Pyroalliance
arianeGROUP

DEFENSE

EXPLOSIVE BOLTS

Pyroalliance designs and manufactures a series of explosive bolts for defense applications. These explosive bolts are designed to break the mechanical link of a clamp band and separate a solid booster stage. They are a key component of the propulsion function reliability and safety.

Explosive bolts, combined with other Pyroalliance products, are part of the pyro-chain of solid rocket motors.

More generally, Pyroalliance delivers complete pyrotechnic chains adapted to its customers' needs. They are designed and manufactured under Pyroalliance design authority.

EXPLOSIVE BOLT

Operating mode

When the ignition is activated, an electrical signal is transmitted to the detonator of the explosive bolt. The signal ignites a charge which blows away a flyer triggering the detonation. The detonation then breaks the weak part of the bolt which opens the clamp band to separate the solid rocket motor from the main body of the missile.

This sequence is implemented at the end of the acceleration phase of the missile and allows starting the next propulsion phase enabled by the turbojet engine of the missile.

Benefits

Explosive bolts provide:

- Mass savings through the reduced quantity of embedded electrical power
- High load case achievable
- 100% operational success
- Plug-in with deported control connection
- Supplied with splinter guard to protect the missile from debris

Applications

- Solid Rocket Motor separation
- Tank or cargo emergency opening

Typical performances and features

Operating time	< 20ms
Ignition mode	Electrical ignition 1A-1W 5min
Mass	Range of 400g
Tensile Force	50KN
Reliability	0.999955 @90% CL
Resistance after DES	0.8 - 1.3Ω
SED (Electro Static Discharge)	25kV 500pF 500Ω
Operating temperature	Adapted to typical airborne military climatic environment
Life Time	Adapted to the mission and life profile

Classification

- UN Number: UN0173
- Transportation Class: 1.4S in storage & delivery configuration
- Not subject to any ITAR constraint

For more information

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