



CHEMRING GROUP PLC

# US Countermeasures

Salisbury, England  
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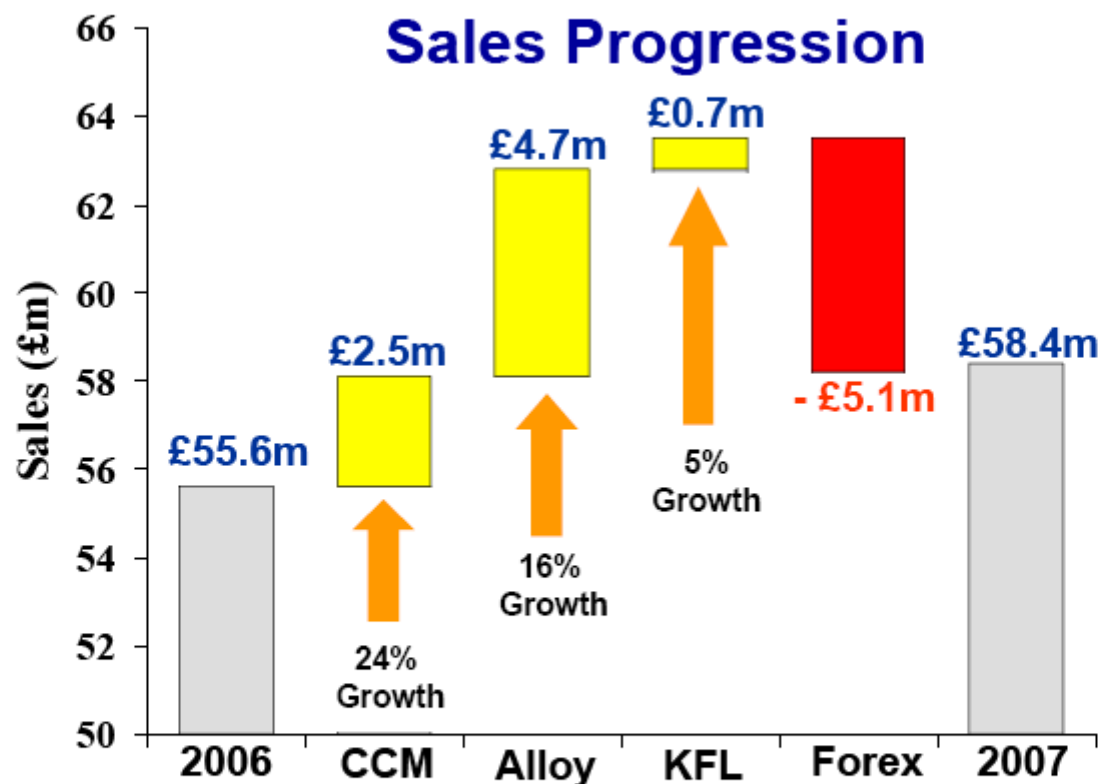
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# Overview

- Countermeasure Growth
- Global Air Countermeasure Market
- Alloy Surfaces
- Kilgore Flares
- Technical Ordnance



