AET

Products

Applied Explosives Technology Pty Ltd
ABN: 81 003 494 442

APPLIED EXPLOSIVES TECHNOLOGY

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COMPANY PROFILE

BACKGROUND
Applied Explosives Technology (AET) was established in 1988 to provide explosive and pyrotechnic products and services to the following industries.

- Oil and Gas (on and offshore)
- Mining (Underground hard rock)
- Defence
- Film & Television

Since 1993 Orica Explosives (formerly ICI Explosives) has been responsible for distributing certain AET mining explosives products throughout Australasia/Oceania/Asia.

PRODUCTS
Offshore/Onshore oil and gas
Underwater focussed cutting charges designed for cutting plate, tubular members and mooring components.

Focussed or shaped charges produce a more reliable and cleaner cut with a lower explosive loading than alternative explosive methods. The charges are designed for placement by divers, remote operated vehicle (ROV) or atmospheric suited diver.

Charges can be used to 200m water depth, and are custom designed and fabricated for each project. Up to 75mm (3 inch) steel thicknesses can be cut with charge access from one side only. Up to 6" mooring chain can be cut with opposed dual charge, clamp type unit.

Flexible flow lines, 6" Oil, 2" Oil & Gas and Umbilical can also be cleanly severed with AET charges.
AET also manufacture WS series wellhead severance charges in diameters suitable for shotcan insertion into 7inch and 20 inch casing.

MINING AND INDUSTRIAL
BD series Ballistic Discs - used for breaking up hang ups and upstanding rill in underground hard rock mines. These products are laser aimed and produce a hypersonic explosively generated fragment (2000-2600 m/sec velocity) that accurately impacts targets at ranges out to 100m. The kinetic energy generated on impact is very substantial; the following units are manufactured by AET:-

BD 260:- 7Kg NEQ, 2.2 Kg Fragment, 7- 8 Mj impact energy
BD 318:- 11.5 Kg NEQ, 6 Kg Fragment, 12 -15 Mj impact energy
BD 514:- 39Kg NEQ, 32 Kg Fragment , 60 Mj impact energy

AET also produces variety of shaped charges for secondary rock breaking, demolition and special purposes, including several ranges of linear shaped charge to cut 5 - 100 mm mild steel, above & sub sea.

AET assemble, fill and pack, operations are conducted at the Quin facility in Gladstone, South Australia. Composition B, H6, Torpex and HBX cast compositions can be supplied to order. PBX compositions may be offered in the near future.

Quality Assessment Services and Quality Auditing to ISO 9001 are provided by CSS Pty. Ltd. for all AET products when required. CSS is a Quality Assessed Defence supplier, accredited in 1995

DEFENCE PRODUCTS
AET manufactures DSTO “Zipper”, “Plastic” and “Ausdisc” EOD shaped charges to order from JALO, as well as Charge, Shaped, Demolition, 150mm for ADF.

We have also fabricated specialised research shaped charges for Land Engineering Agency, and provide Right Cylindrical and Spherical Comp. B charges for AMRL (Maritime Platforms Division). AET Ballistic Discs are from time to time purchased from distributors for ADF.

AET can offer various cast fills for shaped charges and offer defence explosives applications as well as PETN / RDX / Silicone PBX fills (XTX 8003 / 8004).

PYROTECHNICS
AET provides ISO 9000 standard zirconium base igniters for initiating dust explosions in ISO 6184/1 - 1985 E standard dust explosion chambers, used by Government Authorities world wide for assessment of hazards associated with industrial, mining and agriculturally generated dusts. Both 1 & 5 Kj output units are provided.
AET also provides various specialised pyrotechnics for the film and television industries.

SERVICES
AET provides a range of services to industries involved in the manufacture or use of explosives.

- Preparation of explosive use procedures and job safety analyses.
- Preparation of risk analysis and hazard identification reports for operations involving the use of explosives.
- On site training and supervision of explosives operations.
- Predictive calculations including underwater pressure pulse, ground vibration and air over pressure effects.
- Product Research and Development for Industry and Government.
- Trials and testing of new explosive products and provision of comprehensive performance reports.

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PERSONNEL

AET personnel have extensive knowledge and experience in their respective fields. Mining, Industrial and Defence products are developed by personnel with over 30 years of explosives industry experience.
Offshore products are designed and developed by personnel with over 10 years focal charge and 8 years international and regional offshore oil and gas engineering experience.

All AET personnel involved with on site training or supervision of explosive operations hold the relevant explosives use certifications required in each State and Territory.

SAFETY

Specialised explosives use can, in many instances, enhance the safety of an operation, on or offshore.

- Explosive cutting or severance devices can be placed rapidly by divers, reducing dive time on the job. Personnel and equipment are located at a safe distance when the cut is performed.

- Explosive cutting or severance devices may often be emplaced remotely, by ROV

- Other cutting and severance methods, eg. Mechanical, water jet, gas or thermal lance require personnel to remain in proximity to the cut, risking injury or equipment damage as the cut nears completion.

- Ballistic Disc use in underground mining allows a "non stope entry" method of removing hang ups and upstanding rill masses, thus enhancing safe operations underground. AET Ballistic Discs are mandatory in hang up clearance in many Australian mines.

- AET provides detailed instructions and procedures for the safe use of specialist products. For complex operations such as underwater explosive cutting, AET provide Explosives Supervisors to train divers in correct placement techniques and also to supervise blasting operations that utilise AET products.

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COMMERCIAL PRODUCTS

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Offshore / Onshore Oil and Gas

AET designs and manufactures wellhead severance charges and underwater focussed cutting charges for cutting plate, tubular members and mooring components. Focussed, or shaped charges, produce a more reliable and cleaner cut, with a lower explosive loading than alternative explosive methods.

Charges can be used down to 200m depth, and are custom designed and fabricated for each project. Charges can be designed for placement by either divers or remote operated vehicle (ROV). Up to 75mm (3 inch) steel can be cut with charge access from one side only. Up to 150mm (6 inch) mooring chain can be cut with opposed dual charges in a clamp-type unit. Flexible flow lines, 6" oil, 2" oil & gas and umbilical lines can also be cleanly severed by AET charges.

AET also manufacture a series of wellhead severance, WS, charges in diameters suitable for shotcan insertion into 7 and 20 inch casings.

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Ballistic Disc 260 [BD 260]

DESCRIPTION

BD260 Ballistic Discs provide a safe and effective way of clearing hang ups and pillars in draw points of stopes remotely.

A BD260 comprises 6.9 kilograms of RDX/TNT composition cast into an aluminium casing capped with a concave steel disc.

When detonated, a BD260 produces a large steel slug that is propelled at high velocity in the direction aimed. The slug impacts with approximately 9 Mega Joules of energy and is accurate to a least 60 metres.

A narrow tunnel RDX/Wax booster is fitted into the BD260 turret during manufacture. A matching Detonating Cord Assembly is provided for safe and convenient attachment of any preferred initiation system: electric / non-electric detonators or detonating cord. **NOTE: Do not attempt to fit detonators directly into the booster tunnel; it is too small for a detonator.**

The Detonating Cord Assembly comprises of a length of 20g/m detonating cord with an aluminium sleeve crimped over one end. The aluminium sleeve is not a detonator.

SAFETY

When a BD260 is used, appropriate measures must be taken to protect persons and property in all nearby areas. In addition to the explosive force that propels the slug to the target, the high detonation velocity of the explosive produces a considerable and extensive air-blast.

If poorly aimed the slug can ricochet. Detonation of the charge generates toxic fumes. As safeguards to these and other potential hazards, the following precautionary measures should be taken.

- Transport BD260s in their original packaging with the steel discs opposed.
- Do not transport with detonators.
- Leave any doors/shafts open to permit dissipation of the air shock wave.
- When setting the BD260 make sure it is in a stable position. If the charge is moved after aiming, the slug will be misdirected with potentially distastrous results.
- Use sand bags or alternate suitable material to seat the charge on. This will act as a shock decoupler and minimise any potential damage due to vibration.
- Ensure the Detonating Cord Assembly is correctly inserted into the charge (Do not attempt to insert detonators into the charge). An incorrectly primed charge will result in a malformed, aerodynamically unstable slug that will travel in an unpredictable direction.
- Take extreme care in aiming the charge. Careless aiming may result in high velocity ricochet problems and damage to non-target areas.
- After aiming, make sure that aiming device is removed and there are no obstructions along the aim line between the disc and the target rock or area.
- Clear the area before firing making sure the personnel will not be exposed to the air-blast.
- Toxic fumes are generated on detonation of the BD260. Allow sufficient time for fumes to disperse before entering the blast area.
- BD260s contain a RDX/TNT composition that generates a hot long lasting flash/fireball on detonation. Be aware of the potential risk of dust explosion hazards & take adequate precautions; ie. wetdowns, insert dustbag placement etc. if necessary.

RECOMMENDATIONS FOR USE

1. Mount the BD260 in sandbags, or other suitable cradle, with the steel concave disc pointing towards the intended target zone. Ensure there is a direct line of sight from the position of the BD260 to the target.

2. Remove the detonating-cord-assembly from its protective packaging and uncoil.

3. Remove the red plastic end cap from rear white plastic housing on the BD260. Ensure that the plastic housing remains free from dirt and grit.

4. Insert the aluminium sleeve, of the Detonating Cord Assembly, carefully into the white plastic housing. Gently ensure that the aluminium sleeve is fully inserted & seated home. Do not tamper with the plastic over-cap or use force in any way.

5. Fit an AET Laser Aimer to the disc by aligning the Aimer's round base with the ring secured to the face of the disc. Once the Aimer's base is sufficiently close to the disc face the aimer will self-secure to the disc by the action of the magnet.

6. Adjust the BD260 position, as necessary, so that the target position is illuminated by the laser.
Ensure that there is no obstruction, at all, in the path of the ballistic projectile.

