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

SURFACE VEHICLE STANDARD

SAE J1508 | REV. JUN93

Issued 1987-06
Revised 1993-06

Superseding J1508 MAY91

Submitted for recognition as an American National Standard

(R) HOSE CLAMP SPECIFICATIONS

1. *Scope*—This SAE Standard covers twenty (20) types of clamps most commonly and suitably being used on OEM coolant, fuel, oil, vacuum, and emission systems.

1.1 **Purpose**—This document is compiled for the specific purpose of describing the basic characteristics and minimum performance requirements recommended by the manufacturers. No application recommendations are intended or implied.

2. *References*

2.1 **Applicable Documents**—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 PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J178—Music Steel Wire and Spring
SAE J402—SAE Numbering System for Wrought or Rolled Steel
SAE J478—Slotted and Recessed Head Screws
SAE J1086—Metals and Alloys in the Unified Numbering System

2.1.2 ANSI AND IFI PUBLICATIONS—Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.

ANSI B1.1, 3M—Unified Inch Screw Thread
ANSI B1.3M—Screw Thread Gauging Systems for Dimensional Acceptability
IFI 112—High Performance Thread Rolling Screws

Printed in U.S.A.
90-1202B EG

2.1.3 ASTM PUBLICATIONS—Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM A 228—Standard Specification for Steel Wire, Music Spring Quality
ASTM B 117—Standard Method of Salt Spray (Fog) Testing

2.1.4 MILITARY PUBLICATIONS—Available from Commanding Officer, Naval Publications and Forms Center, 700 Robbins Avenue, Philadelphia, PA 19111.

MIL Std MS21044—Nut, Self-Locking, Hexagon, Regular Height, 250 °F, 125 KSI Ftu and 60 KSI Ftu
MIL Std MS21045—Nut, Self-Locking, Hexagon-Regular Height, 450 °F, 125 KSI Ftu
MIL Std MS39326—Clamp, Spring: Hose (Low Pressure) Type "E"

2.1.5 OTHER PUBLICATION

AISI—Material Standards

2.2 Definitions

2.2.1 FREE TORQUE—The torque value expressed in newton meters (pound inches) when the clamp is tightened four complete revolutions of the screw or nut, while in the free state. This value does not include any break-away effects due to staking or passage of the band ends beyond the screw head.

2.2.2 DURABILITY TORQUE—The maximum torque value applied to a clamp without evidence of deformation or excessive wear when tightened once over a steel mandrel.

2.2.3 INSTALLATION TORQUE—The recommended torque for installation of the clamp. This is generally expressed in terms of 50% to 75% of the rated "Durability Torque" for specific clamps. Installation Torque is sometimes referred to as Application Torque.

2.2.4 ULTIMATE TORQUE—The torque value at which the clamp develops deformation to a degree that it cannot be reused or no longer achieves its intended use.

3. Classification—For ease of handling the various clamp designs and modifications thereof; clamps have been grouped by their basic design and functional characteristics:

3.1 Group #1—Clamps which require torquing a screw or nut for installation.

3.1.1 "A" AND "AHH"—Dual body wires utilizing a machine screw with trunnion nut for the tightening mechanism. Screw position tangential to the diameter. See Figure 1 and Tables 1 and 1A.

3.1.2 "B" AND "D"—Flat band body stock utilizing a machine screw and square nut for the tightening mechanism. Screw position tangential to the diameter. See Figures 2, 3, and 3A and Tables 2 and 3.

3.1.3 "C"—Flat band body stock utilizing a bridge structure to position the machine screw and nut tightening mechanism perpendicular to the diameter. See Figure 4 and Tables 4 and 4A.

3.1.4 "F," "FEO," "FE," "HD," "I," "M," AND "MX"—A tangential worm drive screw engaging either pierced through slots or embossed threads. Those using pierced through slots are also available in extended band versions to protect soft hose compounds. See Figures 5 to 11 and Tables 5 to 14.

NOTE—"FE" means type "F," embossed slots; "FEO" means type "F," embossed slots with screw offset from centerline of the band.

3.1.5 "TB"—A fixed, tangential, T-bolt with a rotating locknut the turning of which draws both clamp ends together. Construction may employ either a floating bridge, tongue, or be of one piece (band) construction as standard. See Figures 12 and 13 and Table 15.

3.2 Group #2 (Types "E," "CTW," or "CTB")—Clamps which are either supplied in a locked, spring-loaded, full-open position or sprung open at installation and then released over the hose/fitting to create sealing due to the spring-like function.

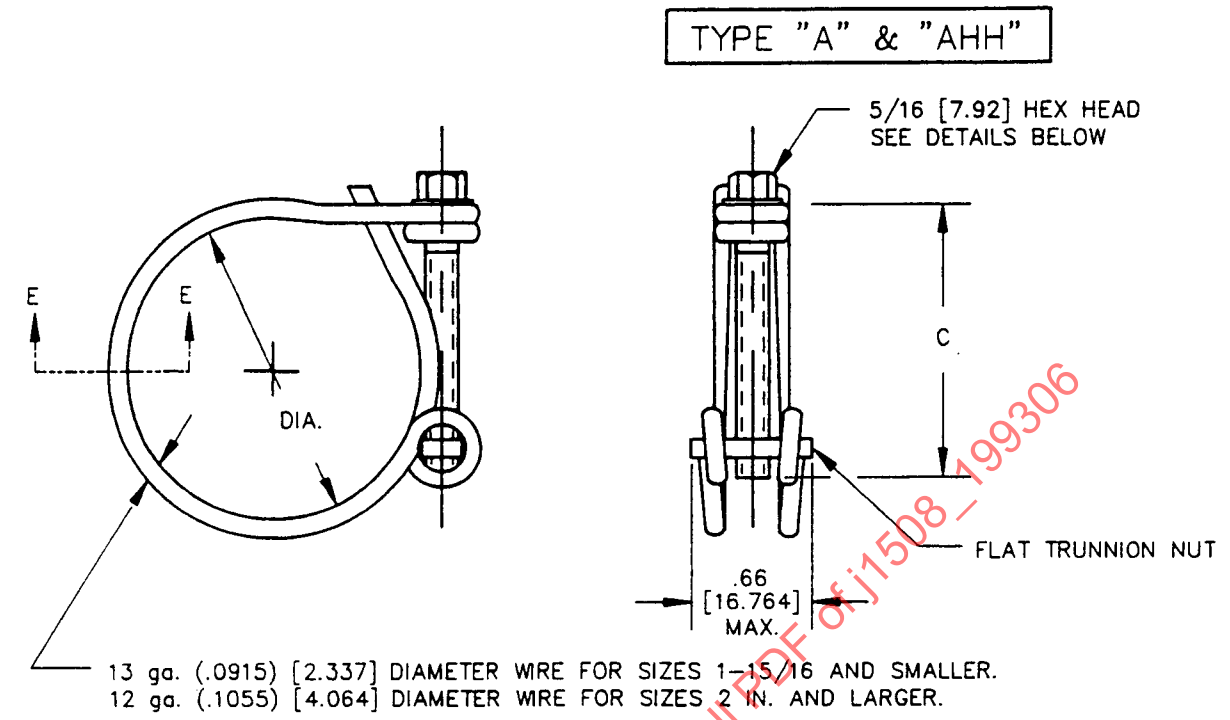
3.2.1 "E"—Single round wire, heat-treated to spring temper. Ancillary specification MIL Std MS39326. See Figures 14 and 15 and Tables 16 and 17.

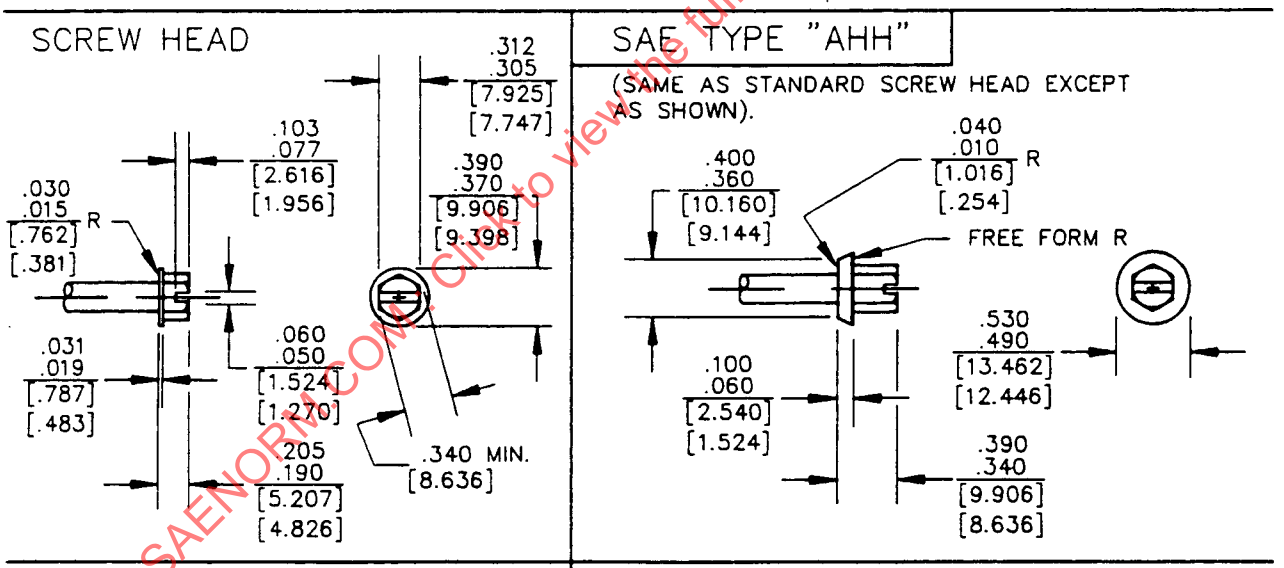
3.2.2 "CTB"—Flat band stock, heat-treated to spring temper. See Figure 16 and Table 18.

3.2.3 "CTW"—Dual rough pre-hardened spring wires, or wires heat-treated to spring temper. See Figure 17 and Tables 19 and 20.

3.3 Group #3—Hybrid clamps which require torquing of a screw, or nut, for installation but which also incorporate a means of storing energy for the spring-like function.

3.3.1 "SLA"—Basic type "A" clamp modified to incorporate a stack of spring washers for energy storage. See Figure 18.





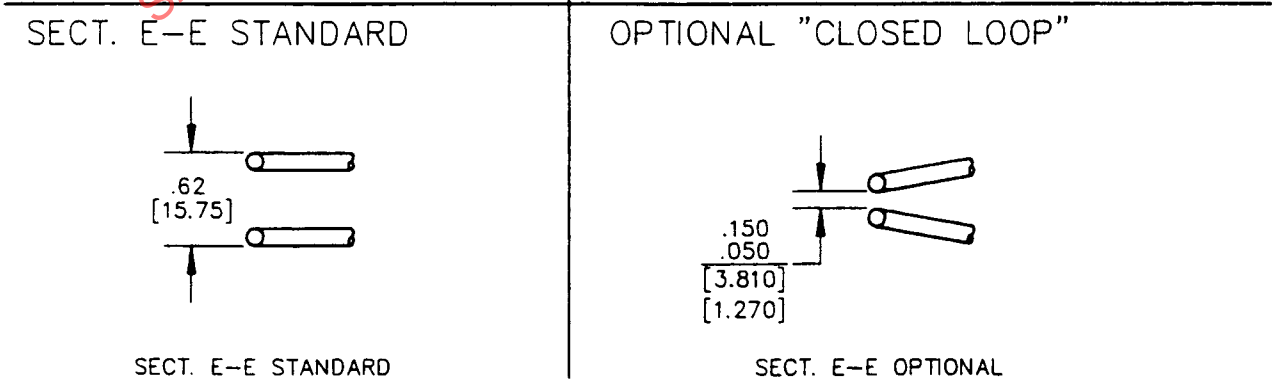


FIGURE 1—BASIC ENVELOPE DRAWING—INCH [METRIC—MM]

TABLE 1—TYPE "A," "AHH," AND "SLA"

SAE SIZE NO.	OPEN DIA. (MM)	CLOSED DIA. (MM)	ADJUST RANGE (MM)	SCREW LENGTH (MM)
16	12.70	11.18	1.52	21.59
18	14.22	12.19	2.03	21.59
20	15.75	13.97	1.78	21.59
22	17.53	14.73	2.79	21.59
24	19.05	16.26	2.79	31.24
26	20.57	17.53	3.05	31.24
28	22.35	19.05	3.30	31.24
	23.11	19.81	3.30	31.24
30	23.88	20.57	3.30	31.24
	24.64	21.34	3.30	31.24
	25.15	21.34	3.81	31.24
32	25.40	22.35	3.05	31.24
	26.16	23.11	3.05	31.24
34	26.92	23.88	3.05	31.24
	27.69	24.38	3.30	31.24
	28.20	24.38	3.81	31.24
36	28.45	24.13	4.32	31.24
	28.96	25.65	3.30	31.24
	29.21	25.91	3.30	31.24
38	30.23	26.92	3.30	31.24
	30.48	27.18	3.30	31.24
	30.99	27.69	3.30	31.24
40	31.75	27.69	4.06	31.24
	32.51	27.94	4.57	37.59
42	33.27	29.46	3.81	31.24
44	35.05	30.23	4.83	31.24
46	36.58	31.75	4.83	31.24
48	38.10	33.27	4.83	31.24
50	39.62	35.05	4.57	31.24
	39.62	34.29	5.33	37.59
52	41.15	36.58	4.57	31.24
	41.66	35.31	6.35	37.59
	42.42	36.25	6.10	43.94
	42.67	36.32	6.35	43.94
54	42.93	38.10	4.83	31.24
	42.93	37.08	5.84	37.59
	43.18	37.34	5.84	37.59
	43.43	37.01	6.35	43.94
	43.69	38.10	5.59	37.59
	44.20	38.10	6.10	43.94
56	44.45	39.62	4.83	37.59
	44.45	38.86	5.59	37.59
	44.70	38.35	6.35	43.94
	45.72	39.62	6.10	37.59
58	45.97	41.15	4.83	37.59
	46.74	41.91	4.83	37.59
	46.74	41.15	5.59	37.59
	46.99	41.15	5.84	37.59
60	47.75	42.93	4.83	37.59
	47.75	41.40	6.35	43.94
	48.01	41.61	6.35	43.94
	48.51	43.69	4.83	37.59
	48.51	42.93	5.59	37.59
62	49.28	44.45	4.83	37.59
	49.28	43.69	5.59	37.59
	49.28	42.93	6.35	43.94
	49.78	43.31	6.35	43.94
	49.78	43.94	5.84	37.59
	50.29	43.94	6.35	43.94
64	50.80	45.97	4.83	37.59
	50.80	45.21	5.59	37.59
	50.80	44.45	6.35	43.94
	51.56	45.47	6.10	43.94

SAE SIZE NO.	OPEN DIA. (MM)	CLOSED DIA. (MM)	ADJUST RANGE (MM)	SCREW LENGTH (MM)
	52.07	45.97	6.10	37.59
66	52.32	47.75	4.57	37.59
68	53.85	49.28	4.57	37.59
	53.85	48.51	5.33	37.59
	54.61	49.28	5.33	37.59
70	55.63	50.04	5.59	37.59
	55.88	50.29	5.59	37.59
	55.88	49.53	6.35	43.94
72	57.15	51.56	5.59	37.59
	56.39	49.96	6.35	43.94
	56.39	50.29	6.10	37.59
	57.15	51.56	5.59	37.59
	57.15	50.80	6.35	43.94
74	58.67	53.85	4.83	37.59
	58.67	52.32	6.35	43.94
	60.20	54.61	5.59	43.94
76	60.45	55.63	4.83	37.59
	60.96	55.37	5.59	37.59
78	61.98	57.15	4.83	37.59
80	63.50	57.91	5.59	37.59
82	65.02	59.44	5.59	37.59
84	66.55	61.21	5.33	37.59
86	68.33	62.74	5.59	37.59
88	69.85	64.26	5.59	37.59
90	71.37	65.79	5.59	37.59
	72.14	66.55	5.59	37.59
92	73.15	67.56	5.59	37.59
94	74.68	69.09	5.59	37.59
96	76.20	70.61	5.59	37.59
98	77.72	72.14	5.59	37.59
100	79.25	73.91	5.33	37.59
102	81.03	75.44	5.59	37.59
104	82.55	76.96	5.59	37.59
	83.31	77.72	5.59	37.59
106	84.07	78.49	5.59	37.59
108	85.85	80.26	5.59	37.59
110	87.38	81.79	5.59	37.59
112	88.90	82.55	6.35	43.94
114	90.42	84.07	6.35	43.94
116	91.95	85.85	6.10	43.94
118	93.73	87.38	6.35	43.94
120	95.25	88.90	6.35	43.94
122	96.77	90.42	6.35	43.94
124	98.55	91.95	6.35	43.94
126	100.08	93.73	6.35	43.94
128	101.60	95.25	6.35	43.94
130	103.12	96.77	6.35	43.94
132	104.65	98.55	6.10	43.94
134	106.43	100.08	6.35	43.94
136	107.95	101.60	6.35	43.94
138	109.47	103.12	6.35	43.94
140	111.25	104.65	6.60	43.94
142	112.78	106.43	6.35	43.94
144	114.30	107.95	6.35	43.94
146	115.82	109.47	6.35	43.94
148	117.35	111.25	6.10	43.94
150	119.13	112.78	6.35	43.94
152	120.65	114.30	6.35	43.94
154	122.17	115.82	6.35	43.94
156	123.95	117.35	6.60	43.94
158	125.48	119.13	6.35	43.94
160	127.00	120.65	6.35	43.94