# Countermeasures Growth



## Orderbook

### CCM

### Alloy

### Kilgore

## 2007

£34.6m

\$142.9m

\$79.6m

## 2006

£29.5m

\$112.5m

\$54.7m

## Growth

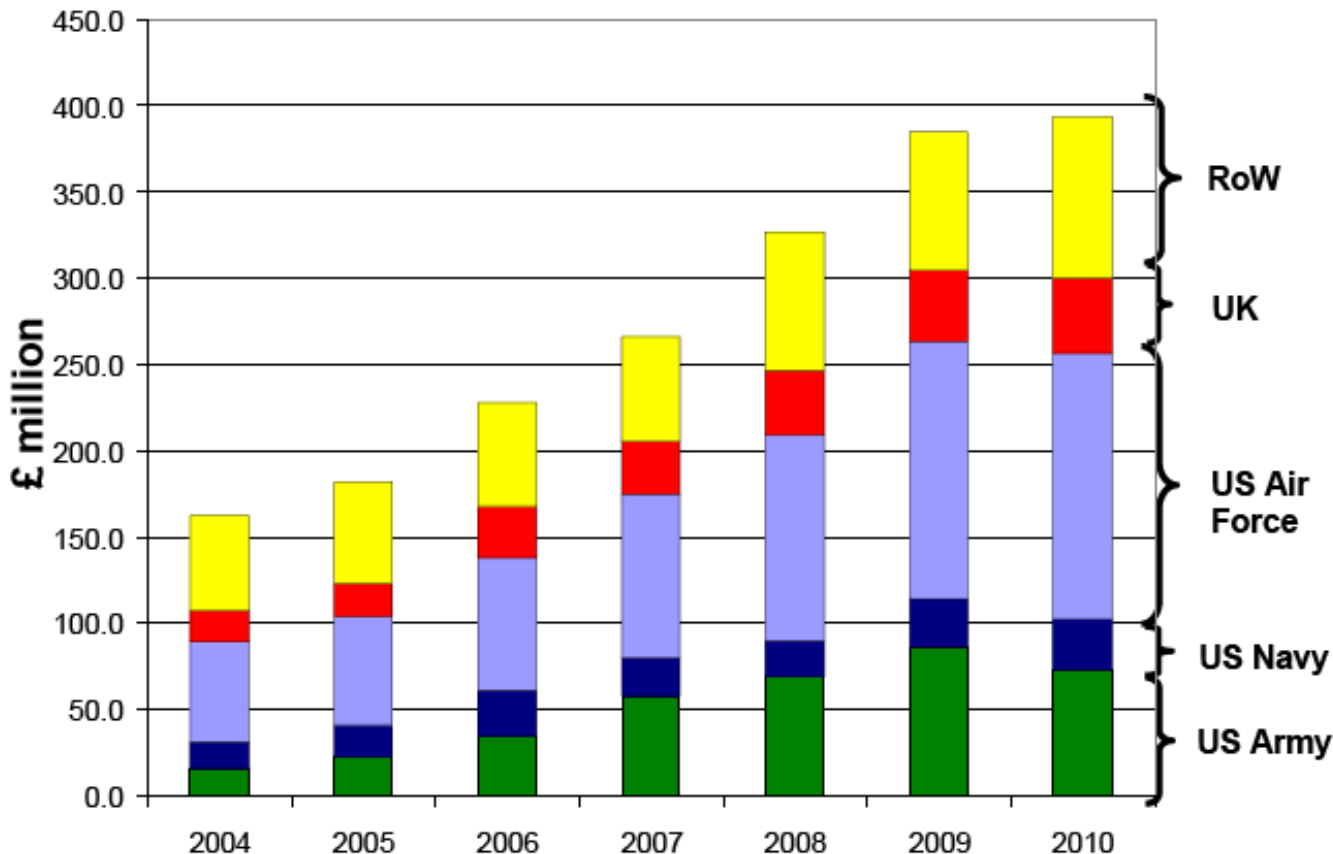
+17%

+27%

+46%

# The Global Countermeasure Market

Global Market Size (£m)



- Peacekeeping activities driving increased decoy usage.
- US FY08 budget figures showing significant growth.
- Strong competition from US & Israeli companies
- USAF growth driven by introduction of advanced flares for 3<sup>rd</sup> & 4<sup>th</sup> generation seekers:
  - MJU-55 for F-18
  - ALA-17 for B-52
  - F-22 advanced flares
  - JSF advanced flares

Source: Internal estimates based on US program documentation & export market knowledge

