# SURFACE VEHICLE STANDARD

| J1508™ | JAN2023 |
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Issued 1987-06
Revised 2023-01

Superseding J1508 MAR2009

# Hose Clamp Specifications

RATIONALE

This SAE Standard is being updated to reflect current manufacturing practices and application needs. Changes to the document include:

- Term change of “ultimate torque” to “destructive torque” to better represent the definition.
- Addition of finish requirements.
- Addition of an assembly torque speed recommendation.
- Removal of duplicated inch unit references (kept metric units).
- Removal of Table 23, which was a duplciate of Table 22 that uses metric values.
- Removal of 13.7.2, which discussed max installation torque for T-bolts.



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# 1. SCOPE

This SAE Standard covers 32 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.

For the benefit of the user in selecting appropriate products for their application, the committee has published ancillary documents that may assist you in this selection. The documents are SAE J1610, SAE J1697, and TMC RP 332.

# 2. REFERENCES

## 2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

### 2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

| | |
|---|---|
| SAE J178 | Music Steel Spring Wire and Springs |
| SAE J402 | New Steel Designation System for Wrought or Rolled Steel |
| SAE J478 | Slotted and Recessed Head Screws |
| SAE J1086 | Numbering Metals and Alloys |
| SAE J1610 | Test Method for Evaluating the Sealing Capability of Hose Connections with a PVT Test Facility |
| SAE J1697 | Recommended Practices for Design and Evaluation of Passenger and Light Truck Coolant Hose Clamped Joints |

### 2.1.2 ANSI Accredited and IFI Publications

Copies of these documents are available online at https://webstore.ansi.org/.

| | |
|---|---|
| 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 |

### 2.1.3 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

| | |
|---|---|
| ASTM A228 | Standard Specification for Steel Wire, Music Spring Quality |
| ASTM A525 | Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process |
| ASTM B117 | Standard Method of Salt Spray (Fog) Testing |

2.1.4 U.S. Government Publications

Copies of these documents are available online at https://quicksearch.dla.mil.

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 AISI Publications

Available from American Iron and Steel Institute, 25 Massachusetts Avenue, NW, Suite 800, Washington, DC 20001, Tel: 202-452-7100, www.steel.org.

AISI Material Standards

NOTE: If specifications referred to in this document are no longer available through AISI, cross reference them to the SAE “J” standards in 2.2.1.

2.1.6 TMC Publications

Available from the Technology and Maintenance Council, American Trucking Associations, 2200 Mill Road, Alexandria, VA 22314, Tel: (703) 838-1700, www.truckline.com.

TMC RP 332 Guidelines for Hose, Clamps, and Fittings for Cooling and Charge Air-Cooling Systems

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J403 Chemical Compositions of SAE Carbon Steels

SAE J404 Chemical Compositions of SAE Alloy Steels

SAE J405 Chemical Compositions of SAE Wrought Stainless Steels

3. DEFINITIONS

3.1 FREE TORQUE

The torque value expressed in newton meters 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.

3.2 DURABILITY TORQUE

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

3.3 INSTALLATION TORQUE

The recommended torque for installation of the clamp. This is generally expressed in terms of 50 to 75% of the rated destructive torque for specific clamps. Installation torque is sometimes referred to as application torque.

3.4 DESTRUCTIVE TORQUE

The torque value at which the clamp develops deformation over a steel mandrel to a degree that it cannot be reused or no longer achieves its intended use.

4. FINISH REQUIREMENT

4.1 Parts manufactured to this document beginning April 1, 2023, shall meet the following requirements. Statements in subsequent finish clauses for individual groupings within this document may provide additional information or information for parts manufactured prior to April 1, 2023.

4.2 The external surfaces and threads of all carbon steel parts shall be plated or coated with a suitable material that passes a salt spray test in accordance with ISO 9227 or ASTM B117.

4.3 No appearance of corrosion products of the base metal before 72 hours.

4.4 The following exceptions shall apply:

a. Edges such as hex points, serrations, and crests of threads where there can be mechanical deformation of the plating or coating typical of mass-produced parts or shipping effects.

b. Areas where there is mechanical deformation of the plating or coating caused by crimping, flaring, bending, and other post-plate metal forming operations.

c. Areas where the parts are suspended or affixed in the test chamber where condensate can accumulate.

4.5 Parts manufactured to this standard shall not be cadmium plated and shall not use hexavalent chromate coatings. Internal fluid passages shall be protected from corrosion during storage and shipping. Changes in plating or coating shall be re-qualified to ensure assembly torque is not affected.

5. ASSEMBLY TORQUE SPEED RECOMMENDATION

It is recommended to use a torque gun with a spindle speed less than 200 rpm. A typical method is to have an initial spindle speed less than 200 rpm and then reduce to less than 20 rpm for the final tightening. Hand tools used manually comply with the recommendation.

6. CLASSIFICATION

For ease of handling the various clamp designs and modifications thereof, clamps have been grouped by their basic design and functional characteristics:

6.1 Group #1 (Types “A,” “AHH,” “B,” “D,” “C,” “F,” “FEO,” “FE,” “HD,” “I,” “M,” “MX,” “TB,” “SSC,” and “G”)

Clamps which require torquing a screw or nut for installation.

6.1.1 “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 1A and 1B.

6.1.2 “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, 3A, and 3B and Tables 2, 3A, and 3B.

6.1.3 “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 4A and 4B.

6.1.4 “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.

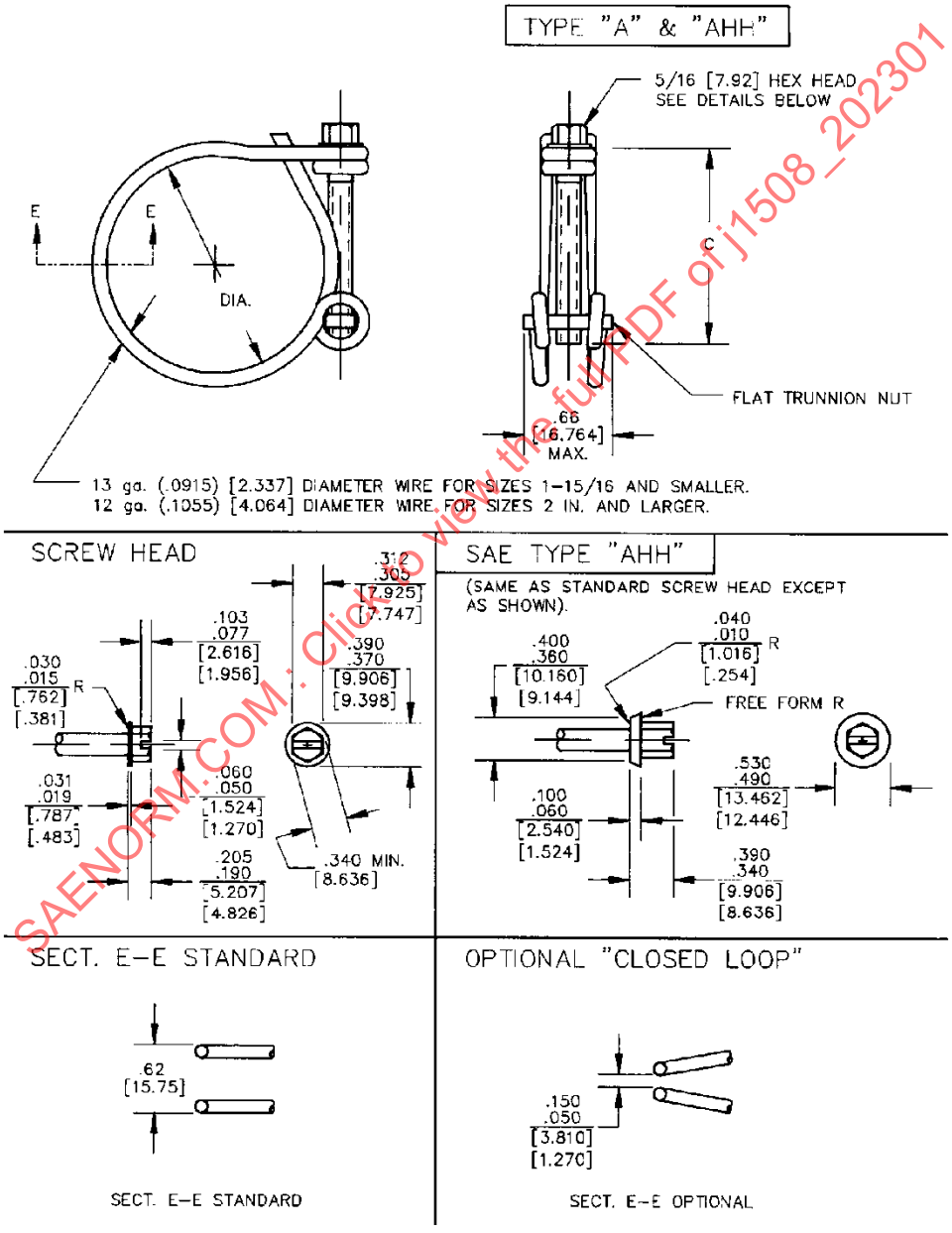





***Figure 1 - Basic envelope drawing, inch (mm)***

***Table 1A - Types "A," "AHH," and "SLA" (metric)***

| SAE Size No. | Open Dia mm | Closed Dia mm | Adjust Range mm | Screw Length mm | SAE Size No. | Open Dia mm | Closed Dia mm | Adjust Range mm | Screw Length mm |
|---|---|---|---|---|---|---|---|---|---|
| 16 | 12.70 | 11.18 | 1.52 | 21.59 | | 52.07 | 45.97 | 6.10 | 37.59 |
| 18 | 14.22 | 12.19 | 2.03 | 21.59 | 66 | 52.32 | 47.75 | 4.57 | 37.59 |
| 20 | 15.75 | 13.97 | 1.78 | 21.59 | 68 | 53.85 | 49.28 | 4.57 | 37.59 |
| 22 | 17.53 | 14.73 | 2.79 | 21.59 | | 53.85 | 48.51 | 5.33 | 37.59 |
| 24 | 19.05 | 16.26 | 2.79 | 31.24 | | 54.61 | 49.28 | 5.33 | 37.59 |
| 26 | 20.57 | 17.53 | 3.05 | 31.24 | 70 | 55.63 | 50.04 | 5.59 | 37.59 |
| 28 | 22.35 | 19.05 | 3.30 | 31.24 | | 55.88 | 50.29 | 5.59 | 37.59 |
| | 23.11 | 19.81 | 3.30 | 31.24 | | 55.88 | 49.53 | 6.35 | 43.94 |
| 30 | 23.88 | 20.57 | 3.30 | 31.24 | 72 | 57.15 | 51.56 | 5.59 | 37.59 |
| | 24.64 | 21.34 | 3.30 | 31.24 | | 56.39 | 49.96 | 6.35 | 43.94 |
| | 25.15 | 21.34 | 3.81 | 31.24 | | 56.39 | 50.29 | 6.10 | 37.59 |
| 32 | 25.40 | 22.35 | 3.05 | 31.24 | | 57.15 | 51.56 | 5.69 | 37.59 |
| | 26.16 | 23.11 | 3.05 | 31.24 | | 57.15 | 50.80 | 6.35 | 43.94 |
| 34 | 26.92 | 23.88 | 3.05 | 31.24 | 74 | 58.67 | 53.85 | 4.83 | 37.59 |
| | 27.69 | 24.38 | 3.30 | 31.24 | | 58.67 | 52.32 | 6.35 | 43.94 |
| | 28.20 | 24.38 | 3.81 | 31.24 | | 60.20 | 54.61 | 5.59 | 43.94 |
| 36 | 28.45 | 24.13 | 4.32 | 31.24 | 76 | 60.45 | 55.63 | 4.83 | 37.59 |
| | 28.96 | 25.65 | 3.30 | 31.24 | | 60.96 | 55.37 | 5.59 | 37.59 |
| | 29.21 | 25.91 | 3.30 | 31.24 | 78 | 61.98 | 57.15 | 4.83 | 37.59 |
| 38 | 30.23 | 26.92 | 3.30 | 31.24 | 80 | 63.50 | 57.91 | 5.59 | 37.59 |
| | 30.48 | 27.18 | 3.30 | 31.24 | 82 | 65.02 | 59.44 | 5.59 | 37.59 |
| | 30.99 | 27.69 | 3.30 | 31.24 | 84 | 66.55 | 61.21 | 5.33 | 37.59 |
| 40 | 31.75 | 27.69 | 4.06 | 31.24 | 86 | 68.33 | 62.74 | 5.59 | 37.59 |
| | 32.51 | 27.94 | 4.57 | 37.59 | 88 | 69.85 | 64.26 | 5.59 | 37.59 |
| 42 | 33.27 | 29.46 | 3.81 | 31.24 | 90 | 71.37 | 65.79 | 5.59 | 37.59 |
| 44 | 35.05 | 30.23 | 4.83 | 31.24 | | 72.14 | 66.55 | 5.59 | 37.59 |
| 46 | 36.58 | 31.75 | 4.83 | 31.24 | 92 | 73.15 | 67.56 | 5.59 | 37.59 |
| 48 | 38.10 | 33.27 | 4.83 | 31.24 | 94 | 74.68 | 69.09 | 5.59 | 37.59 |
| 50 | 39.62 | 35.05 | 4.57 | 31.24 | 96 | 76.20 | 70.61 | 5.59 | 37.59 |
| | 39.62 | 34.29 | 5.33 | 37.59 | 98 | 77.72 | 72.14 | 5.59 | 37.59 |
| 52 | 41.15 | 36.58 | 4.57 | 31.24 | 100 | 79.25 | 73.91 | 5.33 | 37.59 |
| | 41.66 | 35.31 | 6.35 | 37.59 | 102 | 81.03 | 75.44 | 5.59 | 37.59 |
| | 42.42 | 36.25 | 6.10 | 43.94 | 104 | 82.55 | 76.96 | 5.59 | 37.59 |
| | 42.67 | 36.32 | 6.35 | 43.94 | | 83.31 | 77.72 | 5.59 | 37.59 |
| 54 | 42.93 | 38.10 | 4.83 | 31.24 | 106 | 84.07 | 78.49 | 5.59 | 37.59 |
| | 42.93 | 37.08 | 5.84 | 37.59 | 108 | 85.85 | 80.26 | 5.59 | 37.59 |
| | 43.18 | 37.34 | 5.84 | 37.59 | 110 | 87.38 | 81.79 | 5.59 | 37.59 |
| | 43.43 | 37.01 | 6.35 | 43.94 | 112 | 88.90 | 82.55 | 6.35 | 43.94 |
| | 43.69 | 38.10 | 5.59 | 37.59 | 114 | 90.42 | 84.07 | 6.35 | 43.94 |
| | 44.20 | 38.10 | 6.10 | 43.94 | 116 | 91.95 | 85.85 | 6.10 | 43.94 |
| 56 | 44.45 | 39.62 | 4.83 | 37.59 | 118 | 93.73 | 87.38 | 6.35 | 43.94 |
| | 44.45 | 38.86 | 5.59 | 37.59 | 120 | 95.25 | 88.90 | 6.35 | 43.94 |
| | 44.70 | 38.35 | 6.35 | 43.94 | 122 | 96.77 | 90.42 | 6.35 | 43.94 |
| | 45.72 | 39.62 | 6.10 | 37.59 | 124 | 98.55 | 91.95 | 6.35 | 43.94 |
| 58 | 45.97 | 41.15 | 4.83 | 37.59 | 126 | 100.08 | 93.73 | 6.35 | 43.94 |
| | 46.74 | 41.91 | 4.83 | 37.59 | 128 | 101.60 | 95.25 | 6.35 | 43.94 |

| SAE Size No. | Open Dia mm | Closed Dia mm | Adjust Range mm | Screw Length mm | SAE Size No. | Open Dia mm | Closed Dia mm | Adjust Range mm | Screw Length mm |
|---|---|---|---|---|---|---|---|---|---|
| | 46.74 | 41.15 | 5.59 | 37.59 | 130 | 103.12 | 96.77 | 6.35 | 43.94 |
| | 46.99 | 41.15 | 5.84 | 37.59 | 132 | 104.65 | 98.55 | 6.10 | 43.94 |
| 60 | 47,75 | 42.93 | 4.83 | 37.59 | 134 | 106.43 | 100.08 | 6.35 | 43.94 |
| | 47.75 | 41.40 | 6.35 | 43.94 | 136 | 107.95 | 101.60 | 6.35 | 43.94 |
| | 48.01 | 41.61 | 6.35 | 43.94 | 138 | 109.47 | 103.12 | 6.35 | 43.94 |
| | 48.51 | 43.69 | 4.83 | 37.59 | 140 | 111.25 | 104.65 | 6.60 | 43.94 |
| | 48.51 | 42.93 | 5.59 | 37.59 | 142 | 112.78 | 106.43 | 6.35 | 43.94 |
| 62 | 49.28 | 44.45 | 4.83 | 37.59 | 144 | 114.30 | 107.95 | 6.35 | 43.94 |
| | 49.28 | 43.69 | 5.59 | 37.59 | 146 | 115.82 | 109.47 | 6.35 | 43.94 |
| | 49.28 | 42.93 | 6.35 | 43.94 | 148 | 117.35 | 111.25 | 6.10 | 43.94 |
| | 49.78 | 43.31 | 6.35 | 43.94 | 150 | 119.13 | 112.78 | 6.35 | 43.94 |
| | 49.78 | 43.94 | 5.84 | 37.59 | 152 | 120.65 | 114.30 | 6.35 | 43.94 |
| | 50.29 | 43.94 | 6.35 | 43.94 | 154 | 122.17 | 115.82 | 6.35 | 43.94 |
| 64 | 50.80 | 45.97 | 4.83 | 37.59 | 156 | 123.95 | 117.35 | 6.60 | 43.94 |
| | 50.80 | 45.21 | 5.59 | 37.59 | 158 | 125.48 | 119.13 | 6.35 | 43.94 |
| | 50.80 | 44.45 | 6.35 | 43.94 | 160 | 127.00 | 120.65 | 6.35 | 43.94 |
| | 51.56 | 45.47 | 6.10 | 43.94 | | | | | |