TABLE 1A—TYPE "A," "AHH," AND "SLA"

SAE SIZE NO.	OPEN DIA. (IN.)	CLOSED DIA. (IN.)	ADJUST RANGE (IN.)	SCREW LENGTH (IN.)
16	0.50	0.440	0.06	0.85
18	0.56	0.480	0.08	0.85
20	0.62	0.550	0.07	0.85
22	0.69	0.580	0.11	0.85
24	0.75	0.640	0.11	1.23
26	0.81	0.690	0.12	1.23
28	0.88	0.750	0.13	1.23
	0.91	0.780	0.13	1.23
30	0.94	0.810	0.13	1.23
	0.97	0.840	0.13	1.23
	0.99	0.840	0.15	1.23
32	1.00	0.880	0.12	1.23
	1.03	0.910	0.12	1.23
34	1.06	0.940	0.12	1.23
	1.09	0.960	0.13	1.23
	1.11	0.960	0.15	1.23
36	1.12	0.950	0.17	1.23
	1.14	1.010	0.13	1.23
	1.15	1.020	0.13	1.23
38	1.19	1.060	0.13	1.23
	1.20	1.070	0.13	1.23
	1.22	1.090	0.13	1.23
40	1.25	1.090	0.16	1.23
	1.28	1.100	0.18	1.48
42	1.31	1.160	0.15	1.23
44	1.38	1.190	0.19	1.23
46	1.44	1.250	0.19	1.23
48	1.50	1.310	0.19	1.23
50	1.56	1.380	0.18	1.23
	1.56	1.350	0.21	1.48
52	1.62	1.440	0.18	1.23
	1.64	1.390	0.25	1.48
	1.67	1.427	0.24	1.73
	1.68	1.430	0.25	1.73
54	1.69	1.500	0.19	1.23
	1.69	1.460	0.23	1.48
	1.70	1.470	0.23	1.48
	1.71	1.457	0.25	1.73
	1.72	1.500	0.22	1.48
	1.74	1.500	0.24	1.73
56	1.75	1.560	0.19	1.48
	1.75	1.530	0.22	1.48
	1.76	1.510	0.25	1.73
	1.80	1.560	0.24	1.48
58	1.81	1.620	0.19	1.48
	1.84	1.650	0.19	1.48
	1.84	1.620	0.22	1.48
	1.85	1.620	0.23	1.48
60	1.88	1.690	0.19	1.48
	1.88	1.630	0.25	1.73
	1.89	1.638	0.25	1.73
	1.91	1.720	0.19	1.48
	1.91	1.690	0.22	1.48
62	1.94	1.750	0.19	1.48
	1.94	1.720	0.22	1.48
	1.94	1.690	0.25	1.73
	1.96	1.705	0.25	1.73
	1.96	1.730	0.23	1.48
	1.98	1.730	0.25	1.73
64	2.00	1.810	0.19	1.48
	2.00	1.780	0.22	1.48
	2.00	1.750	0.25	1.73
	2.03	1.790	0.24	1.73

SAE SIZE NO.	OPEN DIA. (IN.)	CLOSED DIA. (IN.)	ADJUST RANGE (IN.)	SCREW LENGTH (IN.)
	2.05	1.810	0.24	1.48
66	2.06	1.880	0.18	1.48
68	2.12	1.940	0.18	1.48
	2.12	1.910	0.21	1.48
	2.15	1.940	0.21	1.48
70	2.19	1.970	0.22	1.48
	2.20	1.980	0.22	1.48
	2.20	1.950	0.25	1.73
72	2.22	1.967	0.25	1.73
	2.22	1.980	0.24	1.48
	2.25	2.030	0.22	1.48
	2.25	2.030	0.22	1.48
	2.25	2.000	0.25	1.73
74	2.31	2.120	0.19	1.48
	2.31	2.060	0.25	1.73
	2.37	2.150	0.22	1.48
76	2.38	2.190	0.19	1.48
	2.40	2.180	0.22	1.48
78	2.44	2.250	0.19	1.48
80	2.50	2.280	0.22	1.48
82	2.56	2.340	0.22	1.48
84	2.62	2.410	0.21	1.48
86	2.69	2.470	0.22	1.48
88	2.75	2.530	0.22	1.48
90	2.81	2.590	0.22	1.48
	2.84	2.620	0.22	1.48
92	2.88	2.660	0.22	1.48
94	2.94	2.720	0.22	1.48
96	3.00	2.780	0.22	1.48
98	3.06	2.840	0.22	1.48
100	3.12	2.910	0.21	1.48
102	3.19	2.970	0.22	1.48
104	3.25	3.030	0.22	1.48
	3.28	3.060	0.22	1.48
106	3.31	3.090	0.22	1.48
108	3.38	3.160	0.22	1.48
110	3.44	3.220	0.22	1.48
112	3.50	3.250	0.25	1.73
114	3.56	3.310	0.25	1.73
116	3.62	3.380	0.24	1.73
118	3.69	3.440	0.25	1.73
120	3.75	3.500	0.25	1.73
122	3.81	3.560	0.25	1.73
124	3.88	3.620	0.26	1.73
126	3.94	3.690	0.25	1.73
128	4.00	3.750	0.25	1.73
130	4.06	3.810	0.25	1.73
132	4.12	3.880	0.24	1.73
134	4.19	3.940	0.25	1.73
136	4.25	4.000	0.25	1.73
138	4.31	4.060	0.25	1.73
140	4.38	4.120	0.26	1.73
142	4.44	4.190	0.25	1.73
144	4.50	4.250	0.25	1.73
146	4.56	4.310	0.25	1.73
148	4.62	4.380	0.24	1.73
150	4.69	4.440	0.25	1.73
152	4.75	4.500	0.25	1.73
154	4.81	4.560	0.25	1.73
156	4.88	4.620	0.26	1.73
158	4.94	4.690	0.25	1.73
160	5.00	4.750	0.25	1.73

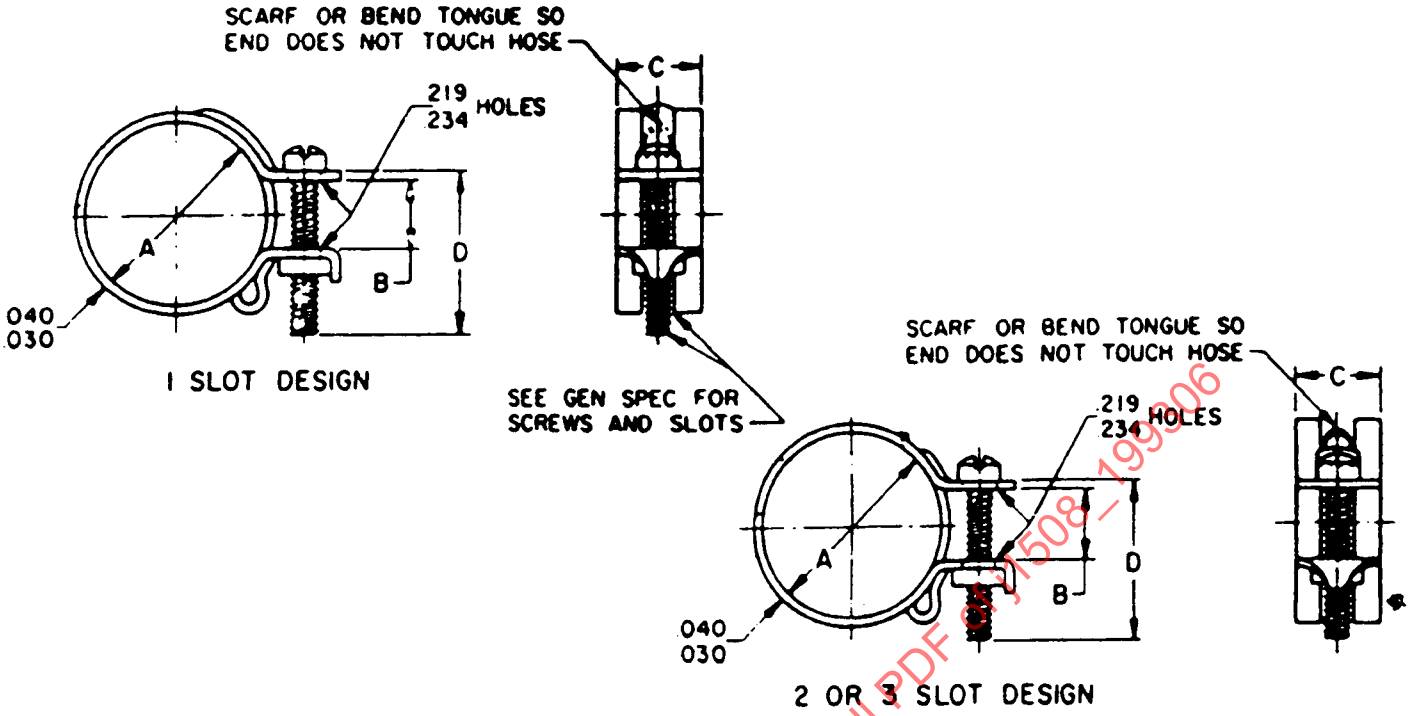


FIGURE 2—TYPE "B" HOSE CLAMPS

TABLE 2—DIMENSIONS OF TYPE "B" HOSE CLAMPS

SAE Size No.	A Dia			B[a] Gap	C Band Width ±0.01	D Screw Length	SAE Size No.	A Dia			B[a] Gap	C Band Width ±0.01	D Screw Length
	Nom	Open	Closed			Min		Nom	Open	Closed			Min
18	0.50	0.58	0.44	0.38	0.50[b]	1.00	58	1.75	1.83	1.64	0.50	0.62[c]	1.12
20	0.56	0.64	0.48	0.38	0.50[b]	1.00	60	1.81	1.89	1.70	0.50	0.62[c]	1.12
22	0.62	0.70	0.55	0.38	0.50[b]	1.00	62	1.88	1.95	1.77	0.50	0.62[c]	1.12
24	0.69	0.77	0.61	0.38	0.50[b]	1.00	64	1.94	2.02	1.83	0.50	0.62[c]	1.12
26	0.75	0.83	0.67	0.38	0.50[b]	1.00	67	2.03	2.11	1.92	0.50	0.62[c]	1.12
28	0.81	0.89	0.73	0.38	0.50[b]	1.00							
30	0.88	0.95	0.80	0.38	0.50[b]	1.00	70	2.12	2.20	2.02	0.50	0.62[c]	1.12
32	0.94	1.02	0.86	0.38	0.50[b]	1.00	72	2.19	2.27	2.08	0.50	0.62[c]	1.12
35	1.03	1.11	0.95	0.38	0.50[b]	1.00	75	2.28	2.36	2.17	0.50	0.62[c]	1.12
36	1.06	1.14	0.98	0.38	0.50[b]	1.00	79	2.38	2.48	2.27	0.50	0.62[c]	1.25
38	1.12	1.20	1.02	0.38	0.50[b]	1.12	83	2.50	2.61	2.39	0.50	0.62[c]	1.25
40	1.19	1.27	1.08	0.50	0.50[b]	1.12	88	2.62	2.75	2.52	0.50	0.62[c]	1.25
42	1.25	1.33	1.14	0.50	0.62[c]	1.12	92	2.75	2.88	2.64	0.50	0.62[c]	1.25
44	1.31	1.39	1.20	0.50	0.62[c]	1.12	96	2.88	3.00	2.77	0.50	0.62[c]	1.25
46	1.38	1.45	1.27	0.50	0.62[c]	1.12	100	3.00	3.12	2.89	0.50	0.62	1.25
48	1.44	1.52	1.33	0.50	0.62[c]	1.12	104	3.12	3.25	3.02	0.50	0.62	1.25
50	1.50	1.58	1.39	0.50	0.62[c]	1.12	108	3.25	3.38	3.14	0.50	0.62	1.25
52	1.56	1.64	1.45	0.50	0.62[c]	1.12	112	3.38	3.50	3.27	0.50	0.62	1.25
54	1.62	1.70	1.52	0.50	0.62[c]	1.12	122	3.56	3.81	3.42	0.62	0.75	1.38
56	1.69	1.77	1.58	0.50	0.62[c]	1.12							

[a] Reference dimension. When gap is at value tabulated, clamp diameter shall approximate the nominal diameter.
[b] 0.62 in. width optional with user.
[c] 0.50 in. width optional with user.

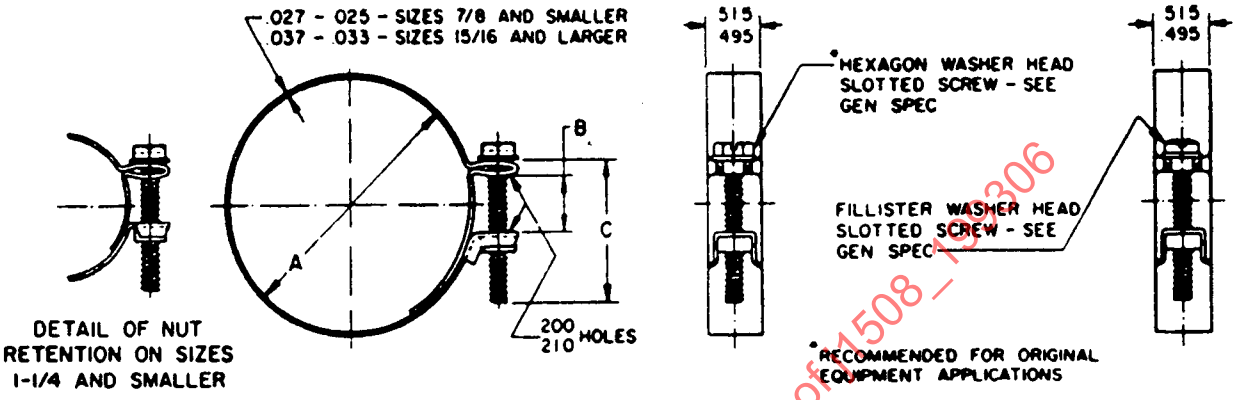
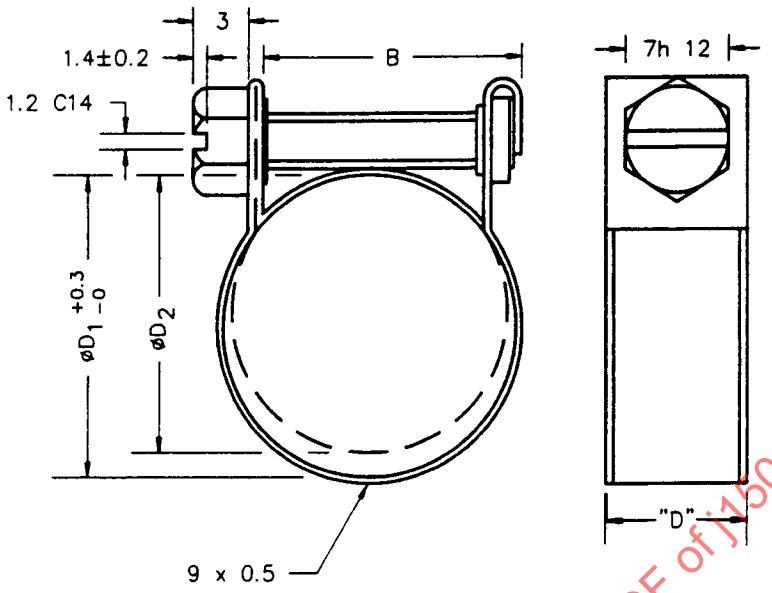