7. Remove the Laser Aimer without disturbing the position of the BD260.

8. Connect the Detonating Cord Assembly to electric / non-electric / detonating cord initiating system. Electrical tape is recommended. Ensure that the positioning of the BD260 is not disturbed. For firing of two, or more, BD260s, in the same drive, lengths of detonating cord need to be arrayed in an equal length V. This is so that the discs will detonate simultaneously and there will be no risk of the first firing disc interfering with the functioning of an adjacent disc.

9. Clear the blast area of personnel and unnecessary equipment, withdraw to a safe area. Follow authorised safety and blasting procedures prior to firing.

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Ballistic Disc 260 [BD 260]

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TECHNICAL PROPERTIES

Diameter:	257mm
Net Explosive Weight:	6.9kg
Gross Weight:	9.2kg
Explosive Fill:	RDX/TNT

PACKAGING

Fibreboard Box:	260 x 260 x 388mm
UN No:	0059
Proper Shipping Name:	CHARGES, SHAPED, COMMERCIAL
Classification Code:	1.1D

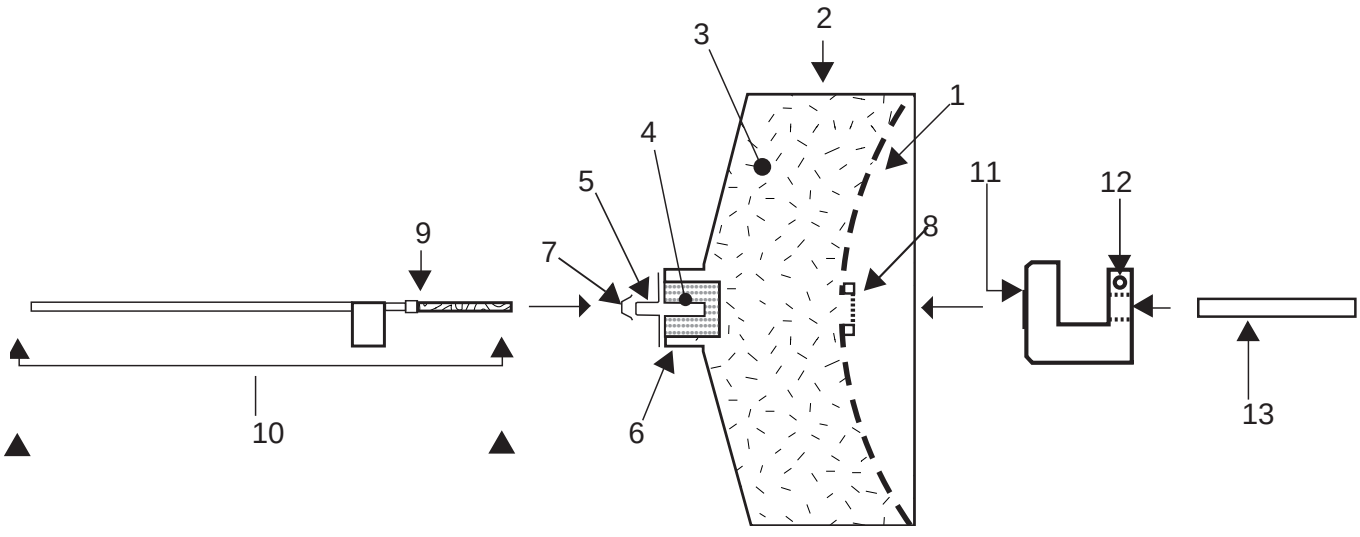
STORAGE

- BD260 has a minimum shelf life of 5 years in good storage conditions.

- These units should be stored in a cool, dry magazine licensed for 1.1D explosives, and oldest charges should be used first.

BD260 PARTS LIST
1. Steel Disc
2. Exterior Casing
3. Explosive Fill
4. Booster Well
5. Plastic Housing
6. Plastic Over Cap
7. Disposable End Cap
8. Locating Ring
9. Aluminium Sleeve
10. Detonating Cord Assembly

LASER AIMING PARTS LIST
11. Magnet
12. Laser Holder
13. Laser



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Ballistic Disc 318 [BD 318]

DESCRIPTION

Ballistic Disc 318 (BD318) provides a safe and effective way of clearing hang ups and pillars in draw points or stopes remotely.

BD 318 comprises 11.5 kilograms RDX/TNT composition cast into a spun aluminium casing capped with a 318mm diameter steel disc.

When detonated, the BD 318 produces a very large steel slug that is propelled at high velocity in the direction aimed.

The slug impacts with approx 13 - 15mj energy that is accurate to at least 60 metres. A free-fired BD 318 could result in the slug traveling more than 5 kilometres.

A Twenty-six gram PETN/WAX pellet provides a cap sensitive booster. A detonating cord assembly is provided for safe and convenient attachment of users preferred initiation system.

SAFETY

- When the BD 318 is used, appropriate measures must be taken to protect persons and property in all nearby areas. In addition to the explosive force that propels the slug to the target, the high detonation velocity of the explosive produces a considerable and extensive air blast.

- If poorly aimed the slug can ricochet. Detonation of the charge generates toxic fumes. As safeguards to these and other potential hazards, the following precautionary measures should be taken.

- Transport the BD 318 in the original packaging. Do not transport with detonators.

- Leave any doors, shafts open to permit dissipation of the air shockwave.

- When setting the BD 318 make sure it is in a stable position. If the charge is moved after aiming the slug will be misdirected with potentially disastrous results.

- Use sand bags or alternate suitable material to seat the charge on. This will act as a shock decoupler and minimise any potential damage due to vibration.

- Ensure the Detonating Cord Assembly is correctly inserted in the charge. An incorrectly primed charge will result in a malformed aerodynamically unstable slug that will travel in an unpredictable direction.

- Take extreme care in aiming the charge. Careless aiming may result in high velocity ricochet problems and damage to non-target areas.

- After aiming, make sure the aiming device is removed and there are no obstructions along the aim line between the disc and the target rock or area.

- Clear the area before firing making sure personnel will not be exposed to the air blast.

- Toxic fumes are generated on detonation of the BD 318.

- Allow sufficient time for fumes to disperse before entering the blast area.

BD 318 contains 11.5 kilograms of RDX/TNT composition that generates a hot long lasting flash / fireball on detonation. Be aware of Dust Explosion Hazard. Take adequate precautions, ie; wet-downs, inert dust bag placement etc.

RECOMMENDATIONS FOR USE

1. Remove Detonating Cord Assembly protective foam tube and unpack.

2. The Detonating Cord Assembly comprises of a length of UEE 20g/m detonating cord with an aluminium sleeve crimped over one end. This aluminium sleeve is not a detonator. Treat UEE 20g/m as per manufacturer instructions.

3. Mount the BD 318 in sandbags or other suitable cradle with the steel concave disc pointed at the intended target rock.

4. Ensure there is a direct line of sight from the position of the BD318 to the intended target rock.

5. Remove red plastic end cap from rear plastic housing on BD318. Make sure plastic housing remains free from dirt and grit.

6. Insert aluminium sleeve carefully into the rear plastic housing, ensuring that when fully seated only the crimp on the aluminium sleeve is visible. Do not tamper with the plastic over-cap or abuse in any way.

7. Fix the Detonating Cord Assembly to electric or non-electric initiating system.

8. Attach Laser Aiming Device (recommended), or alternate sighting mechanism.

9. Sight in the BD318 making sure there is no obstruction at all in the path of the ballistic projectile. The resulting slug will strike where aimed.

10. Removing the aiming device without disturbing the position of the BD318.

11. Clear blast area of personnel and unnecessary equipment, withdraw to a safe area. Follow authorised safety and blasting procedures prior to firing.

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Ballistic Disc 318 [BD 318]

TECHNICAL PROPERTIES

DIMENSIONS	
Diameter	318mm
Net Explosive Weight	11.5kg
Gross Weight	18.5kg
PROPERTIES	
Main Explosive	RDX/TNT
Impact Energy	13 - 15mj
Accuracy	60 metres

PACKAGING

- BD 318 is packaged in a fibreboard box with dimensions of 315mm high and 335mm square.
- There is one charge unit per box.
- Gross box weight is approx 19.5kg.

STORAGE

- BD 318 has a minimum shelf life of 5 years in good storage conditions.

- These units should be stored in a cool, dry magazine licensed for 1.1D explosives, and oldest charges should be used first. UN number 0059.

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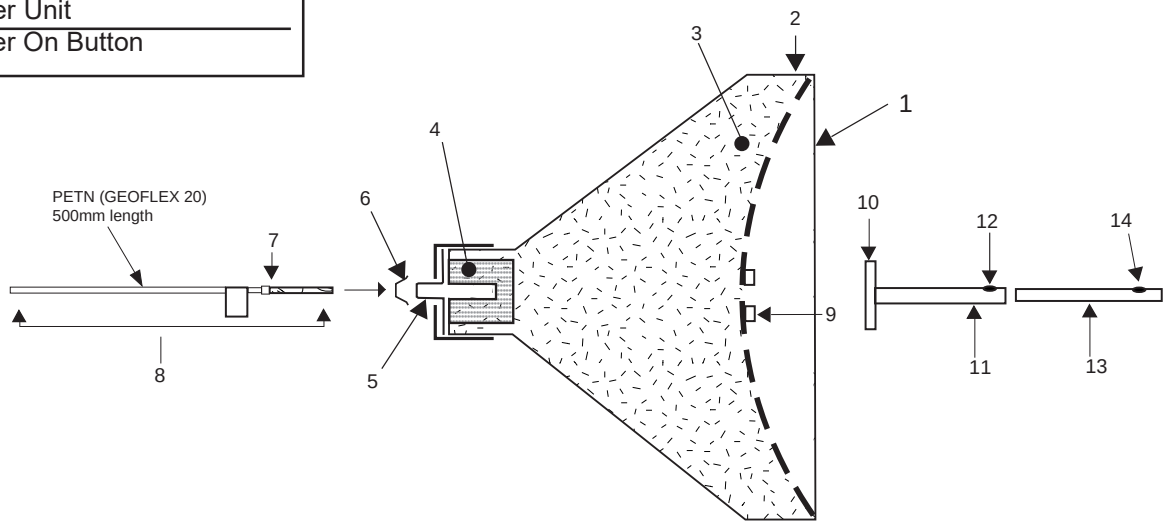
BD 318 PARTS LIST

1. Steel Disc
2. Exterior Casing
3. Explosive Fill
4. Booster with Well
5. Plastic Over-cap
6. Plastic Housing
7. Aluminium Sleeve
8. Detonating Cord Assembly

LASER AIMING PARTS LIST

9. Locating Washer
10. Annular Magnet
11. Laser Holding Tube
12. Laser Actuating Detent
13. Laser Unit
14. Laser On Button



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Ballistic Disc 514 [BD 514]

DESCRIPTION
Ballistic Disc 514mm (BD 514) provides a safe and effective way of clearing hang-ups and pillars in draw points or stopes remotely.