***Table 1B - Types "A," "AHH," and "SLA" (English)***

| SAE Size No. | Open Dia Inches | Closed Dia Inches | Adjust Range Inches | Screw Length Inches | SAE Size Inches | Open Dia Inches | Closed Dia Inches | Adjust Range Inches | Screw Length Inches |
|---|---|---|---|---|---|---|---|---|---|
| 16 | 0.50 | 0.440 | 0.06 | 0.85 | | 2.05 | 1.810 | 0.24 | 1.48 |
| 18 | 0.56 | 0.480 | 0.08 | 0.85 | 66 | 2.06 | 1.880 | 0.18 | 1.48 |
| 20 | 0.62 | 0.550 | 0.07 | 0.85 | 68 | 2.12 | 1.940 | 0.18 | 1.48 |
| 22 | 0.69 | 0.580 | 0.11 | 0.85 | | 2.12 | 1.910 | 0.21 | 1.48 |
| 24 | 0.75 | 0.640 | 0.11 | 1.23 | | 2.15 | 1.940 | 0.21 | 1.48 |
| 26 | 0.81 | 0.690 | 0.12 | 1.23 | 70 | 2.19 | 1.970 | 0.22 | 1.48 |
| 28 | 0.88 | 0.750 | 0.13 | 1.23 | | 2.20 | 1.980 | 0.22 | 1.48 |
| | 0.91 | 0.780 | 0.13 | 1.23 | | 2.20 | 1.950 | 0.25 | 1.73 |
| 30 | 0.94 | 0.810 | 0.13 | 1.23 | 72 | 2.22 | 1.967 | 0.25 | 1.73 |
| | 0.97 | 0.840 | 0.13 | 1.23 | | 2.22 | 1.980 | 0.24 | 1.48 |
| | 0.99 | 0.840 | 0.15 | 1.23 | | 2.25 | 2.030 | 0.22 | 1.48 |
| 32 | 1.00 | 0.880 | 0.12 | 1.23 | | 2.25 | 2.030 | 0.22 | 1.48 |
| | 1.03 | 0.910 | 0.12 | 1.23 | | 2.25 | 2.000 | 0.25 | 1.73 |
| 34 | 1.06 | 0.940 | 0.12 | 1.23 | 74 | 2.31 | 2.120 | 0.19 | 1.48 |
| | 1.09 | 0.960 | 0.13 | 1.23 | | 2.31 | 2.060 | 0.25 | 1.73 |
| | 1.11 | 0.960 | 0.15 | 1.23 | | 2.37 | 2.150 | 0.22 | 1.48 |
| 36 | 1.12 | 0.950 | 0.17 | 1.23 | 76 | 2.38 | 2.190 | 0.19 | 1.48 |
| | 1.14 | 1.010 | 0.13 | 1.23 | | 2.40 | 2.180 | 0.22 | 1.48 |
| | 1.15 | 1.020 | 0.13 | 1.23 | 78 | 2.44 | 2.250 | 0.19 | 1.48 |
| 38 | 1.19 | 1.060 | 0.13 | 1.23 | 80 | 2.50 | 2.280 | 0.22 | 1.48 |
| | 1.20 | 1.070 | 0.13 | 1.23 | 82 | 2.56 | 2.340 | 0.22 | 1.48 |
| | 1.22 | 1.090 | 0.13 | 1.23 | 84 | 2.62 | 2.410 | 0.21 | 1.48 |
| 40 | 1.25 | 1.090 | 0.16 | 1.23 | 86 | 2.69 | 2.470 | 0.22 | 1.48 |
| | 1.28 | 1.100 | 0.18 | 1.48 | 88 | 2.75 | 2.530 | 0.22 | 1.48 |
| 42 | 1.31 | 1.160 | 0.15 | 1.23 | 90 | 2.81 | 2.590 | 0.22 | 1.48 |
| 44 | 1.38 | 1.190 | 0.19 | 1.23 | | 2.84 | 2.620 | 0.22 | 1.48 |
| 46 | 1.44 | 1.250 | 0.19 | 1.23 | 92 | 2.88 | 2.660 | 0.22 | 1.48 |

| SAE Size No. | Open Dia Inches | Closed Dia Inches | Adjust Range Inches | Screw Length Inches | SAE Size Inches | Open Dia Inches | Closed Dia Inches | Adjust Range Inches | Screw Length Inches |
|---|---|---|---|---|---|---|---|---|---|
| 48 | 1.50 | 1.310 | 0.19 | 1.23 | 94 | 2.94 | 2.720 | 0.22 | 1.48 |
| 50 | 1.56 | 1.380 | 0.18 | 1.23 | 96 | 3.00 | 2.780 | 0.22 | 1.48 |
| | 1.56 | 1.350 | 0.21 | 1.48 | 98 | 3.06 | 2.840 | 0.22 | 1.48 |
| 52 | 1.62 | 1.440 | 0.18 | 1.23 | 100 | 3.12 | 2.910 | 0.21 | 1.48 |
| | 1.64 | 1.390 | 0.25 | 1.48 | 102 | 3.19 | 2.970 | 0.22 | 1.48 |
| | 1.67 | 1.427 | 0.24 | 1.73 | 104 | 3.25 | 3.030 | 0.22 | 1.48 |
| | 1.68 | 1.430 | 0.25 | 1.73 | | 3.28 | 3.060 | 0.22 | 1.48 |
| 54 | 1.69 | 1.500 | 0.19 | 1.23 | 106 | 3.31 | 3.090 | 0.22 | 1.48 |
| | 1.69 | 1.460 | 0.23 | 1.48 | 108 | 3.38 | 3.160 | 0.22 | 1.48 |
| | 1.70 | 1.470 | 0.23 | 1.48 | 110 | 3.44 | 3.220 | 0.22 | 1.48 |
| | 1.71 | 1.457 | 0.25 | 1.73 | 112 | 3.50 | 3.250 | 0.25 | 1.73 |
| | 1.72 | 1.500 | 0.22 | 1.48 | 114 | 3.56 | 3.310 | 0.25 | 1.73 |
| | 1.74 | 1.500 | 0.24 | 1.73 | 116 | 3.62 | 3.380 | 0.24 | 1.73 |
| 56 | 1.75 | 1.560 | 0.19 | 1.48 | 118 | 3.69 | 3.440 | 0.25 | 1.73 |
| | 1.75 | 1.530 | 0.22 | 1.48 | 120 | 3.75 | 3.500 | 0.25 | 1.73 |
| | 1.76 | 1.510 | 0.25 | 1.73 | 122 | 3.81 | 3.560 | 0.25 | 1.73 |
| | 1.80 | 1.560 | 0.24 | 1.48 | 124 | 3.88 | 3.620 | 0.26 | 1.73 |
| 58 | 1.81 | 1.620 | 0.19 | 1.48 | 126 | 3.94 | 3.690 | 0.25 | 1.73 |
| | 1.84 | 1.650 | 0.19 | 1.48 | 128 | 4.00 | 3.750 | 0.25 | 1.73 |
| | 1.84 | 1.620 | 0.22 | 1.48 | 130 | 4.06 | 3.810 | 0.25 | 1.73 |
| | 1.85 | 1.620 | 0.23 | 1.48 | 132 | 4.12 | 3.880 | 0.24 | 1.73 |
| 60 | 1.88 | 1.690 | 0.19 | 1.48 | 134 | 4.19 | 3.940 | 0.25 | 1.73 |
| | 1.88 | 1.630 | 0.25 | 1.73 | 136 | 4.25 | 4.000 | 0.25 | 1.73 |
| | 1.89 | 1.638 | 0.25 | 1.73 | 138 | 4.31 | 4.060 | 0.25 | 1.73 |
| | 1.91 | 1.720 | 0.19 | 1.48 | 140 | 4.38 | 4.120 | 0.26 | 1.73 |
| | 1.91 | 1.690 | 0.22 | 1.48 | 142 | 4.44 | 4.190 | 0.25 | 1.73 |
| 62 | 1.94 | 1.750 | 0.19 | 1.48 | 144 | 4.50 | 4.250 | 0.25 | 1.73 |
| | 1.94 | 1.720 | 0.22 | 1.48 | 146 | 4.56 | 4.310 | 0.25 | 1.73 |
| | 1.94 | 1.690 | 0.25 | 1.73 | 148 | 4.62 | 4.380 | 0.24 | 1.73 |
| | 1.96 | 1.705 | 0.25 | 1.73 | 150 | 4.69 | 4.440 | 0.25 | 1.73 |
| | 1.96 | 1.730 | 0.23 | 1.48 | 152 | 4.75 | 4.500 | 0.25 | 1.73 |
| | 1.98 | 1.730 | 0.25 | 1.73 | 154 | 4.81 | 4.560 | 0.25 | 1.73 |
| 64 | 2.00 | 1.810 | 0.19 | 1.48 | 156 | 4.88 | 4.620 | 0.26 | 1.73 |
| | 2.00 | 1.780 | 0.22 | 1.48 | 158 | 4.94 | 4.690 | 0.25 | 1.73 |
| | 2.00 | 1.750 | 0.25 | 1.73 | 160 | 5.00 | 4.750 | 0.25 | 1.73 |
| | 2.03 | 1.790 | 0.24 | 1.73 | | | | | |

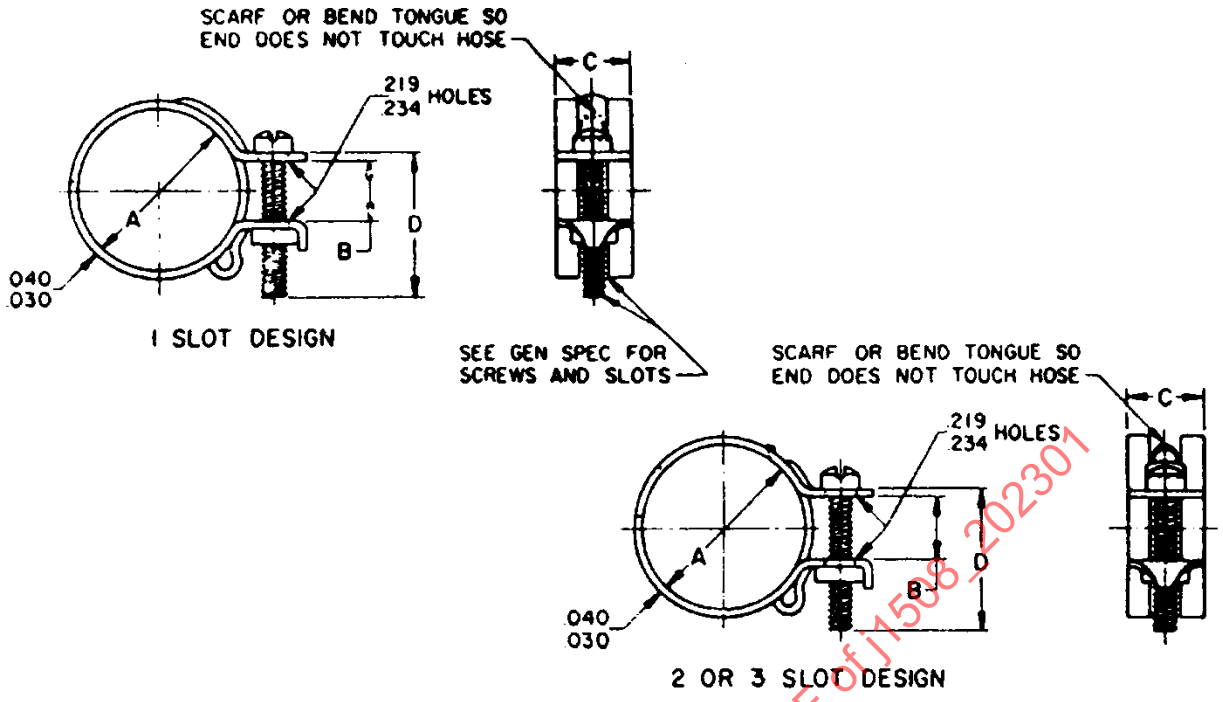



***Figure 2 - Dimensions of Type "B" hose clamps***

***Table 2 - Dimensions of Type "B" hose clamps, inch***

| SAE Size No. | A Dia Nom | A Dia Open | A Dia Closed | B[1] Gap | C Band Width ±0.01 | D Screw Length Min | SAE Size No. | A Dia Nom | A Dia Open | A Dia Closed | B[1] Gap | C Band Width ±0.01 | D Screw Length Min |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 0.50 | 0.58 | 0.44 | 0.38 | 0.50[2] | 1.00 | 58 | 1.75 | 1.83 | 1.64 | 0.50 | 0.623 | 1.12 |
| 20 | 0.56 | 0.64 | 0.48 | 0.38 | 0.50[2] | 1.00 | 60 | 1.81 | 1.89 | 1.70 | 0.50 | 0.623 | 1.12 |
| 22 | 0.62 | 0.70 | 0.55 | 0.38 | 0.50[2] | 1.00 | 62 | 1.88 | 1.95 | 1.77 | 0.50 | 0.623 | 1.12 |
| 24 | 0.69 | 0.77 | 0.61 | 0.38 | 0.50[2] | 1.00 | 64 | 1.94 | 2.02 | 1.83 | 0.50 | 0.623 | 1.12 |
| 26 | 0.75 | 0.83 | 0.67 | 0.38 | 0.50[2] | 1.00 | 67 | 2.03 | 2.11 | 1.92 | 0.50 | 0.623 | 1.12 |
| 28 | 0.81 | 0.89 | 0.73 | 0.38 | 0.50[2] | 1.00 | | | | | | | |
| 30 | 0.88 | 0.95 | 0.80 | 0.38 | 0.50[2] | 1.00 | 70 | 2.12 | 2.20 | 2.02 | 0.50 | 0.623 | 1.12 |
| 32 | 0.94 | 1.02 | 0.86 | 0.38 | 0.50[2] | 1.00 | 72 | 2.19 | 2.27 | 2.08 | 0.50 | 0.623 | 1.12 |
| 35 | 1.03 | 1.11 | 0.95 | 0.38 | 0.50[2] | 1.00 | 75 | 2.28 | 2.36 | 2.17 | 0.50 | 0.623 | 1.12 |
| 36 | 1.06 | 1.14 | 0.98 | 0.38 | 0.50[2] | 1.00 | 79 | 2.38 | 2.48 | 2.27 | 0.50 | 0.623 | 1.25 |
| 38 | 1.12 | 1.20 | 1.02 | 0.38 | 0.50[2] | 1.12 | 83 | 2.50 | 2.61 | 2.39 | 0.50 | 0.623 | 1.25 |
| 40 | 1.19 | 1.27 | 1.08 | 0.50 | 0.50[2] | 1.12 | 88 | 2.62 | 2.75 | 2.52 | 0.50 | 0.623 | 1.25 |
| 42 | 1.25 | 1.33 | 1.14 | 0.50 | 0.62[3] | 1.12 | 92 | 2.75 | 2.88 | 2.64 | 0.50 | 0.623 | 1.25 |
| 44 | 1.31 | 1.39 | 1.20 | 0.50 | 0.62[3] | 1.12 | 96 | 2.88 | 3.00 | 2.77 | 0.50 | 0.623 | 1.25 |
| 46 | 1.38 | 1.45 | 1.27 | 0.50 | 0.62[3] | 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[3] | 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[3] | 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[3] | 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[3] | 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[3] | 1.12 | | | | | | | |

(1) Reference dimension. When gap is at value tabulated, clamp diameter shall approximate the nominal diameter.
(2) 0.62 inch width optional with user.
(3) 0.50 inch width optional with user.

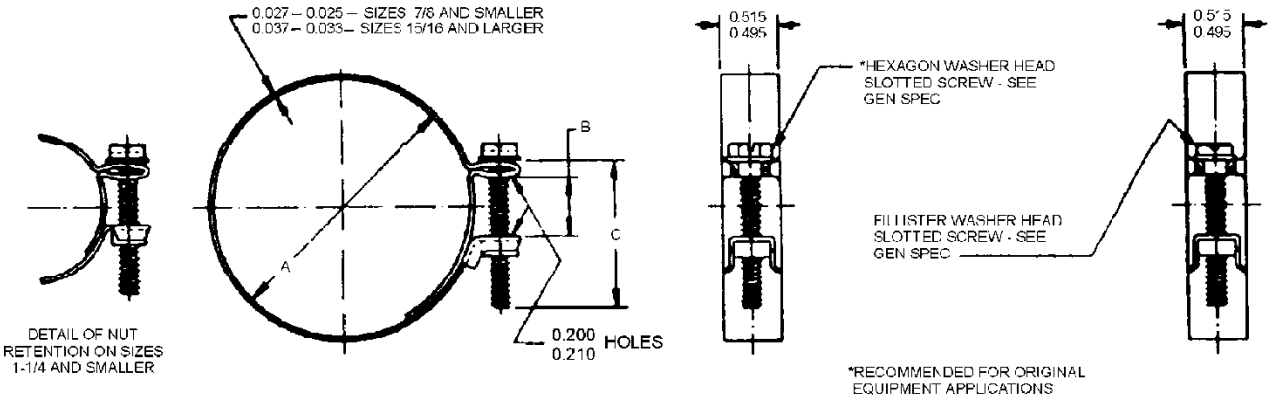



***Figure 3A - Type "D" hose clamps, inch (see Table 3A)***

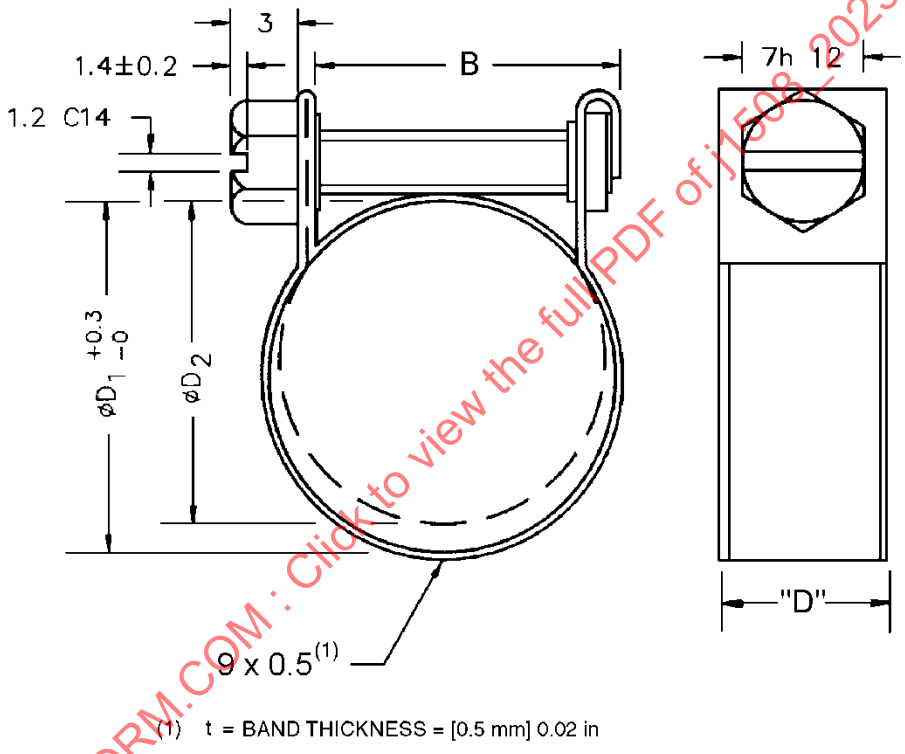



***Figure 3B - Type "D" (see Table 3B)***



***Table 3A - Dimensions of Type "D" hose clamps, inch (see Figure 3A)***

| SAE Size No. | A Dia Nom | A Dia Open | A Dia Closed | B Gap | C Screw Length Min | SAE Size No. | A Dia Nom | A Dia Open | A Dia Closed | B Gap | C Screw Length Min |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | 0.62 | 0.72 | 0.53 | 0.38 | 1.12 | 119 | 3.62 | 3.72 | 3.41 | 0.75 | 1.50 |
| 25 | 0.69 | 0.78 | 0.59 | 0.38 | 1.12 | 121 | 3.69 | 3.78 | 3.47 | 0.75 | 1.50 |
| 27 | 0.75 | 0.84 | 0.66 | 0.38 | 1.12 | 123 | 3.75 | 3.84 | 3.53 | 0.75 | 1.50 |
| 29 | 0.81 | 0.91 | 0.72 | 0.38 | 1.12 | 125 | 3.81 | 3.91 | 3.59 | 0.75 | 1.50 |
| 31 | 0.88 | 0.97 | 0.78 | 0.38 | 1.12 | 127 | 3.88 | 3.97 | 3.66 | 0.75 | 1.50 |
| 33 | 0.94 | 1.03 | 0.84 | 0.38 | 1.12 | 129 | 3.94 | 4.03 | 3.72 | 0.75 | 1.50 |
| 35 | 1.00 | 1.09 | 0.91 | 0.38 | 1.12 | 131 | 4.00 | 4.09 | 3.78 | 0.75 | 1.50 |
| 37 | 1.06 | 1.16 | 0.97 | 0.38 | 1.12 | 133 | 4.06 | 4.16 | 3.84 | 0.75 | 1.50 |
| 39 | 1.12 | 1.22 | 1.03 | 0.38 | 1.12 | 135 | 4.12 | 4.22 | 3.91 | 0.75 | 1.50 |

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

***Table 3B - Type "D" (see Figure 3B)***

| Manufacturers Designation for SAE Size[1] | Diameter Supplied mm | Clamping Range mm | B mm | D mm | Recommended Tightening Torque N·m |
|---|---|---|---|---|---|
| 8 | 8.3 | 6.0-8.3 | 13.1 | 9.1 | 1.5 |
| 9 | 9.3 | 7.0-9.5 | 13.1 | 9.1 | 1.5 |
| 10 | 10.3 | 8.0-10.3 | 13.1 | 9.1 | 1.5 |
| 11 | 11.3 | 9.0-11.5 | 13.1 | 9.1 | 1.5 |
| 12 | 12.3 | 10.0-12.3 | 15.9 | 9.1 | 1.5 |
| 13 | 13.3 | 11.0-13.5 | 15.9 | 9.1 | 1.5 |
| 14 | 14.3 | 12.0-14.3 | 15.9 | 9.1 | 1.5 |
| 15 | 15.3 | 13.0-15.5 | 15.9 | 9.1 | 1.5 |
| 16 | 16.3 | 14.0-16.3 | 15.9 | 9.1 | 1.5 |
| 17 | 17.3 | 15.0-17.5 | 15.9 | 9.1 | 1.5 |

[1] • = In the absence of an appropriate SAE size.