FIGURE 3—TYPE "D" HOSE CLAMPS

TABLE 3—DIMENSIONS OF TYPE "D" HOSE CLAMPS

SAE Size No.	A, Dia			B*, Gap	C, Screw Length	SAE Size No.	A, Dia			B*, Gap	C, Screw Length	SAE Size No.	A, Dia			B*, Gap	C, Screw Length
	Nom	Open	Closed		Min		Nom	Open	Closed		Min		Nom	Open	Closed		Min
23	0.62	0.72	0.53	0.38	1.12	83	2.50	2.59	2.34	0.62	1.38	143	4.38	4.47	4.16	0.75	1.50
25	0.69	0.78	0.59	0.38	1.12	85	2.56	2.66	2.41	0.62	1.38	145	4.44	4.53	4.22	0.75	1.50
27	0.75	0.84	0.66	0.38	1.12	87	2.62	2.72	2.47	0.62	1.38	147	4.50	4.59	4.28	0.75	1.50
29	0.81	0.91	0.72	0.38	1.12	89	2.69	2.78	2.53	0.62	1.38	149	4.56	4.66	4.34	0.75	1.50
31	0.88	0.97	0.78	0.38	1.12	91	2.75	2.84	2.59	0.62	1.38	151	4.62	4.72	4.41	0.75	1.50
33	0.94	1.03	0.84	0.38	1.12	93	2.81	2.91	2.66	0.62	1.38	153	4.69	4.78	4.47	0.75	1.50
35	1.00	1.09	0.91	0.38	1.12	95	2.88	2.97	2.72	0.62	1.38	155	4.75	4.84	4.53	0.75	1.50
37	1.06	1.16	0.97	0.38	1.12	97	2.94	3.03	2.78	0.62	1.38	157	4.81	4.91	4.59	0.75	1.50
39	1.12	1.22	1.03	0.38	1.12	99	3.00	3.09	2.84	0.62	1.38	159	4.88	4.97	4.66	0.75	1.50
41	1.19	1.28	1.06	0.50	1.25	101	3.06	3.16	2.91	0.62	1.38	161	4.94	5.03	4.72	0.75	1.50
43	1.25	1.34	1.17	0.50	1.25	103	3.12	3.22	2.97	0.62	1.38	163	5.00	5.09	4.78	0.75	1.50
45	1.31	1.41	1.19	0.50	1.25	105	3.19	3.28	3.03	0.62	1.38	165	5.06	5.16	4.84	0.75	1.50
47	1.38	1.47	1.25	0.50	1.25	107	3.25	3.34	3.09	0.62	1.38	167	5.12	5.22	4.91	0.75	1.50
49	1.44	1.53	1.31	0.50	1.25	109	3.31	3.41	3.16	0.62	1.38	169	5.19	5.28	4.97	0.75	1.50
51	1.50	1.59	1.38	0.50	1.25	111	3.38	3.47	3.22	0.62	1.38	171	5.25	5.34	5.03	0.75	1.50
53	1.56	1.66	1.44	0.50	1.25	113	3.44	3.53	3.28	0.62	1.38	173	5.31	5.41	5.09	0.75	1.50
55	1.62	1.72	1.50	0.50	1.25	115	3.50	3.59	3.34	0.62	1.38	175	5.38	5.47	5.16	0.75	1.50
57	1.69	1.78	1.56	0.50	1.25	117	3.56	3.66	3.34	0.75	1.50	177	5.44	5.53	5.22	0.75	1.50
59	1.75	1.84	1.62	0.50	1.25	119	3.62	3.72	3.41	0.75	1.50	179	5.50	5.59	5.28	0.75	1.50
61	1.81	1.91	1.69	0.50	1.25	121	3.69	3.78	3.47	0.75	1.50	181	5.56	5.66	5.34	0.75	1.50
63	1.88	1.97	1.75	0.50	1.25	123	3.75	3.84	3.53	0.75	1.50	183	5.62	5.72	5.41	0.75	1.50
65	1.94	2.03	1.81	0.50	1.25	125	3.81	3.91	3.59	0.75	1.50	185	5.69	5.78	5.47	0.75	1.50
67	2.00	2.09	1.88	0.50	1.25	127	3.88	3.97	3.66	0.75	1.50	187	5.75	5.84	5.53	0.75	1.50
69	2.06	2.16	1.94	0.50	1.25	129	3.94	4.03	3.72	0.75	1.50	189	5.81	5.91	5.59	0.75	1.50
71	2.12	2.22	2.00	0.50	1.25	131	4.00	4.09	3.78	0.75	1.50	191	5.88	5.97	5.66	0.75	1.50
73	2.19	2.28	2.06	0.50	1.25	133	4.06	4.16	3.84	0.75	1.50	193	5.94	6.03	5.72	0.75	1.50
75	2.25	2.34	2.12	0.50	1.25	135	4.12	4.22	3.91	0.75	1.50	195	6.00	6.09	5.78	0.75	1.50
77	2.31	2.41	2.19	0.50	1.25	137	4.19	4.28	3.97	0.75	1.50						
79	2.38	2.47	2.22	0.62	1.38	139	4.25	4.34	4.03	0.75	1.50						
81	2.44	2.53	2.28	0.62	1.38	141	4.31	4.41	4.09	0.75	1.50						

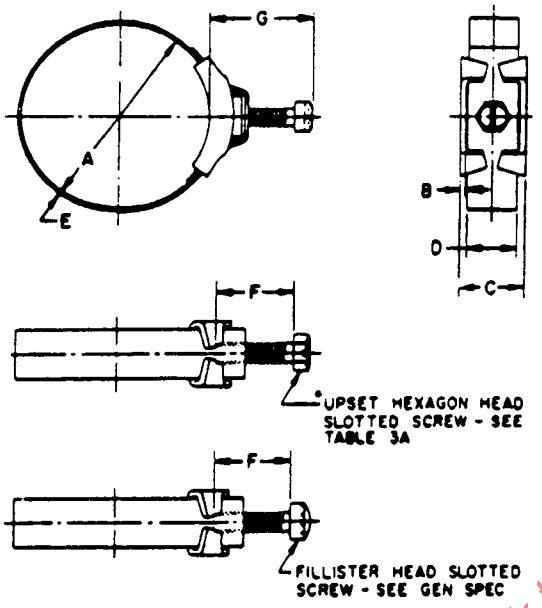


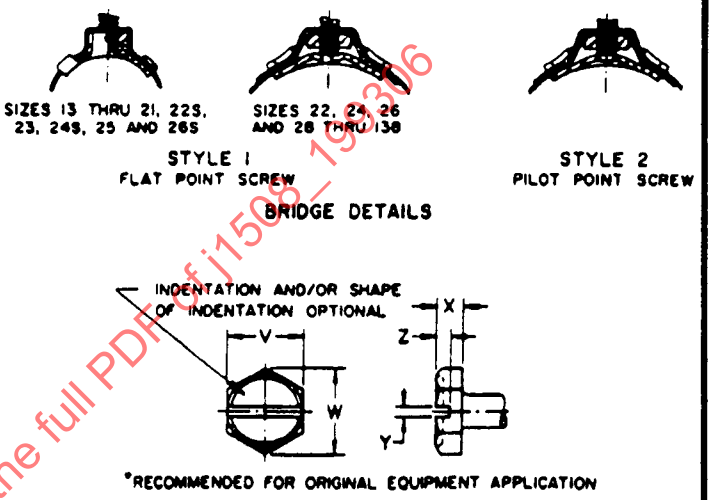
MANUFACTURERS DESIGNATION FOR SAE SIZE *	DIAMETER SUPPLIED IN INCHES MM	CLAMPING RANGE IN INCHES DECIMALS MM	B INCHES MM	D INCHES MM	RECOMMENDED TIGHTENING TORQUE (Nm)
8	.326 8.3	15/64–21/64 .234–.328 6.0–8.3	33/64 13.1	23/64 9.1	1.5
9	.366 9.3	9/32–3/8 .276–.375 7.0–9.5	33/64 13.1	23/64 9.1	1.5
10	.405 10.3	5/16–13/32 .315–.406 8.0–10.3	33/64 13.1	23/64 9.1	1.5
11	.444 11.3	23/64–29/64 .358–.453 9.0–11.5	33/64 13.1	23/64 9.1	1.5
12	.484 12.3	25/64–31/64 .394–.484 10.0–12.3	20/32 15.9	23/64 9.1	1.5
13	.523 13.3	7/16–17/32 .433–.531 11.0–13.5	20/32 15.9	23/64 9.1	1.5
14	.562 14.3	15/32–9/16 .479–.562 12.0–14.3	20/32 15.9	23/64 9.1	1.5
15	.602 15.3	33/64–39/64 .512–.609 13.0–15.5	20/32 15.9	23/64 9.1	1.5
16	.641 16.3	35/64–41/64 .551–.640 14.0–16.3	20/32 15.9	23/64 9.1	1.5
17	.681 17.3	19/32–11/16 .590–.685 15.0–17.5	20/32 15.9	23/64 9.1	1.5

t = BAND THICKNESS = [0.5 MM] 0.02"

* = IN THE ABSENCE OF AN APPROPRIATE SAE SIZE

FIGURE 3A—TYPE "D"





Torque required to draw band through bridge on free clamp shall not exceed 4 in.-lb for sizes having 6-32 screws, 8 in.-lb for sizes having 10-24 screws, and 10 in.-lb for sizes having 12-24 screws.

It is recommended that Type C Clamps nut be tightened beyond maximum torques of 9 in.-lb for sizes having 6-32 screws, 22 in.-lb for sizes having 10-24 screws, and 30 in.-lb for sizes having 12-24 screws.

TABLE 4—DIMENSIONS OF TYPE "C" HOSE CLAMPS

SAE Size No.[a]	A Diameter Open	A Diameter Closed	B Bridge Stock Thickness ±0.002	C[b] Bridge Width Max	D Band Width ±0.010	E[c] Band Thickness ±0.001	F Screw Size and Length	G[b] Height Over Screw Max
13	0.40	0.34	0.035	0.41	0.281	0.010	6-32 x 0.50	0.64
14	0.43	0.37	0.035	0.41	0.281	0.010	6-32 x 0.50	0.64
15	0.46	0.40	0.035	0.41	0.281	0.010	6-32 x 0.50	0.64
16	0.50	0.37	0.035	0.41	0.281	0.010	6-32 x 0.50	0.64
17	0.53	0.40	0.035	0.41	0.281	0.010	6-32 x 0.50	0.64
18	0.56	0.43	0.035	0.41	0.281	0.010	6-32 x 0.50	0.64
19	0.59	0.46	0.035	0.41	0.281	0.010	6-32 x 0.50	0.64
20	0.62	0.50	0.035	0.41	0.281	0.010	6-32 x 0.50	0.64
21	0.65	0.53	0.035	0.41	0.281	0.010	6-32 x 0.50	0.64
22	0.69	0.38	0.050	0.64	0.438	0.017	10-24 x 0.88	1.13
22N	0.69	0.56	0.035	0.41	0.281	0.010	6-32 x 0.50	0.64
23	0.71	0.59	0.035	0.41	0.281	0.010	6-32 x 0.50	0.64
24	0.75	0.44	0.050	0.64	0.438	0.017	10-24 x 0.88	1.13
24N	0.75	0.62	0.035	0.41	0.281	0.010	6-32 x 0.50	0.64
25	0.78	0.66	0.035	0.41	0.281	0.010	6-32 x 0.50	0.64
26	0.81	0.50	0.050	0.64	0.438	0.017	10-24 x 0.88	1.13
26N	0.81	0.69	0.035	0.41	0.281	0.010	6-32 x 0.50	0.64
28	0.88	0.56	0.050	0.64	0.438	0.017	10-24 x 0.88	1.13
30	0.94	0.62	0.050	0.72	0.505	0.017	12-24 x 0.88	1.13
30N	0.94	0.62	0.050	0.64	0.438	0.017	10-24 x 0.88	1.13
32	1.00	0.69	0.050	0.72	0.505	0.017	12-24 x 0.88	1.13
32N	1.00	0.69	0.050	0.64	0.438	0.017	10-24 x 0.88	1.13
34	1.06	0.75	0.050	0.72	0.505	0.020	12-24 x 0.88	1.13
34N	1.06	0.75	0.050	0.64	0.438	0.017	10-24 x 0.88	1.13
36	1.12	0.81	0.050	0.72	0.505	0.020	12-24 x 0.88	1.13
36N	1.12	0.81	0.050	0.64	0.438	0.017	10-24 x 0.88	1.13
38	1.19	0.88	0.062	0.72	0.505	0.020	12-24 x 0.88	1.13
38N	1.19	0.88	0.050	0.64	0.438	0.017	10-24 x 0.88	1.13
40	1.25	0.94	0.062	0.72	0.505	0.020	12-24 x 0.88	1.13
40N	1.25	0.94	0.050	0.64	0.438	0.017	10-24 x 0.88	1.13
42	1.31	1.00	0.062	0.72	0.505	0.020	12-24 x 0.88	1.13
42N	1.31	1.00	0.050	0.64	0.438	0.017	10-24 x 0.88	1.13
44	1.38	1.06	0.062	0.72	0.505	0.020	12-24 x 0.88	1.13
44N	1.38	1.06	0.050	0.64	0.438	0.017	10-24 x 0.88	1.13
46	1.44	1.12	0.062	0.72	0.505	0.020	12-24 x 0.88	1.13
46N	1.44	1.12	0.050	0.64	0.438	0.017	10-24 x 0.88	1.13
48	1.50	1.19	0.062	0.72	0.505	0.020	12-24 x 0.88	1.13
48N	1.50	1.19	0.050	0.64	0.438	0.017	10-24 x 0.88	1.13
50	1.56	1.25	0.062	0.72	0.505	0.020	12-24 x 0.88	1.13
52	1.62	1.31	0.062	0.72	0.505	0.020	12-24 x 0.88	1.13
54	1.69	1.38	0.062	0.72	0.505	0.020	12-24 x 0.88	1.13
56	1.75	1.44	0.062	0.72	0.505	0.020	12-24 x 0.88	1.13
58	1.81	1.50	0.062	0.72	0.505	0.020	12-24 x 0.88	1.13
60	1.88	1.56	0.062	0.72	0.505	0.020	12-24 x 0.88	1.13
62	1.94	1.62	0.062	0.72	0.505	0.020	12-24 x 0.88	1.13
64	2.00	1.69	0.062	0.72	0.505	0.020	12-24 x 0.88	1.13
66	2.06	1.69	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
68	2.12	1.75	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
70	2.19	1.81	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
72	2.25	1.88	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
74	2.31	1.94	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
76	2.38	2.00	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
78	2.44	2.06	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
80	2.50	2.12	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
82	2.56	2.19	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
84	2.62	2.25	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
86	2.69	2.31	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
88	2.75	2.38	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
90	2.81	2.44	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
92	2.88	2.50	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
94	2.94	2.56	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
96	3.00	2.62	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
100	3.12	2.75	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
104	3.25	2.88	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
110	3.44	3.06	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
114	3.56	3.19	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
118	3.69	3.31	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25
138	4.31	3.94	0.062	0.72	0.505	0.020	12-24 x 1.00	1.25

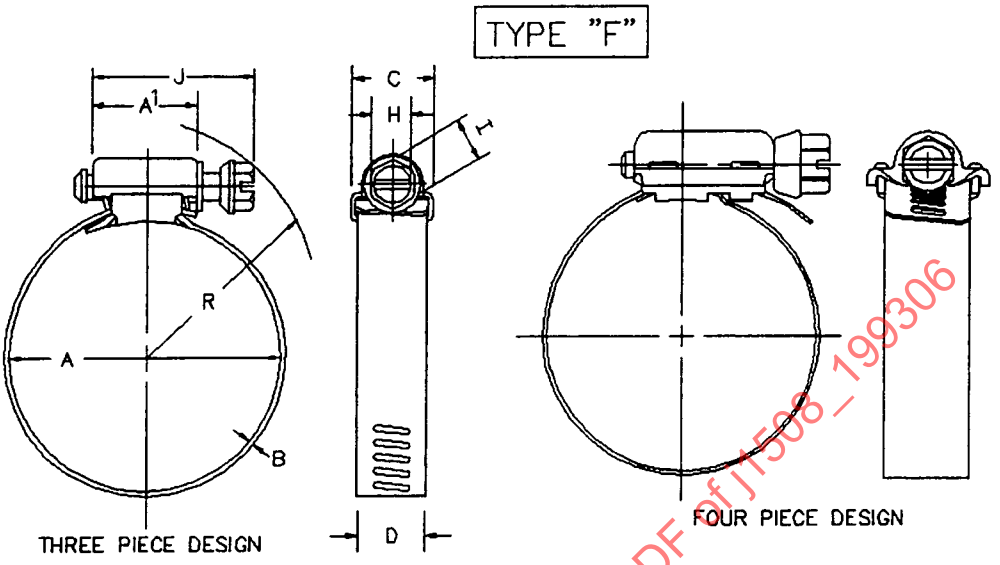
[a]The N suffix applied to SAE size numbers designates the smaller series clamp design where sizes overlap in two clamp designs.

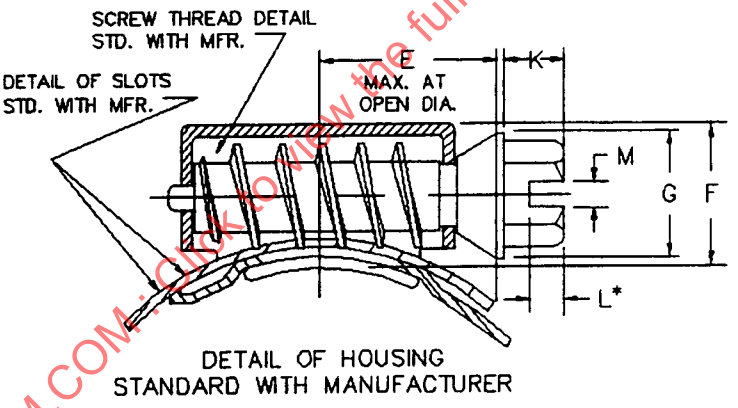
[b]Reference dimension for clearance purposes only.

[c]For size numbers 30–138, clamps having 0.020 tabulated band thickness are also available with 0.018–0.016 and 0.027–0.025 band thickness where so specified by user.

