade, A Min	Hole or Slot Size For Eyelet or Spade, A Max
1M	M3	3.0 mm	3.2 mm	3.4 mm
2M	M4	4.0 mm	4.2 mm	4.4 mm
3M	M5	5.0 mm	5.3 mm	5.5 mm
4M	M6	6.0 mm	6.3 mm	6.5 mm
5M	M8	8.0 mm	8.4 mm	8.6 mm
6M	M10	10.0 mm	10.5 mm	10.7 mm
7M	M12	12.0 mm	12.5 mm	12.9 mm
8M	M14	14.0 mm	14.6 mm	15.0 mm
9M	M16	16.0 mm	16.7 mm	17.1 mm

TABLE 1B—STUD OR SCREW AND HOLE OR SLOT SIZES

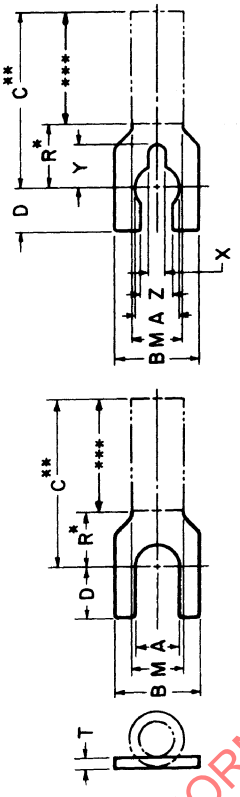
SAE No.	Stud or Screw Size Nominal	Stud or Screw Size Max	Hole or Slot Size For Eyelet or Spade, A Min	Hole or Slot Size For Eyelet or Spade, A Max
1	4	0.112 in	0.123 in	0.129 in
2	6	0.138 in	0.144 in	0.150 in
3	8	0.164 in	0.170 in	0.176 in
4	10	0.190 in	0.201 in	0.207 in
5	1/4	0.250 in	0.279 in	0.285 in
6	5/16	0.313 in	0.342 in	0.348 in
7	3/8	0.375 in	0.404 in	0.410 in
8	7/16	0.438 in	0.466 in	0.476 in
9	1/2	0.500 in	0.528 in	0.538 in



* CLEARANCE TO NEAREST OBSTRUCTION
** PRE-INSULATED TERMINALS MAY EXCEED THIS DIMENSION
*** DETAIL DESIGN IS MANUFACTURER'S OPTION