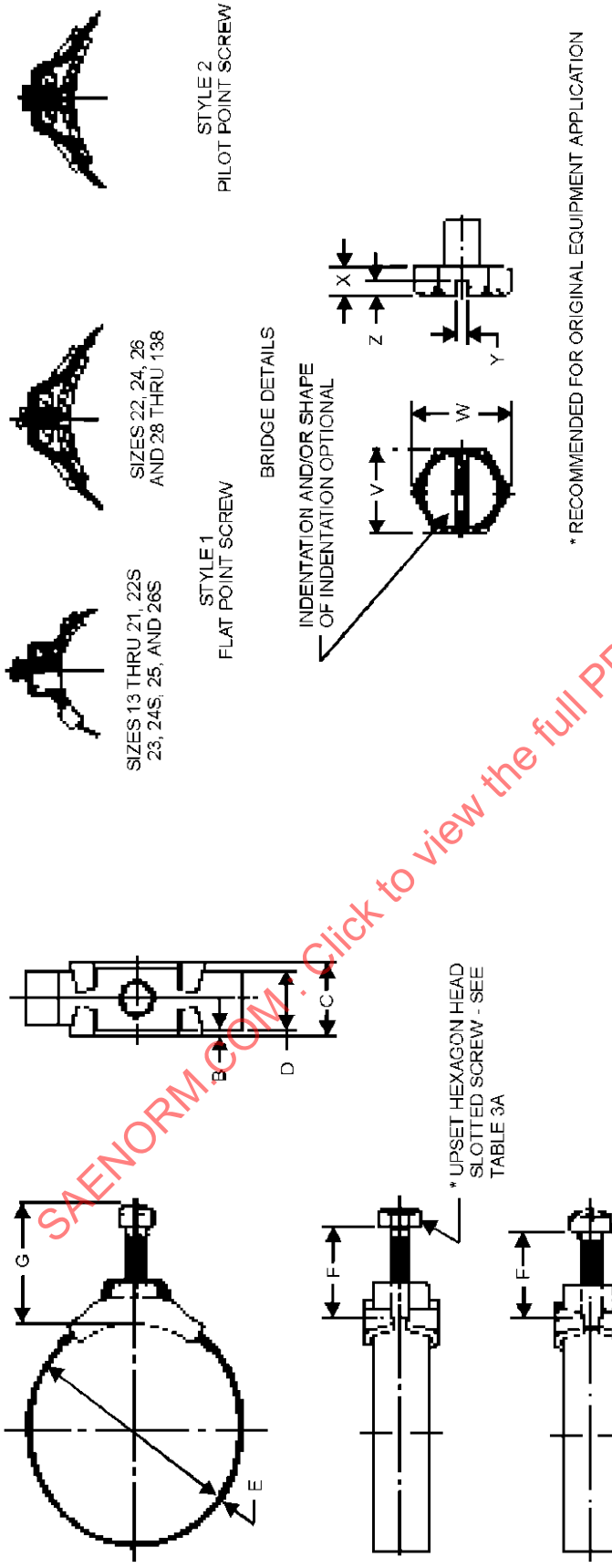





***Figure 4 - Type "C" hose clamps***

***Table 4A - Dimensions of Type "C" hose clamps, inch***

| SAE Size No.[1] | A Diameter Open | A Diameter Closed | B Bridge Stock Thickness ±0.002 | C[2] Bridge Width Max | D Band Width ±0.010 | E[3] Band Thick-ness ±0.001 | F Screw Size and Length | G[2] 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 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.13 |
| 56 | 1.75 | 1.44 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.13 |
| 58 | 1.81 | 1.50 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.13 |
| 60 | 1.88 | 1.56 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.13 |

| SAE Size No.[1] | A Diameter Open | A Diameter Closed | B Bridge Stock Thickness ±0.002 | C[2] Bridge Width Max | D Band Width ±0.010 | E[3] Band Thick-ness ±0.001 | F Screw Size and Length | G[2] Height Over Screw Max |
|---|---|---|---|---|---|---|---|---|
| 62 | 1.94 | 1.62 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.13 |
| 64 | 2.00 | 1.69 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 0.88 | 1.13 |
| 66 | 2.06 | 1.69 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 0.88 | 1.25 |
| 68 | 2.12 | 1.75 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 0.88 | 1.25 |
| 70 | 2.19 | 1.81 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 0.88 | 1.25 |
| 72 | 2.25 | 1.88 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 0.88 | 1.25 |
| 74 | 2.31 | 1.94 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 0.88 | 1.25 |
| 76 | 2.38 | 2.00 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.25 |
| 78 | 2.44 | 2.06 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.25 |
| 80 | 2.50 | 2.12 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.25 |
| 82 | 2.56 | 2.19 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.25 |
| 84 | 2.62 | 2.25 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.25 |
| 86 | 2.69 | 2.31 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.25 |
| 88 | 2.75 | 2.38 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.25 |
| 90 | 2.81 | 2.44 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.25 |
| 92 | 2.88 | 2.50 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.25 |
| 94 | 2.94 | 2.56 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.25 |
| 96 | 3.00 | 2.62 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.25 |
| 100 | 3.12 | 2.75 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.25 |
| 104 | 3.25 | 2.88 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.25 |
| 110 | 3.44 | 3.06 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.25 |
| 114 | 3.56 | 3.19 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.25 |
| 118 | 3.69 | 3.31 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.25 |
| 138 | 4.31 | 3.94 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.25 |
| 54 | 1.69 | 1.38 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.13 |
| 56 | 1.75 | 1.44 | 0.62 | 0.72 | 0.505 | 0.020 | 12-24 x 1.00 | 1.13 |

(1) The N suffix applied to SAE size numbers designates the smaller series clamp design where sizes overlap in two clamp designs.
(2) Reference dimension for clearance purposes only.
(3) For size numbers 30 through 138, clamps having 0.020 tabulated band thickness are also available with 0.018 through 0.016 and 0.027 through 0.025 band thickness where so specified by user.



***Table 4B - Dimension of hexagon screw heads, inch***

| 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 |

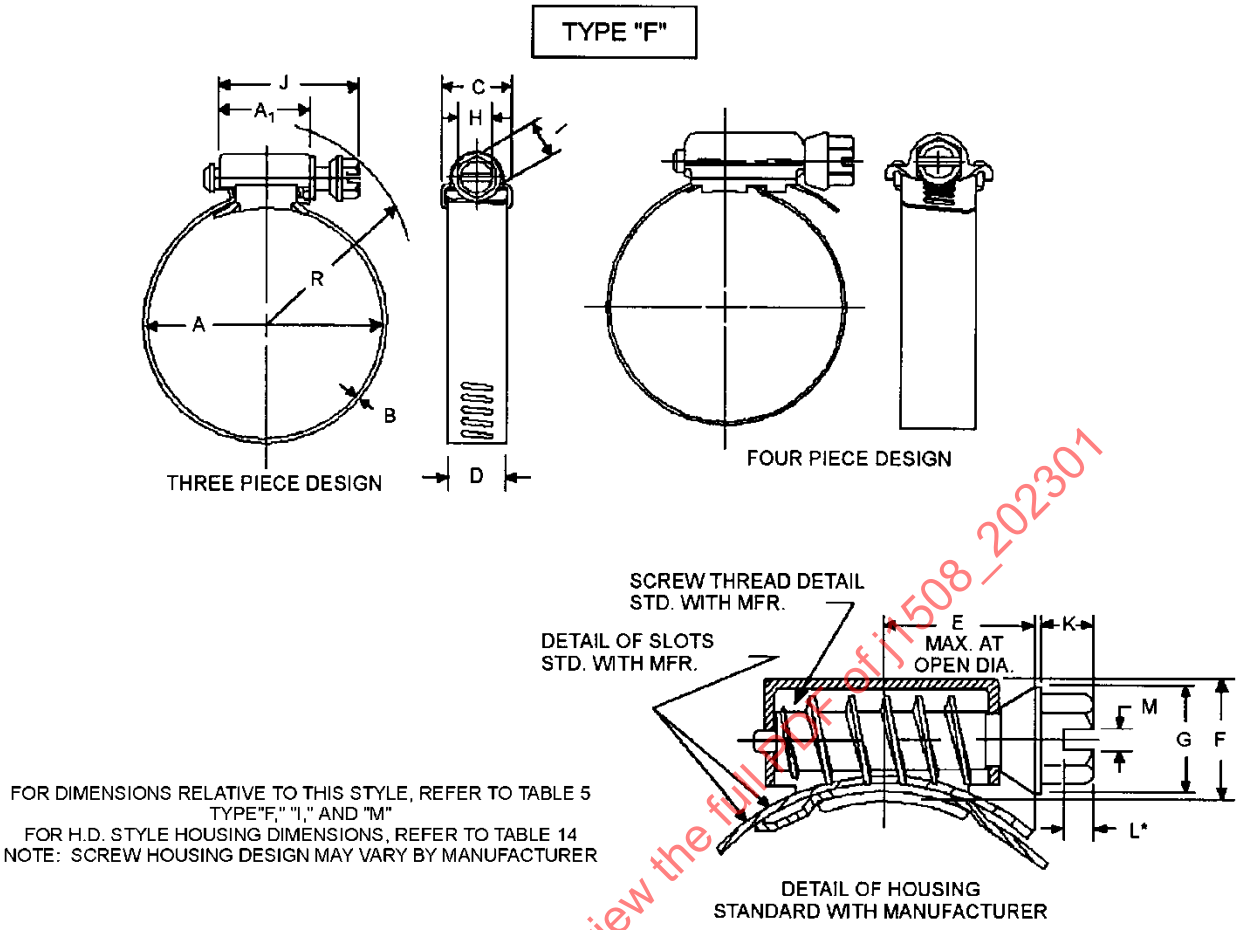
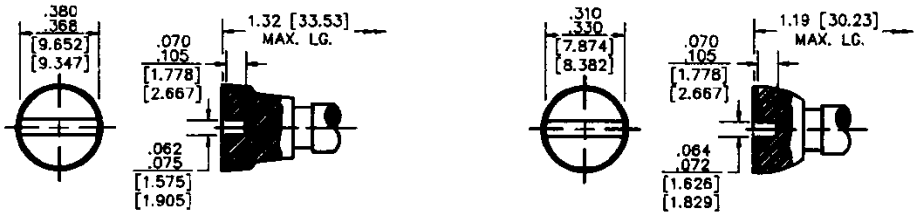



***Figure 5 - Types "F," "I," and "M"***

***Table 5 - Dimensions of Type "F," "I," and "M" clamps***

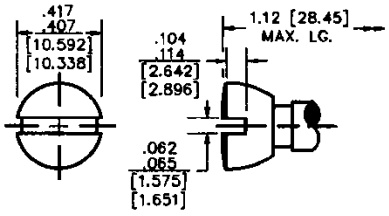
| Dimension | Type F mm | Type I mm | Type M mm |
|---|---|---|---|
| A[1] HSG Length (Ref) | 19.3 | 16.3 | 10.7 |
| B Thickness | 0.53/0.79 | 0.48/0.76 | 0.48/0.66 |
| C HSG Width (Ref) | 20.6 | 13.5 | 15.2 |
| D Bandwidth | 12.57/14.45 | 10.03/11.23 | 7.75/8.26 |
| E Max at Open Diameter | 19.1 | 12.7 | 11.2 |
| FHeight (Ref) | 14.2 | 10.2 | 9.6 |
| G Collar Diameter | 9.40/10.80 | 7.49/9.52 | [1] |
| H Across Flats | 7.75/7.92 | 6.20/6.35 | 6.20/6.35 |
| I Across Corners (Min) | 8.64 | 6.86 | 6.86 |
| J LG of Screw (Max) | 34.3 | 28.7 | 20.3 |
| K Hex Height | 3.56/6.35 | 3.56/4.45 | 3.56/4.70 |
| L Slot Depth | 1.96/3.05 | 1.32/2.67 | 1.32/2.67 |
| M Slot Width | 1.42/1.93 | 1.07/1.52 | 1.07/1.52 |

[1] Type "M" clamps do not have collars as standard. See Style 6.

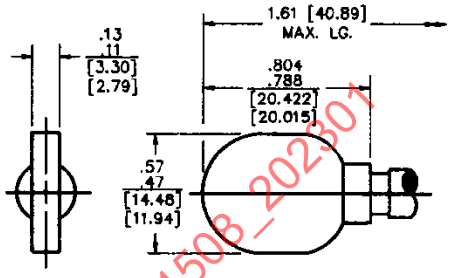



OPTIONAL DESIGNS

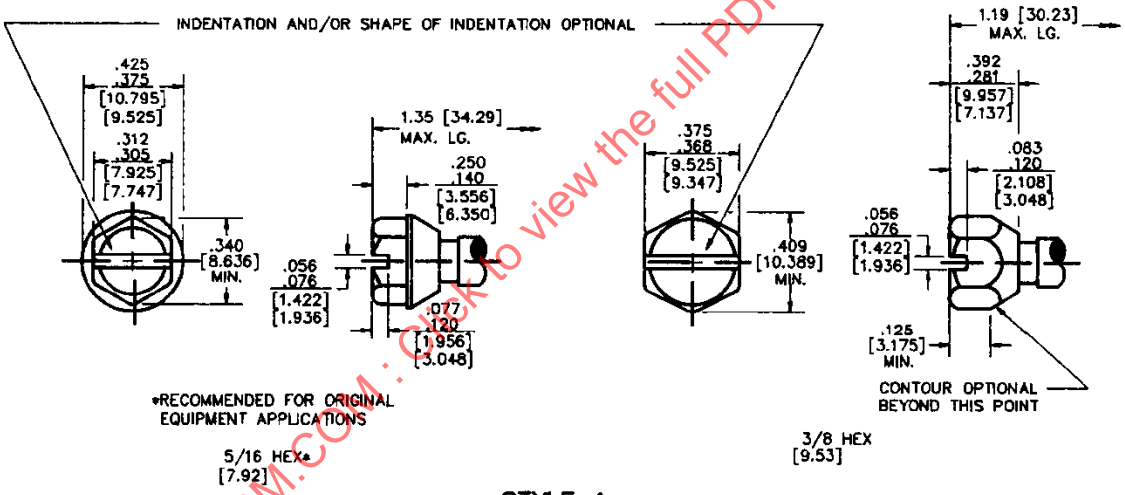
STYLE 1



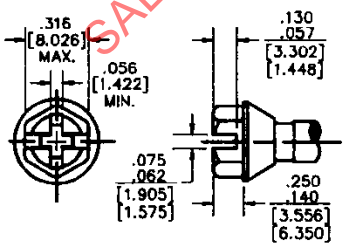

STYLE 2



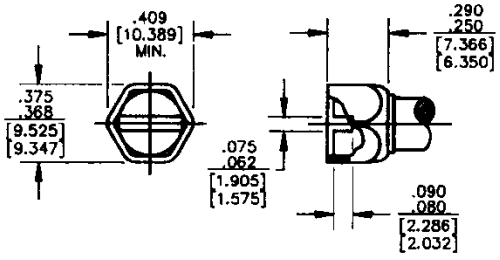

STYLE 3




STYLE 4




STYLE 5




STYLE 6



*Figure 6 - Type "F" hose clamps*

***Table 6 - Dimensions of Type "F" hose clamps***

| SAE Size No.[1][2] | A Diameter[3] Open mm | A Diameter[3] Closed mm | R Radius[4] Over Screw mm |
|---|---|---|---|
| 06 | 19.8 | 11.2 | 29.7 |
| 08 | 23.1 | 12.7 | 30.9 |
| 10 | 26.9 | 14.2 | 32.0 |
| 12 | 31.7 | 17.5 | 33.5 |
| 16 | 38.1 | 20.6 | 36.1 |
| 20 | 44.4 | 20.6 | 38.6 |
| 24 | 50.8 | 26.9 | 41.4 |
| 28 | 57.1 | 33.3 | 44.5 |
| 32 | 63.5 | 39.6 | 47.2 |
| 36 | 69.8 | 45.9 | 50.0 |
| 40 | 76.2 | 52.3 | 53.0 |
| 44 | 82.5 | 58.6 | 55.8 |
| 48 | 88.9 | 65.0 | 58.9 |
| 52 | 95.2 | 71.4 | 61.9 |
| 56 | 101.6 | 77.7 | 65.0 |
| 60 | 107.9 | 84.1 | 68.0 |
| 64 | 114.3 | 90.4 | 71.1 |
| 72 | 127.0 | 103.1 | 77.2 |
| 80 | 139.7 | 117.3 | 83.3 |
| 88 | 152.4 | 130.0 | 89.6 |
| 96 | 165.1 | 141.2 | 95.7 |
| 104 | 177.8 | 156.9 | 101.8 |

(1) For SAE sizes not listed, the size is determined by (A-12.7)/406.4, rounding to nearest upper size in increments of one.
(2) Diameter shall be determined by assembly.
(3) Reference dimensions for clearance purposes only.

***Table 7 - Dimensions of Type "I" hose clamps***

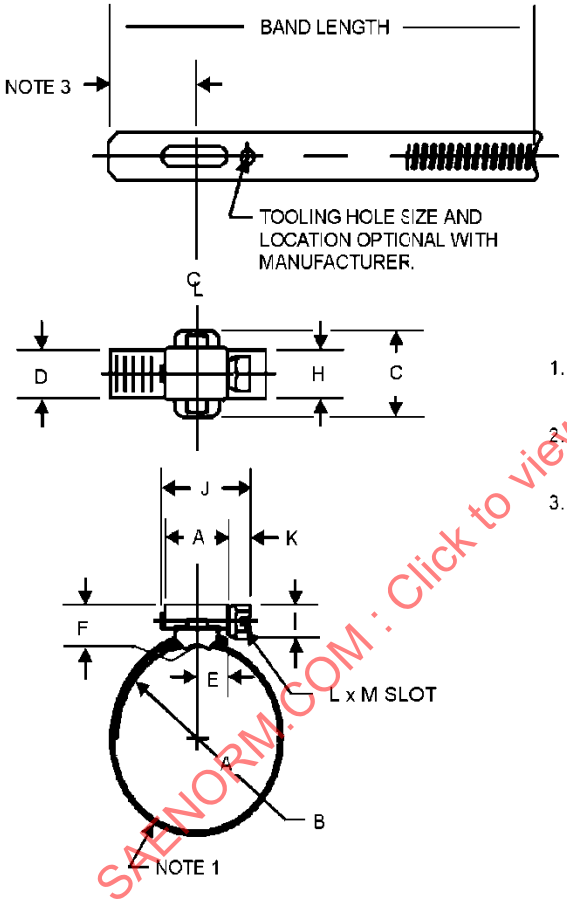
| SAE Size No.[1] | A Diameter[2] Open mm | A Diameter[2] Closed mm | R Radius[3] Over Screw mm |
|---|---|---|---|
| 06 | 19.8 | 11.2 | 25.4 |
| 08 | 23.1 | 12.7 | 26.1 |
| 10 | 26.9 | 14.2 | 27.6 |
| 12 | 31.7 | 17.5 | 28.4 |
| 16 | 38.1 | 20.6 | 31.7 |
| 20 | 44.4 | 20.6 | 35.0 |
| 24 | 50.8 | 26.9 | 38.1 |
| 28 | 57.1 | 33.3 | 41.1 |
| 32 | 63.5 | 39.6 | 45.0 |
| 36 | 69.8 | 45.9 | 47.5 |

(1) Larger size clamps available through manufacturers.
(2) Diameter shall be determined by assembly over mandrels.
(3) Reference dimensions for clearance purposes.

***Table 8 - Dimensions of Type "M" hose clamps***

| SAE Size No.[1] | A Diameter[2] Open mm | A Diameter[2] Closed mm | R Radius[3] Over Screw mm |
|---|---|---|---|
| 04 | 15.7 | 6.3 | 19.5 |
| 06 | 19.8 | 11.2 | 23.1 |
| 08 | 23.1 | 12.7 | 24.3 |
| 10 | 26.9 | 14.2 | 26.1 |
| 12 | 31.7 | 17.5 | 27.7 |

(1) Larger size clamps available through manufacturers.
(2) Diameter shall be determined by assembly over mandrels.
(3) Reference dimensions for clearance purposes only.




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 Open mm | Clamp Diameter Close mm |
|---|---|---|---|
| MX50 | | 12.7 | 6.4 |
| MX53 | | 13.5 | 7.1 |
| MX56 | | 14.2 | 7.9 |
| MX59 | | 15.0 | 8.6 |
| MX63 | 4 | 16.0 | 9.7 |
| MX66 | | 16.8 | 10.4 |
| MX69 | | 17.5 | 11.2 |
| MX72 | | 18.3 | 11.9 |
| MX75 | | 19.1 | 12.7 |
| MX78 | 6 | 19.8 | 12.2 |
| MX81 | | 20.6 | 13.0 |
| MX84 | | 21.3 | 13.7 |
| MX88 | | 22.4 | 14.7 |
| MX91 | 8 | 23.1 | 15.5 |
| MX94 | | 23.9 | 16.3 |
| MX97 | | 24.6 | 17.0 |
| MX100 | | 25.4 | 17.8 |
| MX103 | | 26.2 | 18.5 |
| MX106 | 10 | 26.9 | 19.3 |
| MX109 | | 27.7 | 20.1 |
| MX113 | | 28.7 | 21.1 |
| MX116 | | 29.5 | 21.8 |
| MX119 | | 30.2 | 22.6 |
| MX122 | | 31.0 | 23.4 |
| MX125 | 12 | 31.8 | 24.1 |



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'.