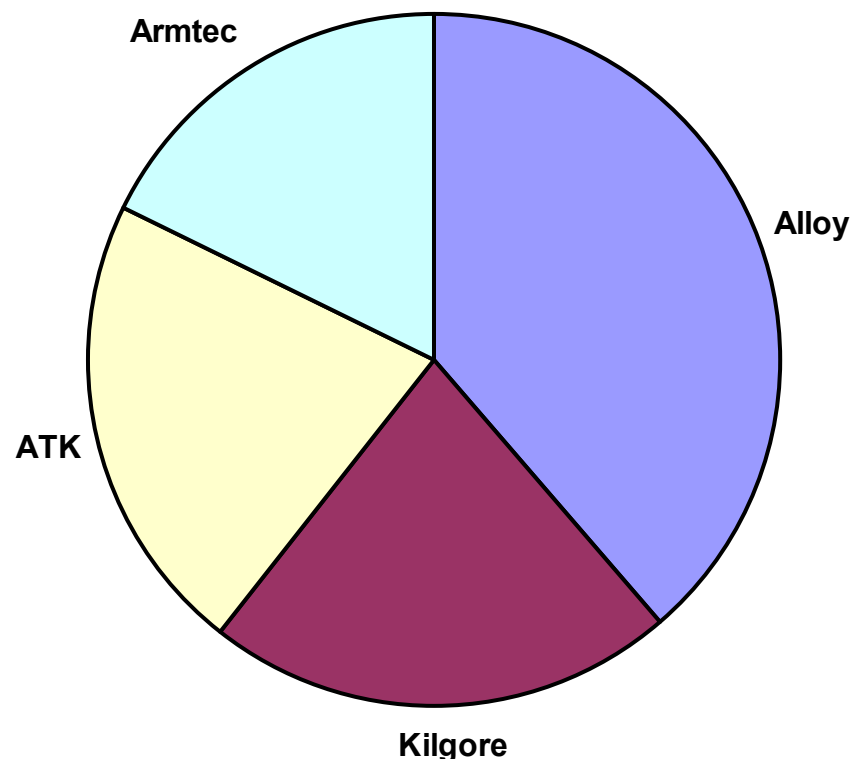
# 2008 President Budget Submittal

## Air Countermeasure Funds

- Chemring 60% of US market
- Volume drivers:
  - Continued GWOT operations
  - Single source for Alloy decoys, and F-22, B-52 ALA-17, F-35, MJU-55 at Kilgore.

£ Service	Budget FY08	Alloy	Kilgore	ATK	Armtec
- AF:	125.8	36.4	39.1	12.1	38.4
- USN:	24.4	14.1	10.1	0.0	0.3
- USA	83.1	39.6	2.4	38.3	2.9
<b>Total</b>	<b>233.3</b>	<b>90.0</b>	<b>51.5</b>	<b>50.4</b>	<b>41.5</b>
		39%	22%	22%	18%

FY08 President Budget



# Alloy Surfaces Company

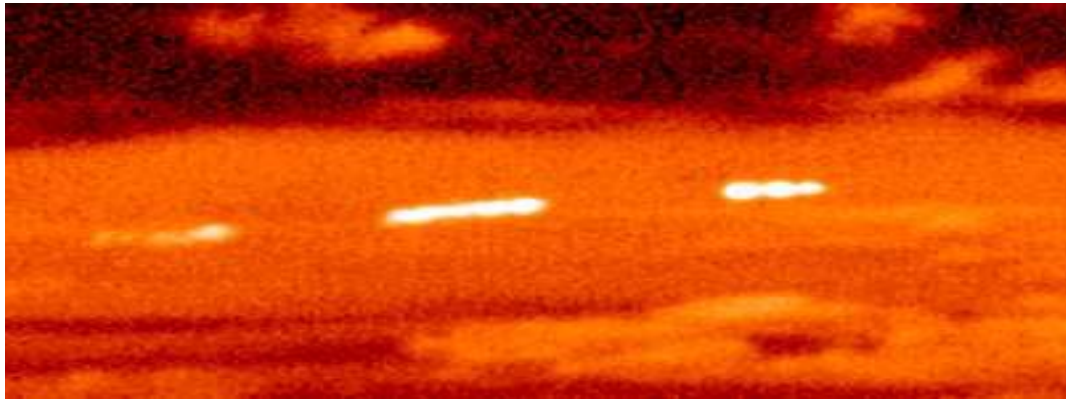
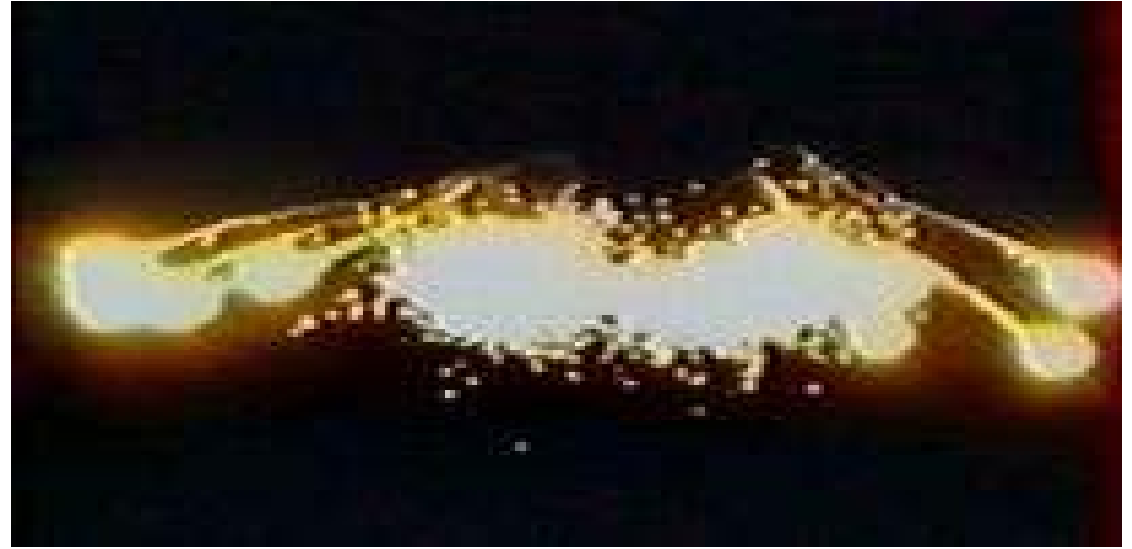
- Special Material Decoys for the US Armed Services
- Three separate plants in Chester Township and Boothwyn, PA.
- 600 employees
- ISO 9001:2000 registered
- Eighteen production lines
- Technology Center for Research & Development
- \$34M in investment by Chemring
- 27 Years of Government contracting experience