SAE No.	Screw Size	A Min mm	A Min in	A Max mm	A Max in	B Min mm	B Min in	C Max mm	C Max in	M Min mm	M Min in	R Min mm	R Min in	T Nom mm	T Nom in	X mm	X in	Y mm	Y in	Z mm ±0.13	Z in ±0.005
To Use on SAE No. 18 and No. 20 (0.8 mm² and 0.5 mm²) Wire																					
A001	4	3.13	0.123	3.27	0.129	6.1	0.24	16.0	0.63	3.9	0.15	4.9	0.19	0.64	0.025	---	---	---	---	---	---
A002	6	3.66	0.144	3.81	0.150	6.1	0.24	16.7	0.66	3.9	0.15	6.4	0.25	0.64	0.025	---	---	---	---	---	---
A003	8	4.32	0.170	4.47	0.176	8.7	0.34	17.7	0.70	3.9	0.15	7.7	0.30	0.64	0.025	1.5	0.06	4.6	0.18	3.56	0.140
A004	10	5.11	0.201	5.25	0.207	8.7	0.34	17.7	0.70	3.9	0.15	7.7	0.30	0.64	0.025	1.5	0.06	7.4	0.29	3.81	0.150
A005	1/4	7.09	0.279	7.23	0.285	11.0	0.43	21.5	0.85	3.9	0.15	9.4	0.37	0.64	0.025	---	---	---	---	---	---
A006	5/16	8.69	0.342	8.83	0.348	11.0	0.43	21.5	0.85	3.9	0.15	11.0	0.43	0.64	0.025	---	---	---	---	---	---
To Use on SAE No. 14 and No. 16 (2.0 mm² and 1.0 mm²) Wire																					
B101	4	3.13	0.123	3.27	0.129	6.1	0.24	19.3	0.76	4.4	0.17	4.9	0.19	0.72	0.028	---	---	---	---	---	---
B102	6	3.66	0.144	3.81	0.150	6.1	0.24	19.3	0.76	4.4	0.17	6.4	0.25	0.72	0.028	---	---	---	---	---	---
B103	8	4.32	0.170	4.47	0.176	8.7	0.34	20.8	0.82	4.4	0.17	7.7	0.30	0.72	0.028	1.5	0.06	4.6	0.18	3.56	0.140
B104	10	5.11	0.201	5.25	0.207	8.7	0.34	20.8	0.82	4.4	0.17	7.7	0.30	0.72	0.028	1.5	0.06	7.4	0.29	3.81	0.150
B105	1/4	7.09	0.279	7.23	0.285	11.0	0.43	22.3	0.88	4.4	0.17	9.4	0.37	0.72	0.028	---	---	---	---	---	---
B106	5/16	8.69	0.342	8.83	0.348	14.0	0.55	26.4	1.04	4.6	0.18	11.0	0.43	0.72	0.028	---	---	---	---	---	---
B107	3/8	10.27	0.404	10.41	0.410	14.0	0.55	26.4	1.04	4.6	0.18	12.7	0.50	0.72	0.028	---	---	---	---	---	---
To Use on SAE No. 10 and No. 12 (5.0 mm² and 3.0 mm²) Wire																					
B203	8	4.32	0.170	4.47	0.176	8.7	0.34	24.3	0.96	6.1	0.24	7.7	0.30	1.02	0.040	1.5	0.06	4.6	0.18	3.56	0.140
B204	10	5.11	0.201	5.25	0.207	8.7	0.34	24.3	0.96	6.1	0.24	7.7	0.30	1.02	0.040	1.5	0.06	7.4	0.29	3.81	0.150
B205	1/4	7.09	0.279	7.23	0.285	12.7	0.50	26.4	1.04	6.1	0.24	9.4	0.37	1.02	0.040	---	---	---	---	---	---
B206	5/16	8.69	0.342	8.83	0.348	17.3	0.68	29.4	1.16	6.1	0.24	11.0	0.43	1.02	0.040	---	---	---	---	---	---
B207	3/8	10.27	0.404	10.41	0.410	17.3	0.68	29.4	1.16	6.1	0.24	12.7	0.50	1.02	0.040	---	---	---	---	---	---
B208	7/16	11.84	0.466	12.09	0.476	17.3	0.68	29.4	1.16	7.7	0.30	15.8	0.62	1.02	0.040	---	---	---	---	---	---
B209	1/2	13.42	0.528	13.66	0.538	17.3	0.68	29.4	1.16	7.7	0.30	15.8	0.62	1.02	0.040	---	---	---	---	---	---
To Use on SAE No. 8 (8.0 mm²) Wire																					
B304	10	5.11	0.201	5.25	0.207	8.7	0.34	28.7	1.13	6.1	0.24	7.7	0.30	1.15	0.045	---	---	---	---	---	---
B305	1/4	7.09	0.279	7.23	0.285	12.7	0.50	28.7	1.13	6.1	0.24	9.4	0.37	1.15	0.045	---	---	---	---	---	---
B306	5/16	8.69	0.342	8.83	0.348	17.3	0.68	32.0	1.26	6.1	0.24	11.0	0.43	1.15	0.045	---	---	---	---	---	---
B307	3/8	10.27	0.404	10.41	0.410	17.3	0.68	32.0	1.26	6.1	0.24	12.7	0.50	1.15	0.045	---	---	---	---	---	---
B308	7/16	11.84	0.466	12.09	0.476	17.3	0.68	35.0	1.38	7.7	0.30	15.8	0.62	1.15	0.045	---	---	---	---	---	---
B309	1/2	13.42	0.528	13.66	0.538	17.3	0.68	35.0	1.38	7.7	0.30	15.8	0.62	1.15	0.045	---	---	---	---	---	---

FIGURE 1—STRAIGHT-TYPE EYELET AND SNAP-ON EYELET TERMINALS

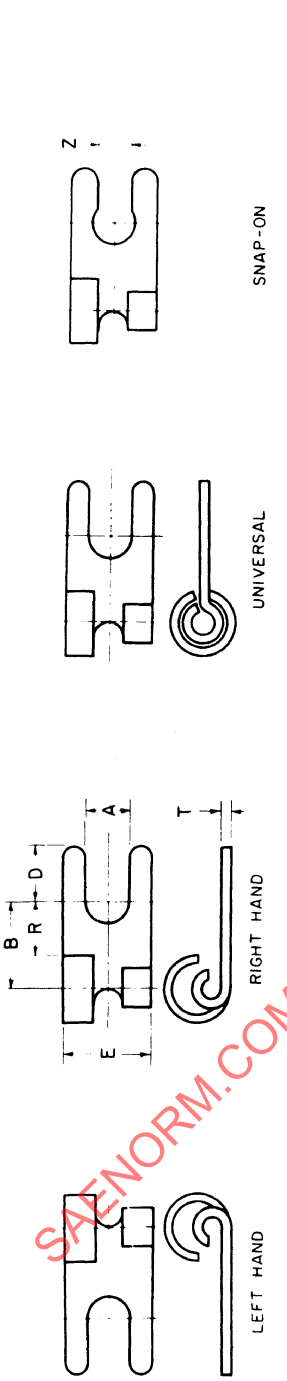


* CLEARANCE TO NEAREST OBSTRUCTION
** PRE-INSULATED TERMINALS MAY EXCEED THIS DIMENSION
*** DETAIL DESIGN IS MANUFACTURER'S OPTION