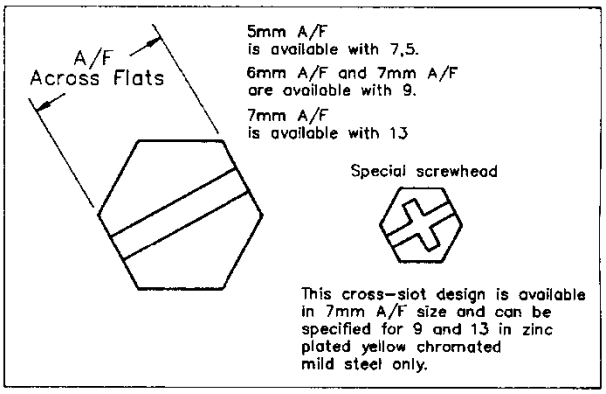



***Figure 8 - Type "FEO"***

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

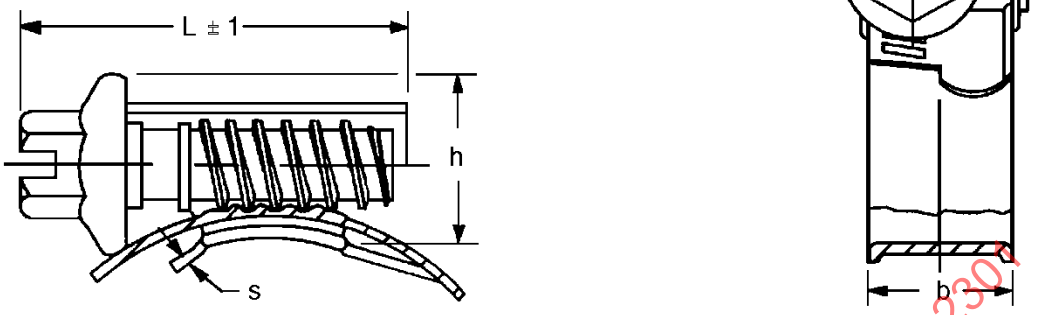
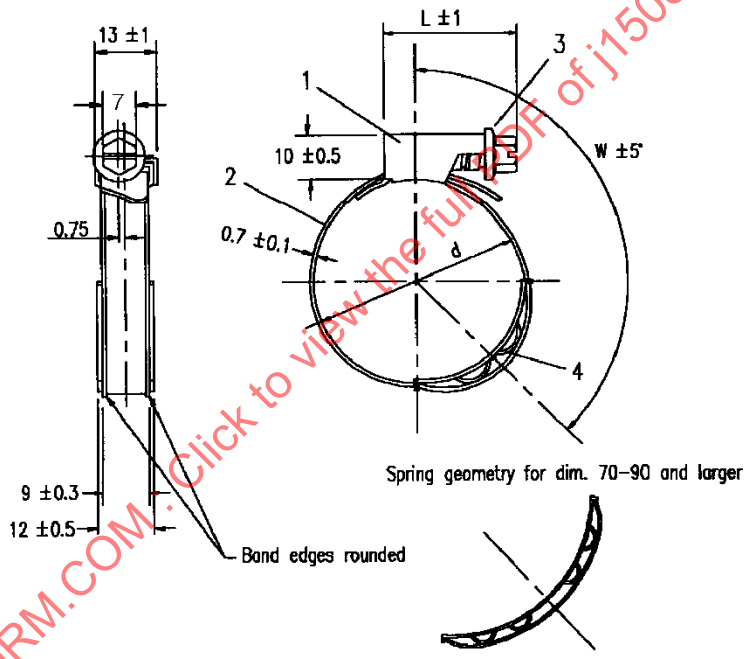



*Figure 9 - Type "FEO"*






Material:

| | | |
|---|---|---|
| 1 and 2 | Band and housing | —Stainless steel AISI 430 |
| 3 | Screw | —Stainless steel AISI 430 |
| 4 | Spring | —SAE 1075 to Din 1.124B |

part no. 4:

Surface Treatment: Double Deltotone/Deltoseal (zincferous)
Hardening: Austempered to HRC50 - 54

Clamp must withstand hand applied torque up to 5.0 N·m without failure

Application speed: 350 RPM (max.)

| Item | L ± 1 | Minimum Shipping Dia. | d | Ref W Angle |
|---|---|---|---|---|
| 3 | 24 | 23 | 16 - 25 | 95 deg |
| 5 | 24 | 30 | 20 - 32 | 103 deg |
| 7 | 26 | 38 | 25 - 40 | 121 deg |
| 8 | 26 | 43 | 30 - 45 | 120 deg |
| 9 | 26 | 40 | 32 - 50 | 120 deg |
| 10 | 26 | 50 | 40 - 60 | 129 deg |
| 11 | 26 | 68 | 50 - 70 | 130 deg |
| 12 | 26 | 78 | 60 - 68 | 130 deg |
| 13 | 26 | 88 | 70 - 90 | 130 deg |

*Figure 10A - Type "SLFEO," mm*

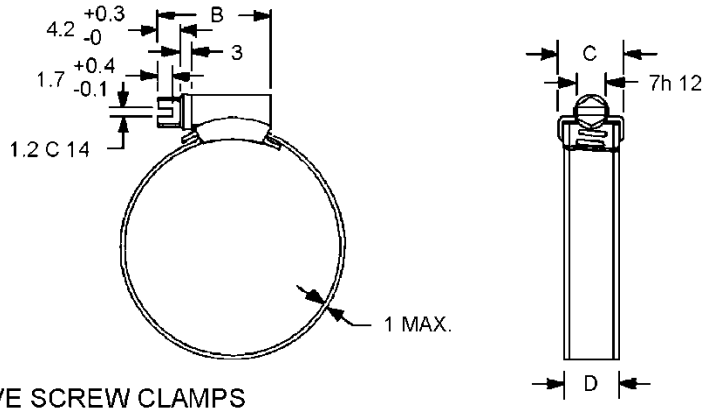



***Figure 10B - Type "FE," mm***

***Table 10 - Type "FEO"***

| Approx SAE Size | Clamping Range mm | b | B | h | L | S |
|---|---|---|---|---|---|---|
| 06 | 8-12 | 7.5 | 11.5 | 9.5 | 18 | 0.6 |
| 08 | 10-16 | 7.5 | 11.5 | 9.5 | 18 | 0.6 |
| 08 | 12-18 | 7.5 | 11.5 | 9.5 | 18 | 0.6 |
| 06 | 8-16 | 9 | 14 | 11.5 | 21 | 0.6 |
| 08 | 12-20 | 9-13 | 14 | 11.5 | 24 | 0.7 |
| 10 | 16-25 | 9-13 | 14 | 11.5 | 24 | 0.7 |
| 12 | 20-32 | 9-13 | 14 | 11.5 | 24 | 0.7 |
| 24 | 25-40 | 9-13 | 14 | 11.5 | 26 | 0.7 |
| 28 | 32-50 | 9-13 | 14 | 11.5 | 26 | 0.7 |
| 36 | 40-60 | 9-13 | 14 | 11.5 | 26 | 0.7 |
| 40 | 50-70 | 9-13 | 14 | 11.5 | 26 | 0.7 |
| 48 | 60-80 | 9-13 | 14 | 11.5 | 26 | 0.7 |
| 52 | 70-90 | 9-13 | 14 | 11.5 | 26 | 0.7 |
| 60 | 80-100 | 9-13 | 14 | 11.5 | 26 | 0.7 |
| 64 | 90-110 | 9-13 | 14 | 11.5 | 26 | 0.7 |
| 72 | 100-120 | 9-13 | 14 | 11.5 | 26 | 0.7 |
| 80 | 110-130 | 9-13 | 14 | 11.5 | 26 | 0.7 |
| 80 | 120-140 | 9-13 | 14 | 11.5 | 26 | 0.7 |
| 88 | 130-150 | 9-13 | 14 | 11.5 | 26 | 0.7 |
| 96 | 140-160[1] | 9-13 | 14 | 11.5 | 26 | 0.7 |

(1) Larger sizes available.
NOTE: Unless otherwise noted, all dimensions and ranges are metric.

***Table 11 - Torque requirements for Type "FEO" clamps[1]***

| Destructive Torque Ref SAE | Destructive Torque Clamp Range | Torque by Material No. 1 N·m | Torque by Material No. 2 through 5 N·m |
|---|---|---|---|
| | Clamps with 9 mm wide bands: | | |
| 6 | 8-16 | 2.5 | 3.0 |
| 8 | 12-20 | 4.0 | 4.5 |
| 64 | 90-110 | 4.0 | 4.5 |
| | Clamps with 13 mm wide bands: | | |
| 10 | 16-25 | 6.0 | 8.0 |
| 104 | 160-180 | 6.0 | 8.0 |
| Except for: | | | |
| 36 | 40-60 | 7.0 | |

(1) Free torque for 9 mm clamps = 0.7 N·m max.
Free torque for 13 mm clamps = 1.0 N·m max.
Unless otherwise noted, all dimensions and ranges are metric.

***Table 12 - Type "FE"[1]***

| Approx SAE Size | Clamping Range mm | Diameter Supplied mm | B mm | C mm | D mm | Minimum Breaking Torque N·m |
|---|---|---|---|---|---|---|
| 3 | 8-14 | 15 | 19.5 | 13 | 9 | 4.5 |
| 4 | 11-17 | 18 | 19.5 | 13 | 9 | 4.5 |
| 6 | 13-20 | 21 | 21.5 | 13 | 9 | 4.5 |
| 8 | 15-24 | 25 | 21.5 | 16 | 12.2 | 6.0 |
| 10 | 19-28 | 29 | 23.5 | 16 | 12.2 | 6.0 |
| 12 | 22-32 | 33 | 25.5 | 16 | 12.2 | 6.0 |
| 16 | 26-38 | 39 | 25.5 | 16 | 12.2 | 6.0 |
| 20 | 32-44 | 45 | 29,5 | 16 | 12.2 | 7.0 |
| 24 | 38-50 | 51 | 29.5 | 16 | 12.2 | 7.0 |
| 28 | 44-56 | 57 | 29.5 | 16 | 12.2 | 7.0 |
| 32 | 50-65 | 66 | 32.5 | 16 | 12.2 | 7.0 |
| 40 | 58-75 | 76 | 32.5 | 16 | 12.2 | 8.0 |
| 44 | 68-85 | 86 | 32.5 | 16 | 12.2 | 8.0 |
| 52 | 77-95 | 96 | 32.5 | 16 | 12.2 | 8.0 |
| 64 | 87-112 | 113 | 32.5 | 16 | 12.2 | 8.0 |
| 80 | 104-138 | 139 | 32.5 | 16 | 12.2 | 8.0 |
| 96 | 130-165 | 166 | 32.5 | 16 | 12.2 | 8.0 |
| 104 | 150-180 | 181 | 32.5 | 16 | 12.2 | 8.0 |
| 122 | 175-205 | 206 | 32.5 | 16 | 12.2 | 8.0 |
| 138 | 200-231 | 232 | 32.5 | 16 | 12.2 | 8.0 |
| 154 | 226-256 | 257 | 32.5 | 16 | 12.2 | 8.0 |
| 170 | 251-282 | 283 | 32.5 | 16 | 12.2 | 8.0 |
| 186 | 277-307 | 308 | 32.5 | 16 | 12.2 | 8.0 |

(1) t = Band thickness: 1 mm max.
The free torque for A/M clamps: 1.0 N·m max.
The minimum torque above must be tested on a steel mandrel with the minimum diameter specified in the clamping range, i.e., 8, 11, 13, etc., as per above.

***Table 13 - Torque requirements for Type "FE" clamps***

| Clamp Range mm | Minimum Destructive N·m |
|---|---|
| 8-14 to 13-20 | 4.5 |
| 15-24 to 26-38 | 6.0 |
| 32-44 to 50-65 | 7.0 |
| 58-75 to 277-307 | 8.0 |

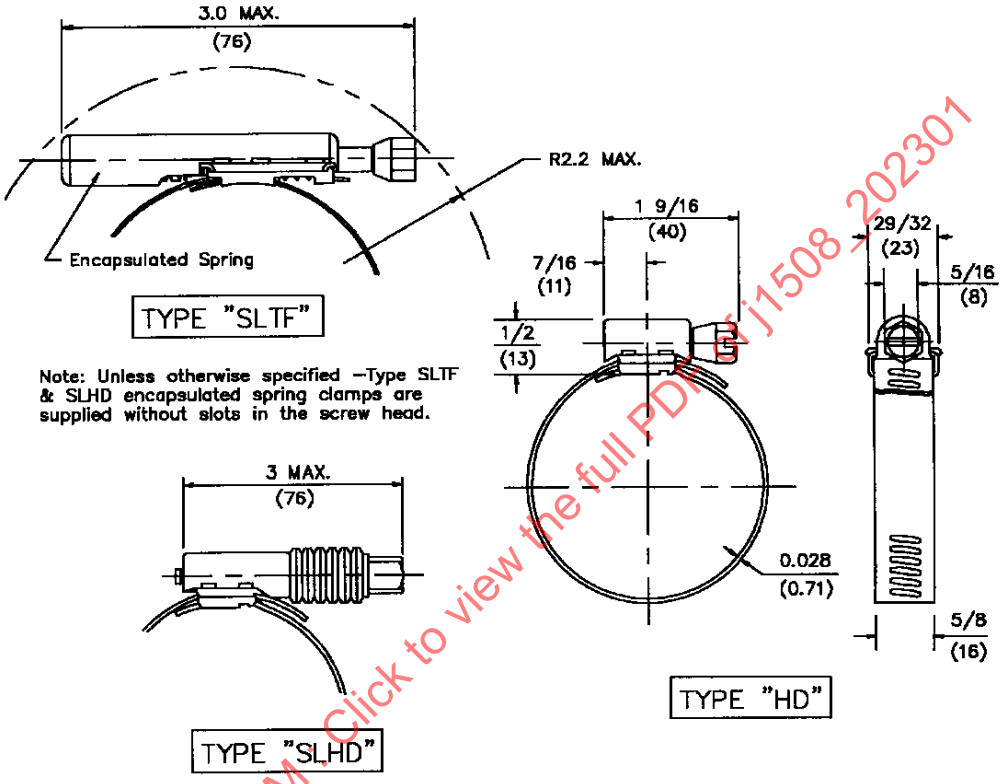



***Figure 11 - Types "HD," "SLTF," and "SLHD"***

***Table 14 - Diameter, standard size, Type "HD," SLTF," and "SLHD" clamps***

| SAE No.[1] | Max Dia mm | Min Dia mm |
|---|---|---|
| 212 | 53.98 | 31.75 |
| 262 | 66.68 | 44.45 |
| 312 | 79.38 | 57.15 |
| 362 | 92.08 | 69.85 |
| 412 | 104.78 | 82.55 |
| 462 | 117.48 | 95.25 |
| 512 | 130.18 | 107.95 |
| 562 | 142.88 | 120.65 |
| 612 | 155.60 | 133.35 |
| 662 | 168.28 | 146.05 |
| 712 | 180.98 | 158.75 |
| 762 | 193.68 | 171.45 |
| 812 | 206.38 | 184.15 |
| 862 | 219.08 | 196.85 |
| 912 | 231.78 | 209.55 |

[1] Larger size clamps available through manufacturers

6.1.5 "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 Tables 15 and 16.

6.1.6 "SSC"

Flat band body utilizing a machine screw and nuts for a closing mechanism. Screw position tangential to the band. See Figures 14A and 14B and Table 17.

6.1.7 Type "G"

Flat band clamp with rectangular perforations and machine screw. See Figures 15A and 15B and Table 18.

6.2 Group #2 (Types "E," "CTB," or "CTW")

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.

6.2.1 "E"

Single round wire, heat-treated to spring temper. Ancillary specification MIL-STD-MS39326. See Figures 16 and 17 and Tables 19 and 20.

6.2.2 "CTB"

Flat band stock, heat-treated to spring temper. See Figure 18 and Table 21.

6.2.3 "CTW"

Dual rough pre-hardened spring wires, or wires heat-treated to spring temper. See Figure 19 and Tables 22 and 23.

6.3 Group #3 (Types “SLA,” “SLF,” “SLTF,” “SLHD,” “T,” “SLTB,” “SSPC,” and “SLFEO”)

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.

6.3.1 “SLA”

Basic Type “A” clamp modified to incorporate a stack of spring washers for energy storage. See Figure 20.

6.3.2 “SLF”

Basic Type “F” clamp modified to incorporate a stack of conical spring washers for energy storage. See Figure 21.

6.3.3 “SLTF”

Basic Type “F” clamp modified to incorporate a coil spring encapsulated in the clamp housing. See Figure 11.

6.3.4 “SLHD”

Basic Type “HD” clamp modified to incorporate a stack of conical spring washers for energy storage. See Figure 11 and Table 14.

6.3.5 “T”

Basic Type “F” clamp utilizing a convoluted and heat-treated band for energy storage and a full, flanged inner shield. See Figures 22 and 23 and Table 24.

6.3.6 “SLTB”

Basic Type “TB” with a coil spring for energy storage. See Figures 12 and 13 and Tables 15 and 16.

6.3.7 “SSPC”

Basic Type “SSC” modified to incorporate a coil spring for energy storage. See Figures 24A and 24B and Table 25.

6.3.8 “SLFEO”

Basic Type FEO modified to incorporate a convoluted and heat treated band for energy storage.