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# Special Material Decoys

Provide Reactive



and Pre-emptive  
CM capabilities

# Platforms

- All USN/USMC Aircraft with Dispensers
  - Fighters: F-14, F-18, EA-6B, AV-8B
  - Helicopters and Transports
- USAF
  - A-10, F-16, F-15, C-130, C-17 & Helos
  - SOF Since Early 90s: AC/MC-130 & Helos
- USA: AIRCMM to 160th SOAR
- Users Current CMD5 ALE-4X, Vinton, etc.





# Special Material Decoys

## ■ In Production

- M211 (Army)
- MJU-27A/B (Navy)
- MJU-46/B (AFSOC)
- MJU-48/B (USAF Tactical)
- MJU-49/B (Navy)
- MJU-50/B (AF/Navy ASTE)
- MJU-51/B (AF/Navy ASTE)
- MJU-52/B (Navy/AF)
- MJU-55/B (Navy)
- ASD 3627 (Export)
- ASD-118/N (Export)
- ASD-118L (Export)
- ASD3649 (Export)

## ■ In Development

- ALE-50/IR (Raytheon)
- Comet (Raytheon)
- EX252 (Navy Surface Vessels)
- MJU-58 (Navy)
- MJU-60 (Navy)
- MJU-64
- MJU-65 - Bi-payload (Navy)
- ROSES (AF/Army)
- SMKD/SMAUD (AF)
- Two shot 1x1x8

# Alloy Surfaces



- **Record levels of special material decoy production.**
  - *30% growth in monthly production rate over last 12 months.*
  - *Plant 3 Qualification achieved for M211, MJU-51 & MJU-64.*
  - *US Navy multi-year IDIQ contract awarded for MJU-49 flare.*
  - *Multi-year contracts from USAF & US Army expected in H2.*
- **2,000,000<sup>th</sup> Bol/IR decoy delivered to UK MOD.**
  - *\$20m contract award with option for \$20m operational surge.*
  - *Extended duration pod upgrade planned for Tornado.*
  - *UK MOD plan to fit Bol/IR system onto Typhoon.*
- **US demand for Bol/IR starts to grow.**
  - *Contract awarded for F-15 USAF Air National Guard.*
  - *Major interest from both F-18 & V-22 Program Offices.*
- **International demand for Bol/IR also increases.**
  - *Now selected for Swedish Gripen aircraft.*
  - *Strong demand from Australia for F-18 fleet.*