SNAP-ON

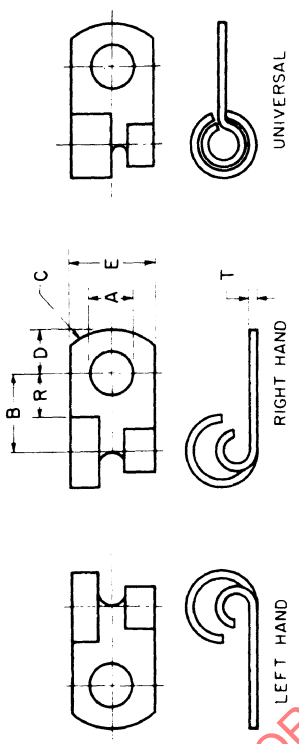
SAE No.	Screw Size	A Min mm	A Min in	A Max mm	A Max in	B Min mm	B Min in	C Max mm	C Max in	D mm	D in	M Min mm	M Min in	R Min mm	R Min in	T Nom mm	T Nom in	X mm	X in	Y mm	Y in	Z mm ±0.13	Z in ±0.005
To Use on SAE No. 18 and No. 20 (0.8 mm² and 0.5 mm²) Wire																							
H003	8	4.32	0.170	4.47	0.176	9.4	0.37	20.8	0.82	6.4	0.25	3.9	0.15	7.7	0.30	0.64	0.025	1.5-2.5	0.06-0.10	3.8-5.3	0.15-0.21	3.76	0.148
H004	10	5.11	0.201	5.25	0.207	9.4	0.37	20.8	0.82	6.4	0.25	3.9	0.15	7.7	0.30	0.64	0.025	1.5-2.5	0.06-0.10	3.8-5.3	0.15-0.21	4.44	0.175
To Use on SAE No. 14 and No. 16 (2.0 mm² and 1.0 mm²) Wire																							
H103	8	4.32	0.170	4.47	0.176	9.4	0.37	20.8	0.82	6.4	0.25	4.4	0.17	7.7	0.30	0.72	0.028	1.5-2.5	0.06-0.10	3.8-5.3	0.15-0.21	3.76	0.148
H104	10	5.11	0.201	5.25	0.207	9.4	0.37	20.8	0.82	6.4	0.25	4.4	0.17	7.7	0.30	0.72	0.028	1.5-2.5	0.06-0.10	3.8-5.3	0.15-0.21	4.44	0.175
To Use on SAE No. 10 and No. 12 (5.0 mm² and 3.0 mm²) Wire																							
H203	8	4.32	0.170	4.47	0.176	9.4	0.37	20.8	0.82	6.4	0.25	6.1	0.24	7.7	0.30	1.02	0.040	1.5-2.5	0.06-0.10	3.8-5.3	0.15-0.21	3.76	0.148
H204	10	5.11	0.201	5.25	0.207	9.4	0.37	20.8	0.82	6.4	0.25	6.1	0.24	7.7	0.30	1.02	0.040	1.5-2.5	0.06-0.10	3.8-5.3	0.15-0.21	4.44	0.175
To Use on SAE No. 8 (8.0 mm²) Wire																							
H304	10	5.11	0.201	5.25	0.207	9.4	0.37	28.7	1.13	6.4	0.25	6.1	0.24	7.7	0.30	1.15	0.045	1.5-2.5	0.06-0.10	3.8-5.3	0.15-0.21	4.44	0.175

