



DEFENSE FUEL SYSTEM VALVES

Pyroalliance designs and produces different kinds of hermetic pyrotechnic valves used in the complex fuel management system of missile turbojet engines:

- Tank Vent valve
- One-way fuel valve - Normally Closed
- Two-ways fuel valve - Normally Closed / Normally Open

More generally, Pyroalliance delivers complete pyrotechnic chains adapted to its customers' needs.

They are designed and manufactured under Pyroalliance design authority.

FUEL SYSTEM VALVES

Operating mode

The function of the Tank Vent Valve is to ensure the tightness of the tank until activation. Once activated, its function is to open the fuel tank air flow while ensuring that the fuel cannot flow back from the tank.

The function of the One-way fuel valve - Normally Closed - is to ensure the tightness of the fuel tank until activation. Once activated, the initiator releases a gas and the generated pressure moves a piston that opens the fuel flow and allows feeding the engine.

The function of the Two-ways fuel valve - Normally Closed / Normally Open - is first to ensure the tightness of the fuel tank until activation of the first initiator. It has then the same first function as the One-way fuel valve - Normally Closed to open the fuel circuit. On top of that it also has an additional function which is, once activating the second initiator, to close the Normally Open way and thus close the fuel circuit.

Benefits

- Perfect hermeticity of the valve as opposed to non-pyro valves (the mechanical barrier is ensured by the continuity of the material before getting breached by the cutter)
- While and even after functioning the valve retains all gas generated from the pyrotechnic components and has no external outgazing
- The functioning time of such equipment is extremely short

Applications

- Fuel system of missile turbojet engines (cruise missiles, anti-ship missiles, etc.)

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Classification

- Out of pyro class for transportation
- Not subject to any ITAR constraint

Typical performances and features

Functioning time	Below 10 to 15ms
Reliability	Better than 0,9999 @90% CL
Size, Weight and Power (SWaP)	SWaP adapted to the mission
Initiation	1A/1W Standard STANAG
Firing current	5A – few ms
Non fire current	1A / 1W / 5min at 100°C
Temperatures	Adapted to typical airborne military climatic environment
Life Time	Adapted to the mission and life profile
Pyro class	Out of class 1 certificate available

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