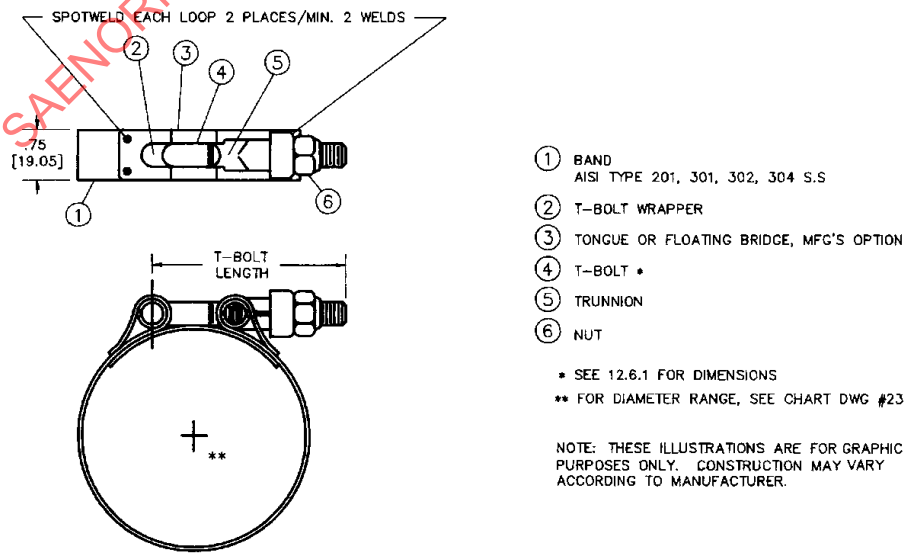



***Figure 12 - Type “TB”***

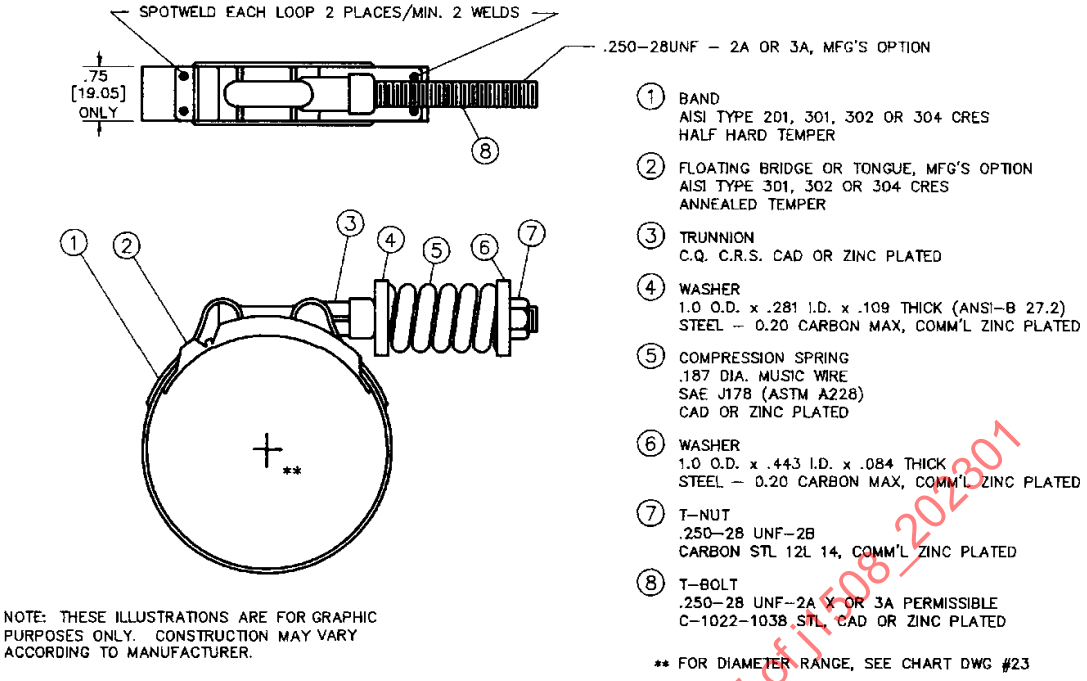



***Figure 13 - Type "SLTB"***

***Table 15 - Diameter, standard size, Types "TB" and "SLTB"***

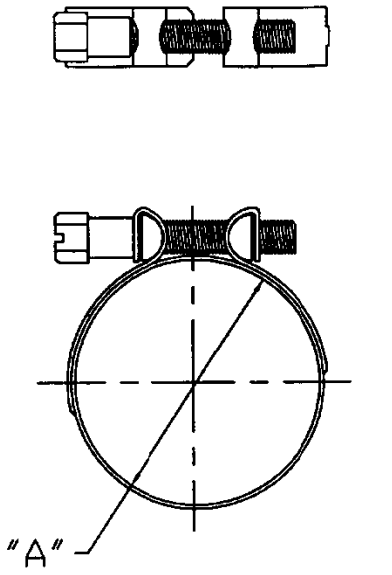
| Size No. | Open Dia mm | Closed Dia mm | Size No. | Open Dia mm | Closed Dia mm |
|---|---|---|---|---|---|
| 28 | 50.8 | 44.5 | 138 | 139.7 | 131.8 |
| 30 | 52.4 | 46.0 | 140 | 141.3 | 113.4 |
| 32 | 55.6 | 47.6 | 142 | 142.9 | 134.9 |
| 34 | 57.2 | 49.2 | 144 | 144.5 | 136.5 |
| 36 | 58.7 | 50.8 | 146 | 146.1 | 138.1 |
| 38 | 60.3 | 52.4 | 148 | 147.6 | 139.7 |
| 40 | 61.9 | 54.0 | 150 | 149.2 | 141.3 |
| 42 | 63.5 | 55.6 | 152 | 150.8 | 142.9 |
| 44 | 65.1 | 57.2 | 154 | 152.4 | 144.5 |
| 46 | 66.7 | 58.7 | 156 | 154.0 | 146.1 |
| 48 | 68.3 | 60.3 | 158 | 155.8 | 147.6 |
| 50 | 69.9 | 61.9 | 160 | 157.2 | 149.2 |
| 52 | 71.4 | 63.5 | 162 | 158.8 | 150.8 |
| 54 | 73.0 | 65.1 | 164 | 160.3 | 152.4 |
| 56 | 74.6 | 66.7 | 166 | 161.9 | 154.0 |
| 58 | 76.2 | 68.3 | 168 | 163.5 | 155.6 |
| 60 | 77.8 | 69.9 | 170 | 165.1 | 157.2 |
| 62 | 79.4 | 71.4 | 172 | 166.7 | 158.8 |
| 64 | 81.0 | 73.0 | 174 | 168.3 | 160.3 |
| 66 | 82.6 | 74.6 | 176 | 169.9 | 161.9 |
| 68 | 84.1 | 76.2 | 178 | 171.5 | 163.5 |

| Size No. | Open Dia mm | Closed Dia mm | Size No. | Open Dia mm | Closed Dia mm |
|---|---|---|---|---|---|
| 70 | 85.7 | 77.8 | 180 | 173.0 | 165.1 |
| 72 | 87.3 | 79.4 | 182 | 174.6 | 166.7 |
| 74 | 88.9 | 81.0 | 184 | 176.2 | 168.3 |
| 76 | 90.5 | 82.6 | 186 | 177.8 | 169.9 |
| 78 | 92.1 | 84.1 | 188 | 179.4 | 171.5 |
| 80 | 93.7 | 85.7 | 190 | 181.0 | 173.0 |
| 82 | 95.3 | 87.3 | 192 | 182.6 | 174.6 |
| 84 | 96.8 | 88.9 | 194 | 184.2 | 176.2 |
| 86 | 98.4 | 90.5 | 196 | 185.7 | 177.8 |
| 88 | 100.0 | 92.1 | 198 | 187.3 | 179.4 |
| 90 | 101.6 | 93.7 | 200 | 188.9 | 181.0 |
| 92 | 103.2 | 95.3 | 202 | 190.5 | 182.6 |
| 94 | 104.8 | 96.8 | 204 | 192.1 | 184.2 |
| 96 | 106.4 | 98.4 | 206 | 193.7 | 185.7 |
| 98 | 108.0 | 100.0 | 208 | 195.3 | 187.3 |
| 100 | 109.5 | 101.6 | 210 | 196.9 | 188.9 |
| 102 | 111.1 | 103.2 | 212 | 198.4 | 190.5 |
| 104 | 112.7 | 104.8 | 214 | 200.0 | 192.1 |
| 106 | 114.3 | 106.4 | 216 | 201.6 | 193.7 |
| 108 | 115.9 | 108.0 | 218 | 203.2 | 195.3 |
| 110 | 117.5 | 109.5 | 220 | 204.8 | 196.9 |
| 112 | 119.1 | 111.1 | 222 | 206.4 | 198.4 |
| 114 | 120.7 | 112.7 | 224 | 208.0 | 200.0 |
| 116 | 122.2 | 114.3 | 226 | 209.6 | 201.6 |
| 118 | 123.8 | 115.9 | 228 | 211.1 | 203.2 |
| 120 | 125.4 | 117.5 | 230 | 212.7 | 204.8 |
| 122 | 127.0 | 119.1 | 232 | 214.3 | 206.4 |
| 124 | 128.6 | 120.7 | 234 | 215.9 | 208.0 |
| 126 | 130.2 | 122.2 | 236 | 217.5 | 209.6 |
| 128 | 131.8 | 123.8 | 238 | 219.1 | 211.1 |
| 130 | 133.4 | 125.4 | 240 | 220.7 | 212.7 |
| 132 | 134.9 | 127.0 | 242 | 222.3 | 214.3 |
| 134 | 136.5 | 128.6 | 244 | 223.8 | 215.9 |
| 136 | 138.1 | 130.2 | 246 | 225.4 | 217.5 |
| 248 | 227.0 | 219.1 | 298 | 266.7 | 258.8 |
| 250 | 228.6 | 220.7 | 300 | 268.3 | 260.4 |
| 252 | 230.2 | 222.3 | 302 | 269.9 | 261.9 |
| 254 | 231.8 | 223.8 | 304 | 271.5 | 263.5 |
| 256 | 233.4 | 225.4 | 306 | 273.1 | 265.1 |
| 258 | 235.0 | 227.0 | 308 | 274.6 | 266.7 |

| Size No. | Open Dia mm | Closed Dia mm | Size No. | Open Dia mm | Closed Dia mm |
|---|---|---|---|---|---|
| 260 | 236.5 | 228.6 | 310 | 276.2 | 268.3 |
| 262 | 238.1 | 230.2 | 312 | 277.8 | 269.9 |
| 264 | 239.7 | 231.8 | 314 | 279.4 | 271.5 |
| 266 | 241.3 | 233.4 | 316 | 281.0 | 273.1 |
| 268 | 242.9 | 235.0 | 318 | 282.6 | 274.6 |
| 270 | 244.5 | 236.5 | 320 | 284.2 | 276.2 |
| 272 | 246.1 | 238.1 | 322 | 285.8 | 277.8 |
| 274 | 247.7 | 239.7 | 324 | 287.3 | 279.4 |
| 276 | 249.2 | 241.3 | 326 | 288.9 | 281.0 |
| 278 | 250.8 | 242.9 | 328 | 290.5 | 282.6 |
| 280 | 252.4 | 244.5 | 330 | 292.1 | 284.2 |
| 282 | 254.0 | 246.1 | 332 | 293.7 | 285.8 |
| 284 | 255.6 | 247.7 | 334 | 295.3 | 287.3 |
| 286 | 257.2 | 249.2 | 336 | 296.9 | 288.9 |
| 288 | 258.8 | 250.8 | 338 | 298.5 | 290.5 |
| 290 | 260.4 | 252.4 | 340 | 300.0 | 292.1 |
| 292 | 261.9 | 254.0 | 342 | 301.6 | 293.7 |
| 294 | 263.5 | 255.6 | 344 | 303.2 | 295.3 |
| 296 | 265.1 | 257.2 | 346 | 304.8 | 296.9 |

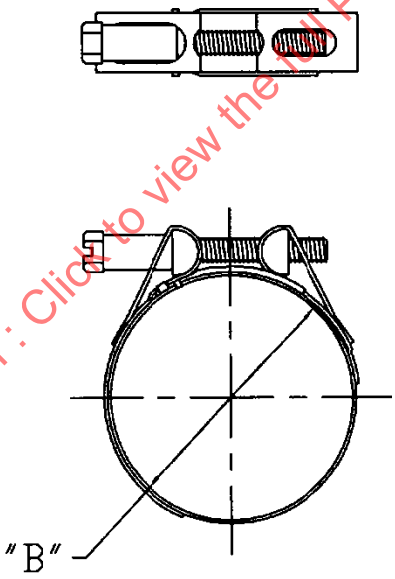
***Table 16 - Type "TB" and "SLTB" component dimensions and torque requirements***

| Type | B Band Width mm | Bolt Size | Z Wrench Size | Recommended Installation Torque N·m (lb-in) |
|---|---|---|---|---|
| TB | 19.05 | 1/4-28 UNF | 7/16 inches | 8.5 (75) |
| SLTB | 13.72 | M5x0.8-6g | 8 mm | 5.6 (50) |
| | | 10-32 UNF | 3/8 inches | 5.6 (50) |
| | 19.05 | 1/4-28 UNF | 7/16 inches | 8.5 (75) |




For Diameter Range See Table 17.

***Figure 14A - Type "SSC"***




For Diameter Range See Table 17.

***Figure 14B - Type "SSC"***

***Table 17 - Type "SSC"***

| | Clamp Range mm |
|---|---|
| "A" Diameter | |
| 24.0 | 18.0-24.0 |
| 26.0 | 20.0-26.0 |
| 28.0 | 22.0-28.0 |
| 31.0 | 25.0-31.0 |
| 32.0 | 26.0-32.0 |
| 36.0 | 30.0-36.0 |
| 40.0 | 34.0-40.0 |
| "B" Diameter | |
| 45.0 | 37.5-45.0 |
| 50.0 | 42.5-50.0 |
| 55.0 | 47.5-55.0 |
| 60.0 | 49.0-60.0 |
| 65.0 | 54.0-65.0 |
| 70.0 | 59.0-70.0 |
| 75.0 | 64.0-75.0 |
| 80.0 | 69.0-80.0 |
| 85.0 | 74.0 -85.0 |
| 90.0 | 79.0-90.0 |
| 95.0 | 84.0-95.0 |
| 100.0 | 89.0-100.0 |
| 105.0 | 94.0-105.0 |
| 110.0 | 99.0-110.0 |
| 115.0 | 104.0-115.0 |
| 120.0 | 109.0-120.0 |
| 125.0 | 114.0-125.0 |
| 130.0 | 119.0-130.0 |
| 135.0 | 124.0-135.0 |
| 140.0 | 129.0-140.0 |
| 145.0 | 134.0-145.0 |
| 150.0 | 139.0-150.0 |
| 155.0 | 144.0-155.0 |
| 160.0 | 149.0-160.0 |
| 165.0 | 154.0-165.0 |
| 170.0 | 159.0-170.0 |
| 175.0 | 164.0-175.0 |
| 180.0 | 169.0-180.0 |
| 185.0 | 174.0-185.0 |
| 190.0 | 179.0-190.0 |
| 195.0 | 184.0-195.0 |
| 200.0 | 189.0-200.0 |
| 205.0 | 194.0-205.0 |
| 210.0 | 199.0-210.0 |

| | Clamp Range mm |
|---|---|
| 215.0 | 204.0-215.0 |
| 220.0 | 209.0-220.0 |
| 225.0 | 214.0-225.0 |
| 230.0 | 219.0-230.0 |
| 235.0 | 224.0-235.0 |
| 240.0 | 229.0-240.0 |
| 245.0 | 234.0-245.0 |
| 250.0 | 239.0-250.0 |
| 255.0 | 244.0-255.0 |

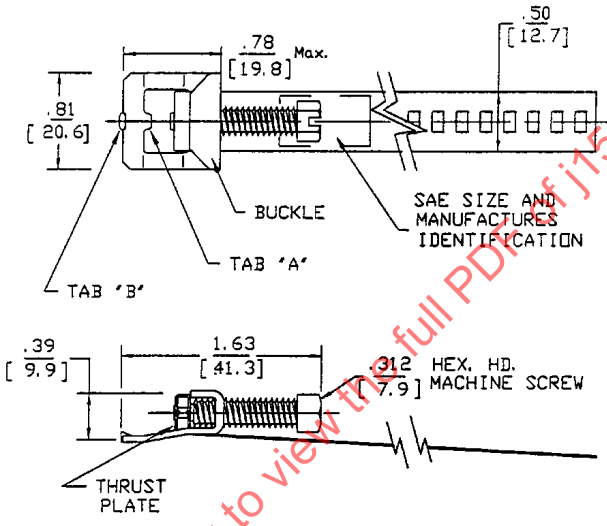



***Figure 15A - Type "G," inch (metric)***

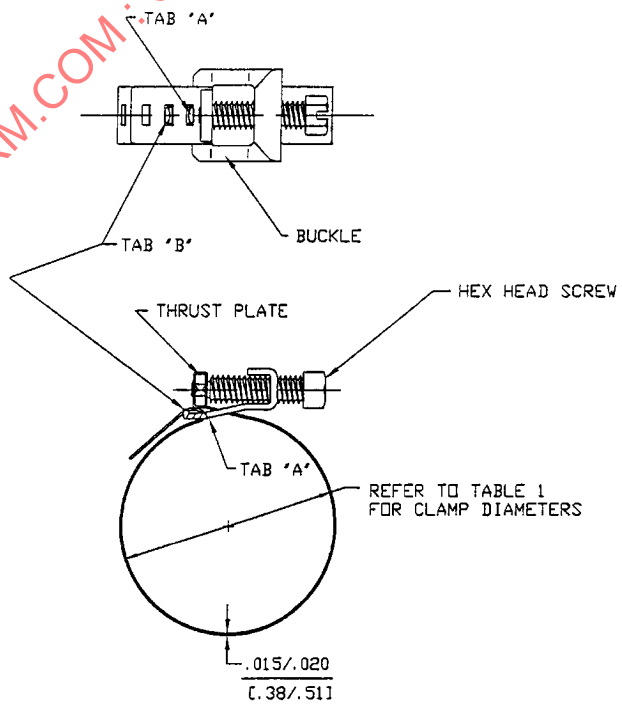



***Figure 15B - Type "G," inch (metric)***

***Table 18 - Type "G"***

| SAE Size | Max Dia mm | Min Dia mm |
|---|---|---|
| 12 | 32 | 17 |
| 20 | 44 | 17 |
| 32 | 67 | 17 |
| 72 | 127 | 44 |
| 104 | 178 | 102 |

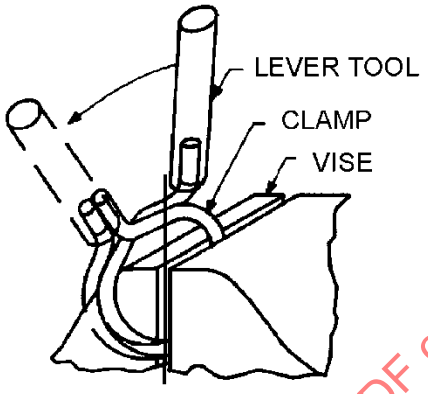



***Figure 16 - Type "E"***

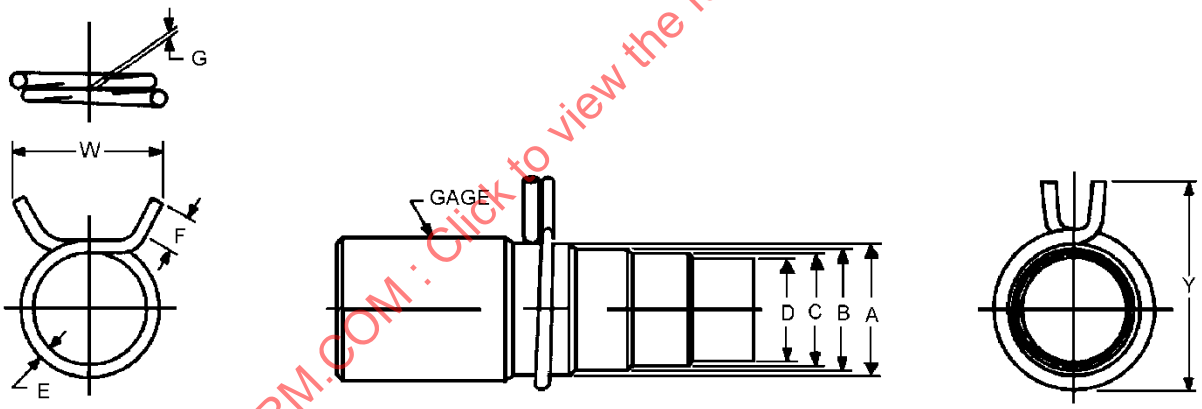



***Figure 17 - Type "E"***

***Table 19 - Type "E," carbon, inch***

| SAE Size No. | Effective Clamp Dia Range[1] A Max | Effective Clamp Dia Range[1] B Nom | Effective Clamp Dia Range[1] C Min | D NO GO Gage Dia | E Wire Dia[2] Max | E Wire Dia[2] Min | F Length of Tang Max | F Length of Tang Min | G Clearance at Overlap Max | W Width Over Tangs Max | Y Overall Height Ref | Z Gaging[3] Clearance Max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4[4] | 0.253 | 0.250 | 0.247 | 0.233 | 0.063 | 0.061 | 0.38 | 0.34 | 0.010 | 0.75 | 0.88 | 0.003 |
| 5[5] | 0.315 | 0.312 | 0.309 | 0.286 | 0.063 | 0.061 | 0.38 | 0.34 | 0.010 | 0.75 | 1.00 | 0.003 |
| 5.5[4] | 0.345 | 0.342 | 0.339 | 0.320 | 0.063 | 0.061 | 0.38 | 0.34 | 0.101 | 0.75 | 1.00 | 0.003 |
| 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[4] | 0.442 | 0.438 | 0.432 | 0.405 | 0.088 | 0.088 | 0.38 | 0.34 | 0.015 | 0.94 | 1.12 | 0.005 |
| 7.5 | 0.473 | 0.468 | 0.463 | 0.430 | 0.088 | 0.086 | 0.38 | 0.34 | 0.015 | 1.00 | 1.12 | 0.005 |
| 8[5] | 0.510 | 0.500 | 0.490 | 0.462 | 0.093 | 0.091 | 0.38 | 0.34 | 0.025 | 1.00 | 1.19 | 0.005 |
| 8.5[4] | 0.541 | 0.531 | 0.521 | 0.492 | 0.093 | 0.091 | 0.38 | 0.34 | 0.025 | 1.00 | 1.38 | 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 |
| 9.5[4] | 0.604 | 0.593 | 0.582 | 0.550 | 0.108 | 0.106 | 0.38 | 0.34 | 0.025 | 1.06 | 1.38 | 0.006 |
| 10[4] | 0.640 | 0.625 | 0.610 | 0.580 | 0.108 | 0.106 | 0.38 | 0.34 | 0.025 | 1.06 | 1.38 | 0.006 |
| 10.5 | 0.671 | 0.656 | 0.641 | 0.611 | 0.108 | 0.106 | 0.38 | 0.34 | 0.025 | 1.06 | 1.38 | 0.006 |
| 11[5] | 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[4] | 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[5] | 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 | 0.906 | 0.855 | 0.123 | 0.121 | 0.38 | 0.34 | 0.062 | 1.25 | 1.69 | 0.008 |
| 16[4] | 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[5] | 1.090 | 1.062 | 1.034 | 0.960 | 0.143 | 0.141 | 0.41 | 0.34 | 0.062 | 1.50 | 1.88 | 0.010 |
| 17.5[5] | 1.124 | 1.093 | 1.065 | 0.991 | 0.153 | 0.151 | 0.41 | 0.34 | 0.062 | 1.50 | 1.90 | 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[4] | 1.218 | 1.188 | 1.156 | 1.095 | 0.153 | 0.151 | 0.41 | 0.34 | 0.062 | 1.62 | 2.02 | 0.010 |
| 19.5[5] | 1.250 | 1.218 | 1.187 | 1.126 | 0.153 | 0.151 | 0.41 | 0.34 | 0.062 | 1.63 | 2.00 | 0.010 |
| 20[5] | 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[4] | 1.406 | 1.375 | 1.344 | 1.250 | 0.163 | 0.161 | 0.41 | 0.34 | 0.062 | 1.88 | 2.31 | 0.010 |
| 23[5] | 1.468 | 1.437 | 1.406 | 1.300 | 0.163 | 0.161 | 0.41 | 0.34 | 0.62 | 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 |
| 25 | 1.592 | 1.561 | 1.530 | 1.411 | 0.163 | 0.161 | 0.44 | 0.38 | 0.62 | 1.88 | 2.53 | 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 | 1.860 | 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 | 2.581 | 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 |

| SAE Size No. | Effective Clamp Dia Range[1] A Max | Effective Clamp Dia Range[1] B Nom | Effective Clamp Dia Range[1] C Min | D NO GO Gage Dia | E Wire Dia[2] Max | E Wire Dia[2] Min | F Length of Tang Max | F Length of Tang Min | G Clearance at Overlap Max | W Width Over Tangs Max | Y Overall Height Ref | Z Gaging[3] Clearance Max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 46 | 2.938 | 2.875 | 2.812 | 2.625 | 0.204 | 0.200 | 0.44 | 0.38 | 0.93 | 2.63 | 3.88 | 0.012 |
| 50 | 3.218 | 3.125 | 3.032 | 2.844 | 0.218 | 0.222 | 0.44 | 0.38 | 0.125 | 3.12 | 4.00 | 0.022 |

(1) All dimensions are in inches.
(2) Wire diameters shown are before forming and plating.
(3) Gage clearance per 13.2.1.2.
(4) These sizes shall be furnished with greenish hue. Optional when specified by purchaser.
(5) These sizes shall be furnished with reddish hue. Optional when specified by purchaser.