# Kilgore Flares Company

- Worlds largest producer of air launched expendable infrared decoys worldwide.
- 150 buildings on 500+ acres in Toone, TN
- 460 employees
- ISO 9001:2000 registered
- Over 18M decoy flares delivered
- Exports to 70+ countries
- Flare & Ordnance R&D center
- \$22M+ plant modernization 2001 - 2006



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# Platforms

- A-10
- AH-1Cobra
- AH-64 Apache
- C-130/ M130E
- C-17
- CH-46
- EA-6B Prowler
- F/A-18E Super Hornet
- F-14 Tom Cat
- F-15
- F-16
- F-22
- MH-60
- P-3C Orion
- SH-60
- UH-60 Blackhawk



# IR Expendable Decoys

## US DoD flares

- M206
- MJU-7A/B
- MJU-10/B
- MJU-32/B
- MJU-38/B
- MJU-39/B
- MJU-40/B
- SM875
- ALA-17/C
- Advanced Items

## Kilgore commercial flares

- KC-001 (36mm)
- KC-002 (1"x 2")
- KC-003 (36mm)
- KC-004 (55mm)
- KC-005 (1"x 1")
- KC-006 (2"x2.5")
- FG-3 (1"x1")

*\*\* Compatible with ALE-39, ALE-40, ALE-45, ALE-47, M130, Vicon 78, and BOZ107/BO300Z dispensers.*

# Development Products



**66mm Vehicle  
Grenades**



**MK 216 IR – (T-BIRD)**



**MJU-53/B**

**MJU-55/B**

**MJU-57/B**

**MJU-61/B**

- Airborne Illumination
- Mortar (RP)
- Gun launched Illumination
- JSF CM's



# Kilgore



- Increasing focus on robust processes to support the high volumes of M206, MJU-7, and MJU-10
  - Lean Six Sigma methodology – FMEA, Poke Yoke,...
- ALA-17 for B-52 successfully completed ground qualification. Flight tests planned by year end.
- F-22 Qualification expected in September.
  - New facility construction underway.
  - Supports F-22 and JSF programs.
- MJU-55 production line being installed.
  - competitively won 100% share
  - F-18 decoy transitioning to high volume
- New Quality Director, Human Resources Director, and Program Management to support growth.

# Technical Ordnance Company

- A leading producer of high volume energetic devices for US and International governments and Prime Contractors.
- Facilities in South Dakota and Minnesota
- 190 Employees
- ISO9001:2000 registered
- Energetics development lab
- 2006 - Acquired by Chemring





# Facilities



**Loading Plant – Clear Lake, South Dakota**

- 88,000 sq. ft. on 640 acres
- 200,000 lbs. of explosive storage in 20 bunkers
- 3 pyro blending labs



**Engineering & Admin  
St. Bonifacius, MN**

# Products

- Impulse Cartridges, Pressure Cartridges, Squibs, Igniters, and Gas Generators
- Simulators
- Blasting Caps – DOD and Commercial
- Fuze Components
- Ammunition Pellets
- Cutters / Cutting Devices
- Actuators
- Explosive Bolts
- LAP (Load, Assemble & Pack)

# High Volume Automation

- 120mm Tracer
- JAU22
- Propellant Cup Booster
- M7 Blasting Cap
- M21, M22 Cutter
- BBU-35
- BBU-36
- BBU-52
- M796
- CCU-41, 136
- CCU-43, 106, 107
- L&A, CCU Ignition Element
- M55, MK61, MK28
- Piston Actuator
- Lead
- Micro-Det
- MK96
- Piston Actuator
- Delay Primer
- Delay Assembly



# Load, Assemble, and Pack



- FMU-139 Fuze
- FMU-153 / B Fuze
- MK399 – Mod 1 Fuze
- MK419 Fuze
- M767A1 Fuze
- MK432 Mod 0 Fuze
- 76mm APFSDS-T Round
- MK24-Mod 3 Demolition Firing Device
- MK32-Mod 1 Torpedo Parachute Release Device
- MK31-Mod 1 Torpedo Stabilizer
- MK34-Mod 0 Air Stabilizer
- 25mm APDS-T, HEI-T, TP-T
- S&A Assembly – SADARM
- EX37 Mod 0 Arming Device (MK50 Torpedo)
- Torpedo Explosive Train and Rotor Assembly (MK46 Torpedo)