BD 514 comprises 39.5 kilograms RDX/TNT composition cast into a spun aluminium casing capped with a 514mm diameter steel disc.

When detonated, the BD 514 produces a very large steel slug that is propelled at high velocity in the direction aimed. The slug impacts with approx 50MJ to 60mj energy and is accurate to at least 60 metres.

A free fired BD 514 could result in the slug traveling more than 5 kilometers.

An included booster-well will accommodate an 'ANZOMEX' Power Plus booster or equivalent (recommended, but not provided with BD 514).

SAFETY
When the BD 514 is used, appropriate measures must be taken to protect persons and property in all nearby areas. In addition to the explosive force that propels the slug to the target, the high detonation velocity of the explosives produces a considerable and extensive air blast. If poorly aimed the slug can ricochet. Detonation of the charge generates toxic fumes. As safeguards to these and other potential hazards the following precautionary measures should be taken.

- Transport the BD 514 in the original packaging.
- Do not transport with detonators.
- Leave any doors/shafts open to permit dissipation of the air shock wave.
- When setting the BD 514 make sure it is in a stable position. If the charge is moved after aiming, the slug will be misdirected with potentially disastrous results.
- Use sand bags or alternate suitable material to seat the charge on. This will act as a shock decoupler and minimise any potential damage due to vibration.
- Ensure the booster is correctly inserted in the charge. An incorrectly primed charge will result in a malformed, aerodynamically unstable slug that will travel in an unpredictable direction.
- Take extreme care in aiming the charge. Careless aiming may result in high velocity ricochet prob lems and damage to non target areas.
- After aiming, make sure the aiming device is removed and there are no obstructions along the aim line between the disc and the target rock or area.
- Clear the area before firing making sure personnel will not be exposed to the air blast.
- Toxic fumes are generated on detonation of the BD 514.
- Allow sufficient time for fumes to disperse before entering the blast area.

BD 514 contains 39.5 kilograms of RDX/TNT composition that generates a hot long lasting flash/fireball on detonation. Be aware of Dust Explosion Hazard. Take adequate precautions, ie wetdowns, inert dust bag placement etc.

RECOMMENDATIONS FOR USE, SET-UP PROCEDURE
Carrying straps/net are provided as a means to extract and carry the BD 514 from its container to the blast area.

1. Mount the stand off in sandbags or other suitable cradle with the steel concave disc pointed at the intended target rock.

2. Ensure there is a direct line of sight from the position of the BD 514 to the intended targeted rock.

3. Remove red plastic end cap from the rear of the BD 514. Make sure the booster-well remains free from dirt and grit.

4. Insert an ORICA 'Anzomex' Power Plus P booster (or equivalent) complete with a suitable strength detonating cord tail (not provided with BD 514) carefully into the booster well and secure.

5. Attach Laser Aiming Device (recommended), or alternate sighting mechanism.

6. Sight in the BD 514 making sure there is no obstruction at all in the path of the ballistic projectile. The resulting slug will strike where aimed.

7. Fix the detonating cord assembly to electric or non-electric initiating system.

8. Remove the aiming device without disturbing the position of the BD 514.

9. Clear blast area of personnel and unnecessary equipment, withdraw to a safe area. Follow authorised safety and blasting procedures prior to firing.

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Ballistic Disc 514 [BD 514]

TECHNICAL PROPERTIES

	DIMENSIONS	
	Diameter	514mm
	Net Explosive Weight	39.5kg
	Gross Weight	74.5kg
	PROPERTIES	
	Explosive Fill	RDX/TNT
	Impact Energy	50 - 60mj
	Accuracy	60 metres

PACKAGING

- BD 514 is packed in a wooden case 416mm high x 557mm wide and 557mm long

- Gross case weight is 90kg

STORAGE

- BD 514 has a minimum shelf life of 5 years in good storage conditions.

- These units should be stored in a cool, dry magazine licensed for 1.1D explosives, and oldest charges should be used first. UN number 0059.

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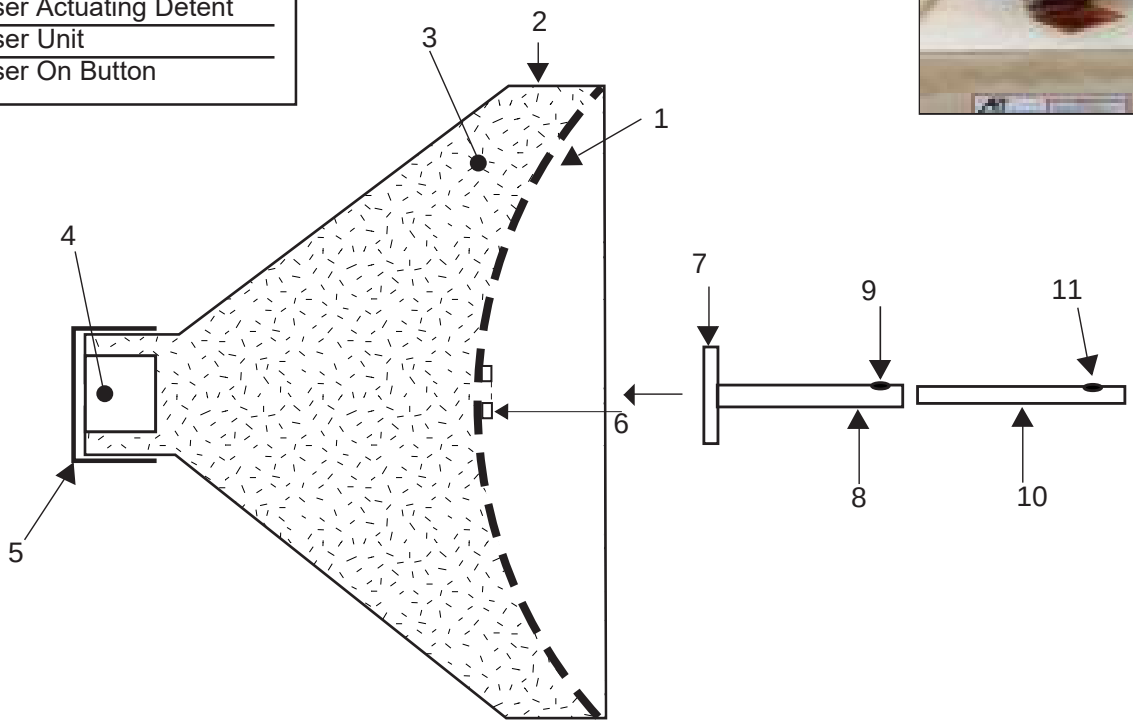
BD 514mm PARTS LIST

1. Steel Disc
2. Exterior Casing
3. Explosive Fill
4. Booster Well
5. Disposable End-Cap

LASER AIMING PARTS LIST

6. Locating Washer
7. Annular Magnet
8. Laser Holding Tube
9. Laser Actuating Detent
10. Laser Unit
11. Laser On Button



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Hemispherical Shaped Charge [HSC 300]

DESCRIPTION

Hemispherical Shaped Charge 300mm (HSC 300) provides a rapid and effective way of explosively generating a borehole, or clearing draw points where drill/blast or bombing is ineffective.

HSC 300 comprises 14.2 kilograms RDX/TNT composition cast into a spun aluminium casing capped with a 300mm diameter steel hemisphere.

A 26G PETN/WAX pellet provides a cap sensitive booster. A Detonating Cord Assembly is provided for safe and convenient attachment of users preferred initiation system.

When detonated, the HSC 300 produces a penetrating jet and large steel slug propelled at high velocity in the direction aimed. Fractures and penetration in rock due to jet and blast are caused by compression, tension and shear failure.

Optimum penetration of the HSC 300 is acheived by providing a stand-off distance of 1200mm to 1800mm between the charge and the obstacle.

Stand off legs, probe and collar can be provided as an optional accessory.

HSC300 is intended as a fixed stand off charge and should not be used as a remote clearing device.

A free fired HSC300 could result in the slug travelling more than 1 kilometre in an unpredictable manner.

SAFETY

When the HSC 300 is used, appropriate measures must be taken to protect persons and property in all nearby areas. In addition to the explosive force that propels the jet and slug, the high detonation velocity of the explosive produces a considerable and extensive airblast. If incorrectly set the slug can ricochet. Detonation of the charge generates toxic fumes.

As safeguards to these and other potential hazards, the

following precautionary measures should be taken.

- Transport HSC300 in the original packaging.
- Do not transport with detonators.
- Leave any door/shafts open to permit dissipation of the air shock wave.

When setting the HSC300 make sure it is in a stable

position. If the charge is moved after setting, the jet and slug will be misdirected with potentially disastrous results.

- Ensure the Detonating cord Assembly is correctly

inserted in the charge. An incorrectly primed charge will result in a malformed, unstable slug.

- Take care in setting the charge. Careless setting may result in high velocity ricochet problems and damage to non target areas.
- Make sure there are no obstructions within the

stand off offset.

- Clear the area before firing, making sure personnel will not be exposed to air blast.
- Toxic fumes are generated on detonation of the HSC 300. Allow sufficient time for fumes to disperse before entering the blast area.