***Table 20 - Type "E," stainless, inch***

| SAE Size No. | Clamp Dia Range A Max | Clamp Dia Range B Nom | Clamp Dia Range C Min | D NO GO Gage Dia | E Wire Dia Max | E Wire Dia Min | F Tang Length Max | F Tang Length Min | G Clearance at Overlap Max | W Free Width Max | Y Height Ref | Z Gaging Clearance Max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S-4 | 0.253 | 0.250 | 0.247 | 0.235 | 0.039 | 0.041 | 0.38 | 0.34 | 0.015 | 0.75 | 0.68 | 0.004 |
| S-5 | 0.315 | 0.312 | 0.309 | 0.292 | 0.052 | 0.050 | 0.38 | 0.34 | 0.015 | 0.81 | 0.68 | 0.004 |
| S-6 | 0.380 | 0.375 | 0.370 | 0.360 | 0.067 | 0.065 | 0.38 | 0.34 | 0.015 | 0.88 | 1.06 | 0.004 |
| S-7 | 0.442 | 0.438 | 0.432 | 0.415 | 0.077 | 0.075 | 0.38 | 0.34 | 0.015 | 0.94 | 1.12 | 0.004 |
| S-8 | 0.510 | 0.500 | 0.490 | 0.472 | 0.083 | 0.081 | 0.38 | 0.34 | 0.025 | 1.00 | 1.19 | 0.005 |
| S-9 | 0.573 | 0.562 | 0.551 | 0.530 | 0.093 | 0.091 | 0.38 | 0.34 | 0.025 | 1.06 | 1.38 | 0.006 |
| S-10 | 0.640 | 0.625 | 0.610 | 0.,590 | 0.107 | 0.105 | 0.38 | 0.34 | 0.025 | 1.06 | 1.38 | 0.006 |
| S-11 | 0.703 | 0.688 | 0.671 | 0.645 | 0.107 | 0.105 | 0.38 | 0.34 | 0.025 | 1.12 | 1.50 | 0.006 |
| S-12 | 0.770 | 0.750 | 0.730 | 0.700 | 0.107 | 0.105 | 0.38 | 0.34 | 0.031 | 1.18 | 1.50 | 0.008 |
| S-13 | 0.832 | 0.812 | 0.792 | 0.750 | 0.113 | 0.111 | 0.38 | 0.34 | 0.031 | 1.25 | 1.50 | 0.008 |
| S-14 | 0.900 | 0.875 | 0.850 | 0.810 | 0.121 | 0.119 | 0.38 | 0.34 | 0.031 | 1.25 | 1.62 | 0.008 |
| S-15 | 0.968 | 0.938 | 0.906 | 0.865 | 0.121 | 0.119 | 0.38 | 0.34 | 0.062 | 1.25 | 1.69 | 0.008 |
| S-16 | 1.031 | 1.000 | 0.969 | 0.925 | 0.121 | 0.119 | 0.38 | 0.34 | 0.062 | 1.31 | 1.75 | 0.008 |
| S-17 | 1.090 | 1.062 | 1.034 | 0.970 | 0.133 | 0.131 | 0.38 | 0.34 | 0.062 | 1.50 | 1.88 | 0.010 |
| S-18 | 1.150 | 1.125 | 1.100 | 1.040 | 0.143 | 0.131 | 0.38 | 0.34 | 0.062 | 1.62 | 2.00 | 0.010 |

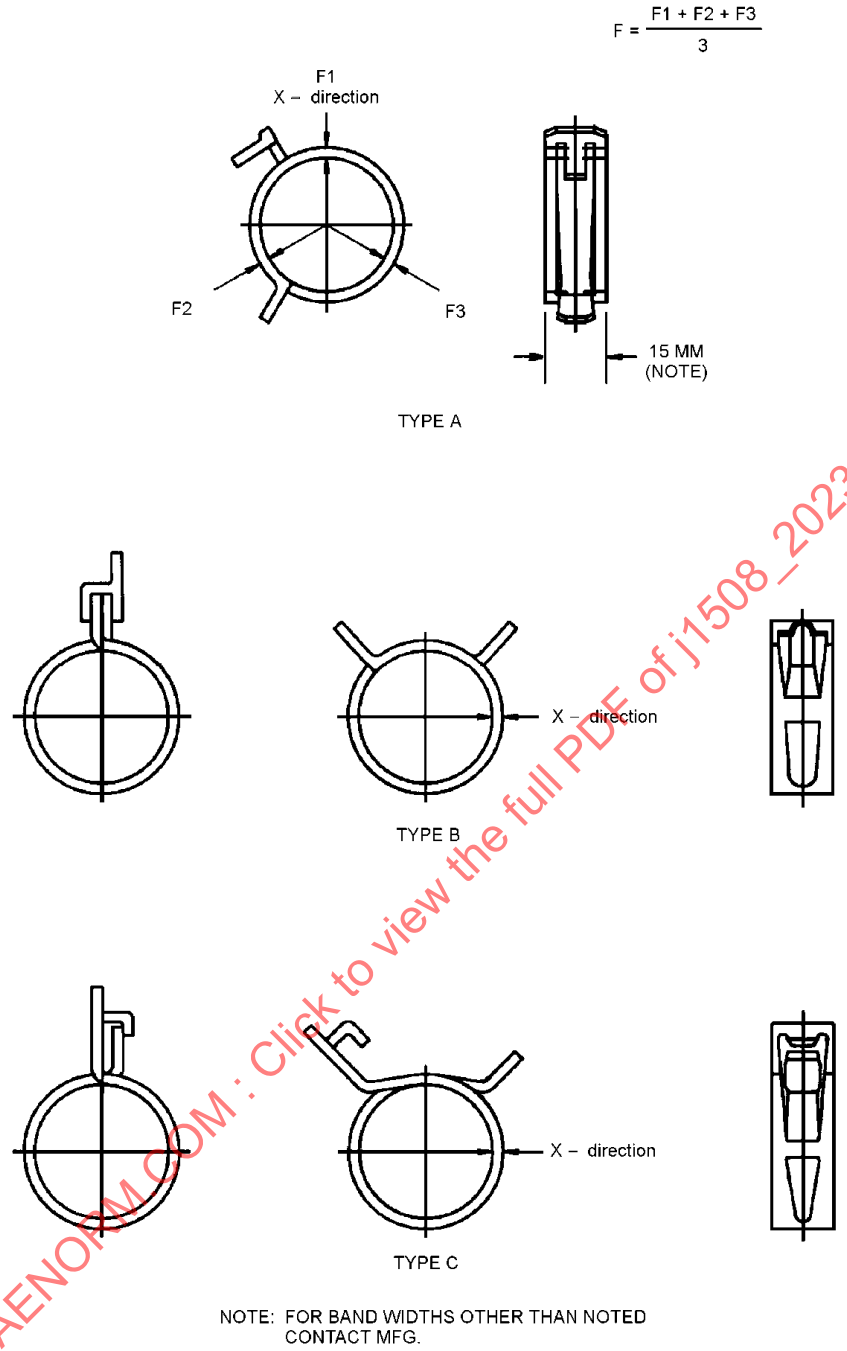





***Figure 18 - Type "CTB"***

***Table 21 - Type "CTB"[1]***

| 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 |

(1) Closed and full open diameters of most frequently used spring-type hose clamps.



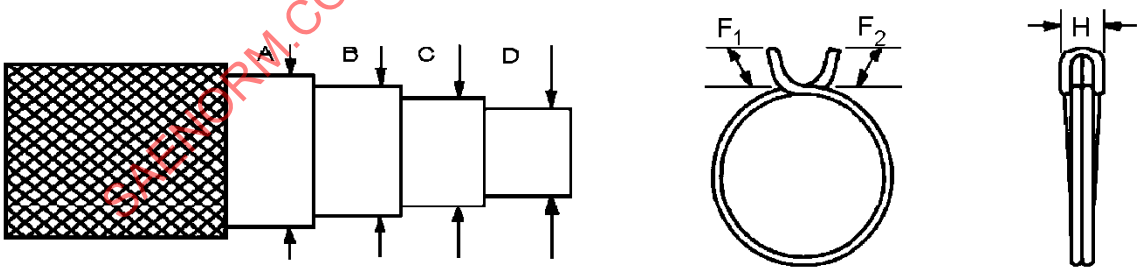



***Figure 19 - Type "CTW"***

***Table 22 - Type "CTW," metric[1]***

| A Clamp Diameters Max | B Clamp Diameters Nom | C Clamp Diameters Min | D NO GO | E Wire Size | $F_1$ Reference Dim Max | $F_2$ Reference Dim Min | G Gage Max | H Reference Dim |
|---|---|---|---|---|---|---|---|---|
| 7.47 | 7.26 | 6.96 | 6.73 | 1.00 | 6.35 | 4.80 | 0.105 | 6.35 |
| 7.80 | 7.60 | 7.30 | 7.10 | 1.00 | 6.35 | 4.80 | 0.105 | 6.35 |
| 8.80 | 8.70 | 8.60 | 8.10 | 1.00 | 6.35 | 4.80 | 0.105 | 6.35 |
| 9.65 | 9.50 | 9.40 | 8.90 | 1.00 | 6.35 | 4.80 | 0.105 | 6.35 |
| 10.57 | 10.39 | 10.19 | 9.68 | 1.50 | 9.65 | 6.35 | 0.153 | 7.10 |
| 11.25 | 11.13 | 11.00 | 10.28 | 1.50 | 9.65 | 6.35 | 0.153 | 7.10 |
| 13.00 | 12.55 | 12.50 | 11.73 | 1.50 | 9.65 | 6.35 | 0.153 | 7.10 |
| 14.10 | 13.73 | 13.36 | 12.36 | 1.50 | 9.65 | 6.35 | 0.153 | 7.10 |
| 14.58 | 14.31 | 14.00 | 13.75 | 1.70 | 10.80 | 6.35 | 0.153 | 8.25 |
| 15.93 | 15.60 | 15.11 | 14.10 | 1.70 | 10.80 | 6.35 | 0.153 | 8.25 |
| 16.26 | 15.88 | 15.49 | 14.73 | 1.70 | 10.80 | 6.35 | 0.153 | 8.25 |
| 16.81 | 16.41 | 15.93 | 14.88 | 1.70 | 10.80 | 6.35 | 0.153 | 8.25 |
| 17.86 | 17.48 | 17.04 | 16.13 | 1.98 | 12.70 | 8.26 | 0.203 | 9.14 |
| 18.69 | 18.19 | 17.70 | 16.51 | 1.98 | 12.70 | 8.26 | 0.203 | 9.14 |
| 19.50 | 19.00 | 18.50 | 17.50 | 1.98 | 12.70 | 8.26 | 0.203 | 9.14 |
| 20.62 | 20.19 | 19.61 | 18.25 | 1.98 | 12.70 | 8.26 | 0.203 | 9.14 |
| 21.13 | 20.62 | 20.12 | 18.80 | 1.98 | 12.70 | 8.26 | 0.203 | 9.14 |
| 22.75 | 22.13 | 21.50 | 20.25 | 2.19 | 13.97 | 9.53 | 0.203 | 10.16 |
| 23.57 | 23.09 | 22.40 | 20.98 | 2.19 | 13.97 | 9.53 | 0.203 | 10.16 |
| 24.59 | 23.83 | 23.01 | 21.72 | 2.19 | 13.97 | 9.53 | 0.203 | 10.16 |
| 26.29 | 25.50 | 24.61 | 23.24 | 2.49 | 14.22 | 9.53 | 0.254 | 11.43 |
| 27.68 | 26.97 | 26.26 | 24.38 | 2.49 | 14.22 | 9.53 | 0.254 | 11.43 |
| 28.12 | 27.48 | 26.67 | 24.99 | 2.49 | 14.22 | 9.53 | 0.254 | 11.43 |
| 29.21 | 28.58 | 27.94 | 26.16 | 2.49 | 14.22 | 9.53 | 0.254 | 11.43 |
| 30.94 | 30.18 | 29.36 | 27.81 | 2.80 | 16.76 | 11.43 | 0.254 | 12.19 |
| 32.00 | 31.29 | 30.38 | 28.37 | 2.80 | 16.76 | 11.43 | 0.254 | 12.19 |
| 32.51 | 31.75 | 30.96 | 29.08 | 2.80 | 16.76 | 11.43 | 0.254 | 12.19 |
| 34.14 | 33.32 | 32.54 | 30.73 | 2.80 | 16.76 | 11.43 | 0.254 | 12.19 |
| 35.69 | 34.98 | 33.91 | 32.00 | 3.00 | 19.00 | 12.70 | 0.254 | 13.72 |
| 36.40 | 35.59 | 34.59 | 32.49 | 3.00 | 19.00 | 12.70 | 0.254 | 13.72 |
| 38.10 | 37.21 | 36.20 | 33.78 | 3.00 | 19.00 | 12.70 | 0.254 | 13.72 |
| 38.89 | 38.10 | 37.31 | 34.29 | 3.20 | 19.00 | 12.70 | 0.254 | 14.22 |
| 40.44 | 39.65 | 38.86 | 35.84 | 3.20 | 19.00 | 12.70 | 0.254 | 14.22 |
| 42.98 | 41.28 | 40.08 | 37.47 | 3.20 | 19.00 | 12.70 | 0.254 | 14.22 |
| 45.64 | 44.45 | 43.26 | 40.13 | 3.20 | 19.00 | 12.70 | 0.254 | 14.22 |
| 49.20 | 47.63 | 46.02 | 43.69 | 3.20 | 19.00 | 12.70 | 0.254 | 14.22 |
| 50.80 | 49.23 | 47.63 | 45.19 | 3.50 | 20.32 | 13.97 | 0.254 | 14.99 |
| 52.35 | 50.80 | 49.25 | 46.48 | 3.50 | 20.32 | 13.97 | 0.254 | 14.99 |
| 55.55 | 53.98 | 52.37 | 49.43 | 3.50 | 20.32 | 13.97 | 0.254 | 14.99 |
| 57.15 | 55.55 | 53.98 | 50.17 | 3.50 | 20.32 | 13.97 | 0.254 | 14.99 |
| 58.42 | 57.15 | 55.55 | 50.80 | 3.50 | 20.32 | 13.97 | 0.254 | 14.99 |
| 71.00 | 69.85 | 60.00 | 63.00 | 3.80 | 21.60 | 13.97 | 0.508 | 17.02 |

| A Clamp Diameters Max | B Clamp Diameters Nom | C Clamp Diameters Min | D NO GO | E Wire Size | $F_1$ Reference Dim Max | $F_2$ Reference Dim Min | G Gage Max | H Reference Dim |
|---|---|---|---|---|---|---|---|---|
| 78.50 | 76.20 | 74.00 | 69.50 | 3.80 | 21.60 | 13.97 | 0.508 | 17.02 |
| 85.00 | 82.55 | 80.00 | 75.00 | 4.00 | 21.60 | 13.97 | 0.560 | 18.03 |
| 91.70 | 88.90 | 86.20 | 81.00 | 4.00 | 21.60 | 13.97 | 0.560 | 18.03 |
| 98.20 | 95.25 | 92.30 | 87.00 | 4.00 | 21.60 | 13.97 | 0.560 | 18.03 |
| 104.77 | 101.60 | 98.50 | 92.50 | 4.00 | 21.60 | 13.97 | 0.560 | 18.03 |
| 111.40 | 107.95 | 104.50 | 98.00 | 4.20 | 21.60 | 13.97 | 0.609 | 19.05 |
| 118.00 | 114.30 | 110.50 | 103.80 | 4.20 | 21.60 | 13.97 | 0.609 | 19.05 |
| 124.68 | 120.65 | 116.50 | 109.35 | 4.20 | 21.60 | 13.97 | 0.609 | 19.05 |
| 131.50 | 127.00 | 122.50 | 115.00 | 4.20 | 21.60 | 13.97 | 0.609 | 19.05 |

(1) For explanation, see 13.5.