TABLE 4A—DIMENSIONS OF HEXAGON SCREW HEADS

Screw Size	V Across Flats Max	V Across Flats Min	W Across Corners Min	X Head Height Max	X Head Height Min	Y Slot Width Max	Y Slot Width Min	Z Slot Depth Max	Z Slot Depth Min
6	0.250	0.244	0.272	0.080	0.067	0.048	0.039	0.046	0.033
10	0.375	0.367	0.409	0.145	0.120	0.060	0.050	0.072	0.057
12	0.375	0.367	0.409	0.155	0.139	0.067	0.056	0.077	0.093





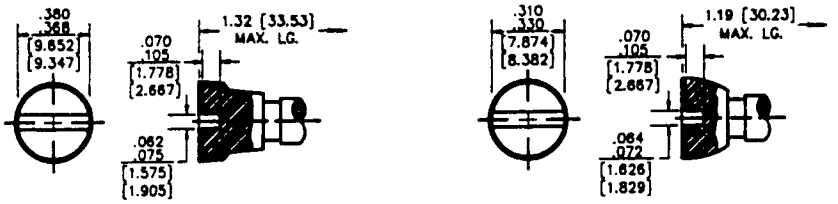
DETAIL OF HOUSING
STANDARD WITH MANUFACTURER
FOR DIMENSIONS RELATIVE TO THIS STYLE REFER TO TABLE 5
TYPE F, I, & M
FOR H.D. STYLE HOUSING DIMENSIONS REFER TO TABLE 14
NOTE: SCREW HOUSING DESIGN MAY VARY BY MANUFACTURER

(R) FIGURE 5—TYPE "F," "I," AND "M"

(R) TABLE 5—DIMENSIONS OF TYPE "F," "I," AND "M" CLAMP

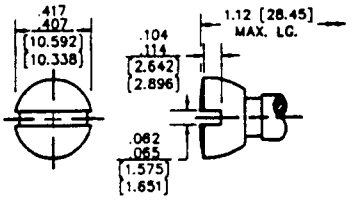
DIMENSION	TYPE F	TYPE I	TYPE M
A[1] HSG LENGTH (REF.)	0.76	0.64	0.42
	[19.30]	[16.26]	[10.668]
B THICKNESS	0.021/0.031	0.019/0.030	0.019/0.026
	[0.533/0.787]	[0.483/0.762]	[0.483/0.660]
C HSG WIDTH (REF.)	0.81	0.53	0.60
	[20.570]	[13.462]	[15.240]
D BAND WIDTH	0.495/0.569	0.395/0.442	0.305/0.325
	[12.57/14.45]	[10.033/11.227]	[7.747/8.255]
E MAX. @ OPEN DIA.	0.75	0.50	0.44
	[19.050]	[12.700]	[11.176]
F HEIGHT (REF.)	0.56	0.40	0.38
	[14.450]	[10.16]	[9.652]
G COLLAR DIAMETER	0.370/.425	0.295/0.375	(a)
	[9.398/10.79]	[7.493/9.525]	
H ACROSS FLATS	0.305/.312	0.244/0.250	0.244/0.250
	[7.747/7.925]	[6.198/6.350]	[6.198/6.350]
I ACROSS CORNERS (MIN.)	0.340	0.270	0.270
	[8.636]	[6.858]	[6.858]
J LG. OF SCREW (MAX.)	1.35	1.13	0.80
	[34.29]	[28.702]	[20.32]
K HEX HEIGHT	0.140/0.250	0.140/0.175	0.150/0.185
	[3.556/6.350]	[3.556/4.445]	[3.810/4.699]
L SLOT DEPTH	0.077/0.120	0.052/0.105	0.052/0.105
	[1.956/3.048]	[1.321/2.667]	[1.321/2.667]
M SLOT WIDTH	0.056/0.076	0.042/0.060	0.042/0.060
	[1.422/1.936]	[1.067/1.524]	[1.067/1.524]

[a] TYPE M CLAMPS DO NOT HAVE COLLARS AS STANDARD. SEE STYLE 6.

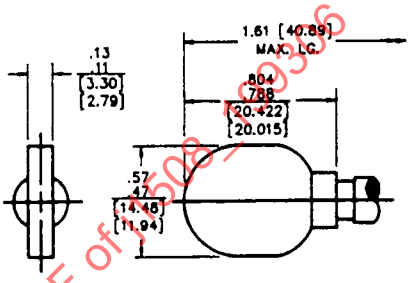


OPTIONAL DESIGNS

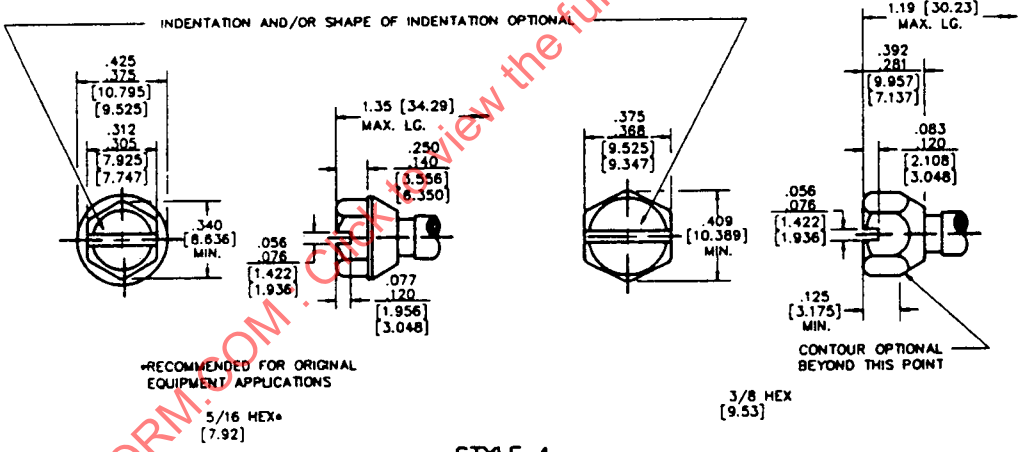
STYLE 1



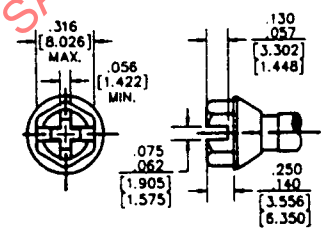
STYLE 2



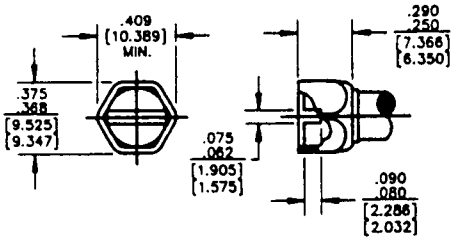
STYLE 3



STYLE 4



STYLE 5



STYLE 6

FIGURE 6—TYPE "F," "I," AND "M"

(R) TABLE 6—DIMENSIONS OF TYPE "F" HOSE CLAMPS

SAE SIZE NO.	A DIA [a] OPEN	A DIA [a] CLOSED	R RADIUS [b] OVER SCREW
06	0.78 [19.8]	0.44 [11.2]	1.17 [29.7]
08	0.91 [23.1]	0.50 [12.7]	1.22 [30.9]
10	1.06 [26.9]	0.56 [14.2]	1.26 [32.0]
12	1.25 [31.7]	0.69 [17.5]	1.32 [33.5]
16	1.50 [38.1]	0.81 [20.6]	1.42 [36.1]
20	1.75 [44.4]	0.81 [20.6]	1.52 [38.6]
24	2.00 [50.8]	1.06 [26.9]	1.63 [41.4]
28	2.25 [57.1]	1.31 [33.3]	1.75 [44.5]
32	2.50 [63.5]	1.56 [39.6]	1.86 [47.2]
36	2.75 [69.8]	1.81 [45.9]	1.97 [50.0]
40	3.00 [76.2]	2.06 [52.3]	2.09 [53.0]
44	3.25 [82.5]	2.31 [58.6]	2.20 [55.8]
48	3.50 [88.9]	2.56 [65.0]	2.32 [58.9]
52	3.75 [95.2]	2.81 [71.4]	2.44 [61.9]
56	4.00 [101.6]	3.06 [77.7]	2.56 [65.0]
60	4.25 [107.9]	3.31 [84.1]	2.68 [68.0]
64	4.50 [114.3]	3.56 [90.4]	2.80 [71.1]
72	5.00 [127.0]	4.06 [103.1]	3.04 [77.2]
80	5.50 [139.7]	4.62 [117.3]	3.28 [83.3]
88	6.00 [152.4]	5.12 [130.0]	3.53 [89.6]
96	6.50 [165.1]	5.56 [141.2]	3.77 [95.7]
104	7.00 [177.8]	6.18 [156.9]	4.01 [101.8]

[a] DIAMETER SHALL BE DETERMINED BY ASSEMBLY OVER MANDRELS.
[b] REFERENCE DIMENSIONS FOR CLEARANCE PURPOSES ONLY.
[c] FOR SIZES GREATER THAN 104 CONTACT THE MANUFACTURER.
[d] CLAMPS CLOSING SMALLER THAN LIST MUST COMPLY WITH 8.1.

TABLE 7—DIMENSIONS OF TYPE "I" HOSE CLAMPS

SAE SIZE NO.	A DIA [a] OPEN	A DIA [a] CLOSED	R RADIUS [b] OVER SCREW
06	0.78 [19.8]	0.44 [11.2]	1.00 [25.4]
08	0.91 [23.1]	0.50 [12.7]	1.03 [26.1]
10	1.06 [26.9]	0.56 [14.2]	1.09 [27.6]
12	1.25 [31.7]	0.69 [17.5]	1.12 [28.4]
16	1.50 [38.1]	0.81 [20.6]	1.25 [31.7]
20	1.75 [44.4]	0.81 [20.6]	1.38 [35.0]
24	2.00 [50.8]	1.06 [26.9]	1.50 [38.1]
28	2.25 [57.1]	1.31 [33.3]	1.62 [41.1]
32	2.50 [63.5]	1.56 [39.6]	1.75 [45.0]
36	2.75 [69.8]	1.81 [45.9]	1.87 [47.5]

[a] DIAMETER SHALL BE DETERMINED BY ASSEMBLY OVER MANDRELS.

[b] REFERENCE DIMENSIONS FOR CLEARANCE PURPOSES ONLY.

[c] LARGER SIZE CLAMPS AVAILABLE THROUGH MANUFACTURERS.

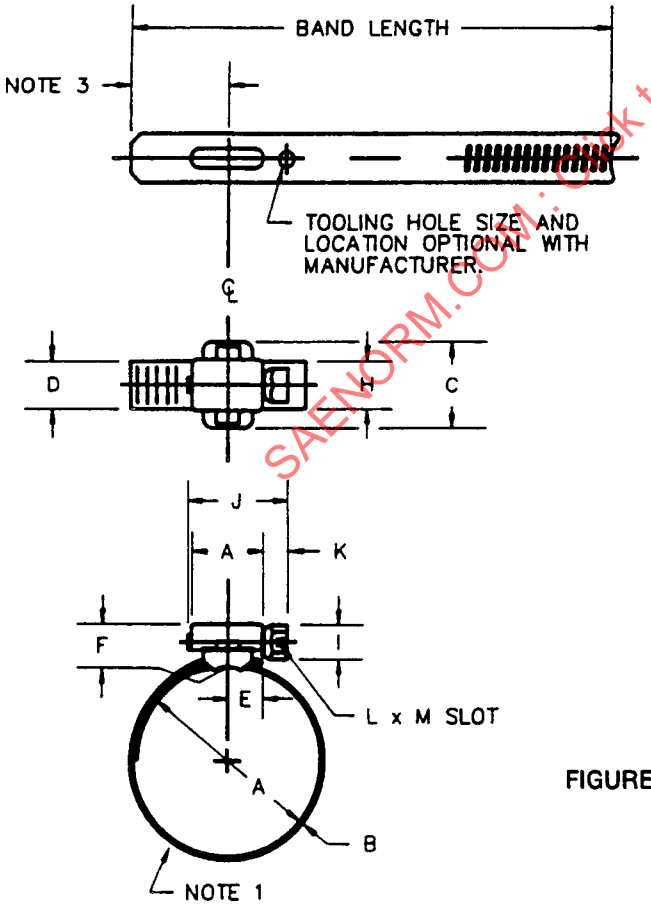
TABLE 8—DIMENSIONS OF TYPE "M" HOSE CLAMPS

SAE SIZE NO.	A DIA [a] OPEN	A DIA [a] CLOSED	R RADIUS [b] OVER SCREW
04	0.62 [15.7]	0.25 [6.3]	0.77 [19.5]
06	0.78 [19.8]	0.44 [11.2]	0.91 [23.1]
08	0.91 [23.1]	0.50 [12.7]	0.96 [24.3]
10	1.06 [26.9]	0.56 [14.2]	1.03 [26.1]
12	1.25 [31.7]	0.69 [17.5]	1.09 [27.7]

[a] DIAMETER SHALL BE DETERMINED BY ASSEMBLY OVER MANDRELS.

[b] REFERENCE DIMENSIONS FOR CLEARANCE PURPOSES ONLY.

[c] LARGER SIZE CLAMPS AVAILABLE THROUGH MANUFACTURERS.



1. THREE SLOTS MAXIMUM, UNCOVERED BY LINER AT MAX. DIAMETER.
2. CLAMP SHAPE NEED NOT BE PERFECTLY ROUND AS LONG AS CLAMP WILL FREELY ACCEPT THE MAX. OPEN DIA. GAUGE.
3. BAND EXTENSION LENGTH OPTIONAL WITH MANUFACTURER FOR CONFORMANCE WITH NOTE 1.

FIGURE 7—TYPE "MX"

TABLE 9—TYPE "MX"

SAE CLAMP SIZE	OLD SAE REF.	CLAMP DIAMETER INCH		CLAMP DIAMETER METRIC	
		OPEN	CLOSE	OPEN	CLOSE
MX50		0.50	0.25	12.70	6.35
MX53		0.53	0.28	13.46	7.11
MX56		0.56	0.31	14.22	7.87
MX59		0.59	0.34	14.99	8.64
MX63	4	0.63	0.38	16.00	9.65
MX66		0.66	0.41	16.76	10.41
MX69		0.69	0.44	17.53	11.18
MX72		0.72	0.47	18.29	11.94
MX75		0.75	0.50	19.05	12.70
MX78	6	0.78	0.48	19.81	12.19
MX81		0.81	0.51	20.57	12.95
MX84		0.84	0.54	21.34	13.72
MX88		0.88	0.58	22.35	14.73
MX91	8	0.91	0.61	23.11	14.73
MX94		0.94	0.64	23.88	16.26
MX97		0.97	0.67	24.64	17.02
MX100		1.00	0.70	25.40	17.78
MX103		1.03	0.73	26.16	18.54
MX106	10	1.06	0.76	26.92	19.30
MX109		1.09	0.79	27.69	20.07
MX113		1.13	0.83	28.70	21.08
MX116		1.16	0.86	29.46	21.84
MX119		1.19	0.89	30.23	22.61
MX122		1.22	0.92	30.99	23.37
MX125	12	1.25	0.95	31.75	24.13

SPECIFICATIONS

Materials:

Both the 9mm and 13mm series are available in 5 different material types.

Material No.	
1	Zinc plated mild steel throughout. Can be yellow chromated for added corrosion protection.
2	Band and housing in stainless steel (430 SS) and zinc plated yellow chromated mild steel screw.
3	Stainless steel throughout. (430 SS)
4	Non magnetic stainless steel throughout. (304 SS)
5	High grade non magnetic stainless steel throughout. (316 SS)

Screwheads:

The standard head is hexagon with screwdriver slot and available in 2 different sizes, 6 and 7mm 'across flats'.