HSC 300 contains 14.2 kilograms of RDX/TNT composition that generates a hot long lasting flash/fireball on detonation. Be aware of Dust Explosion Hazard. Take adequate

precautions ie; wetdowns, inert dust bag placement etc.

RECOMMENDATIONS FOR USE, SET-UP PROCEDURE

1. Remove Detonating Cord Assembly from protective foam tube and unpack.

2. The Detonating Cord Assembly comprises of a length of UEE 20g/m detonating cord with an aluminium sleeve crimped over one end. This aluminium sleeve is not a

detonator. Treat UEE 20g/m as per manufacturers instructions.

3. Fix HSC 300 stand off collar, legs and probe or alternate stand off fittings and set the charge at stand off distance from the target rock. Ensure there are no obstructions between the device and the target rock.

4. Remove red plastic end cap from rear plastic housing on HSC 300. Make sure plastic housing remains free form dirt and grit.

5. Insert aluminium sleeve carefully into the rear plastic

housing, ensuring that when fully seated only the crimp on the aluminium sleeve is visible. Do not tamper with the plastic over cap or abuse in any way.

6. Fix the detonating Cord Assembly to electric or

non-electric initiating system.

7. Clear blast area of personnel and unnecessary equipment, withdraw to a safe area. Follow authorized safety and blasting procedures prior to firing.

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Hemispherical Shaped Charge [HSC 300]

TECHNICAL PROPERTIES

DIMENSIONS	
Diameter	300mm
Net Explosive Weight	14.2kg
Gross Weight	23.0kg
PROPERTIES	
Main Explosive	RDX/TNT
Stand off distance	1.2 to 1.8M
Penetration depending on target density	600mm to 2400mm

PACKAGING

HSC300 is packaged in a plywood box with dimensions of

- 410mm high x 360mm square.
- There is one charge per box unit.
- Gross weight per unit packed is 28.5kg.

STORAGE

- HSC300 has a minimum shelf life of 5 years in good storage conditions.

- These units should be stored in a cool, dry magazine licensed for 1.1D explosives, and oldest charges should be used first. UN number 0059.

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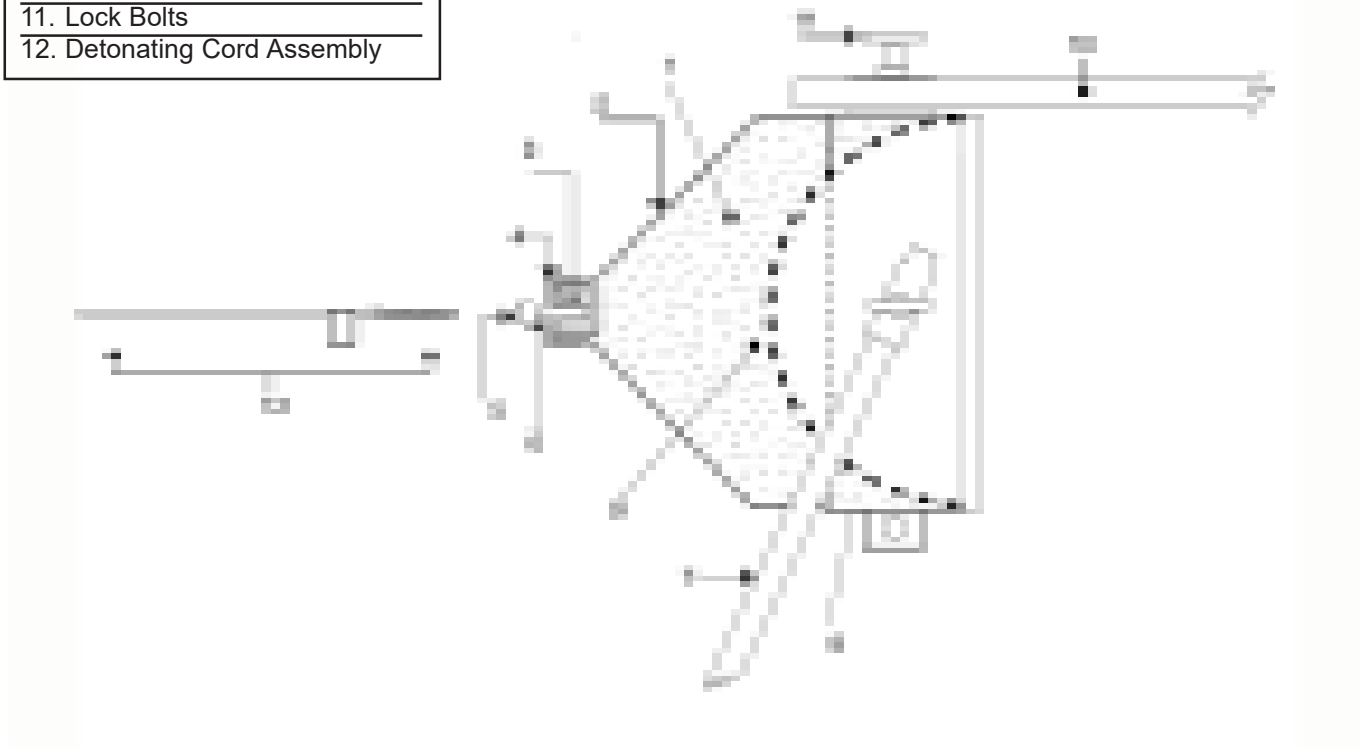
HSC 300 PARTS LIST

1. Explosive Fill
2. Exterior Casing
3. Booster Integral
4. Plastic Over-Cap
5. Disposable End-Cap
6. Plastic Housing
7. Stand-Off Legs (Optional)
8. Stand-Off Collar (Optional)
9. Steel Hemisphere
10. Stand-Off Probe
11. Lock Bolts
12. Detonating Cord Assembly



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Hemispherical Shaped Charge [HSC 53]

DESCRIPTION

Hemispherical Shaped Charge 53mm (HSC 53) provides a fast and effective way of unblocking blast holes and clearing steel reinforcing within drill holes.

HSC 53 comprises 110 grams RDX/TNT composition cast into a spun aluminium casing, capped with a 53mm diameter steel hemisphere. A 10gram PE4 increment provides a cap sensitive booster

When detonated the HSC 53 produces a penetrating jet and broad form slug into the presented obstacle. The penetrating jet, traveling at approx 5000 mt/sec induces the contact area of the obstacle to behave in a hydrodynamic fashion. The adjoining slug delivers kinetic shock energy.

Optimum jet penetration of the HSC 53 is achieved by providing a stand off distance between the device and the obstacle.

Stand-off units can be provided as an optional accessory.

SAFETY

- Transport HSC 53 in the original packaging with the steel hemispheres opposed
- Do not transport with detonators.
- When setting the HSC 53 make sure it is in a stable position. If the charge is moved after positioning, the slug will be misdirected with potential damage to non-target areas.
- Clear the area before firing, making sure personnel will not be exposed to the blast.
- Toxic fumes are generated on detonation of the HSC 53.
- Allow time for fumes to disperse before entering the blast area.
- HSC 53 contains RDX/TNT that generates a hot flash/fireball on detonation. Be aware of Dust Explosion Hazard and take adequate precautions

RECOMMENDATIONS FOR USE

1. Fix stand-off collar (optional accessory) to the hemispherical charge base. Remove red cap from the plastic detonator housing, ensuring the interior of the detonator housing remains free of dirt and grit

2. Do not tamper with the detonator housing or over-cap, or abuse in any way.

3. HSC 53 can be initiated by signal tube, electric or plain detonators (no: 8 strength minimum) or min. 10g/m detonating cord.

4. When rock popping, position and secure the HSC 53 with correct standoff. The jet will strike where aimed. Fix detonating system carefully into the detonator housing.

5. When clearing drill holes - lower the charge down the drill hole by suitable means until standoff unit meets the obstruction.

6. Ensure there are no obstructions between the device and the target.

7. Follow the authorised safety and blasting procedures prior to firing.

PACKAGING

- Packaging consists of an outer cardboard box and sixteen inner cardboard tubes. The cardboard box has dimensions of 260mm x 260mm x 388mm.
- There are 60 charges per box, packed four to an inner cardboard tube.

STORAGE

- HSC 53 has a minimum shelf life of 5 years in good storage conditions.
- These units should be stored in a cool, dry magazine licensed for 1.1D explosives and oldest charges should be used first. UN 0059

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Hemispherical Shaped Charge [HSC 53]

TECHNICAL PROPERTIES

DIMENSIONS	
Diameter	64mm
Net Explosive Weight	119.0gms
Gross Weight	204.0gms
PROPERTIES	
Main Explosive	RDX/TNT
Stand-off distance	approx 160mm
Penetration depending on target density	120mm to 300mm

DISCLAIMER

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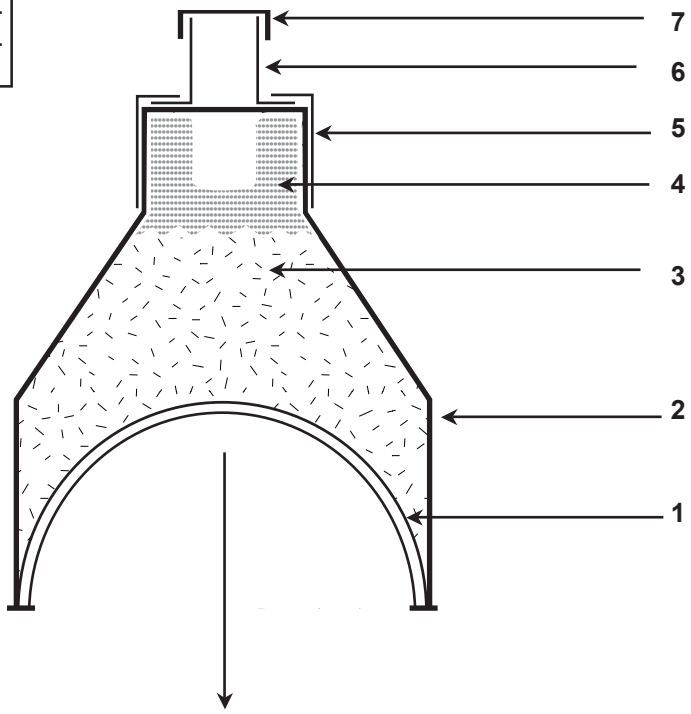
HSC 53 PARTS LIST

1. Steel Hemisphere
2. Exterior Casing
3. Explosive Fill
4. PE4 Increment
5. Plastic Over-Cap
6. Detonator Housing
7. Disposable End-Cap



Optimum stand-off distance approximately 160mm

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FC 115 [115mm Focal Charge]

DESCRIPTION

FC115MM Focal Charge provides a safe and effective secondary rock breakage method for use in underground metaliferrous mines.