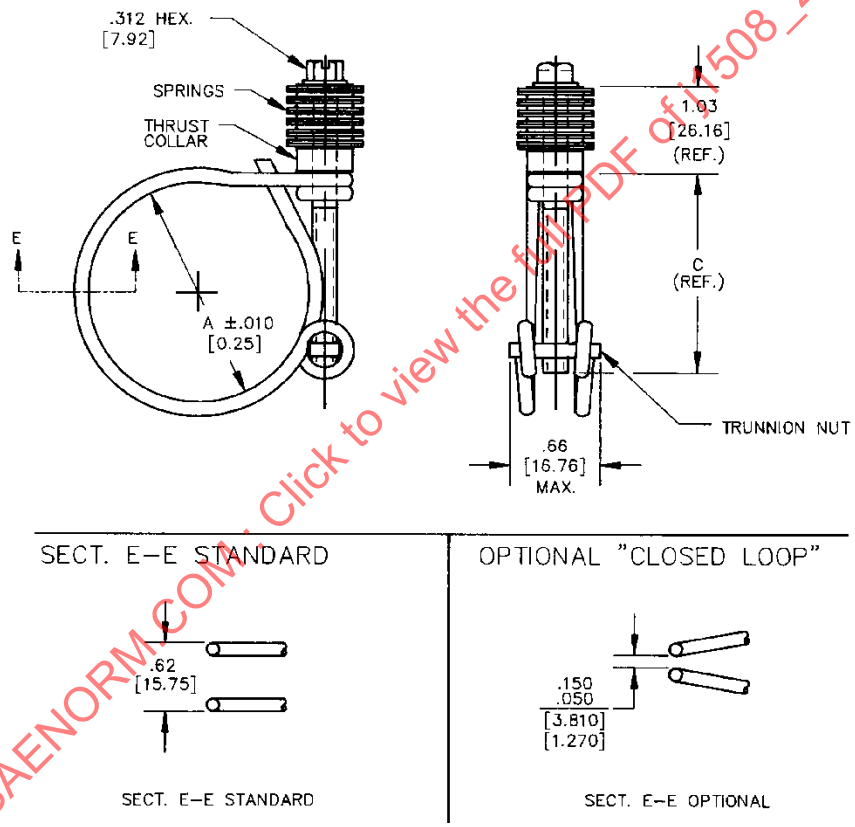





***Figure 20 - Type "SLA," inch (metric)***

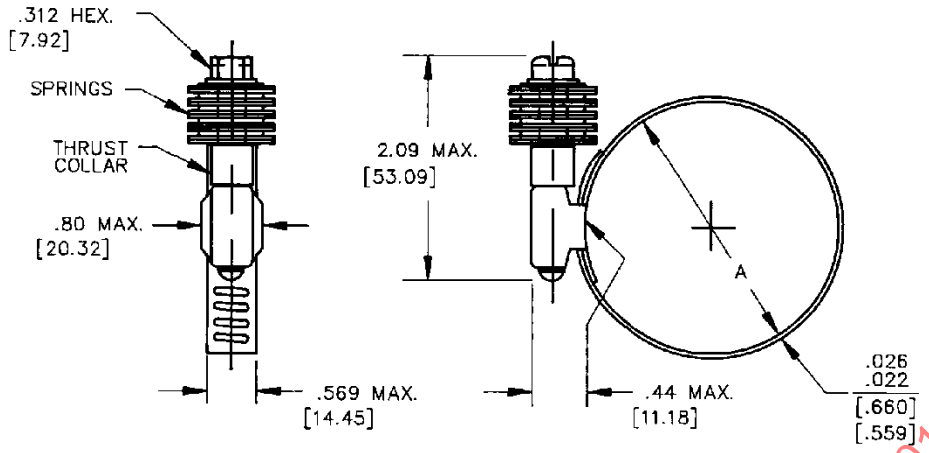



*Figure 21 - Type "SLF," inch (metric)*

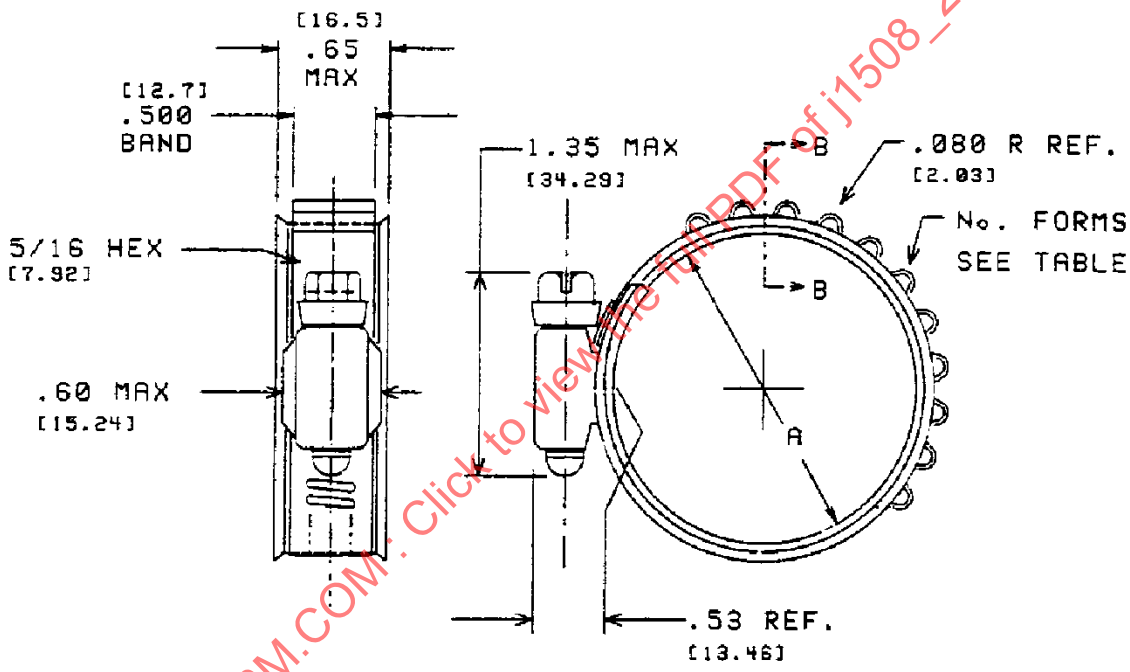
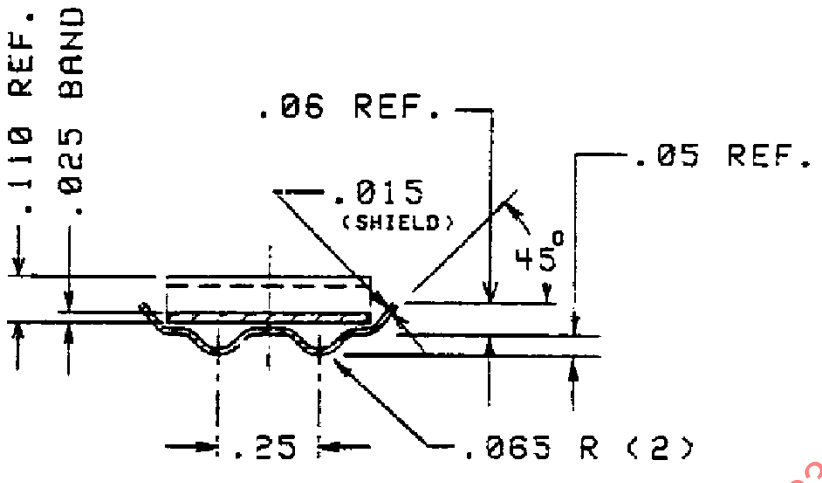



*Figure 22 - Type "T"*




DUAL BEAD SHIELD
SECT. B–B
SCALE: 2:1

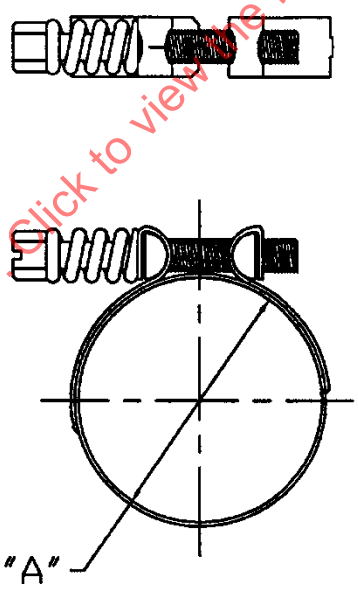
***Figure 23 - Type "T," inch (metric)***

***Table 23 - Type "T"***

| SAE Size No.[1][2] | "A" Diameter Max mm | "A" Diameter Min mm | No. Slots | No. Forms |
|---|---|---|---|---|
| 20 | 44.45 | 34.80 | 24 | 9 |
| 24 | 50.80 | 39.62 | 26 | 11 |
| 28 | 57.15 | 41.40 | 32 | 12 |
| 32 | 63.50 | 45.72 | 34 | 14 |
| 36 | 69.85 | 50.04 | 37 | 14 |
| 40 | 76.20 | 57.15 | 37 | 19 |
| 44 | 82.55 | 63.50 | 37 | 19 |
| 48 | 88.90 | 69.85 | 37 | 22 |
| | | 64.26 | 48 | |
| 52 | 95.25 | 76.20 | 37 | 22 |
| | | 67.06 | 48 | |
| 56 | 101.60 | 82.55 | 37 | 22 |
| | | 73.41 | 48 | |
| 60 | 107.95 | 88.90 | 37 | 22 |
| | | 79.76 | 48 | |
| 64 | 114.30 | 95.25 | 37 | 22 |
| | | 86.11 | 48 | |
| 68 | 120.65 | 101.60 | 37 | 22 |
| | | 92.46 | 48 | |
| 72 | 127.00 | 107.95 | 37 | 22 |
| | | 124.21 | 48 | |
| 76 | 133.35 | 114.30 | 37 | 22 |
| | | 105.16 | 48 | |
| 80 | 139.70 | 120.65 | 37 | 22 |
| | | 111.51 | 48 | |
| 84 | 146.05 | 127.00 | 37 | 22 |
| | | 117.86 | 48 | |

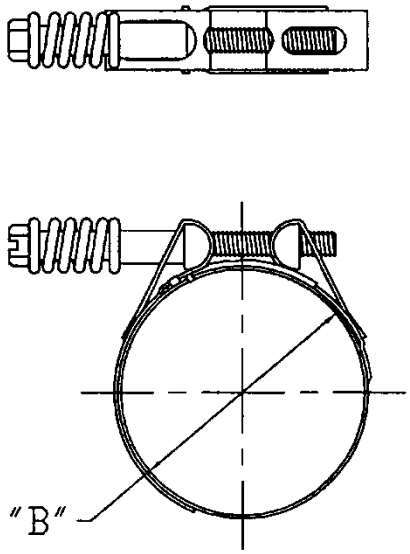
| SAE Size No.[1][2] | "A" Diameter Max mm | "A" Diameter Min mm | No. Slots | No. Forms |
|---|---|---|---|---|
| 88 | 152.40 | 133.35 | 37 | 22 |
| | | 124.21 | 48 | |
| 92 | 158.75 | 139.70 | 37 | 22 |
| | | 130.56 | 48 | |
| 96 | 165.10 | 146.05 | 37 | 22 |
| | | 136.91 | 48 | |
| 100 | 171.45 | 152.40 | 37 | 22 |
| | | 143.26 | 48 | |
| 104 | 177.80 | 158.75 | 37 | 22 |
| | | 175.01 | 48 | |
| 108 | 184.15 | 165.10 | 37 | 22 |
| | | 155.96 | 48 | |
| 112 | 190.50 | 171.45 | 37 | 22 |
| | | 162.31 | 48 | |
| 116 | 196.85 | 177.80 | 37 | 22 |
| | | 168.66 | 48 | |
| 120 | 203.20 | 184.15 | 37 | 22 |
| | | 175.01 | 48 | |

(1) Sizes less than No. 20 are not available.
(2) Other sizes available through manufacturers. Follow Type "F" for standard size increments.




For Diameter Range See Table 25.

***Figure 24A - Type "SSPC"***




For Diameter Range See Table 25.

***Figure 24B - Type "SSPC"***

***Table 24 - Type "SSPC"***

| | Clamp Range mm |
|---|---|
| "A" Diameter | |
| 24.0 | 19.0-24.0 |
| 26.0 | 21.0-26.0 |
| 28.0 | 23.0-28.0 |
| 31.0 | 26.0-31.0 |
| 32.0 | 27.0-32.0 |
| 36.0 | 31.0-36.0 |
| 40.0 | 35.0-40.0 |
| "B" Diameter | |
| 45.0 | 38.5-45.0 |
| 50.0 | 43.5-50.0 |
| 55.0 | 48.5-55.0 |
| 60.0 | 50.0-60.0 |
| 65.0 | 55.0-65.0 |
| 70.0 | 60.0-70.0 |
| 75.0 | 65.0-75.0 |
| 80.0 | 70.0-80.0 |
| 85.0 | 75.0-85.0 |
| 90.0 | 80.0-90.0 |
| 95.0 | 85.0-95.0 |
| 100.0 | 90.0-100.0 |
| 105.0 | 95.0-105.0 |
| 110.0 | 100.0-110.0 |
| 115.0 | 105.0-115.0 |

| | Clamp Range mm |
|---|---|
| 120.0 | 110.0-120.0 |
| 125.0 | 115.0-125.0 |
| 130.0 | 120.0-130.0 |
| 135.0 | 125.0-135.0 |
| 140.0 | 130.0-140.0 |
| 145.0 | 135.0-145.0 |
| 150.0 | 140.0-150.0 |
| 155.0 | 145.0-155.0 |
| 160.0 | 150.0-160.0 |
| 165.0 | 155.0-165.0 |
| 170.0 | 160.0-170.0 |
| 175.0 | 165.0-175.0 |
| 180.0 | 170.0-180.0 |
| 185.0 | 175.0-185.0 |
| 190.0 | 180.0-190.0 |
| 195.0 | 185.0-195.0 |
| 200.0 | 190.0-200.0 |
| 205.0 | 195.0-205.0 |
| 210.0 | 200.0-210.0 |
| 215.0 | 205.0-215.0 |
| 220.0 | 210.0-220.0 |
| 225.0 | 215.0-220.0 |
| 230.0 | 220.0-230.0 |
| 235.0 | 225.0-235.0 |
| 240.0 | 230.0-240.0 |
| 245.0 | 235.0-245.0 |
| 250.0 | 240.0-250.0 |
| 255.0 | 245.0-255.0 |



6.4 Group #4 (Types “J,” “OES,” “TE,” “SEC”)

Clamps which require the use of a special installation tool to deform and/or crimp tight a portion of the clamp specifically designed for said function.

6.4.1 “J”

Flat band clamp made with mechanical interlock or weld to secure band together. See Figure 25 and Table 25.

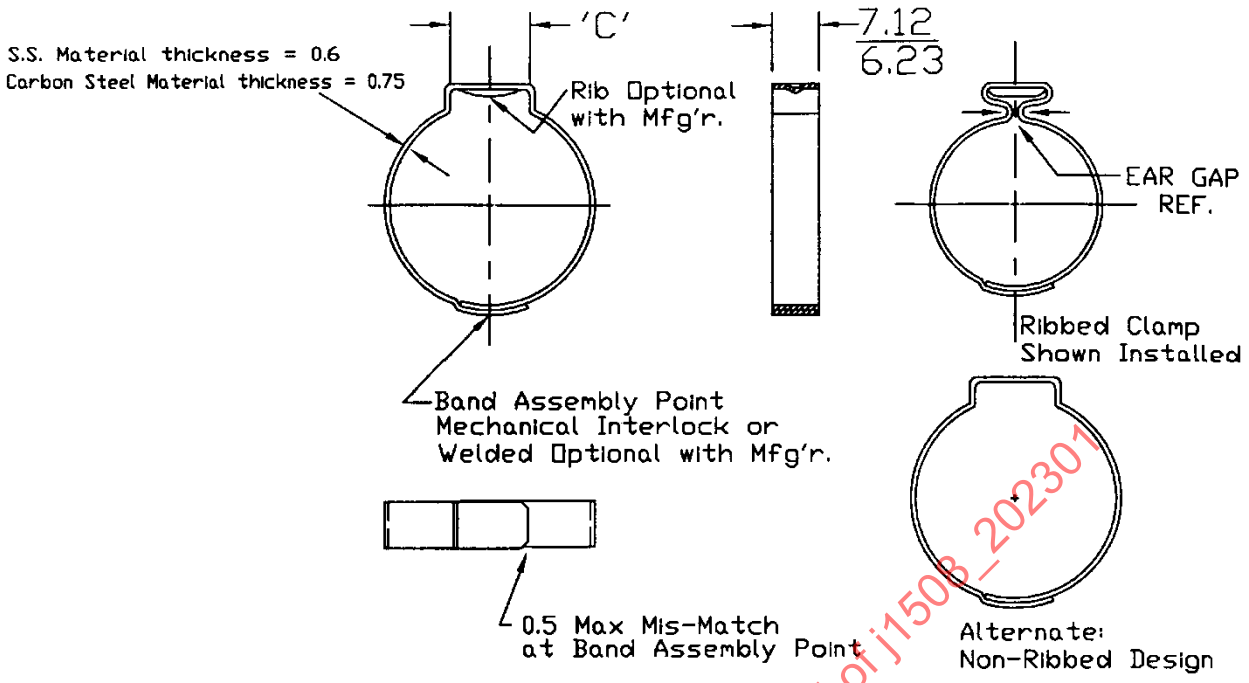



***Figure 25 - Type "J"***

***Table 25 - Type "J"***

| SAE Size | Min "C" Dimension | Min Clamp Range mm | SAE Size | Min "C" Dimension | Min Clamp Range mm |
|---|---|---|---|---|---|
| 101 | 5.0 | 8.5-10.1 | 515 | 10.0 | 48.4-51.5 |
| 105 | 5.0 | 8.9-10.5 | 530 | 10.0 | 49.9-53.0 |
| 113 | 5.0 | 9.7-11.3 | 535 | 10.0 | 50.3-53.5 |
| 123 | 6.0 | 10.4-12.3 | 540 | 10.0 | 50.8-54.0 |
| 133 | 6.0 | 11.4-13.3 | 545 | 10.0 | 51.4-54.5 |
| 140 | 6.0 | 11.9-14.0 | 560 | 10.0 | 52.9-56.0 |
| 145 | 6.0 | 12.6-14.5 | 575 | 10.0 | 54.4-57.5 |
| 152 | 6.0 | 13.3-15.2 | 590 | 10.0 | 55.9-59.0 |
| 157 | 6.0 | 13.8-15.7 | 605 | 10.0 | 57.4-60.5 |
| 165 | 6.0 | 14.6-16.5 | 620 | 10.0 | 58.9-62.0 |
| 170 | 6.0 | 15.1-17.0 | 635 | 10.0 | 60.4-63.5 |
| 180 | 9.0 | 15.1-18.0 | 650 | 10.0 | 61.9-65.0 |
| 185 | 9.0 | 15.7-18.5 | 665 | 10.0 | 63.4-66.5 |
| 198 | 9.0 | 17.0-19.8 | 680 | 10.0 | 64.9-68.0 |
| 210 | 9.0 | 18.2-21.0 | 695 | 10.0 | 66.4-69.5 |
| 226 | 9.0 | 19.8-22.6 | 710 | 10.0 | 67.9-71.0 |
| 241 | 9.0 | 21.3-24.1 | 725 | 10.0 | 69.4-72.5 |
| 256 | 9.0 | 22.8-25.6 | 740 | 10.0 | 70.9-74.0 |
| 271 | 10.0 | 24.0-27.1 | 755 | 10.0 | 72.4-75.5 |

| SAE Size | Min "C" Dimension | Min Clamp Range mm | SAE Size | Min "C" Dimension | Min Clamp Range mm |
|---|---|---|---|---|---|
| 286 | 10.0 | 25.5-28.6 | 770 | 10.0 | 73.9-77.0 |
| 301 | 10.0 | 27.0-30.1 | 785 | 10.0 | 75.4 -78.5 |
| 316 | 10.0 | 28.5-31.6 | 800 | 10.0 | 76.9-80.0 |
| 331 | 10.0 | 30.0-33.1 | 815 | 10.0 | 78.4-81.5 |
| 346 | 10.0 | 31.5-34.6 | 830 | 10.0 | 79.9-83.0 |
| 361 | 10.0 | 33.0-36.1 | 845 | 10.0 | 81.4-84.5 |
| 376 | 10.0 | 34.5-37.6 | 860 | 10.0 | 82.9-86.0 |
| 381 | 10.0 | 35.0-38.1 | 875 | 10.0 | 84.4-87.5 |
| 391 | 10.0 | 35.9-39.1 | 890 | 10.0 | 85.9-89.0 |
| 396 | 10.0 | 36.5-39.6 | 905 | 10.0 | 87.4-90.5 |
| 410 | 10.0 | 37.9-41.0 | 920 | 10.0 | 88.9-92.0 |
| 425 | 10.0 | 39.4-42.5 | 935 | 10.0 | 90.4-93.5 |
| 440 | 10.0 | 40.9-44.0 | 950 | 10.0 | 91.9-95.0 |
| 455 | 10.0 | 42.4-45.5 | 965 | 10.0 | 93.4-96.5 |
| 470 | 10.0 | 43.9-47.0 | 980 | 10.0 | 94.9-98.0 |
| 485 | 10.0 | 45.4-48.5 | 995 | 10.0 | 96.4-99.5 |
| 500 | 10.0 | 46.9-50.0 | | | |

6.4.2 "OES"

Flat band clamp made from spiral welded rings. See Figure 26 and Table 26.