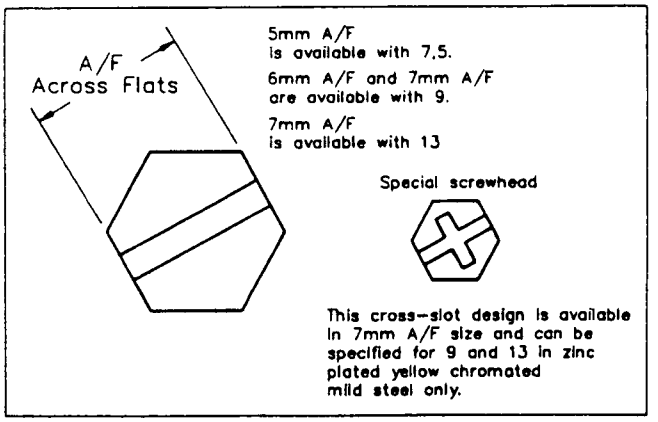
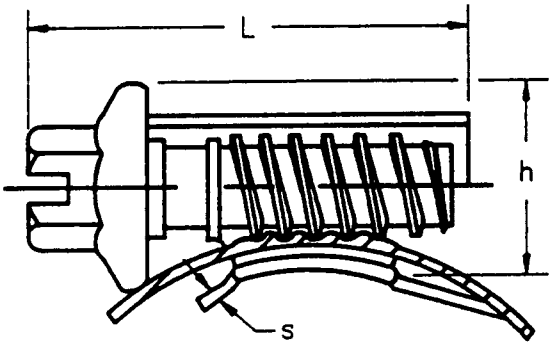


FIGURE 8—TYPE "FEO"

KEY:

b – Bandwidth
B – Housing width
h – Housing height
L – Housing + screw length
s – Band thickness
A/F – Screw head size



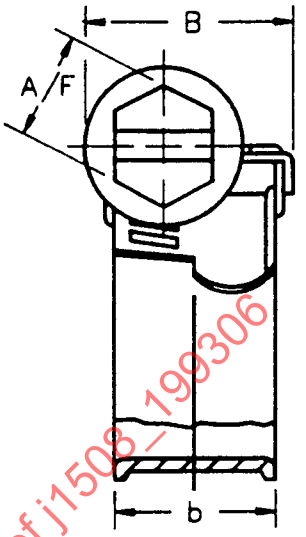


FIGURE 9—TYPE "FEO"

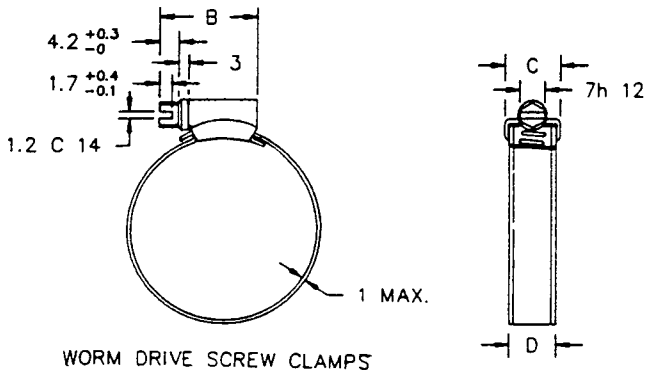
TABLE 10—TYPE "FEO"

Approx. SAE size	Clamping range in inches	Clamping range in mm	b	B	h	L	s
06	5/16"–1/2"	8 – 12	7.5	11.5	9.5	18	0.6
08	3/8"–5/8"	10 – 16	7.5	11.5	9.5	18	0.6
08	1/2"–3/4"	12 – 18	7.5	11.5	9.5	18	0.6
06	5/16"–5/8"	8 – 16	9	14	11.5	21	0.6
08	1/2"–3/4"	12 – 20	9–13	14	11.5	24	0.7
10	5/8"–1"	16 – 25	9–13	14	11.5	24	0.7
12	3/4"–1 1/4"	20 – 32	9–13	14	11.5	24	0.7
24	1"–1 5/8"	25 – 40	9–13	14	11.5	26	0.7
28	1 1/4"–2"	32 – 50	9–13	14	11.5	26	0.7
36	1 5/8"–2 3/8"	40 – 60	9–13	14	11.5	26	0.7
40	2"–2 3/4"	50 – 70	9–13	14	11.5	26	0.7
48	2 3/8"–3 1/8"	60 – 80	9–13	14	11.5	26	0.7
52	2 3/4"–3 1/2"	70 – 90	9–13	14	11.5	26	0.7
60	3 1/8"–4"	80 – 100	9–13	14	11.5	26	0.7
64	3 1/2"–4 3/8"	90 – 110	9–13	14	11.5	26	0.7
72	4"–4 3/4"	100 – 120	9–13	14	11.5	26	0.7
80	4 3/8"–5 1/8"	110 – 130	9–13	14	11.5	26	0.7
80	4 3/4"–5 1/2"	120 – 140	9–13	14	11.5	26	0.7
88	5 1/8"–5 7/8"	130 – 150	9–13	14	11.5	26	0.7
96	5 1/2"–6 1/4"	140 – 160•	9–13	14	11.5	26	0.7

• Larger sizes available

TABLE 11—TORQUE REQUIREMENTS FOR TYPE "FEO" CLAMPS

Ultimate Torque Ref. SAE	Ultimate Torque Clamp Range	Torque by Material No. #1	Torque by Material No. #2 through #5
Clamps with 9mm wide bands:			
6	8-16	22.2 2.5 Nm	26.6 3.0 Nm
8	12-20	35.4 4.0 Nm	39.8 4.5 Nm
64	90-110	35.4 4.0 Nm	39.8 4.5 Nm
Free torque for above 9mm clamps = 6.2 (0.7 Nm) max.			
Clamps with 13mm wide bands:			
10	16-25	53.1 6.0 Nm	70.8 8.0 Nm
104	160-180	53.1 6.0 Nm	70.8 8.0 Nm
Except for:			
36	40-60	62.0 7.0 Nm	N/A
Free torque for above 13mm clamps = 8.9 (1.0 Nm) max.			



WORM DRIVE SCREW CLAMPS

FIGURE 10—TYPE "FE"

TABLE 13—TORQUE REQUIREMENTS FOR TYPE "FE" CLAMPS

CLAMP RANGE (MM)	MINIMUM ULTIMATE
8–14 TO 13–20	39.8 IN.LBS. (4.5 Nm)
15–24 TO 26–38	53.1 IN.LBS. (6.0 Nm)
32–44 TO 50–65	62.0 IN.LBS. (7.0 Nm)
58–75 TO 277–307	70.8 IN.LBS. (8.0 Nm)

TABLE 12—TYPE "FE"

APPROX. SAE SIZE	CLAMPING RANGE IN		DIAMETER SUPPLIED IN		B INCHES MM	C INCHES MM	D INCHES MM	MINIMUM BREAKING TORQUE (Nm)
	INCHES	MM	INCHES	MM				
3	5/16–9/16	8–14	9/16	15	49/64 19.5	33/64 13	23/64 9	4.5
4	7/16–11/16	11–17	11/16	18				
6	1/2–13/16	13–20	13/16	21	27/32 21.5			
8	5/8–15/16	15–24	1	25				6.0
10	3/4–1 1/8	19–28	1 1/8	29	59/64 23.5			
12	7/8–1 1/4	22–32	1 5/16	33	1 25.5			
16	1 1/16–1 1/2	26–38	1 9/16	39				
20	1 1/4–1 3/4	32–44	1 3/4	45	1 5/32 29.5			7.0
24	1 1/2–2	38–50	2	51				
28	1 3/4–2 1/4	44–56	2 1/4	57				
32	2–2 9/16	50–65	2 5/8	66		5/8 16	31/64 12.2	8.0
40	2 5/16–3	58–75	3	76				
44	2 11/16–3 3/8	68–85	3 3/8	86				
52	3–3 3/4	77–95	3 13/16	96				
64	3 7/16–4 7/16	87–112	4 7/16	113	1 9/32 32.5			
80	4 1/8–5 7/16	104–138	5 1/2	139				
96	5 1/8–6 1/2	130–165	6 9/16	166				
104	5 7/8–7 1/8	150–180	7 1/8	181				
122	6 7/8–8 1/8	175–205	8 1/8	206				
138	7 7/8–9 1/8	200–231	9 1/8	232				
154	8 7/8–10 1/16	226–256	10 1/8	257				
170	9 7/8–11 1/8	251–282	11 1/8	283				
186	10 7/8–12 1/8	277–307	12 1/8	308				

t = BAND THICKNESS 0.04" [1 MM] MAX.

THE FREE TORQUE FOR A/M CLAMPS: (1.0 Nm) 8.9 MAX.

THE MINIMUM TORQUE ABOVE MUST BE TESTED ON A STEEL MANDREL, WITH THE MIN. DIAMETER SPECIFIED IN THE CLAMPING RANGE, I.E. 8, 11, 13 ETC, AS PER ABOVE.

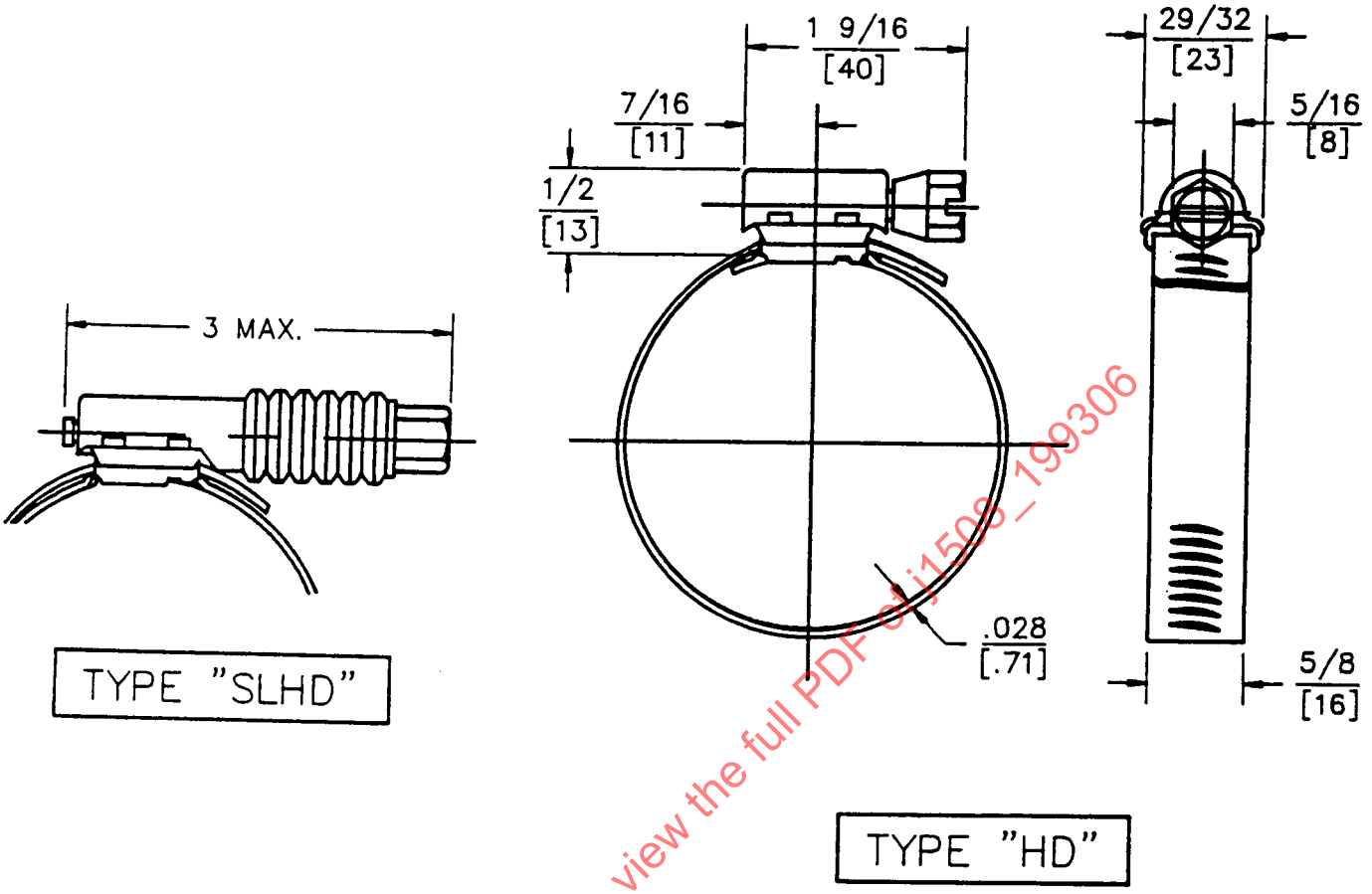
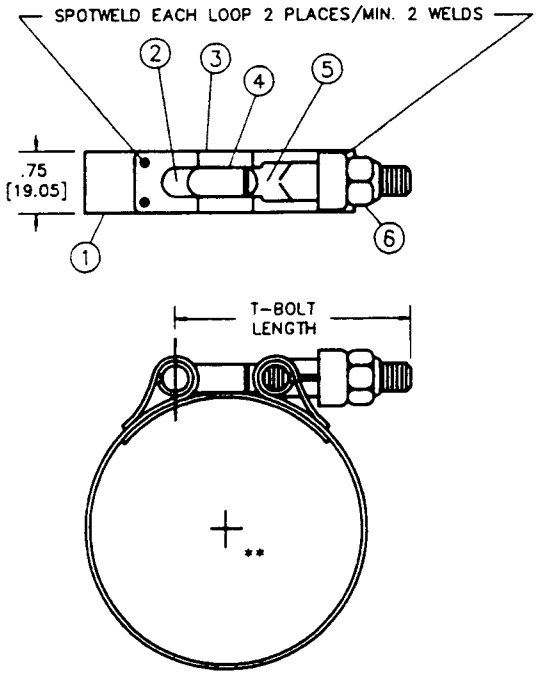


FIGURE 11—TYPE "HD" AND "SLHD"

TABLE 14—DIAMETER—STANDARD SIZE TYPE "HD" AND "SLHD" CLAMPS

SIZE NO.	SHIPPING		AFTER TAKE UP	
	INCH	MM	INCH	MM
212	2.125	52.98	1.25	31.75
262	2.625	66.68	1.75	44.45
312	3.125	79.38	2.25	57.15
362	3.625	92.08	2.75	69.85
412	4.125	104.78	3.25	82.55
462	4.625	117.48	3.75	95.25
512	5.125	130.18	4.25	107.95
562	5.625	142.88	4.75	120.65
612	6.126	155.60	5.25	133.35
662	6.625	168.28	5.75	146.05
712	7.125	180.98	6.25	158.75
762	7.625	193.68	6.75	171.45
812	8.125	206.38	7.25	184.15
862	8.625	219.08	7.75	196.85
912	9.125	231.78	8.25	209.55

LARGER SIZE CLAMPS AVAILABLE THROUGH MANUFACTURERS.

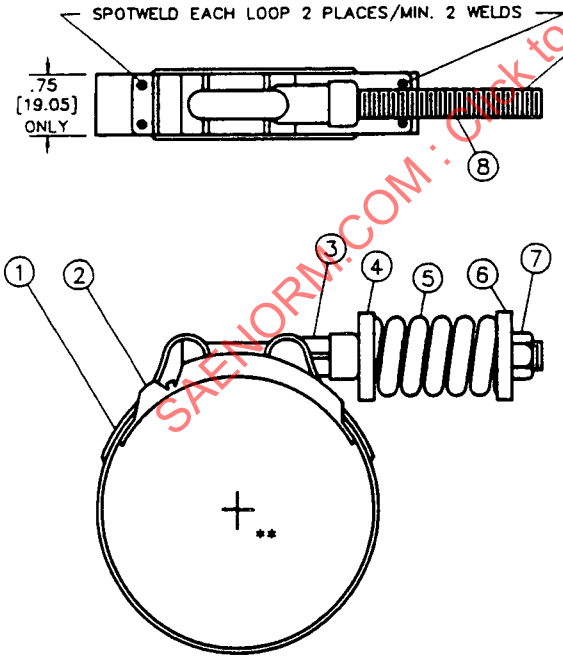


1. BAND
   AISI TYPE 201, 301, 302, 304 S.S
2. T-BOLT WRAPPER
3. TONGUE OR FLOATING BRIDGE, MFG'S OPTION
4. T-BOLT*
5. TRUNNION
6. NUT

* SEE 12.6.1 FOR DIMENSIONS
** FOR DIAMETER RANGE, SEE TABLE 15

NOTE: THESE ILLUSTRATIONS ARE FOR GRAPHIC PURPOSES ONLY. CONSTRUCTION MAY VARY ACCORDING TO MANUFACTURER.

FIGURE 12—TYPE "TB"



1. BAND
   AISI TYPE 201, 301, 302, OR 304 CRES
   HALF HARD TEMPER
2. FLOATING BRIDGE OR TONGUE, MFG'S OPTION
   AISI TYPE 301, 302, OR 304 CRES
   ANNEALED TEMPER
3. TRUNNION
   C.Q. C.R.S CAD OR ZINC PLATED
4. WASHER
   1.0 O.D X 0.281 I.D. x 0.109 THICK (ANSI-B 27.2)
   STEEL - 0.20 CARBON MAX, COMM'L ZINC PLATED
5. COMPRESSION SPRING
   0.187 DIA. MUSIC WIRE
   SAE J178 (ASTM A228)
   CAD OR ZINC PLATED
6. WASHER
   1.0 O.D. x 0.443 I.D. x 0.084 THICK
   STEEL - 0.20 CARBON MAX, COMM'L ZINC PLATED
7. T-NUT
   0.250-28 UNF-2B
   CARBON STL 12L 14, COMM'L ZINC PLATED
8. T-BOLT
   0.250-28 UNF-2A X OR 3A PERMISSIBLE
   C-1022-1038 STL, CAD, OR ZINC PLATED

** FOR DIAMETER RANGE, SEE TABLE 15

NOTE: THESE ILLUSTRATIONS ARE FOR GRAPHIC PURPOSES ONLY. CONSTRUCTION MAY VARY ACCORDING TO MANUFACTURER.

