**Product Description**
- Felted fiber propellant containers (increments) meet the rigorous requirements of modern and future mortar systems.
- These patent-pending increments are the standard on all U.S. Army mortars and are preferred solutions for new ammunition under development for new and future mortar systems.

**Advantages**
- **Combat proven**
- **Extended shelf-life**
- Consistent muzzle velocity, resulting in increased accuracy
- Proven performance in a wide range of climatic conditions
- Moisture resistant
- Elimination of hangfires associated with in-bore residue

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**Research & Development**
Esterline Defense Technologies has established an extensive combat-proven capability to develop and manufacture advanced propellant systems. These proven capabilities provide our customers with a competitive advantage in reducing their development cycles and costs and in the elimination of the potential for production problems.

**Product Description**
- Combustible cartridge cases are an integral part of modern tank ammunition and provide the high level of blast initiation capability required by modern tank systems. These advanced combustible cartridge cases provide the additional safety and handling benefits of system integration.

**Advantages**
- **Combat proven**
- **20-year minimum shelf-life in controlled storage**
- Consistent muzzle velocity, resulting in increased accuracy
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ARMTEC® Combustible Ordnance — The Preferred Solution

Our advanced combustible ordnance products provide a wide variety of military applications and offer advantages over traditional munitions. These advantages include:

- Shorter manufacturing lead times
- Lower persistence against detection
- Increased safety during transport and handling
- Reduced environmental impact

Research & Development

Esterline Defense Technologies provides advanced combustible ordnance products in a variety of military applications, focusing on chemistry and process engineering.

New Product Development

ARMTEC® combustible ordnance products are vital to achieving the high performance demanded in current and future tank gun systems. Our advanced combustible ordnance products are found in a variety of artillery applications, providing significant advantages over traditional munitions. We have the necessary facilities to perform a wide range of research and development activities, including chemistry and process engineering.

Advantages

- Unique shape and design features to maximize volume
- Complete system design to replace existing tank and artillery charge sets
- Universal design and performance, including technical assistance and quality assurance

Contact Us:

E-mail: sales@esterline.com

Esterline Defense Technologies is the acknowledged leader in combustible ordnance and countermeasure research, development and manufacture.
Pull fiber propellant containers (increments) meet the rigorous requirements of modern and future mortar, artillery, and small arms systems. These advanced propellant containers are the standard for all new mortar systems and are preferred propellant container solution for new ammunition under current and future mortar systems. These combat proven increments are the standard on all U.S. military systems.

Advantages
- Combat proven
- Extended shelf-life
- Consistent muzzle velocity, resulting in increased accuracy
- Autoloader compatible
- Rigid and durable in design and construction
- Silicone impregnated for moisture resistance
- Capable of withstanding harsh environmental and rough handling conditions
- Increased muzzle velocities
- High pressure and high velocity capability without the extraction problems associated with metal cases
- Increased rates of fire
- Improved barrel life
- Increased safety during transport and loading
- Greatly reduced cost and logistics chain; charge system is additive, eliminating the need to dispose of unused charges
- Charges are color coded for identification; surface design features also allow the charges to be differentiated without handling
- Charges are not subject to thickening; surface design features also allow the charges to be differentiated without handling
- Charges are a safe, proven alternative to case reducing additives
- Cheesehead set contains the M232A1 core igniter tube and end cap
- Combustible case sets are a three-piece design consisting of a case body, center core igniter tube and end cap
- A maximum of five M232A1 charges can be used in conventional 39 caliber guns (charge 1 and 2) and the M232A1 (charge 3 through 5) for high zone firings
- Unique shape and design features to maximize volume
- Flexible production volumes
- Complete system design to replace existing bag and celluloid systems
- Unique shape and design features to maximize volume
- Capable of withstanding harsh environmental and rough handling conditions
- Increased rates of fire
- Improved barrel life
- Greatly reduced cost and logistics chain; charge system is additive, eliminating the need to dispose of unused charges
- Flexibility in storage and transport
- Increased safety during transport and loading
- Reduced range
- Improved performance
- Increased safety
- More reliable performance
- Increased safety during transport and loading
- Reduced range
- Improved performance
- Increased safety
- More reliable performance
Product Description:
- High process and high quality capability without the existing production limitations
- Full spigot performance from DPN-010 (30/17 BT) to DPN-100 (90/17 BT)
- Seamless combustion propellant processed in rubber and metal bonding
- Capable of processing single, double, triplepoint and adhesive operations

Advantages:
- Consistent spigot performance
- Muzzle velocity increase
- Improved propellant yield
- Reduced weight
- Simpler design
- Eliminates frictional losses
- Increased muzzle velocity

Features & Services:
- We have the necessary licences to perform a wide range of research and development activities. These include:
  - Process development and process development
  - Project management
  - Physical testing laboratory
  - Mackenzie Laboratories

Product Description:
- Armtec combustible ordnance™ offers a wide variety of options to meet the needs of a wide variety of military applications and offer superior accuracy and consistency. Our products are designed to handle the most demanding conditions and provide a solution that is both technically advanced and cost-effective.