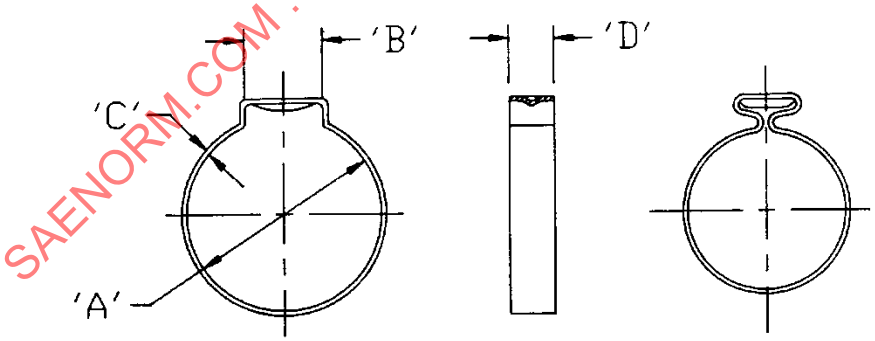



***Figure 26 - Type "OES"***

***Table 26 - Type "OES"***

| A Diameter mm | B Dimension mm | C Dimension Zinc Pl Stl mm | C Dimension S.S mm | D Dimension mm | Clamp Range mm |
|---|---|---|---|---|---|
| 3.3 | 1.4 | 0.5 | | 3.0 | 2.9-3.3 |
| 3.5 | 1.4 | 0.5 | | 3.0 | 3.0-3.5 |
| 4.1 | 2.5 | 0.5 | | 4.0 | 3.3-4.1 |
| 5.1 | 3.2 | 0.5 | 0.5 | 4.0 | 4.1-5.1 |
| 6.1 | 3.2 | 0.5 | 0.5 | 4.0 | 5.1-6.1 |
| 6.6 | 3.2 | 0.5 | 0.5 | 4.0 | 5.6-6.6 |
| 7.0 | 3.0 | 0.5 | 0.5 | 5.0 | 6.1-7.0 |
| 8.0 | 4.0 | 0.5 | 0.5 | 5.0 | 6.8-8.0 |
| 8.7 | 4.0 | 0.8 | 0.5 | 5.0 | 7.5-8.7 |
| 9.5 | 5.0 | 1.0 | 0.7 | 6.0 | 7.9-9.5 |
| 10.0 | 5.0 | 0.7 | 0.7 | 6.0 | 8.5-10.0 |
| 10.5 | 5.0 | 0.7 | 0.7 | 6.0 | 8.9-10.5 |
| 11.0 | 5.0 | 0.7 | 0.7 | 6.0 | 9.4-11.0 |
| 11.3 | 5.5 | 0.7 | 0.7 | 6.0 | 9.6-11.3 |
| 11.8 | 5.5 | 0.7 | 0.7 | 6.0 | 10.1-11.8 |
| 12.0 | 6.0 | 1.0 | 0.7 | 6.0 | 10.1-12.0 |
| 12.3 | 6.5 | 0.8 | 0.7 | 6.0 | 10.3-12.3 |
| 12.8 | 6.5 | 0.8 | 0.7 | 6.0 | 10.8-12.8 |
| 13.3 | 6.0 | 1.0 | 0.8 | 6.0 | 11.4-13.3 |
| 14.0 | 6.0 | 1.0 | 0.8 | 6.0 | 12.1-14.0 |
| 14.5 | 6.5 | 1.0 | 0.8 | 6.0 | 12.5-14.5 |
| 16.0 | 6.0 | 1.0 | 0.8 | 6.0 | 14.1-16.0 |
| 17.5 | 7.5 | 1.0 | 0.8 | 6.0 | 15.3-17.5 |

6.4.3 "TE"

Flat band clamp made from spiral welded rings. See Figure 27 and Table 27.

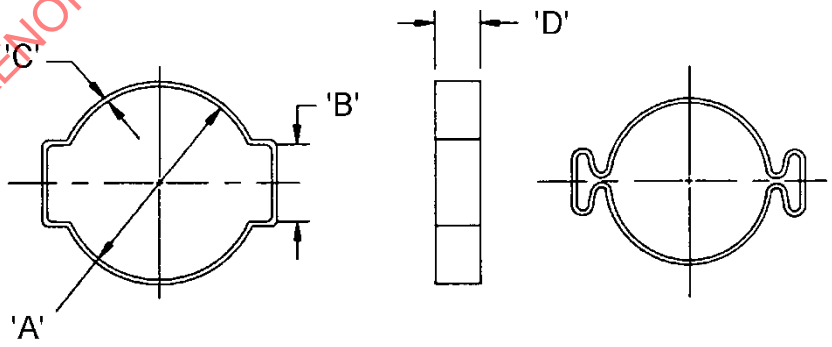



***Figure 27 - Type "TE"***

***Table 27 - Type "TE"***

| A Diameter mm | B Dimension mm | C Dimension Zinc Pl Stl mm | C Dimension S.S mm | D Dimension mm | Clamp Range mm |
|---|---|---|---|---|---|
| 4.1 | 1.5 | 0.5 | 0.5 | 3.5 | 3.1-4.1 |
| 4.5 | 1.5 | 0.6 | 0.5 | 3.5 | 3.5-4.5 |
| 5.0 | 2.5 | 0.7 | 0.5 | 5.0 | 3.0-5.0 |
| 7.0 | 3.0 | 0.7 | 0.5 | 6.0 | 5.0-7.0 |
| 9.0 | 3.2 | 1.0 | 0.8 | 7.0 | 7.0-9.0 |
| 11.0 | 4.5 | 1.0 | 0.8 | 7.0 | 8.0-11.0 |
| 11.0 | 3.5 | 1.0 | 0.8 | 7.0 | 9.0-11.0 |
| 13.0 | 3.5 | 1.0 | 0.8 | 7.0 | 11.0-13.0 |
| 15.0 | 4.0 | 1.0 | 0.8 | 7.5 | 13.0-15.0 |
| 17.0 | 5.0 | 1.2 | 0.8 | 8.0 | 13.8-17.0 |
| 18.0 | 5.0 | 1.2 | 0.8 | 8.0 | 15.0-18.0 |
| 20.0 | 6.0 | 1.2 | 1.0 | 8.5 | 17.0-20.0 |
| 22.0 | 6.5 | 1.5 | 1.0 | 9.0 | 19.0-22.0 |
| 23.0 | 6.5 | 1.5 | 1.0 | 9.0 | 20.0-23.0 |
| 25.0 | 6.5 | 1.5 | 1.0 | 10.0 | 22.0-25.0 |
| 27.0 | 7.0 | 1.5 | 1.0 | 10.0 | 23.0-27.0 |
| 28.0 | 6.5 | 1.5 | 1.0 | 10.0 | 25.0-28.0 |
| 31.0 | 7.5 | 1.5 | 1.0 | 10.0 | 27.0-31.0 |
| 31.0 | 6.5 | 1.5 | 1.0 | 10.0 | 28.0-31.0 |
| 34.0 | 7.5 | 1.5 | 1.0 | 10.0 | 31.0-34.0 |

6.4.4 "SEC"

Flat band clamp with mechanical interlock to secure bands together. See Figure 28 and Table 28.

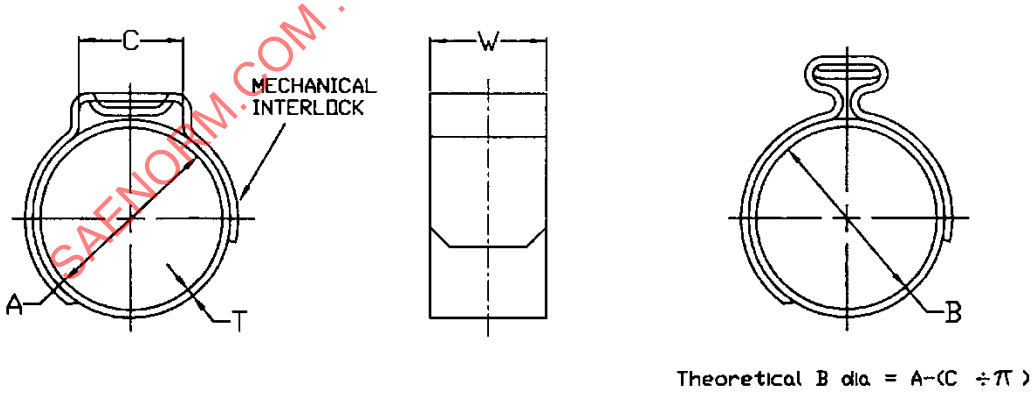



***Figure 28 - Type "SEC"***

***Table 28 - Type "SEC," metric[1]***

| A Diameter | C Dimension | W 5.0 | T 0.5 | W 7.0 | T 0.6 | W 9.0 | T 0.6 | W 9.0 | T 0.8 | W 10 | T 0.8 | W 10 | T 0.1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7.0 | 5.5 | a | a | | | | | | | | | | |
| 8.0 | 5.5 | a | a | | | | | | | | | | |
| 8.7 | 5.5 | a | a | | | | | | | | | | |
| 9.5 | 5.5 | a | a | | | | | | | | | | |
| 10.0 | 5.5 | a | a | | | | | | | | | | |
| 10.5 | 5.5 | a | a | | | | | | | | | | |
| 11.3 | 5.5 | a | a | | | | | | | | | | |
| 11.8 | 5.5 | a | a | | | | | | | | | | |
| 12.3 | 8.0 | | | a | a | | | | | | | | |
| 13.3 | 8.0 | | | a | a | | | | | | | | |
| 13.8 | 8.0 | | | a | a | | | | | | | | |
| 14.0 | 8.0 | | | a | a | | | | | | | | |
| 14.5 | 8.0 | | | a | a | | | | | | | | |
| 15.7 | 8.0 | | | a | a | | | | | | | | |
| 17.0 | 8.0 | | | a | a | | | | | | | | |
| >17.9 | 10.0 | | | a | a | | | | | | | | |
| >27.1 | 10.0 | | | a | a | a | a | a | a | a | a | | |
| >60.0 | 10.0 | | | a | a | a | a | a | a | a | a | a | a |

[1] Legend:
a. denotes available clamp sizes
W denotes material width
T denotes material thickness
NOTE:All sizes are in millimeters
Increments of 0.1 of a millimeter

## 6.5 Group #5 (Type "LP")

Clamps which require a tool to close and engage hooks into windows.

### 6.5.1 "LP"

Flat band clamp which is reusable with the proper tool. See Figure 29 and Table 29.

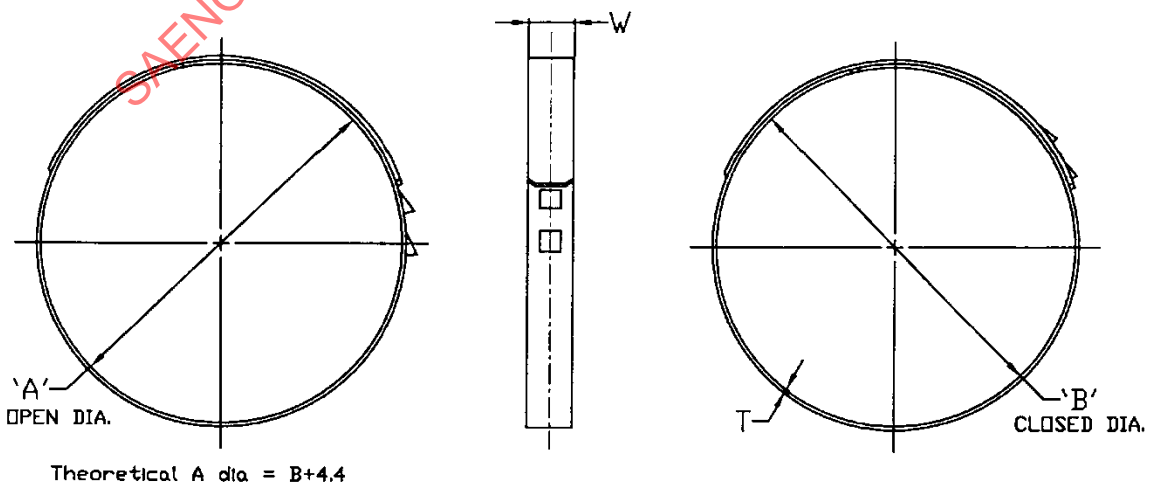



***Figure 29 - Type "LP"***

***Table 29 - Type "LP," metric[1]***

| B Closed Diameter | W 5.0 | T 0.5 | W 7.0 | T 0.6 | W 9.0 | T 0.6 |
|---|---|---|---|---|---|---|
| >19.5 | a | a | | | | |
| >24.5 | | | a | a | a | a |

(1) Legend:
a. denotes available clamp sizes
W denotes material width
T denotes material thickness
NOTE:All sizes are in millimeters
Increments of 0.1 of a millimeter

6.6 Group #6 (Type "H")

Permanent type fastening device.

6.6.1 Application

Double-wrapped clamps are used in pressure applications to clamp hoses to fittings. Both single- and double-wrapped clamps are used to clamp boots, heat shields, etc.

6.6.2 Design

"H" type clamps are constructed of a piece of band and a separate buckle. The buckle is retained by a folded under band tab (Style "A") or a buckle nest formed into the band (Style "B"). Styles "A" and "B" are preformed and preassembled. Style "C" is purchased flat or made up by the user from bulk band and buckles to any size. See Figure 30 and Table 30.

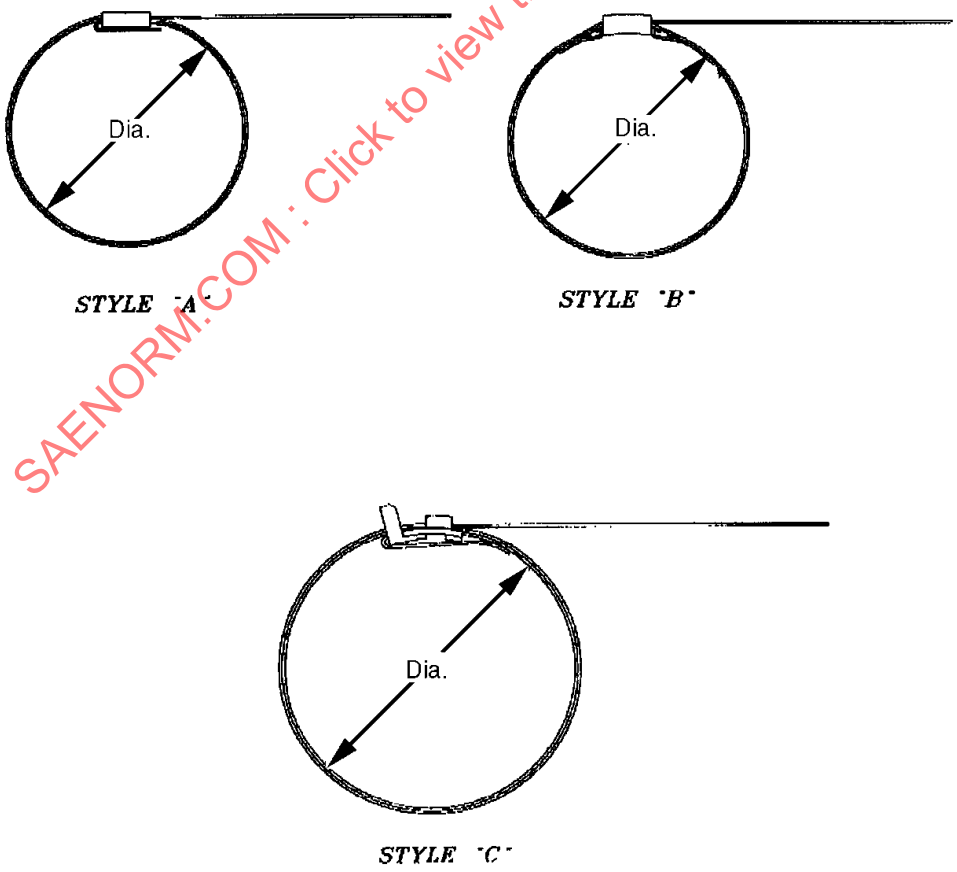



***Figure 30 - Type "H" - Styles "A," "B," and "C"***

***Table 30 - Type "H" clamps[1]***

| SAE Size | Diameter Dia mm | Band Dimensions 6.4 x 0.50 | Band Dimensions 9.50 x 0.64 | Band Dimensions 12.7 x 0.75 | Band Dimensions 15.9 x 0.75 | Band Dimensions 19.1 x 0.75 |
|---|---|---|---|---|---|---|
| 12 | 19 | a | a,b,c | | | |
| 16 | 25 | a,d,e | a,c | a,b,c | | |
| 20 | 32 | a | | a,b,c | | |
| 22 | 35 | a | a,b,c | | | |
| 24 | 38 | a,d,e | a,c,e | a,c | a,b,c | |
| 28 | 44 | | a,c | a,c | a,b,c | |
| 32 | 51 | a,d | a,b,c | a,b,c,e | a,b,c | a,b,c |
| 36 | 57 | | | | a,b,c | |
| 40 | 64 | a,d,e | a,b,c | a,b,c | a,b,c,e | |
| 44 | 70 | a | | a,c, | | a,b,c |
| 48 | 76 | a,d | a,c | a,b,c | | a,b,c,e |
| 56 | 89 | a,d,e | a,b,c | a,b,c | | a,b,c |
| 64 | 102 | a | a,b,c | a,b,c,e | | a,b,c |
| 72 | 114 | a,d,e | | | | a,b,c |
| 80 | 127 | | | | | a,b,c,e |
| 84 | 133 | | | | | a,b,c |
| 96 | 152 | | e | | | a,b,c |
| 112 | 178 | | | | | a,c,e |
| 128 | 203 | | | | e | a,c |
| 144 | 229 | | | | | e |
| 160 | 254 | | | | e | |

[1] Legend:
a = Type 201 stainless steel, double wrapped Style "A" or "B"
b = Type 316 stainless steel, double wrapped Style "A" or "B"
c = galvanized carbon steel, double wrapped Style "A" or "B"
d = Type 201 stainless steel, single wrapped Style "B"
e = Type 201 stainless steel, free-end clamps, flat, Style "C"
NOTE:Style "C" is supplied in flat configuration
Dia = maximum diameter for double wrap



## 7. GENERAL REQUIREMENTS

### 7.1 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.

### 7.2 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.

7.2.1 Type “CTB” clamps may be supplied in either the free-state (Table 21) or a locked, spring-loaded, full-opened position (Figure 18, 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.

7.3 Group #3

Clamps are governed by the general requirements set forth for Group #1 clamps in 5.1.

7.4 Group #4

Clamps are governed by the use of special installation tool.

7.5 Group #5

Clamps are governed by the use of special installation tool.

7.6 Group #6

Preformed metal clamps, permanently applied with a specialized tool, nonadjustable, nonreusable. In style “A,” the buckle is retained by a fold under of the band. Style “B” has a formed buckle nest.

7.6.1 Clamps are applied, tensioned, and locked with specialized manual or power tools capable of producing a permanent lock.

8. MATERIALS

The materials listed in this section are recommended. It serves only as a reference for the user and in no way implies that the current manufacturers are required to use the listed materials. As raw material prices move and new technologies emerge, the clamp manufacturers reserve the right to change the raw materials and processes used in their products so long as they can demonstrate that overall clamp performance has not been impaired.

8.1 Materials - Group #1

8.1.1 Types “A” and “AHH”

8.1.1.1 Wire

UNS-G10080, AISI 1008-G10100, 1010 steel, 60 to 80 ksi typical.

8.1.1.2 Nut

UNS-G10100, AISI 1010 steel - UNS-G10200, AISI 1020 steel, HRB85-100.

8.1.1.3 Screw

UNS-G10200, AISI 1022, heat-treated HRC30-40.

8.1.2 Types “B” and “D”

8.1.2.1 Entire Clamp

UNS-G10100, AISI 1010 steel.

8.1.2.2 Entire Clamp

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

8.1.3 Type “C”

8.1.3.1 Band

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

8.1.3.2 Nut

Same as band (6.1.3.1) at manufacturer's option.

8.1.3.3 Screw

Same as band (6.1.3.11) at manufacturer's option.

8.1.3.4 Bridge

Same as band (6.1.3.1).

8.1.4 Types “F,” “FEO,” “FE,” “HD,” I,” “M,” and “MX”

8.1.4.1 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.

8.1.4.2 Housing

Same as band, except unheat-treated carbon steel.

8.1.4.3 Saddle

Same as band.

8.1.4.4 Screw

UNS-G10060, AISI 1006-G10180, 1018; and G10211 10B21 carbon steels; S41000, AISI grades 410; S43000, 430; S30200, 302; S30400, 304; S30500, 305; and S31600, 316 stainless steels.

8.1.5 Type “TB”

8.1.5.1 Band

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

8.1.5.2 Bridge

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

8.1.5.3 Trunnion

Low carbon steel cadmium plated or stainless steel (same grades as for “bridge”).

8.1.5.4 Nut

UNS-G10200, AISI 1020-G10500, 1050 steel, cadmium, or zinc plated. Refer to to MS21044 and MS21045 where required.