FIGURE 13—TYPE "SLTB"

TABLE 15—TYPE "TB" AND "SLTB"

SIZE	OPEN DIA.		CLOSED DIA.		SIZE	OPEN DIA.		CLOSED DIA.		SIZE	OPEN DIA.		CLOSED DIA.	
NO.	IN.	MM	IN.	MM	NO.	IN.	MM	IN.	MM	NO.	IN.	MM	IN.	MM
28	2	50.8	1 3/4	44.5	136	5 7/16	138.1	5 1/8	130.2	244	8 13/16	223.8	8 1/2	215.9
30	2 1/16	52.4	1 13/16	46.0	138	5 1/2	139.7	5 3/16	131.8	246	8 7/8	225.4	8 9/16	217.5
32	2 3/16	55.6	1 7/8	47.6	140	5 9/16	141.3	5 1/4	133.4	248	8 15/16	227.0	8 5/8	219.1
34	2 1/4	57.2	1 15/16	49.2	142	5 5/8	142.9	5 5/16	134.9	250	9	228.6	8 11/16	220.7
36	2 5/16	58.7	2	50.8	144	5 11/16	144.5	5 3/8	136.5	252	9 1/16	230.2	8 3/4	222.3
38	2 3/8	60.3	2 1/16	52.4	146	5 3/4	146.1	5 7/16	138.1	254	9 1/8	231.8	8 13/16	223.8
40	2 7/16	61.9	2 1/8	54.0	148	5 13/16	147.6	5 1/2	139.7	256	9 3/16	233.4	8 7/8	225.4
42	2 1/2	63.5	2 3/16	55.6	150	5 7/8	149.2	5 9/16	141.3	258	9 1/4	235.0	8 15/16	227.0
44	2 9/16	65.1	2 1/4	57.2	152	5 15/16	150.8	5 5/8	142.9	260	9 5/16	236.5	9	228.6
46	2 5/8	66.7	2 5/16	58.7	154	6	152.4	5 11/16	144.5	262	9 3/8	238.1	9 1/16	230.2
48	2 11/16	68.3	2 3/8	60.3	156	6 1/16	154.0	5 3/4	146.1	264	9 7/16	239.7	9 1/8	231.8
50	2 3/4	69.9	2 7/16	61.9	158	6 1/8	155.8	5 13/16	147.6	266	9 1/2	241.3	9 3/16	233.4
52	2 13/16	71.4	2 1/2	63.5	160	6 3/16	157.2	5 7/8	149.2	268	9 9/16	242.9	9 1/4	235.0
54	2 7/8	73.0	2 9/16	65.1	162	6 1/4	158.8	5 15/16	150.8	270	9 5/8	244.5	9 5/16	236.5
56	2 15/16	74.6	2 5/8	66.7	164	6 5/16	160.3	6	152.4	272	9 11/16	246.1	9 3/8	238.1
58	3	76.2	2 11/16	68.3	166	6 3/8	161.9	6 1/16	154.0	274	9 3/4	247.7	9 7/16	239.7
60	3 1/16	77.8	2 3/4	69.9	168	6 7/16	163.5	6 1/8	155.6	276	9 13/16	249.2	9 1/2	241.3
62	3 1/8	79.4	2 13/16	71.4	170	6 1/2	165.1	6 3/16	157.2	278	9 7/8	250.8	9 9/16	242.9
64	3 3/16	81.0	2 7/8	73.0	172	6 9/16	166.7	6 1/4	158.8	280	9 15/16	252.4	9 5/8	244.5
66	3 1/4	82.6	2 15/16	74.6	174	6 5/8	168.3	6 5/16	160.3	282	10	254.0	9 11/16	246.1
68	3 5/16	84.1	3	76.2	176	6 11/16	169.9	6 3/8	161.9	284	10 1/16	255.6	9 3/4	247.7
70	3 3/8	85.7	3 1/16	77.8	178	6 3/4	171.5	6 7/16	163.5	286	10 1/8	257.2	9 13/16	249.2
72	3 7/16	87.3	3 1/8	79.4	180	6 13/16	173.0	6 1/2	165.1	288	10 3/16	258.8	9 7/8	250.8
74	3 1/2	88.9	3 3/16	81.0	182	6 7/8	174.6	6 9/16	166.7	290	10 1/4	260.4	9 15/16	252.4
76	3 9/16	90.5	3 1/4	82.6	184	6 15/16	176.2	6 5/8	168.3	292	10 5/16	261.9	10	254.0
78	3 5/8	92.1	3 5/16	84.1	186	7	177.8	6 11/16	169.9	294	10 3/8	263.5	10 1/16	255.6
80	3 11/16	93.7	3 3/8	85.7	188	7 1/16	179.4	6 3/4	171.5	296	10 7/16	265.1	10 1/8	257.2
82	3 3/4	95.3	3 7/16	87.3	190	7 1/8	181.0	6 13/16	173.0	298	10 1/2	266.7	10 3/16	258.8
84	3 13/16	96.8	3 1/2	88.9	192	7 3/16	182.6	6 7/8	174.6	300	10 9/16	268.3	10 1/4	260.4
86	3 7/8	98.4	3 9/16	90.5	194	7 1/4	184.2	6 15/16	176.2	302	10 5/8	269.9	10 5/16	261.9
88	3 15/16	100.0	3 5/8	92.1	196	7 5/16	185.7	7	177.8	304	10 11/16	271.5	10 3/8	263.5
90	4	101.6	3 11/16	93.7	198	7 3/8	187.3	7 1/16	179.4	306	10 3/4	273.1	10 7/16	265.1
92	4 1/16	103.2	3 3/4	95.3	200	7 7/16	188.9	7 1/8	181.0	308	10 13/16	274.6	10 1/2	266.7
94	4 1/8	104.8	3 13/16	96.8	202	7 1/2	190.5	7 3/16	182.6	310	10 7/8	276.2	10 9/16	268.3
96	4 3/16	106.4	3 7/8	98.4	204	7 9/16	192.1	7 1/4	184.2	312	10 15/16	277.8	10 5/8	269.9
98	4 1/4	108.0	3 15/16	100.0	206	7 5/8	193.7	7 5/16	185.7	314	11	279.4	10 11/16	271.5
100	4 5/16	109.5	4	101.6	208	7 11/16	195.3	7 3/8	187.3	316	11 1/16	281.0	10 3/4	273.1
102	4 3/8	111.1	4 1/16	103.2	210	7 3/4	196.9	7 7/16	188.9	318	11 1/8	282.6	10 13/16	274.6
104	4 7/16	112.7	4 1/8	104.8	212	7 13/16	198.4	7 1/2	190.5	320	11 3/16	284.2	10 7/8	276.2
106	4 1/2	114.3	4 3/16	106.4	214	7 7/8	200.0	7 9/16	192.1	322	11 1/4	285.8	10 15/16	277.8
108	4 9/16	115.9	4 1/4	108.0	216	7 15/16	201.6	7 5/8	193.7	324	11 5/16	287.3	11	279.4
110	4 5/8	117.5	4 5/16	109.5	218	8	203.2	7 11/16	195.3	326	11 3/8	288.9	11 1/16	281.0
112	4 11/16	119.1	4 3/8	111.1	220	8 1/16	204.8	7 3/4	196.9	328	11 7/16	290.5	11 1/8	282.6
114	4 3/4	120.7	4 7/16	112.7	222	8 1/8	206.4	7 13/16	198.4	330	11 1/2	292.1	11 3/16	284.2
116	4 13/16	122.2	4 1/2	114.3	224	8 3/16	208.0	7 7/8	200.0	332	11 9/16	293.7	11 1/4	285.8
118	4 7/8	123.8	4 9/16	115.9	226	8 1/4	209.6	7 15/16	201.6	334	11 5/8	295.3	11 5/16	287.3
120	4 15/16	125.4	4 5/8	117.5	228	8 5/16	211.1	8	203.2	336	11 11/16	296.9	11 3/8	288.9
122	5	127.0	4 11/16	119.1	230	8 3/8	212.7	8 1/16	204.8	338	11 3/4	298.5	11 7/16	290.5
124	5 1/16	128.6	4 3/4	120.7	232	8 7/16	214.3	8 1/8	206.4	340	11 13/16	300.0	11 1/2	292.1
126	5 1/8	130.2	4 13/16	122.2	234	8 1/2	215.9	8 3/16	208.0	342	11 7/8	301.6	11 9/16	293.7
128	5 3/16	131.8	4 7/8	123.8	236	8 9/16	217.5	8 1/4	209.6	344	11 15/16	303.2	11 5/8	295.3
130	5 1/4	133.4	4 15/16	125.4	238	8 5/8	219.1	8 5/16	211.1	346	12	304.8	11 11/16	296.9
132	5 5/16	134.9	5	127.0	240	8 11/16	220.7	8 3/8	212.7					
134	5 3/8	136.5	5 1/16	128.6	242	8 3/4	222.3	8 7/16	214.3					

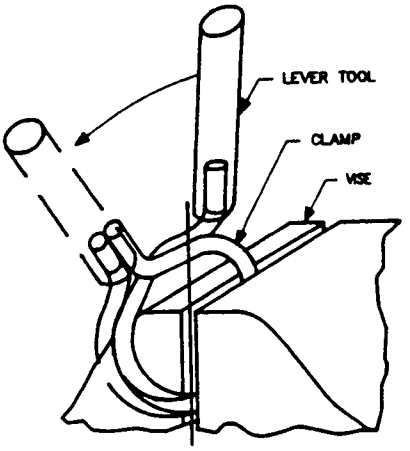


FIGURE 14—TYPE "E"

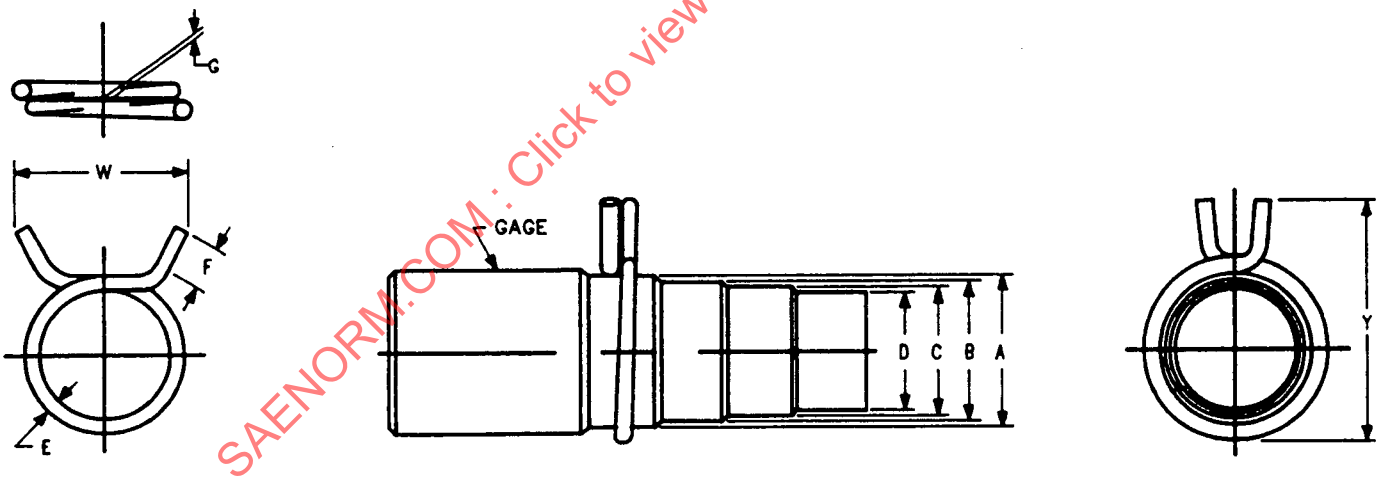


FIGURE 15—TYPE "E"

TABLE 16—TYPE "E"—CARBON

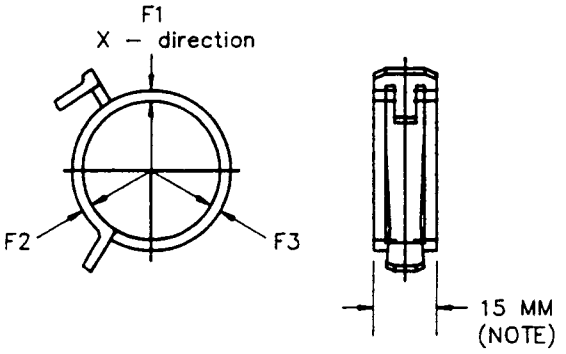
SAE Size No.	Clamp Dia Range [a]			D NOT GO Gage Dia	E Wire Dia [d]		F Length of Tang		G Clearance at Overlap	W Free Width Over Tangs	Y Overall Height	Z Gaging [e] Clearance
	A Max	B Nom	C Min		Max	Min	Max	Min	Max	Max	Ref	Max
6	0.380	0.375	0.370	0.350	0.083	0.081	0.38	0.34	0.015	0.88	1.06	0.005
7 [b]	0.442	0.438	0.432	0.405	0.088	0.086	0.38	0.34	0.015	0.94	1.12	0.005
8 [c]	0.510	0.500	0.490	0.462	0.093	0.091	0.38	0.34	0.025	1.00	1.19	0.005
9	0.573	0.562	0.551	0.520	0.108	0.106	0.38	0.34	0.025	1.06	1.38	0.006
10 [b]	0.640	0.625	0.610	0.580	0.108	0.106	0.38	0.34	0.025	1.06	1.38	0.006
11 [c]	0.703	0.688	0.671	0.635	0.113	0.111	0.38	0.34	0.025	1.12	1.50	0.006
12	0.770	0.750	0.730	0.690	0.113	0.111	0.38	0.34	0.031	1.19	1.50	0.008
13 [b]	0.832	0.812	0.792	0.740	0.118	0.116	0.38	0.34	0.031	1.25	1.50	0.008
14 [c]	0.900	0.875	0.850	0.800	0.123	0.121	0.38	0.34	0.031	1.25	1.62	0.008
15	0.968	0.938	0.908	0.855	0.123	0.121	0.38	0.34	0.062	1.25	1.69	0.008
16 [b]	1.031	1.000	0.969	0.915	0.133	0.131	0.38	0.34	0.062	1.31	1.75	0.008
17 [c]	1.090	1.062	1.034	0.960	0.143	0.141	0.41	0.34	0.062	1.50	1.88	0.010
18	1.150	1.125	1.100	1.030	0.153	0.151	0.41	0.34	0.062	1.62	2.00	0.010
19 [b]	1.218	1.188	1.156	1.095	0.153	0.151	0.41	0.34	0.062	1.62	2.02	0.010
20 [c]	1.280	1.250	1.219	1.145	0.153	0.151	0.41	0.34	0.062	1.75	2.00	0.010
21	1.344	1.312	1.281	1.210	0.163	0.161	0.41	0.34	0.062	1.75	2.31	0.010
22 [b]	1.406	1.375	1.344	1.250	0.163	0.161	0.41	0.34	0.062	1.88	2.31	0.010
24	1.531	1.500	1.469	1.350	0.163	0.161	0.44	0.38	0.062	1.88	2.40	0.010
26	1.672	1.625	1.578	1.455	0.174	0.170	0.44	0.38	0.062	2.00	2.69	0.010
28	1.797	1.750	1.703	1.550	0.174	0.170	0.44	0.38	0.062	2.12	2.75	0.010
30	1.937	1.875	1.812	1.675	0.179	0.175	0.44	0.38	0.093	2.25	2.88	0.010
31	2.000	1.938	1.875	1.720	0.179	0.175	0.44	0.38	0.093	2.25	3.00	0.010
32	2.061	2.000	1.939	1.750	0.179	0.175	0.44	0.38	0.093	2.31	3.00	0.010
34	2.187	2.125	2.062	1.880	0.184	0.180	0.44	0.38	0.093	2.31	3.19	0.010
35	2.250	2.188	2.125	1.925	0.184	0.180	0.44	0.38	0.093	2.31	3.25	0.010
36	2.312	2.250	2.187	2.000	0.184	0.180	0.44	0.38	0.093	2.38	3.25	0.010
38	2.437	2.375	2.312	2.100	0.194	0.190	0.44	0.38	0.093	2.38	3.44	0.010
40	2.561	2.500	2.439	2.187	0.194	0.190	0.44	0.38	0.093	2.38	3.62	0.010
42	2.688	2.625	2.562	2.320	0.204	0.200	0.44	0.38	0.093	2.38	3.75	0.010

[a] To be used for corresponding gage diameter. Gage diameter tolerance +0.001, −0.000.
[b] These sizes shall be furnished with greenish hue. — Optional when specified by purchaser.
[c] These sizes shall be furnished with reddish hue. — Optional when specified by purchaser.
[d] Wire diameters shown are before forming.
[e] Gage clearance per para. 12.2.1.2.

