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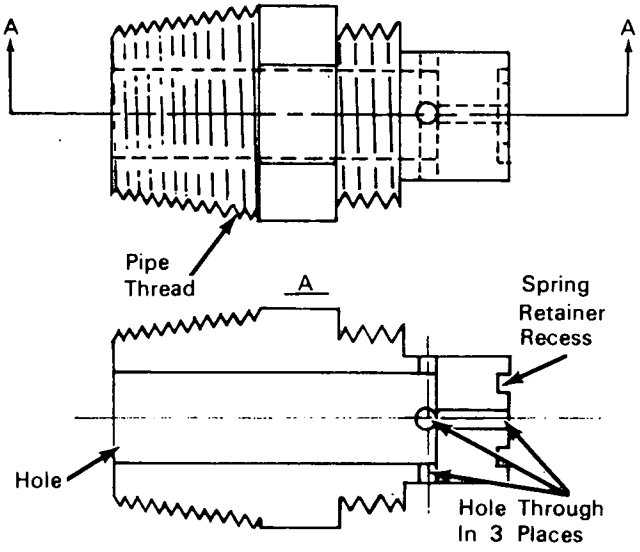
NASA TECH BRIEF

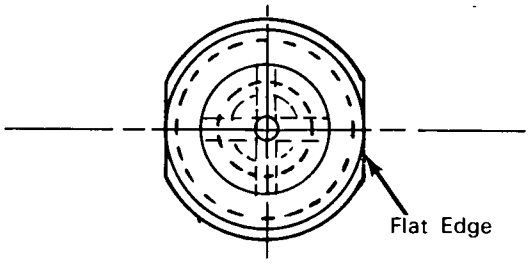
Self-Sealing, Easily Purged Quick-Disconnect Hose Coupling

A quick disconnect coupling (see fig.) for pressurized hoses handles gas or liquid, is easily purged, and automatically seals the hose when disconnected. Volatile or toxic materials can be isolated before the connection is broken. This device may interest food processors and manufacturers of fluid delivery systems.



Before being connected to coupling B, coupling A is kept sealed by an internal spring-loaded piston. The piston head is forced against the end of the coupling by the spring and by the pressure in the hose. The head covers and seals the delivery hole against loss of pressure from pressurized hose. (Coupling B is similarly constructed.)

A peripheral retainer is fitted between the two couplings before they are joined. The retainer contains a slotted tube mounted through the center of a fixed disk. When the retainer is pressed over the ends of the two couplings, the two adaptor ends are guided through the coupling delivery holes. With pressure, the adapter forces the two pistons inward against the springs, and provides a passage between the couplings, through the slotted tube. The two couplings are then locked together by turning the retainer 45 deg.



Before the couplings are disconnected, as many as four purge plugs fitted with purge lines are unscrewed. When the retainer is then turned 45 deg, the couplings separate slightly and the springs force the pistons to expel the adapter and seal the two couplings. Before the couplings disconnect, the enlarged space between them is purged until clean.

Note:

Requests for further information may be directed to:
Technology Utilization Officer
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Houston, Texas 77058
Reference: B70-10699

Patent status:

No patent action is contemplated by NASA.

Source: R. B. Leyerle of
North American Rockwell Corp.
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Category 07