FC115 comprises of approximately 1kg of high explosive cast into a plastic container defining a steep angle focal cavity. The explosive is Composition B. (RDX-TNT 60-40), with knotted detonating cord cast into and protruding from the apex of the charge.

When detonated, the FC115 focuses a proportion of the detonation energy in the focal cavity axis, thus directing a stream of hot, shocked gasses into the rock target that the charge has been placed in contact with. This results in efficient breakage of the target without the need for mudcapping or drill and popping.

SAFETY

- When the FC 115 is used, appropriate measures must be taken to protect persons and property in all nearby areas.
- Detonation of the charge produces severe airblast and toxic fumes. As safeguards to these and other potential hazards, the following safety measures should be taken when using the FC 115.
- Transport the FC 115 units in original packaging until use is intended.
- Do not transport or store with detonators.
- Ensure FC 115 units are in a stable position when sited.
- Ensure that proper detonating cord connections are made (either reef knot, clove hitch or secure taping) when tying the charge in with detonating cord. The tie in cord must be 5g/m or greater loading.
- Follow manufacturers instructions for detonating cord connections.
- Alternatively, ensure that connection of detonators to the detonating cord tail of the FC115 is done according to manufacturers instructions.
- Clear area of personnel before firing.
- Allow sufficient time for fumes to dissipate or be extracted by mine ventilation system before re-entering the blast area.
- The FC115 detonates with a hot, long lasting flash/fireball.
- Be aware of dust explosion hazard and take adequate precautions.

RECOMMENDATIONS FOR USE

1. Untape the 300mm length of detonating cord from side of FC115 unit.

2. Secure the FC115 unit against the target as firmly as possible (base towards target).

3. Attach detonating cord or other means of initiation to detonation cord tail according to manufacturers instructions (see above "safety").

4. If intending to fire multiple FC 115s in same proximity, tie in with detonating cord of minimum 5g/m ensuring clove hitch or tape connections are as per detonating cord manufacturer's instructions.

5. Clear blast site of personnel and unnecessary equipment; withdraw to a safe area.

6. Follow authorised safety and blasting procedures before and after blasting.

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FC 115 [115mm Focal Charge]

TECHNICAL PROPERTIES

Diameter (base)	115mm
Diameter (apex)	55mm
Height	170mm
NEQ	~1kg
Gross Mass	~1.15kg
Explosive Fill	RDX/TNT 60/40
Detonation Pressure	260 KBar
VOD	7800 m/sec

PACKAGING & STORAGE

No. units/case	8
Gross Mass/Case	12kg
NEQ/Case	8kg
Case Dimensions (External)	260x260x420mm
Approval No.	20094
Recommended Shelf Life	3 years
Detonation Pressure	260 KBar
VOD	7800 m/sec

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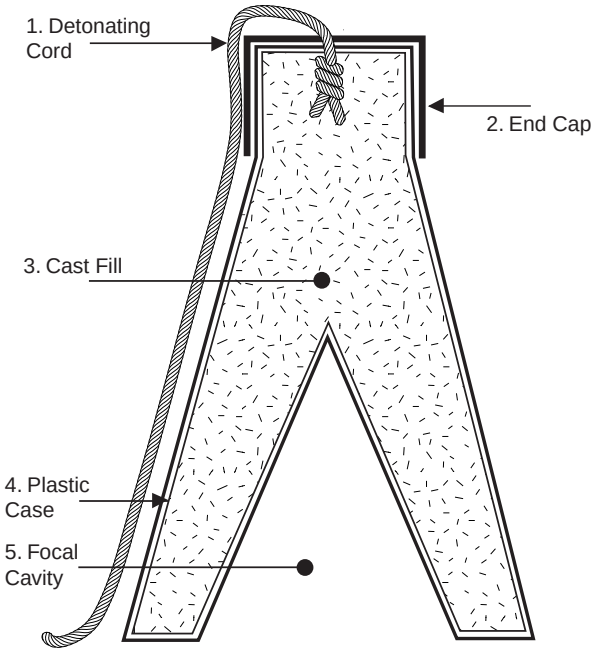
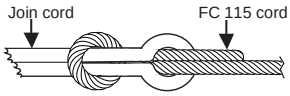
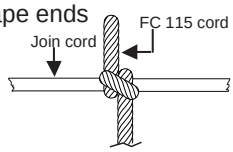


Recommended methods of initiation with detonating cord or detonators

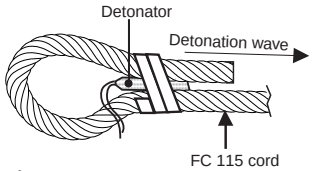
Reef Knot
NB: tape ends



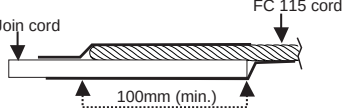
Clove Hitch
NB: tape ends



Detonator
(Signal Tube or Electric)



Tape Join
NB: tape ends



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FC 160 [160mm Focal Charge]

DESCRIPTION

FC160MM Focal Charge provides a safe and effective secondary rock breakage method for use in underground metaliferrous mines.

FC160 comprises of approximately 2.6kg of high explosive cast into a plastic container defining a steep angle focal cavity. The explosive is Composition B. (RDX-TNT 60-40), with knotted detonating cord cast into and protruding from the apex of the charge.

When detonated, the FC160 focuses a proportion of the detonation energy in the focal cavity axis, thus directing a stream of hot, shocked gasses into the rock target that the charge has been placed in contact with. This results in efficient breakage of the target without the need for mudcapping or drill and popping.

SAFETY

- When the FC160 is used, appropriate measures must be taken to protect persons and property in all nearby areas.
- Detonation of the charge produces severe airblast and toxic fumes. As safeguards to these and other potential hazards, the following safety measures should be taken when using the FC160.
- Transport the FC160 units in original packaging until use is intended.
- Do not transport or store with detonators.
- Ensure FC160 units are in a stable position when sited.
- Ensure that proper detonating cord connections are made (either reef knot, clove hitch or secure taping) when tying the charge in with detonating cord. The tie in cord must be 5g/m or greater loading.
- Follow manufacturers instructions for detonating cord connections.
- Alternatively, ensure that connection of detonators to the detonating cord tail of the FC160 is done according to manufacturers instructions.
- Clear area of personnel before firing.
- Allow sufficient time for fumes to dissipate or be extracted by mine ventilation system before re-entering the blast area.
- The FC160 detonates with a hot, long lasting flash/fireball.
- Be aware of dust explosion hazard and take adequate precautions.

RECOMMENDATIONS FOR USE

1. Untape the 300mm length of detonating cord from side of FC160 unit.

2. Secure the FC160 unit against the target as firmly as possible (base towards target).

3. Attach detonating cord or other means of initiation to detonation cord tail according to manufacturers instructions (see above "safety").

4. If intending to fire multiple FC160s in same proximity, tie in with detonating cord of minimum 5g/m ensuring clove hitch or tape connections are as per detonating cord manufacturer's instructions.

5. Clear blast site of personnel and unnecessary equipment; withdraw to a safe area.

6. Follow authorised safety and blasting procedures before and after blasting.

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FC 160 [160mm Focal Charge]

TECHNICAL PROPERTIES

Diameter (base)	160mm
Diameter (apex)	46mm
Height	222mm
NEQ	~2.6 kg
Gross Mass	~2.75 kg
Explosive Fill	RDX/TNT 60/40
Detonation Pressure	260 KBar
VOD	7800 m/sec

PACKAGING & STORAGE

No. units/case	4
Gross Mass/Case	16kg
NEQ/Case	10.5kg
Case Dimensions (External)	362x355x285mm (dia)
Approval No.	4913
Recommended Shelf Life	3 years