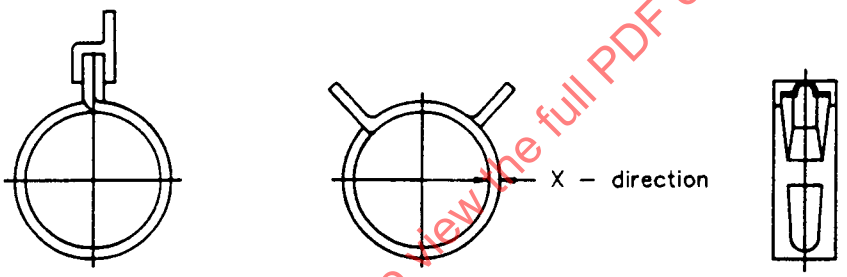
TABLE 17—TYPE "E"—STAINLESS

Size No.	Clamp Dia Range			D NOT GO Gage Dia	E Wire Dia		F Tang Length		G Clearance at Overlap	W Free Width	Y Height	Z Gage Clearance
	A Max	B Nom	C Min		Max	Min	Max	Min	Max	Max	Ref	Max
S–4	.253	.250	.247	.235	.039	.041	.38	.34	.015	.75	.68	.004
S–5	.315	.312	.309	.292	.052	.050	.38	.34	.015	.81	.68	.004
S–6	.380	.375	.370	.360	.067	.065	.38	.34	.015	.88	1.06	.004
S–7	.442	.438	.432	.415	.077	.075	.38	.34	.015	.94	1.12	.004
S–8	.510	.500	.490	.472	.083	.081	.38	.34	.025	1.00	1.19	.005
S–9	.573	.562	.551	.530	.093	.091	.38	.34	.025	1.06	1.38	.006
S–10	.640	.625	.610	.590	.107	.105	.38	.34	.025	1.06	1.38	.006
S–11	.703	.688	.671	.645	.107	.105	.38	.34	.025	1.12	1.50	.006
S–12	.770	.750	.730	.700	.107	.105	.38	.34	.031	1.18	1.50	.008
S–13	.832	.812	.792	.750	.113	.111	.38	.34	.031	1.25	1.50	.008
S–14	.900	.875	.850	.810	.121	.119	.38	.34	.031	1.25	1.62	.008
S–15	.968	.938	.906	.865	.121	.119	.38	.34	.062	1.25	1.69	.008
S–16	1.031	1.000	.969	.925	.121	.119	.38	.34	.062	1.31	1.75	.008
S–17	1.090	1.062	1.034	.970	.133	.131	.38	.34	.062	1.50	1.88	.010
S–18	1.150	1.125	1.100	1.040	.143	.131	.38	.34	.062	1.62	2.00	.010

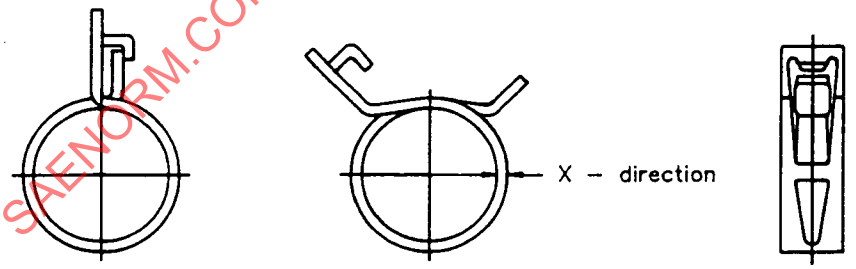
$$F = \frac{F1 + F2 + F3}{3}$$



TYPE A



TYPE B



TYPE C

NOTE: FOR BAND WIDTHS OTHER THAN NOTED CONTACT MFG.

FIGURE 16—TYPE "CTB"

TABLE 18—TYPE "CTB"

NOMINAL SIZE CODE	MAX. CLOSED DIAMETER MM	MIN. FULL OPEN DIAMETER MM
13	12.0	14.2
14	13.5	15.3
15	14.0	16.8
17	15.2	18.5
19	18.0	20.0
20	18.4	21.6
23	21.0	24.7
24	22.0	26.0
25	23.5	26.8
26	24.3	28.0
27	25.2	28.9
29	27.0	31.5
32	29.5	34.5
35	31.5	38.0
38	34.5	41.5
40	35.5	42.5
42	37.5	44.5
44	38.5	46.5
47	41.5	50.0
50	43.5	53.0
51	44.0	54.0
53	46.0	55.0
55	47.0	58.0
58	50.0	61.0

TABLE 1: CLOSED AND FULL OPEN DIAMETERS OF MOST FREQUENTLY USED SPRING TYPE HOSE CLAMPS.

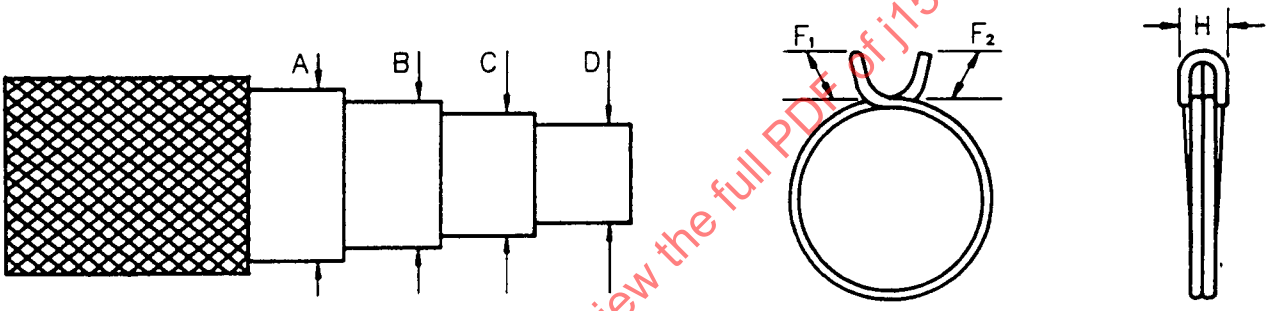


FIGURE 17—TYPE "CTW"

TABLE 19—TYPE "CTW"—METRIC

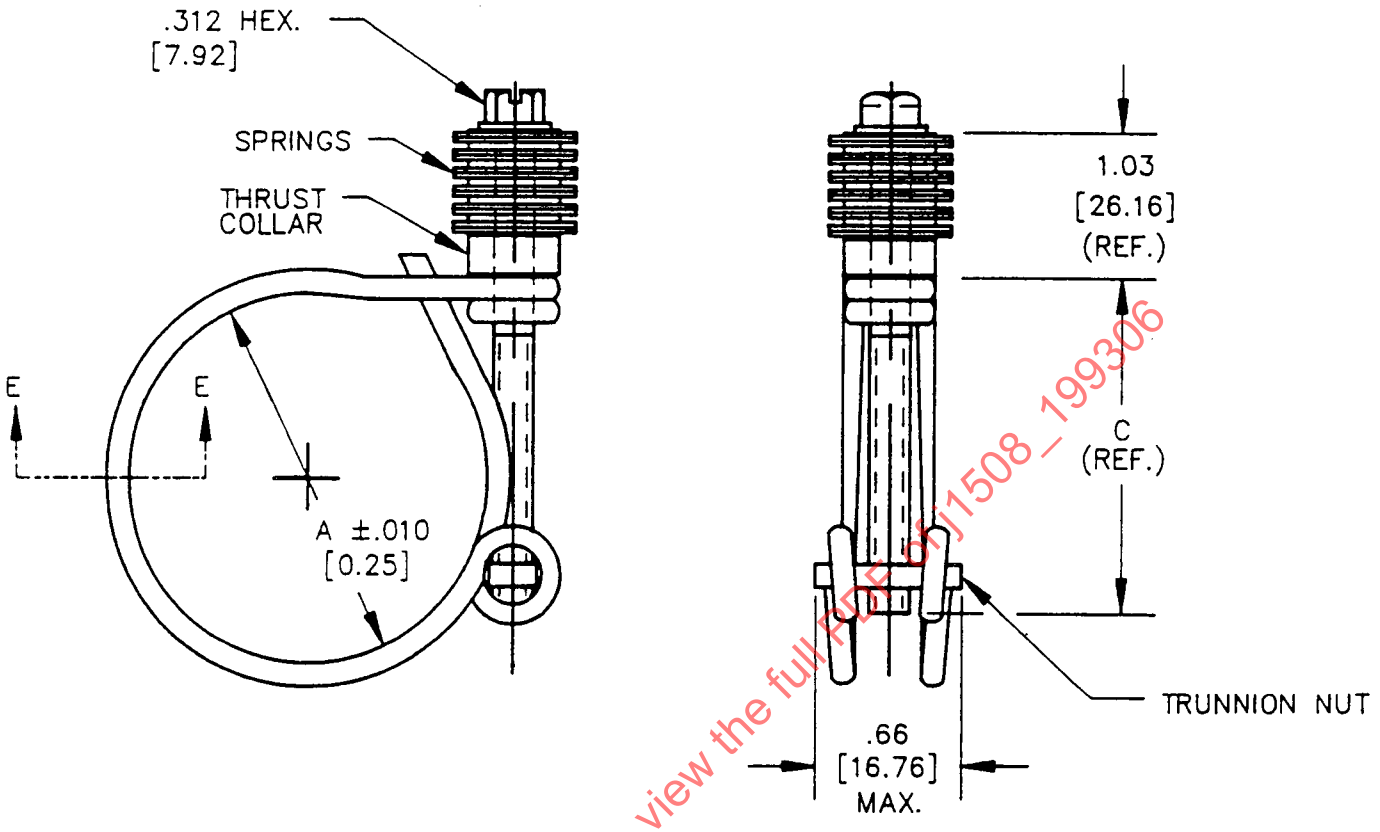
A	B	C	D	E	F_1	F_2	G	H
CLAMP DIAMETERS			NO	WIRE	REFERENCE DIM.		GAGE	REF.
MAX.	NOM.	MIN.	GO	SIZE	MAX.	MIN.	MAX.	DIM.
7.47	7.26	6.96	6.73	1.00	6.35	4.80	.105	6.35
7.80	7.60	7.30	7.10	1.00	6.35	4.80	.105	6.35
8.80	8.70	8.60	8.10	1.00	6.35	4.80	.105	6.35
9.65	9.50	9.40	8.90	1.00	6.35	4.80	.105	6.35
10.57	10.39	10.19	9.68	1.50	9.65	6.35	.153	7.10
11.25	11.13	11.00	10.28	1.50	9.65	6.35	.153	7.10
13.00	12.55	12.50	11.73	1.50	9.65	6.35	.153	7.10
14.10	13.73	13.36	12.36	1.50	9.65	6.35	.153	7.10
14.58	14.31	14.00	13.75	1.70	10.80	6.35	.153	8.25
15.93	15.60	15.11	14.10	1.70	10.80	6.35	.153	8.25
16.26	15.88	15.49	14.73	1.70	10.80	6.35	.153	8.25
16.81	16.41	15.93	14.88	1.70	10.80	6.35	.153	8.25
17.86	17.48	17.04	16.13	1.98	12.70	8.26	.203	9.14
18.69	18.19	17.70	16.51	1.98	12.70	8.26	.203	9.14
19.50	19.00	18.50	17.50	1.98	12.70	8.26	.203	9.14
20.62	20.19	19.61	18.25	1.98	12.70	8.26	.203	9.14
21.13	20.62	20.12	18.80	1.98	12.70	8.26	.203	9.14
22.75	22.13	21.50	20.25	2.19	13.97	9.53	.203	10.16
23.57	23.09	22.40	20.98	2.19	13.97	9.53	.203	10.16
24.59	23.83	23.01	21.72	2.19	13.97	9.53	.203	10.16
26.29	25.50	24.61	23.24	2.49	14.22	9.53	.254	11.43
27.68	26.97	26.26	24.38	2.49	14.22	9.53	.254	11.43
28.12	27.48	26.67	24.99	2.49	14.22	9.53	.254	11.43
29.21	28.58	27.94	26.16	2.49	14.22	9.53	.254	11.43
30.94	30.18	29.36	27.81	2.80	16.76	11.43	.254	12.19
32.00	31.29	30.38	28.37	2.80	16.76	11.43	.254	12.19
32.51	31.75	30.96	29.08	2.80	16.76	11.43	.254	12.19
34.14	33.32	32.54	30.73	2.80	16.76	11.43	.254	12.19
35.69	34.98	33.91	32.00	3.00	19.00	12.70	.254	13.72
36.40	35.59	34.59	32.49	3.00	19.00	12.70	.254	13.72
38.10	37.21	36.20	33.78	3.00	19.00	12.70	.254	13.72
38.89	38.10	37.31	34.29	3.20	19.00	12.70	.254	14.22
40.44	39.65	38.86	35.84	3.20	19.00	12.70	.254	14.22
42.98	41.28	40.08	37.47	3.20	19.00	12.70	.254	14.22
45.64	44.45	43.26	40.13	3.20	19.00	12.70	.254	14.22
49.20	47.63	46.02	43.69	3.20	19.00	12.70	.254	14.22
50.80	49.23	47.63	45.19	3.50	20.32	13.97	.254	14.99
52.35	50.80	49.25	46.48	3.50	20.32	13.97	.254	14.99
55.55	53.98	52.37	49.43	3.50	20.32	13.97	.254	14.99
57.15	55.55	53.98	50.17	3.50	20.32	13.97	.254	14.99
58.42	57.15	55.55	50.80	3.50	20.32	13.97	.254	14.99
71.00	69.85	60.00	63.00	3.80	21.60	13.97	.508	17.02
78.50	76.20	74.00	69.50	3.80	21.60	13.97	.508	17.02
85.00	82.55	80.00	75.00	4.00	21.60	13.97	.560	18.03
91.70	88.90	86.20	81.00	4.00	21.60	13.97	.560	18.03
98.20	95.25	92.30	87.00	4.00	21.60	13.97	.560	18.03
104.77	101.60	98.50	92.50	4.00	21.60	13.87	.560	18.03
111.40	107.95	104.50	98.00	4.20	21.60	13.97	.609	19.05
118.00	114.30	110.50	103.80	4.20	21.60	13.97	.609	19.05
124.68	120.65	116.50	109.35	4.20	21.60	13.97	.609	19.05
131.50	127.00	122.50	115.00	4.20	21.60	13.97	.609	19.05

NOTE: FOR EXPLANATION, SEE 12.5

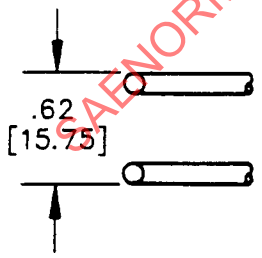
TABLE 20—TYPE "CTW"—STANDARD

A	B	C	D	E	F_1	F_2	G	H
CLAMP DIAMETERS			NO	WIRE	REFERENCE DIM.		GAGE	REF.
MAX.	NOM.	MIN.	GO	SIZE	MAX.	MIN.	MAX.	DIM.
.294	.286	.274	.265	.039	.250	.190	.004	.250
.306	.301	.285	.280	.039	.250	.190	.004	.250
.345	.342	.339	.320	.039	.250	.190	.004	.250
.380	.375	.370	.350	.039	.250	.190	.004	.250
.416	.409	.401	.381	.059	.380	.250	.006	.280
.442	.438	.432	.405	.059	.380	.250	.006	.280
.510	.500	.490	.462	.059	.380	.250	.006	.280
.555	.539	.524	.484	.059	.380	.250	.006	.280
.573	.562	.551	.520	.070	.425	.250	.006	.325
.637	.614	.595	.555	.070	.425	.250	.006	.325
.640	.625	.610	.580	.070	.425	.250	.006	.325
.662	.646	.627	.586	.070	.425	.250	.006	.325
.703	.688	.671	.635	.078	.500	.325	.006	.325
.736	.716	.697	.650	.078	.500	.325	.008	.360
.770	.750	.730	.690	.078	.500	.325	.008	.360
.812	.795	.772	.720	.078	.500	.325	.008	.360
.832	.812	.792	.740	.078	.500	.325	.008	.360
.900	.875	.850	.800	.086	.550	.375	.008	.400
.928	.909	.882	.826	.086	.550	.375	.008	.400
.968	.938	.906	.855	.086	.550	.375	.008	.400
1.031	1.000	.969	.915	.098	.560	.375	.008	.450
1.090	1.062	1.034	.960	.098	.560	.375	.008	.450
1.107	1.082	1.050	.984	.098	.560	.375	.008	.450
1.150	1.125	1.100	1.030	.098	.560	.375	.008	.450
1.218	1.188	1.156	1.095	.110	.660	.450	.010	.480
1.260	1.232	1.196	1.117	.110	.660	.450	.010	.480
1.280	1.250	1.219	1.145	.110	.660	.450	.010	.480
1.344	1.312	1.281	1.210	.110	.660	.450	.010	.480
1.405	1.377	1.335	1.260	.118	.750	.500	.010	.540
1.433	1.401	1.362	1.279	.118	.750	.500	.010	.540
1.500	1.465	1.425	1.330	.118	.750	.500	.010	.540
1.531	1.500	1.469	1.350	.126	.750	.500	.010	.560
1.592	1.561	1.530	1.411	.126	.750	.500	.010	.560
1.692	1.625	1.578	1.475	.126	.750	.500	.010	.560
1.797	1.750	1.703	1.580	.126	.750	.500	.010	.560
1.937	1.875	1.812	1.720	.126	.750	.500	.010	.560
2.000	1.938	1.875	1.799	.137	.800	.550	.010	.590
2.061	2.000	1.939	1.830	.137	.800	.550	.010	.590
2.187	2.125	2.062	1.946	.137	.800	.550	.010	.590
2.250	2.187	2.125	1.975	.137	.800	.550	.010	.590
2.300	2.250	2.187	2.000	.137	.800	.550	.010	.590
2.795	2.750	2.638	2.480	.150	.850	.550	.020	.670
3.090	3.000	2.913	2.736	.150	.850	.550	.020	.670
3.346	3.250	3.150	2.953	.158	.850	.550	.022	.710
3.610	3.500	3.394	3.189	.158	.850	.550	.022	.710
3.866	3.750	3.634	3.425	.158	.850	.550	.022	.710
4.125	4.000	3.878	3.642	.158	.850	.550	.022	.710
4.386	4.250	4.114	3.858	.165	.850	.550	.024	.750
4.645	4.500	4.350	4.087	.165	.850	.550	.024	.750
4.909	4.750	4.587	4.305	.165	.850	.550	.024	.750
5.177	5.000	4.823	4.528	.165	.850	.550	.024	.750

NOTE: FOR EXPLANATION, SEE 12.5

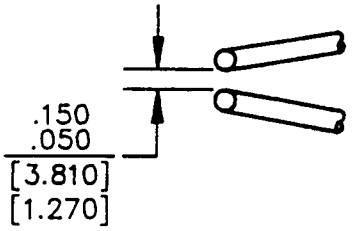


SECT. E–E STANDARD



SECT. E–E STANDARD

OPTIONAL "CLOSED LOOP"



SECT. E–E OPTIONAL

FIGURE 18—TYPE "SLA"—INCH [METRIC]

3.3.2 **"SLF"**—Basic type "F" clamp modified to incorporate a stack of conical spring washers for energy storage. See Figure 20.

