

## Port End Assembly

The three common types of port ends used in the United States with tube fittings, pipe fittings and hose fittings are:

- 1) Parallel thread
- 2) Tapered Thread
- 3) Flanges

### Parallel Thread Ports

Unlike tapered threads, parallel thread ports do not require sealing by the threads. The seal is obtained by other means, typically an elastomeric seal. When assembled properly, parallel thread ports provide the best leak-free port connection available.

Parker tube fittings are available with several types of parallel thread port studs (ends):

- SAE straight threads (SAE J1926 / ISO 11926)
- ISO (ISO 6149)
- JIS (JIS B2351)
- BSPP flat face (ISO 1179)
- DIN Metric flat face (ISO 9974).

The SAE straight thread, ISO 6149 and JIS B2351 ports are all of similar design. The male end is fitted with an O-ring. On assembly, the O-ring is firmly sandwiched between the angular sealing surface of the female port, the male end undercut, and the shoulder or back-up washer of the male end. Sealing is thus made possible and maintained by the O-ring compression, which results from the sandwiching of the O-ring in the cavity as shown in Fig. T1. The straight threads do not offer sealing action; they provide the resistance (holding power) for service pressure. Port dimensions for SAE and ISO 6149 ports are given on pages U25 and U26 respectively. For JIS B2351 dimensions, please [contact the Tube Fittings Division](#).

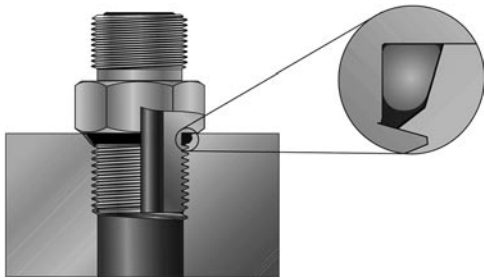


Fig. T1 – SAE / ISO / JIS B2351 Straight Thread Port O-Ring Upon Assembly

The SAE straight thread port is the same as MS 16142. **It is also similar to, but dimensionally not the same as, MS 33649 and AND 10050, and thus not interchangeable with them.** Therefore, it is not recommended to use fittings designed for SAE straight thread ports in MS 33649 and AND 10050 ports.

With the BSPP and metric flat face port ends, the sealing actually takes place on the top surface (spot face) of the port. Port dimensions can be found on [pages U29 and U30](#) respectively. There are several sealing methods available for these ports. Port studs with type “E” sealing utilize Parker’s EOlastic seal

(ED) (see Fig. T2) and are recommended for higher pressures than the other types. Types “G” and “H” use an O-ring that is supported on the outside by a removable retaining ring (see Fig. T3). Type B (cutting face) is designed with a relatively sharp ridge of material that seals by coining the flat face of the female port (see Fig. T4). A fourth sealing method uses a bonded seal which consists of a metal ring with an elastomer bonded to the inside surface (often referred to as Dowty® seal) (see Fig. T5).

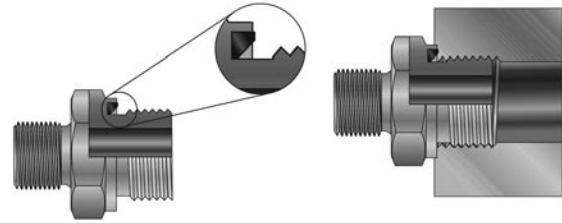


Fig. T2 – EOlastic Seal, Type E

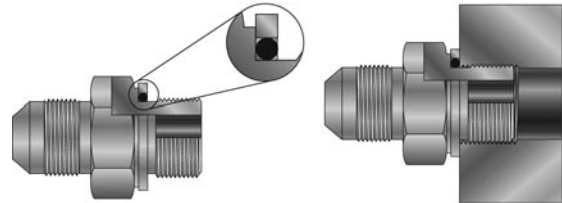


Fig. T3 – O-Ring with Retaining Ring, Types G & H

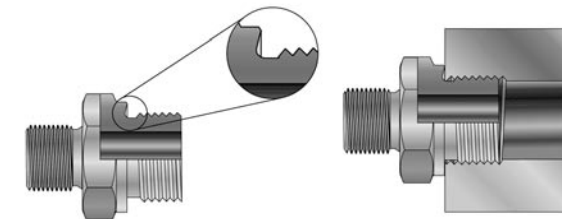


Fig. T4 – Cutting Face, Type B

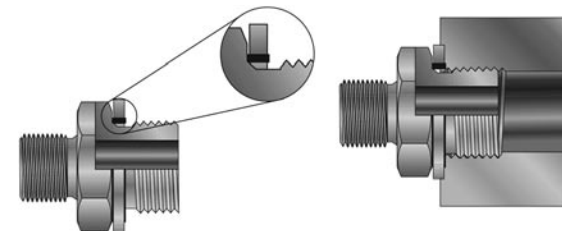


Fig. T5 – Bonded Seal