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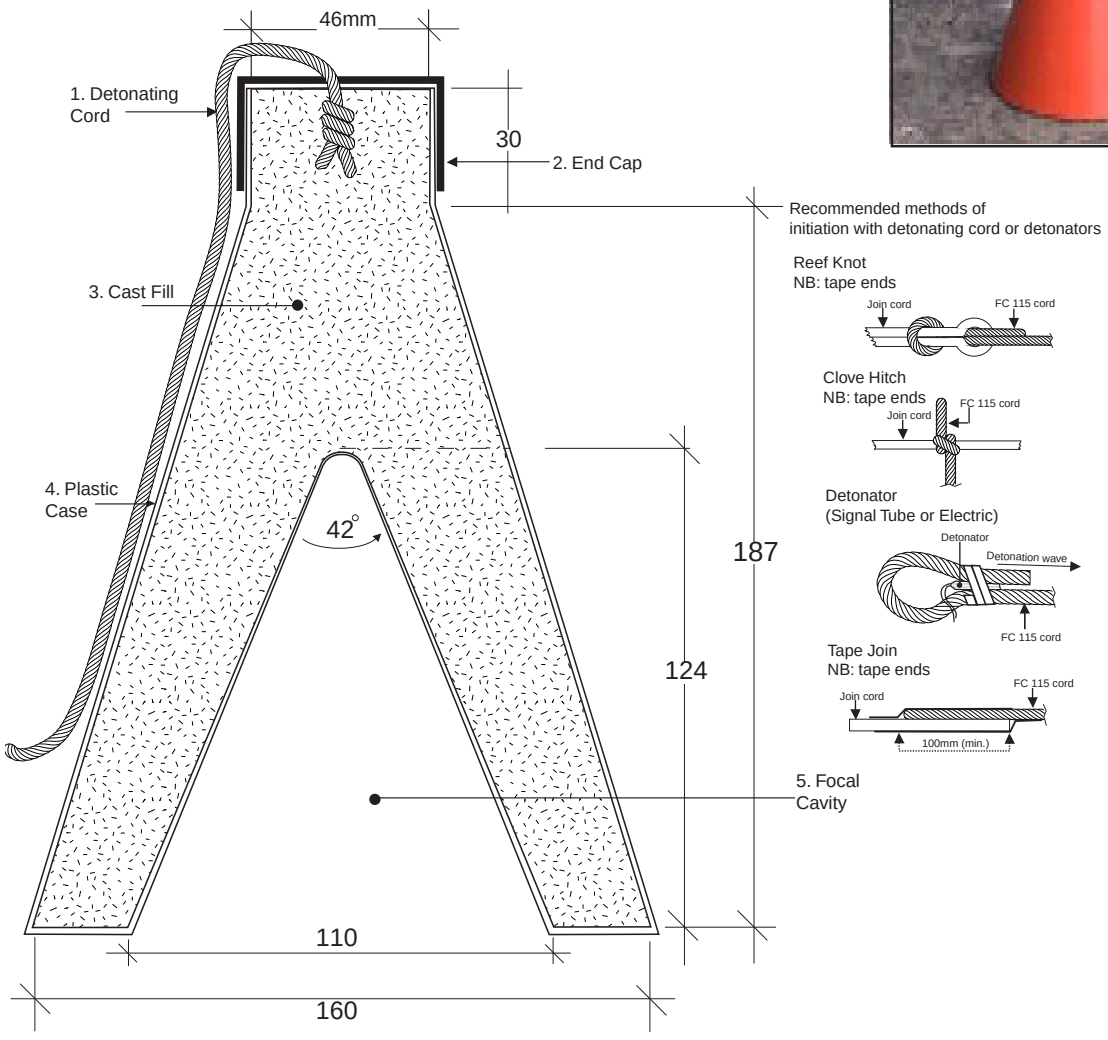

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WS SERIES Wellhead Severance Charges

GENERAL DETAILS

Manufacturer	AET Pty Ltd
Trade Name	WS 145, WS 162, WS 305
Classification Code	1:1D
Category	ZZ
Correct Shipping Name	Charges, Explosive, Commercial without detonator
UN Number	0442
Type of Explosive	Wellhead severance submarine charges
UN Number and descriptor of explosive filling	0188, Hexolite
Primary Use	Submarine Use

EXPLOSIVE CONTENT

Composition B (Grade A)	RDX 59.5+/-2%, TNT 39.5+/-2% wax to 100%
Composition B (Grade B)	RDX 56.5+/-2%, TNT 42.5+/-2% wax to 100%

EXPLOSIVE ITEM

Physical Characteristics	Polyethylene annular cylinders with aluminium central tubes
WS 145	145mm dia x 165mm 1 x 3.3 kg NEQ
WS 162	162mm dia x 155mm 1 x 4.4 kg NEQ
WS 305	305mm dia x 155mm 1 x 16.7 kg NEQ

PACKAGING

Approval Number	AUS 4913
Designator Code	4G
Type	Paper Fibreboard
Packaging Marking	UN 4G Y20 S 98 AUS AMCOR 4913
Description	Ext. Dimensions:- L362 x W355 x D285mm
Inner Packagings	Fibreboard pieces
Closure	Polypropylene strapping
WS 145 Gr. Mass, NEQ & No. Charges/case	17.2kg, 13.2kg., 4
WS 162 Gr. Mass, NEQ & No. Charges/case	17.6kg, 13.2kg., 4
WS 305 Gr. Mass, NEQ & No. Charges/case	18.1kg, 16.7kg., 1

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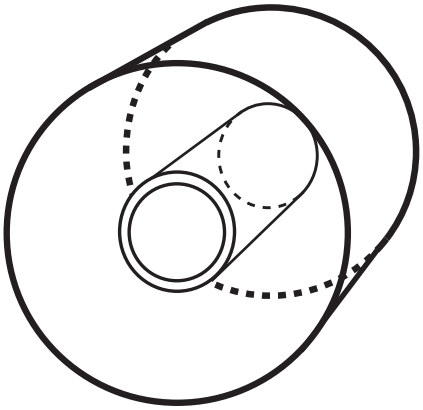
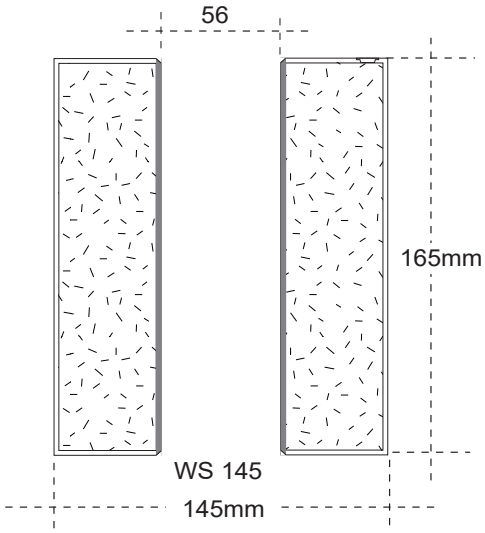
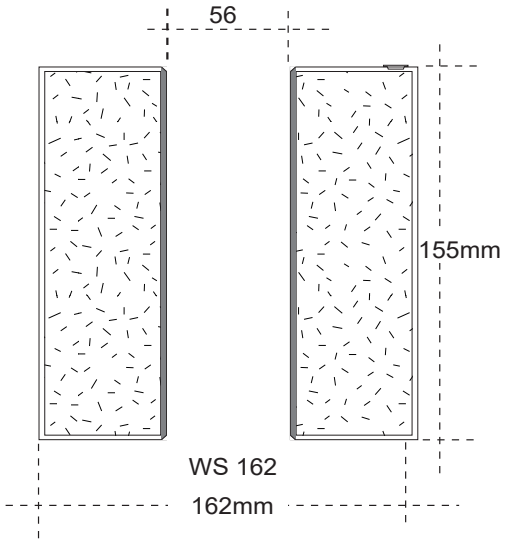
WS Series

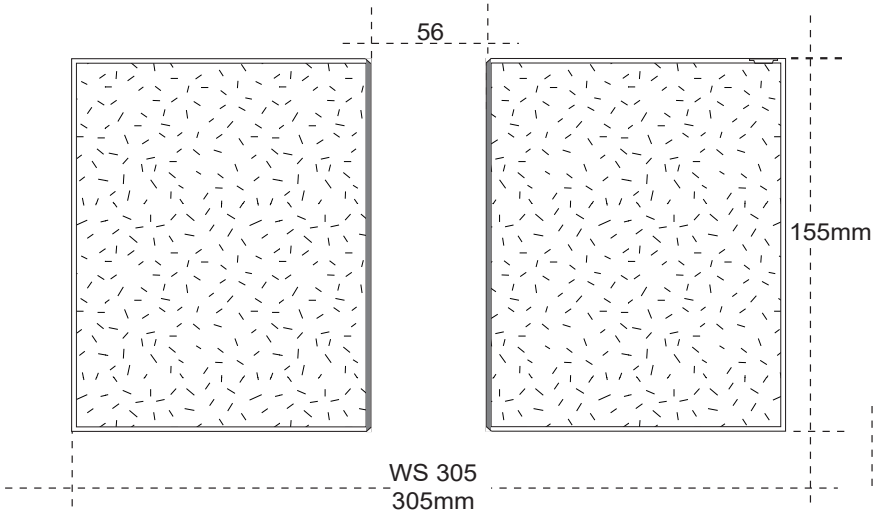
Wellhead Severance Charges

Isometric view









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MILITARY ENGINEERING & EXPLOSIVE ORDNANCE DISPOSAL (EOD) PRODUCTS

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DESCRIPTION

- The ELC150 and ELC300 devices are a linear shaped charge system designed for ordnance disposal applications.

- The ELC150 and ELC300 devices are designed to penetrate munition casings and initiate a low order burn of the explosive filling, in a single step process, thereby rendering the munitions safe with minimal impact on the local environment.

- The ELC150 and ELC300 devices cut a large opening in the target munition which allows the reaction products to vent freely.

- While assorted linear shaped charges are reliable for cutting open the cases of unexploded ordnance, they do not commonly cause the main filling to ignite and burn out in the same operation. A second approach is required to place an incendiary charge to burn out the filling in-situ. ELC liners are constructed so as to supply a large amount of heat energy to dramatically increase the probability of the munition filling igniting.

- ELC150 and ELC300 devices have been successfully used, to date, against munitions containing A3, Comp B, H6, RDX/Al/Wax, RDX/TNT/Al/Wax, TNT, TNT/Al & Tritonal.

5”/54 Naval gun shell with “AUSZIPPER” set up for EOD

Post “AUSZIPPER” firing, 5”/54 Naval gun shell.

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EBD80 [DSTO - AUSDISC]

DESCRIPTION

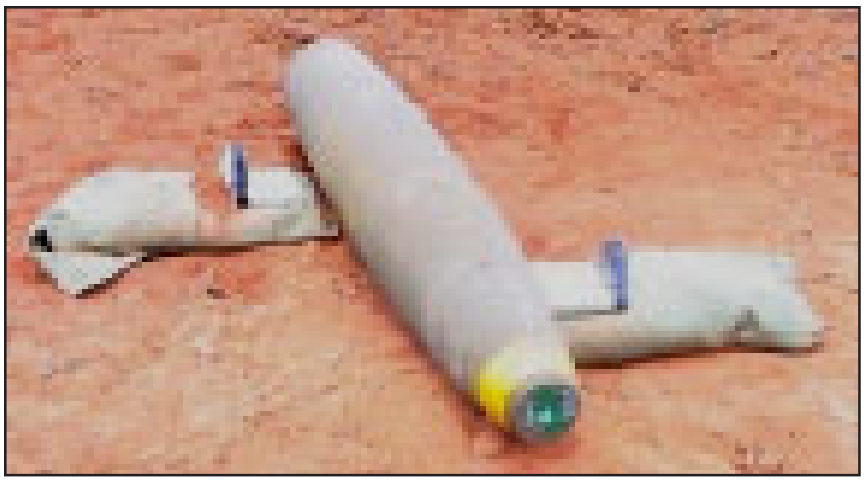
- The EBD80 device is designed for low order Explosive Ordnance Disposal (EOD) applications where it is desirable to open a bomb casing, and ignite a burn of the filling, with a single step process.

