



SURFACE VEHICLE STANDARD

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Clip Fastener Fitting

RATIONALE

This standard covers products which are mature and not likely to change in the foreseeable future.

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1. SCOPE

This SAE Standard covers material and dimensional requirements of steel clip fastener fittings. These fittings are intended for use in hydraulic systems on industrial equipment primarily in mining applications.

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 ASTM Publication

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 B 117 Method of Salt Spray (Fog) Testing

2.1.2 ISO Publication

Available from American National Standards Institute, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

ISO 3601-3 Fluid systems - Sealing devices - O-rings - Part 3: Quality acceptance criteria

3. SIZE DESIGNATION

Fitting sizes are designated by the corresponding nominal inside diameter of hose. See Table 1.

TABLE 1 - NOMINAL SIZE DESIGNATIONS

Metric Size	SAE Dash Size (Ref)
6.3	–4
10	–6
12.5	–8
19	–12
25	–16
31.5	–20
38	–24
51	–32

4. MATERIAL AND MANUFACTURE

4.1 Material

4.1.1 Male and Female

The material used in the manufacture of the male and female components shall be steel such as AISI 12L14, 1137, 1141 or other free cutting steels having a minimum yield strength of 193 MPa and a minimum tensile strength of 345 MPa. See Figures 1 and 2 and Tables 2 and 3.

4.1.2 O-ring

The standard clip fastener O-ring shall be manufactured from an elastomeric material that is compatible with the fluid being conveyed. Suitable materials include nitrile (NBR) rubber or fluoroelastomers (FKM) having a minimum Shore 'A' hardness of 80 durometer. See Figure 3 and Table 4.

4.1.3 Back-up Ring

The clip fastener back-up ring shall be manufactured from a material that is compatible with the fluid being conveyed. Suitable materials include acetal homopolymers, polyamide or polytetrafluoroethylene (PTFE). See Figure 3 and Table 4.

4.1.4 Staples

The clip fastener staple (clip) shall be manufactured from corrosion-resistant steel or spring steel. Contour and details of staple are optional with manufacturer providing that interchangeability of the male and female is not affected. Interchangeability of clip fastener shall not compromise full pressure capability of the assembly. See Figure 4 and Table 5.

4.2 Corrosion Protection

The external surfaces and threads of all carbon steel parts shall be plated or coated with a suitable material that passes a 72 h salt spray test in accordance with ISO 9227 or ASTM B 117. Any appearance of red rust during the 72 h salt spray test shall be considered failure, except for the following:

- a. All internal fluid passages.
- b. Edges such as hex points, serrations and crests of threads where there may be mechanical deformation of the plating or coating typical of mass-produced parts or shipping effects.
- c. Areas where there is mechanical deformation of the plating or coating caused by crimping, flaring, bending and other post-plate metal forming operations.
- d. Areas where the parts are suspended or affixed in the test chamber where condensate can accumulate.

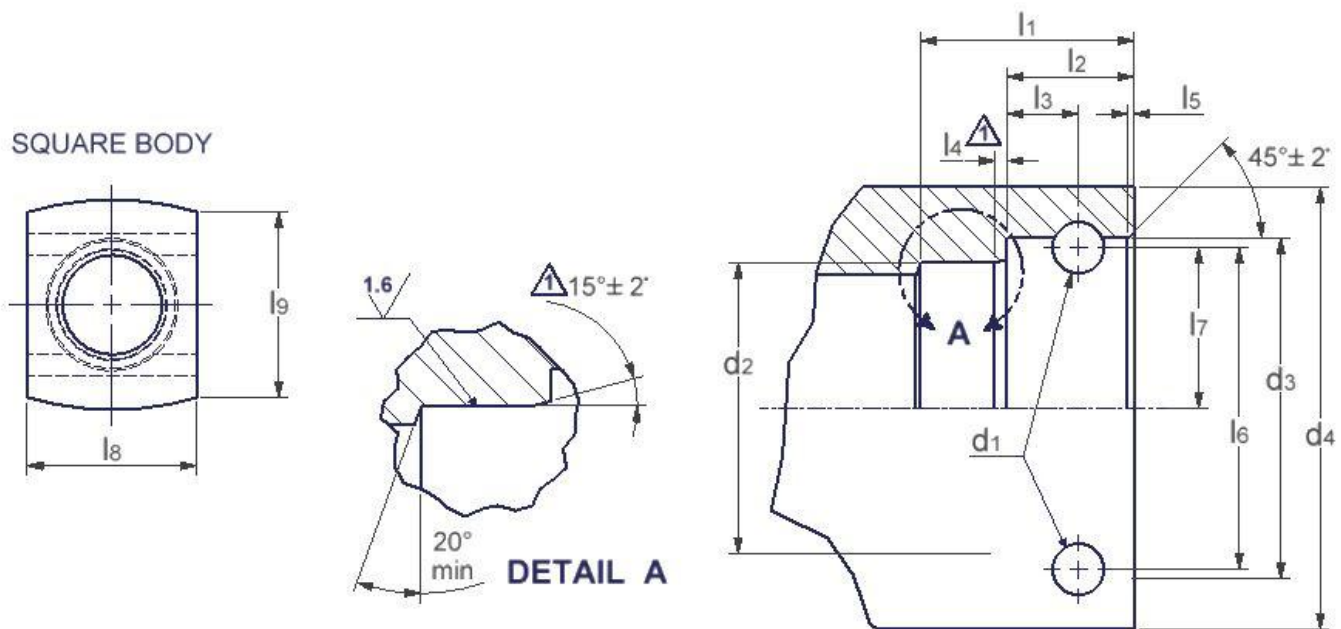
Parts manufactured to this standard shall not be cadmium plated. Hexavalent chromate coatings are not preferred for commercial and industrial usage due to environmental reasons. Internal fluid passages shall be protected from corrosion during storage and shipping. Changes in plating or coating shall be re-qualified to ensure assembly torque is not affected.

4.3 Workmanship

Workmanship shall conform to the best commercial practice to produce high-quality fittings. Fittings shall be free from visual contaminants, all hanging burrs, loose scale and slivers which might be dislodged in usage, and any other defects that might affect the function of the parts or the system to which they are assembled.

4.4 Construction

Fittings may be made by forging, cold heading or machining from bar stock. Carbon steel fittings fabricated from multiple components may be bonded together by copper brazing, silver brazing, welding or other suitable processes. Minimum yield and tensile strength per 4.1.1 shall apply.



 Optional Design: 1.5 / 1.0 x 30° ± 2°

FIGURE 1 - FEMALE CLIP FASTENER BODY