Advantages:
- Available for all calibers including 60mm, 81mm and 120mm
- Rigid and durable in design and construction
- Moisture resistant
- Elimination of hangfires associated with in-bore residue

For more information, please visit our website at www.esterline.com
**MORTAR**

**New Product Development**

**Armtec® Combustible Ordnance — The Preferred Solution**

Our Armtec® combustible ordnance products are unique in their versatility, and offer significant advantages over technologies used in metal cases. Armtec® is the market leader in combustible ordnance products and are the preferred propellant container solution for new ammunition under development for current and future mortar systems. These combat proven increments are the standard on all U.S. mortar ammunition and are the preferred propellant container solution for new ammunition under current and future mortar systems.

**Features & Benefits**

- Combat proven
- Extended shelf-life
- Consistent muzzle velocity, resulting in increased accuracy
- Full range of performance from -40°F (-40°C) to 140°F (60°C)
- Proven performance in a wide range of climatic conditions
- Moisture resistant
- Elimination of hangfires associated with in-bore residue
- Silicone impregnated for moisture resistance

**Advantages**

- Rigid and durable in design and construction
- Silicone impregnated, resulting in increased durability
- Full service pyrotechnic
- Field serviceable

**Product Description**

- Manufactured from highly patented boron carbide fiber
- Viable in applications for increased shelf-life
- Advanced case system (ACS) provides improved crew safety over traditional systems
- Eliminates noxious fumes and clutter in crew compartment
- Total round weight reduction and improved logistics system
- Consistent muzzle velocity, resulting in increased accuracy
- Autoloader compatible

**Research & Development**

Esterline Defence Technologies has established an extensive, state-of-the-art research and development department of high combustible ordnance products. In addition, we have the facilities to handle all aspects of design and development, from design and development through prototype and sub-assembly production.

**Esterline Defence Technologies Provides**

- Prototype manufacture
- Full spectrum performance from -40°F (-40°C) to 140°F (60°C)
- Mass production
- Unique shape and design features to maximize volume
- Design and development of products for specific applications
- Patents for mass production, providing public utility

**Details for Combat Proponents**

- Combustible ordnance products are vital to achieving the high performance demanded in current and future mortar systems.

**Modular Artillery Charge System (MACS)**

**Product Description**

- Bi-modular system consisting of the M231 charge, used for low zone firings
- Modular modularization for maximum flexibility and performance
- Charges are color coded for identification; surface design features also allow the charges to be differentiated quickly
- Charges are autoclave dispensable and require minimal pre-weighing

**Advantages**

- Greatly reduced cost and logistics chain; charge system is additive, eliminating the need to dispose of unused charges
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**Performance**

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Felted fiber propellant containers are cemented mantelsys, improving the safety requirements of current and future mortar systems. These advance propellant containers are the standard of 21st-century munitions and are being employed in numerous systems for new ammunition and in future development initiatives.

**Product Description**
- Felted fiber propellant containers are cemented mantelsystems.
- More reliable for increased safety requirements.
- Superior design for future systems.
- Available for all calibers: 60mm, 81mm, and 120mm.

**Advantages**
- Rigid and durable in design and construction.
- Improved safety over metal cases.
- Eliminates noxious fumes and clutter in crew compartment.
- Consistent muzzle velocity, resulting in increased accuracy.
- Autoloader compatible.
- Moisture resistant.
- Improved barrel life.
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**Applications**
- Used in mortar systems for current and future ammunition.
- Compatible with advanced case systems (ACS) and modernized ammunition systems.

**Research & Development**
- Esterline Defense Technologies has established an extensive, world-class laboratory environment dedicated to the development and support of felted fiber propellant containers. In addition, Eterline has the resources to design prototypes and validate the performance of new materials and technologies through advanced material characterization.

**New Product Development**
- New product development is an integral part of our world-class research and development infrastructure.
- Esterline Defense Technologies focuses on chemistry and process engineering, adding to the R&D team that can aggressively pursue and capture growth opportunities. Accordingly, to provide the strategic capability for scale production, EDT is also positioning for growth with a series of product development and support initiatives.
- In addition, we have the in-house capability to design and/or customize our combustible ordnance products to meet customer’s needs, focusing on chemistry, and process engineering.

**Advantages**
- Charges incorporate a surface protectant and barrel wear reducing additives.
- Charges can be differentiated by touch.
- Charges can be differentiated by sight.
- Charges can be differentiated by sound.
- Charges can be differentiated by shape.
- Charges can be differentiated by size.
- Charges can be differentiated by weight.

**Research & Development**
- Esterline Defense Technologies is dedicated to developing advanced propellants and propellant systems for current and future artillery applications.
- The development of advanced propellant systems is driven by the need to reduce the environmental impact of traditional propellant systems.
- Esterline Defense Technologies has an extensive research and development infrastructure that focuses on chemistry and process engineering.

**Product Description**
- Esterline Defense Technologies has developed a range of combustible ordnance products that are designed to provide improved safety, reliability, and performance over traditional propellant systems.
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