- Through the use of a specialist liner contour, and material, the impact shock has been demonstrably minimised in comparison to other EOD Devices. There have been no recorded high order reactions resulting from the functioning of an EBD80.

- The cutting action of an EBD80 results in a large diameter hole in the target munition which allows the reaction products to vent freely.

- Contact with the target ordnance is not required.

- EBD80 has been successfully used, to date, against munitions containing A3, H6, RDX/Al/Wax, RDX/TNT/Al/Wax, TNT & Tritonal.



500lb Mk82 bomb with EBD80 “AUSDISC” set up for EOD.

Post EBD80 “AUSDISC” firing, 500lb Mk82 bomb.

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ESC38 [DSTO - AUSPLASTIC]

DESCRIPTION

· The ESC38 device is a shaped charge, of plastic construction, designed for fuse neutralisation operations.

· Assorted metal shaped charges, either EFPs or jet penetrators, can be used to remove an external fuse from rounds. A disadvantage of metal projectiles, and charge casings, is the large distance the projectile and casing shrapnel could travel. This forces the implementation of a large safety zone, based on worst-case risk management. The ESC38 has been designed to achieve fuse neutralisation, with a minimised safety zone. The safety zone may be significantly smaller than that required by the target munition.

· Contact with the target ordnance is not required for neutralisation. This has clear benefits when dealing with damaged or hazardous ordnance or if the round is suspected of being booby-trapped.

105mm Howitzer shell with "AUSPLASTIC" setup for EOD fuze removal

Post "AUSPLASTIC" firing, 105mm Howitzer shell fuze removed.

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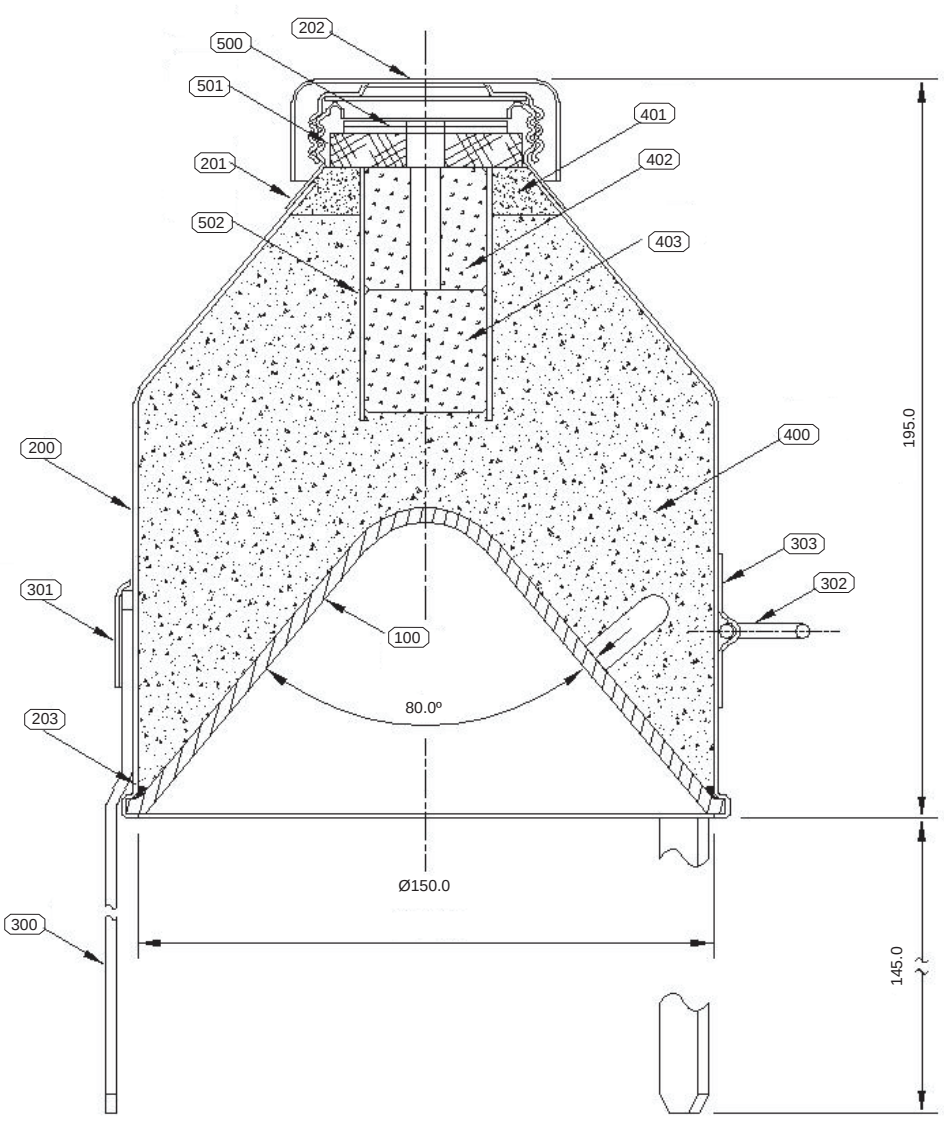
Charge Demolition - Shaped [CDS 150]

PART NO:	QTY	DESCRIPTION	MATERIAL
502.	1 off	Tube, Paper, Lead Free	Paper roll
501.	1 off	Washer, Felt, 12 Thick	Felt
500.	As req.	Washer, Millboard, 3 Thick	Millboard
403.	1 off	Explosive Primer without Tunnel	TR1 (RDX /
402.	1 off	Explosive Primer with Tunnel	Polythene / wax)
401.	0.043kg	Explosive Fill, 12.5mm layer	TNT
400.	2.900kg	Explosive Fill	RDX / TNT
303.	2 off	Bracket, Lifting Ring attachment	Formed Steel
302.	2 off	Ring, 'D' Lifting or Securing	Steel Rod
301.	3 off	Bracket, Leg Attachment	Formed Steel
300.	3 off	Leg, Standoff	20 x 3 Flat Steel
203.	1 lot	Sealant, Cement	Sealing Cement
202.	1 off	Cap Assembly, Threaded	Formed Steel
201.	1 off	Ring, Threaded	Formed Steel
200.	1 off	Charge Casing	Sheet Steel
100.	1 off	Liner, Conical	Mild Steel



CDS 150

CDS 150 penetrating 800mm 50mpa reinforced concrete.

CDS 150 (250mm +) penetration in mild steel block

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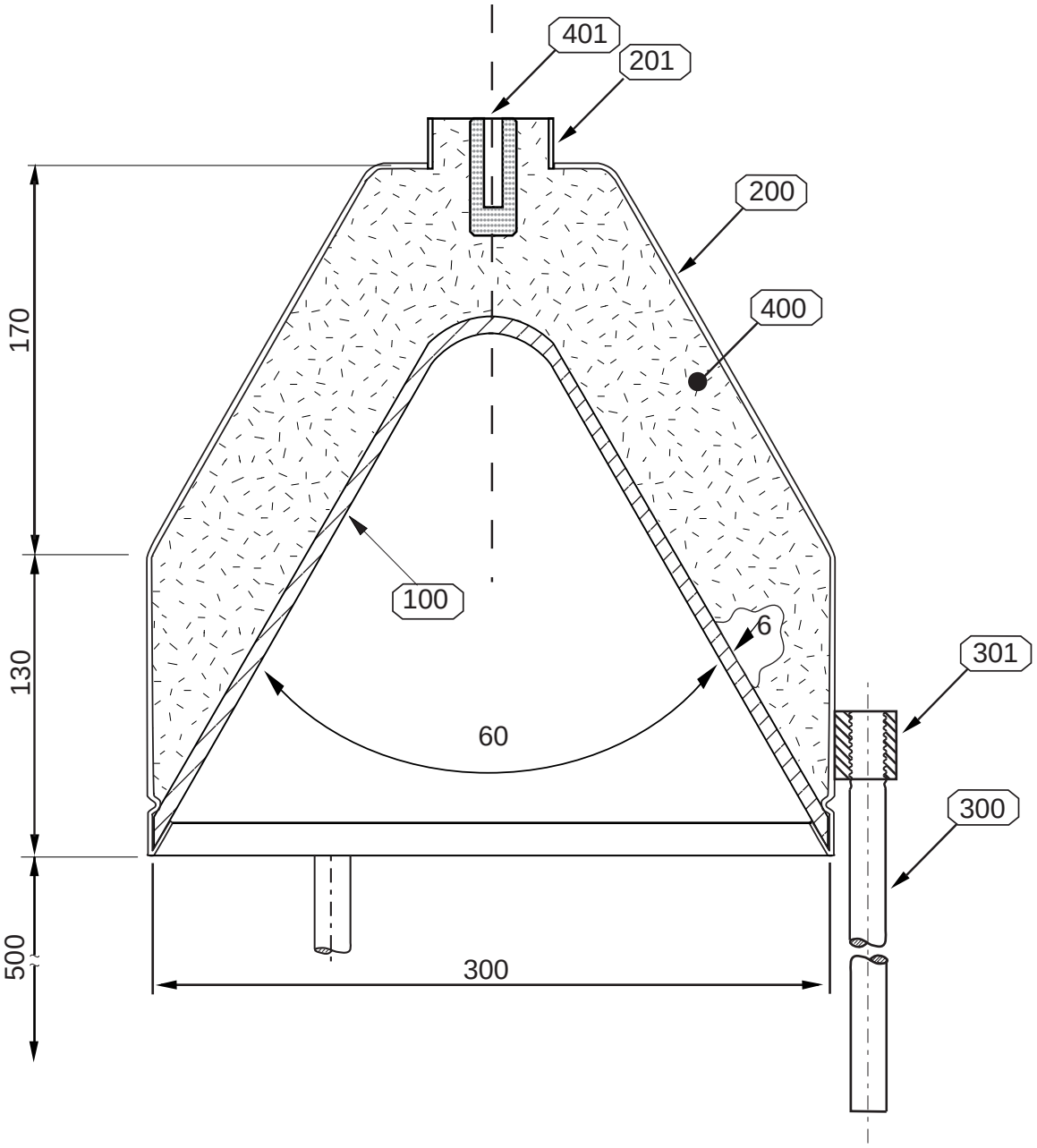
PART NO:	QTY	DESCRIPTION	MATERIAL
401	1 off	Primer	PETN / WAX
400	13.5kg	Explosive Fill	RDX / TNT
301	3 off	Leg Attachment Brackets	Machined Steel
300	3 off	Stand Off Legs	Steel Rod / Tube
201	1 off	Primer Well / Fill Port	Steel Pipe
200	1 off	Charge Casing	2mm Thick Steel
100	1 off	Conical Liner	Copper or Steel