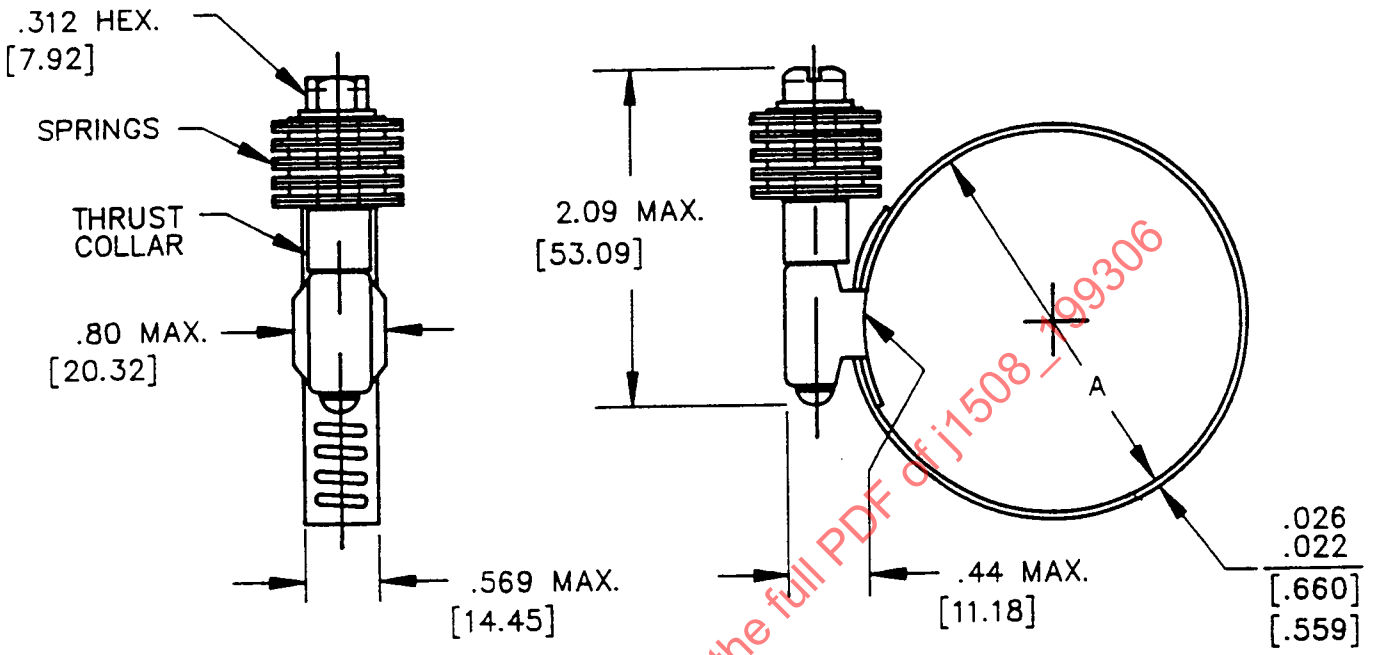


FIGURE 19—TYPE "SLF"—INCH [METRIC]

3.3.3 **"SLHD"**—Basic type "HD" clamp modified to incorporate a stack of conical spring washers for energy storage. See Figure 11 and Table 14.

3.3.4 **"T"**—Basic type "F" clamp utilizing a convoluted and heat-treated band for energy storage and a full, flanged inner shield. See Figures 20 and 21 and Table 21.

3.3.5 **"SLTB"**—Basic type "TB" with a coil spring for energy storage. See Figures 12 and 13 and Table 15.

4. General Requirements

4.1 Group #1—Clamps shall be supplied in the full open position. Those clamps using machine screws shall have the screws retained in the clamp by staking or other means agreeable to the user. Where so specified by the purchaser, types "B" and "D" clamps shall have provisions to retain the nut in base leg when axial pressure is applied to screw. All clamps shall close tight upon round steel mandrels of the sizes 4.1 indicated in the respective open and closed diameter charts. All clamps shall be free from burrs, seams, laps, loose scale, or any other defects that may affect their serviceability.

4.2 Group #2—Clamps type "E" and "CTW" shall be supplied in the free state, full-closed position. To assure that permanent deformation, resulting from opening the clamp at installation, does not occur—clamps shall be opened to a diameter no larger than that listed in column "A" (for each respective clamp type) and released to the free state at which point the clamps may not pass over a "NO-GO" size mandrel as listed in column "D," respectively. Clamps shall be free of burrs, heat-treat scale, and nicks that may affect their serviceability.

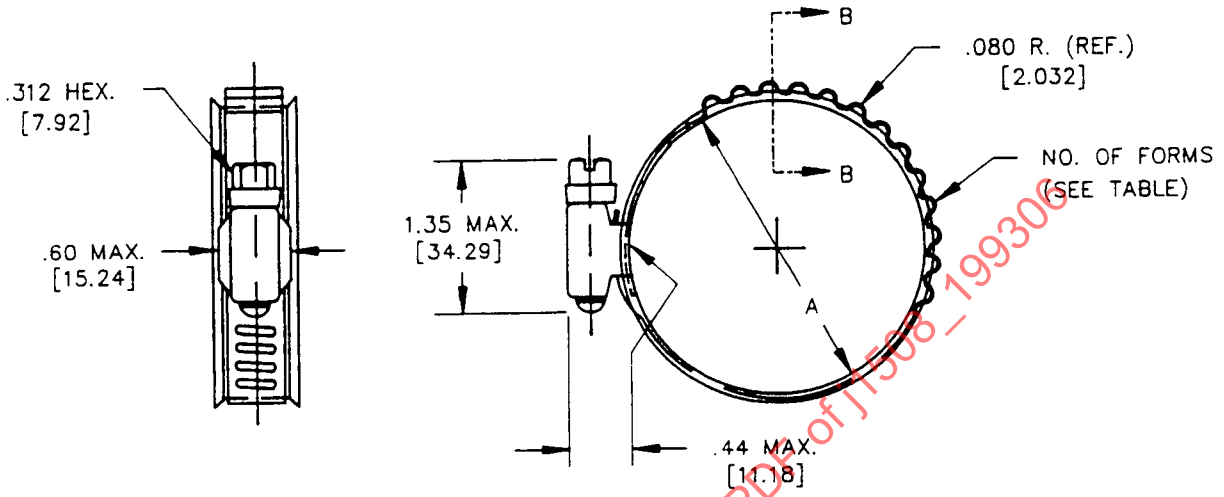
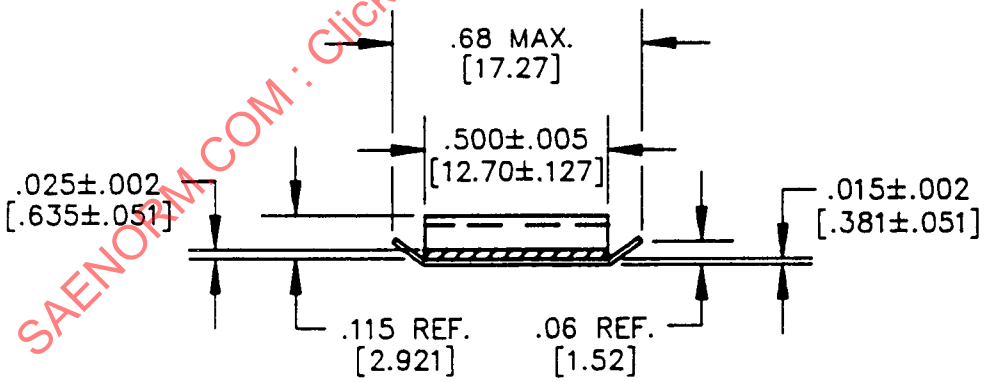


FIGURE 20—TYPE "T"



SECT. B–B
SCALE: 2:1

FIGURE 21—TYPE "T"—INCH [METRIC]

TABLE 21—TYPE "T"

SAE SIZE NO.	"A" DIAMETER MAX.	"A" DIAMETER MIN.	NO. SLOTS	NO. FORMS
20	1.75 [44.45]	1.37 [34.80]	24	9
24	2.00 [50.80]	1.56 [39.62]	26	11
28	2.25 [57.15]	1.63 [41.40]	32	12
32	2.50 [63.50]	1.80 [45.72]	34	14
36	2.75 [69.85]	1.97 [50.04]	37	14
40	3.00 [76.20]	2.25 [57.15]	37	19
44	3.25 [82.55]	2.50 [63.50]	37	19
48	3.50 [88.90]	2.75 [69.85]	37	22
		2.53 [64.26]	48	
52	3.75 [95.25]	3.00 [76.20]	37	22
		2.64 [67.06]	48	
56	4.00 [101.60]	3.25 [82.55]	37	22
		2.89 [73.41]	48	
60	4.25 [107.95]	3.50 [88.90]	37	22
		3.14 [79.76]	48	
64	4.50 [114.30]	3.75 [95.25]	37	22
		3.39 [86.11]	48	
68	4.75 [120.65]	4.00 [101.60]	37	22
		3.64 [92.46]	48	
72	5.00 [127.00]	4.25 [107.95]	37	22
		3.89 [124.21]	48	
76	5.25 [133.35]	4.50 [114.30]	37	22
		4.14 [105.16]	48	

SAE SIZE NO.	"A" DIAMETER MAX.	"A" DIAMETER MIN.	NO. SLOTS	NO. FORMS
80	5.50 [139.70]	4.75 [120.65]	37	22
		4.39 [111.51]	48	
84	5.75 [146.05]	5.00 [127.00]	37	22
		4.64 [117.86]	48	
88	6.00 [152.40]	5.25 [133.35]	37	22
		4.89 [124.21]	48	
92	6.25 [158.75]	5.50 [139.70]	37	22
		5.14 [130.56]	48	
96	6.50 [165.10]	5.75 [146.05]	37	22
		5.39 [136.91]	48	
100	6.75 [171.45]	6.00 [152.40]	37	22
		5.64 [143.26]	48	
104	7.00 [177.80]	6.25 [158.75]	37	22
		5.89 [175.01]	48	
108	7.25 [184.15]	6.50 [165.10]	37	22
		6.14 [155.96]	48	
112	7.50 [190.50]	6.75 [171.45]	37	22
		6.39 [162.31]	48	
116	7.75 [196.85]	7.00 [177.80]	37	22
		6.64 [168.66]	48	
120	8.00 [203.20]	7.25 [184.15]	37	22
		6.89 [175.01]	48	

NOTES:

1. SIZES LESS THAN NO. 20 ARE NOT AVAILABLE.
2. OTHER SIZES AVAILABLE THROUGH MANUFACTURERS — FOLLOW TYPE "F" FOR STANDARD SIZE INCREMENTS.

4.2.1 Type "CTB" clamps may be supplied in either the free-state (Table 18) or a locked, spring-loaded, full-opened position (Figure 16, b and c). The clamp shall be designed so as not to allow plastic deformation in the full-opened position. Clamps shall be free from burrs, seams, laps, loose scale, or any other defects that affect their performance.

4.3 Group #3—Clamps are governed by the General Requirements set forth for Group #1 clamps in 4.1.

5. Materials

5.1 Materials—Group #1

5.1.1 TYPES "A" AND "AHH"

5.1.1.1 Wire—UNS-G10080, AISI 1008—G10100, 1010 steel, 60 to 80 KSI typical.

5.1.1.2 Nut—UNS-G10200, AISI 1020 steel, Rb85-100.

5.1.1.3 Screw—UNS-G10200, AISI 1022, heat-treated Rc30-40.

5.1.2 TYPES "B" AND "D"

5.1.2.1 Entire Clamp—UNS-G10100, AISI 1010 steel.

5.1.2.2 Entire Clamp—UNS-S30400, AISI 304 stainless (metric sizes per Figure 3A).

5.1.3 TYPE "C"

5.1.3.1 Band—UNS-G10100, AISI 1010 steel, except sizes #13 through #21, 22S, 23, 24S, 25, and 26S which are stainless steel grade.

5.1.3.2 Nut—Same as band (5.1.3.1) at manufacturer's option.

5.1.3.3 Screw—Same as band (5.1.3.1) at manufacturer's option.

5.1.3.4 Bridge—Same as band (5.1.3.1).

5.1.4 TYPES "F," "FEO," "FE," "HD," "I," "M," AND "MX"

5.1.4.1 Band—UNS-S20100, AISI Austenitic stainless grades 201; S30100, 301; S30200, 302; S30400, 304; and S31600, 316; S43000, AISI Ferritic stainless grade 430; and heat-treated medium carbon steel.

5.1.4.2 Housing—Same as band, except unheat-treated carbon steel.

5.1.4.3 Saddle—Same as band, plus grade UNS-S30200, 302 stainless.

5.1.4.4 Screw—UNS-G10060, AISI 1006—G10180, 1018; and G10211 10B21 carbon steels; S41000, AISI grades 410; S43000, 430; S30200, 302; S30400, 304; S30550, 305; and S31600, 316 stainless steels.

5.1.5 TYPE "TB"

5.1.5.1 Band—UNS-S20100, AISI 201; S30100, 301; S30200, 302; or S30400, 304 stainless steel; half hard temper.

5.1.5.2 *Bridge*—UNS-S30100, AISI 301; S30200, 302; S30400, 304; stainless steel, annealed, 1/4 hard, or 1/2 hard temper.

5.1.5.3 *Trunnion*—Low carbon steel cadmium plated or stainless steel (same grades as for "bridge").

5.1.5.4 *Nut*—UNS-G10200, AISI 1020—G10500, 1050 steel, cadmium or zinc plated.

5.1.5.5 *T-Bolt*

5.1.5.5.1 UNS-G40370, AISI 4037 alloy steel, heat-treated to 125 KSI minimum, cadmium or zinc plated.

5.1.5.5.2 UNS-S43100, AISI 431 stainless steel, heat-treated to 125 KSI minimum.

5.1.5.5.3 UNS-S66286, AISI A286 stainless steel, 130 KSI minimum.

5.1.5.5.4 UNS-S30200, AISI 302; or S30500, 305 stainless steel, 95 KSI minimum.

5.1.5.5.5 UNS-G10220, AISI 1022; UNS-G10380, AISI 1038 steel, cadmium or zinc plated, 120 KSI minimum.

5.2 Material—Group #2

5.2.1 TYPE "E"—UNS-G10650, SAE 1065—G10800, 1080 carbon steels; or S17700, AISI 17-7 PH stainless steel; both are heat-treated to a minimum Rockwell hardness of Rc50 to meet the performance and ductility requirements specified in Section 12.

5.2.2 TYPE "CTB"—Carbon steel or alloyed spring steels, heat-treated to Rc47-53 (mean of Rc50) to meet the performance requirements specified in Section 12.

5.2.3 TYPE "CTW"—Carbon or stainless steel as follows:

5.2.3.1 *UNS-G10700, SAE 1070*—G10850, 1085 carbon steel wire; pre-hardened to Rc50, then stress relieved after forming.

5.2.3.2 *UNS-S17700*—AISI 17-7PH stainless steel heat-treated to condition "C" by aging 1 h at 900 °F.

5.3 Material—Group #3

5.3.1 TYPES "SLA," "SLF," AND "SLHD"

5.3.1.1 *Spring Washers*

5.3.1.1.1 UNS-G10500-G10950—AISI 1050-1095 steel, heat-treated to Rc42-50.

5.3.1.1.2 UNS-G30100—AISI 301 steel, stainless, full hard.

5.3.1.2 *Spacer*—Steel, aluminum, stainless steel as supplied or furnished by manufacturer.

5.3.1.3 *Remainder of Clamp*—Same as Group #1—types "A," "F," and "HD," respectively.

5.3.2 TYPE "T"

5.3.2.1 *Band*—AISI 450 stainless, heat-treated Rc40-46. (No UNS number.)