FIGURE 2—STRAIGHT-TYPE SPADE TERMINALS



SAE No.	Screw Size	A Min mm	A Min in	A Max mm	A Max in	B mm	B in	D mm	D in	E mm	E in	R Min mm	R Min in	T Nom mm	T Nom in	Z mm ±0.13	Z in ±0.005
To Use on No. 14 (2.0 mm^2) Wire and Smaller																	
M103	8	4.32	0.170	4.47	0.176	8.7	0.34	6.4	0.25	9.7	0.38	7.7	0.30	0.72	0.028	3.76	0.148
M104	10	5.11	0.201	5.25	0.207	8.7	0.34	6.4	0.25	9.7	0.38	7.7	0.30	0.72	0.028	4.44	0.175
To Use on SAE No. 10 and No. 12 (5.0 mm^2 and 3.0 mm^2) Wire																	
M203	8	4.32	0.170	4.47	0.176	9.4	0.37	6.4	0.25	9.7	0.38	7.7	0.30	1.02	0.040	3.76	0.148
M204	10	5.11	0.201	5.25	0.207	9.4	0.37	6.4	0.25	9.7	0.38	7.7	0.30	1.02	0.040	4.44	0.175
To Use on SAE No. 8 (8.0 mm^2) Wire																	
M304	10	5.11	0.201	5.25	0.207	10.2	0.40	6.4	0.25	9.7	0.38	7.7	0.30	1.15	0.045	4.44	0.175

FIGURE 3—SIDE-TYPE SPADE TERMINALS



SAE No.	Screw Size	A Min mm	A Min in	A Max mm	A Max in	B Min mm	B Min in	C Max mm	C Max in	D mm	D in	E mm	E in	R Min mm	R Min in	T Nom mm	T Nom in
To Use on SAE No. 14 (2.0 mm^2) Wire and Smaller																	
K101	4	3.13	0.123	3.27	0.129	6.9	0.27	9.6	0.38	3.9	0.15	7.9	0.31	4.9	0.19	0.72	0.028
K102	6	3.66	0.144	3.81	0.150	6.9	0.27	9.6	0.38	3.9	0.15	7.9	0.31	6.4	0.25	0.72	0.028
K103	8	4.32	0.170	4.47	0.176	8.7	0.34	9.6	0.38	4.8	0.19	9.7	0.38	7.7	0.30	0.72	0.028
K104	10	5.11	0.201	5.25	0.207	8.7	0.34	9.6	0.38	4.8	0.19	9.7	0.38	7.7	0.30	0.72	0.028
K105	1/4	7.09	0.279	7.23	0.285	9.4	0.37	16.0	0.63	6.4	0.25	12.7	0.50	9.4	0.37	0.72	0.028
K106	5/16	8.69	0.342	8.83	0.348	11.0	0.43	16.0	0.63	7.9	0.31	15.7	0.62	11.0	0.43	0.72	0.028
K107	3/8	10.27	0.404	10.41	0.410	12.0	0.47	19.3	0.76	9.5	0.37	19.0	0.75	12.7	0.50	0.72	0.028
To Use on SAE No. 10 and No. 12 (5.0 mm^2 and 3.0 mm^2) Wire																	
K203	8	4.32	0.170	4.47	0.176	8.7	0.34	9.6	0.38	4.8	0.19	9.7	0.38	7.7	0.30	1.02	0.040
K204	10	5.11	0.201	5.25	0.207	8.7	0.34	9.6	0.38	4.8	0.19	9.7	0.38	7.7	0.30	1.02	0.040
K205	1/4	7.09	0.279	7.23	0.285	11.0	0.43	16.0	0.63	6.4	0.25	12.7	0.50	9.4	0.37	1.02	0.040
K206	5/16	8.69	0.342	8.83	0.348	12.5	0.49	16.0	0.63	7.9	0.31	15.7	0.62	11.0	0.43	1.02	0.040
K207	3/8	10.27	0.404	10.41	0.410	12.5	0.49	19.3	0.76	9.5	0.37	19.0	0.75	12.7	0.50	1.02	0.040
To Use on SAE No. 6 and No. 8 (13.0 mm^2 and 8.0 mm^2) Wire																	
K304	10	5.11	0.201	5.25	0.207	10.2	0.40	16.0	0.63	4.8	0.19	9.7	0.38	7.7	0.30	1.15	0.045
K305	1/4	7.09	0.279	7.23	0.285	12.0	0.47	19.3	0.76	9.5	0.37	19.0	0.75	9.4	0.37	1.15	0.045
K306	5/16	8.69	0.342	8.83	0.348	14.0	0.55	19.3	0.76	9.5	0.37	19.0	0.75	11.0	0.43	1.15	0.045
K307	3/8	10.27	0.404	10.41	0.410	15.3	0.60	19.3	0.76	9.5	0.37	19.0	0.75	12.7	0.50	1.15	0.045
K308	7/16	11.84	0.466	12.09	0.476	17.3	0.68	19.3	0.76	9.5	0.37	19.0	0.75	15.8	0.62	1.15	0.045

FIGURE 4—SIDE-TYPE EYELET TERMINALS