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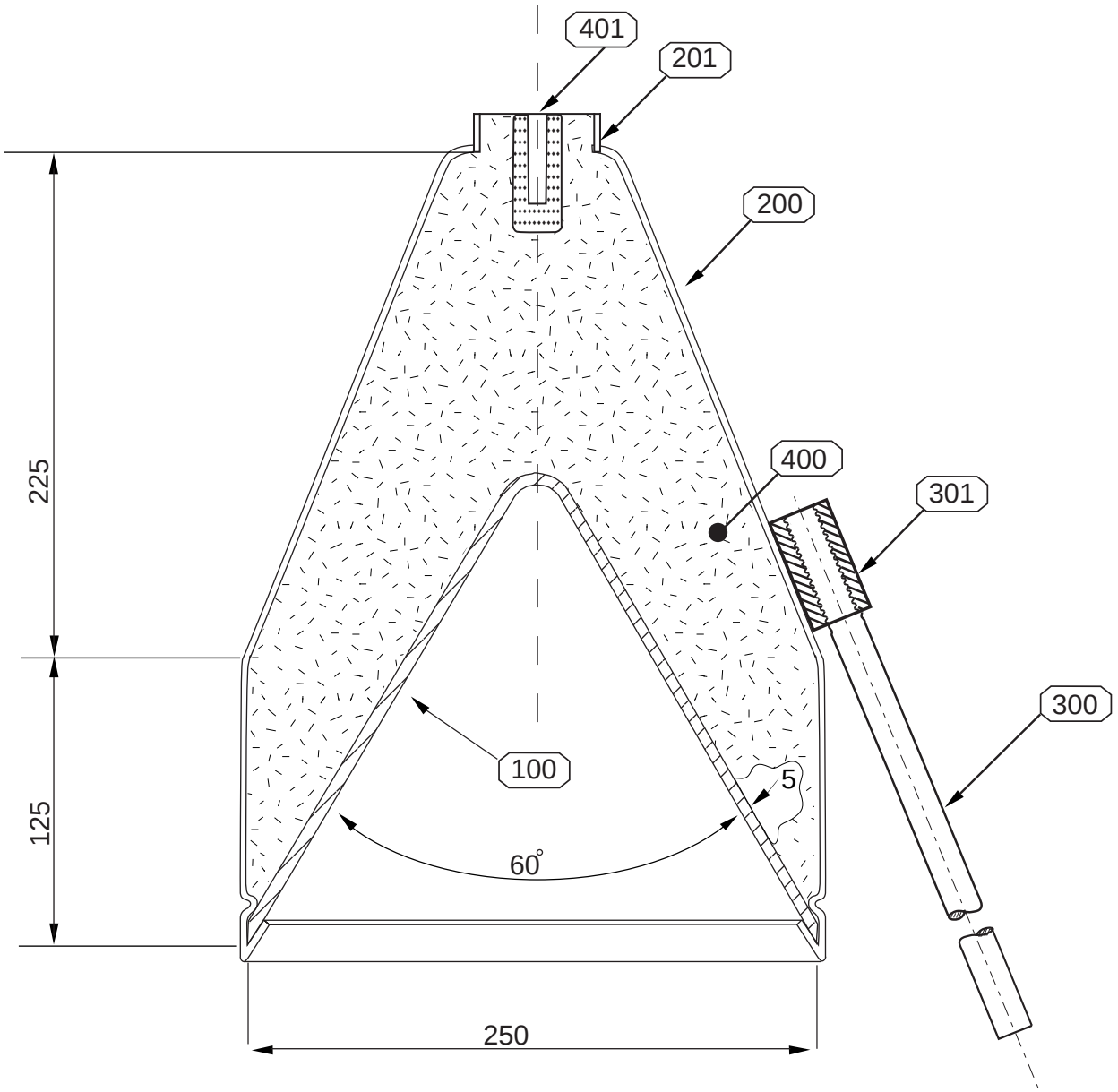
PART NO:	QTY	DESCRIPTION	MATERIAL
401	1 off	Primer	PETN / WAX
400	12 kg	Explosive Fill	RDX / TNT
301	3 off	Leg Attachment Brackets	Machined Steel
300	3 off	Stand Off Legs	Steel Rod / Tube
201	1 off	Primer Well / Fill Port	Steel Pipe
200	1 off	Charge Casing	2mm Thick Steel
100	1 off	Conical Liner	Copper or Steel



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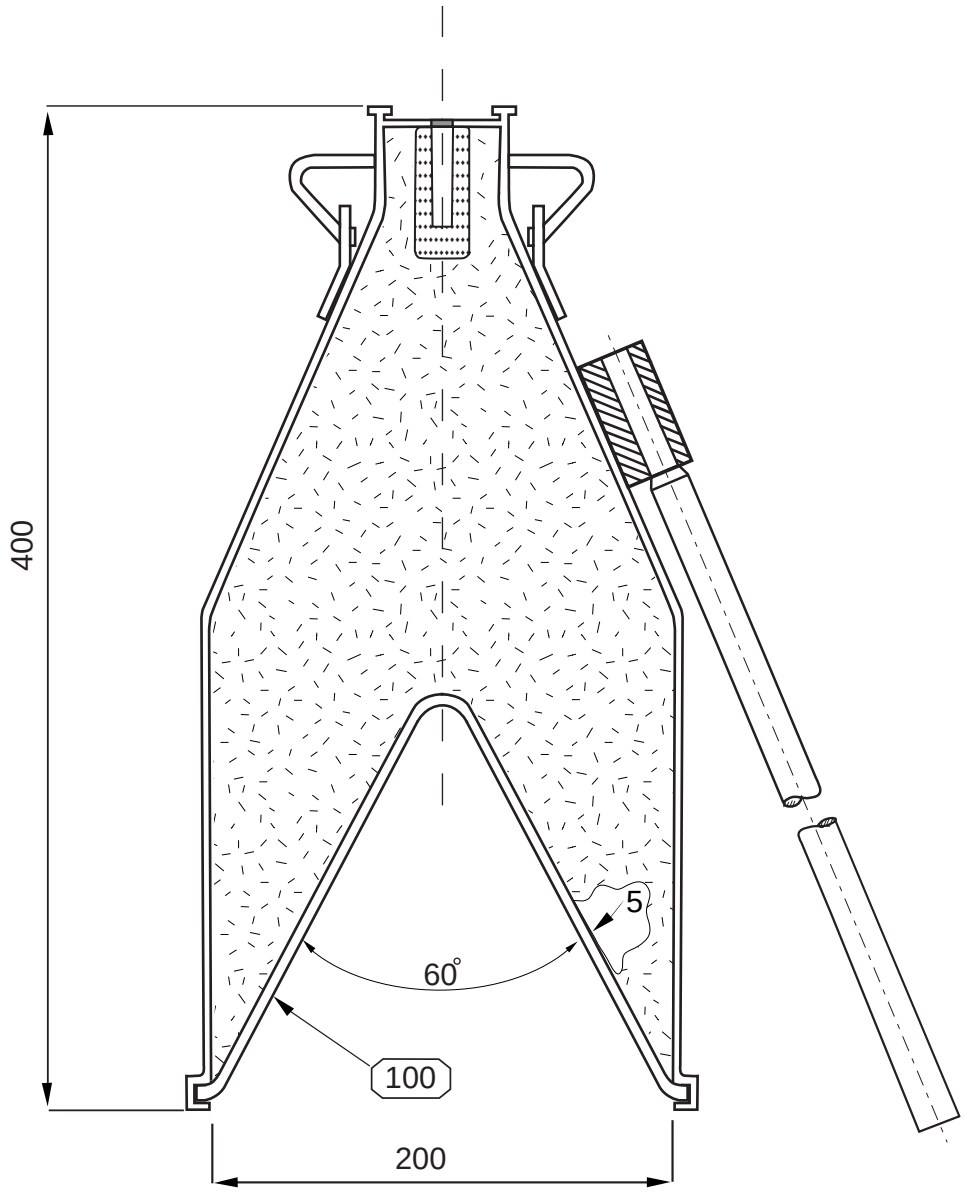
Shaped Charge 200mm [SC 200]

PART NO:	QTY	DESCRIPTION	MATERIAL
401	1 off	Primer	PETN / WAX
400	11 kg	Explosive Fill	RDX / TNT
301	3 off	Leg Attachment Brackets	Machined Aluminium
300	3 off	Stand Off Legs	Steel Rod / Tube
204	1 off	Detonator Hole Seal	Adhesive Tape
203	1 off	Plastic Cap	Plastic
202	1 off	Handle	Steel Rod
201	2 off	Handle Brackets	Sheet Aluminium
200	1 off	Charge Casing	4mm Thick Aluminium
100	1 off	Conical Liner	Copper or Steel



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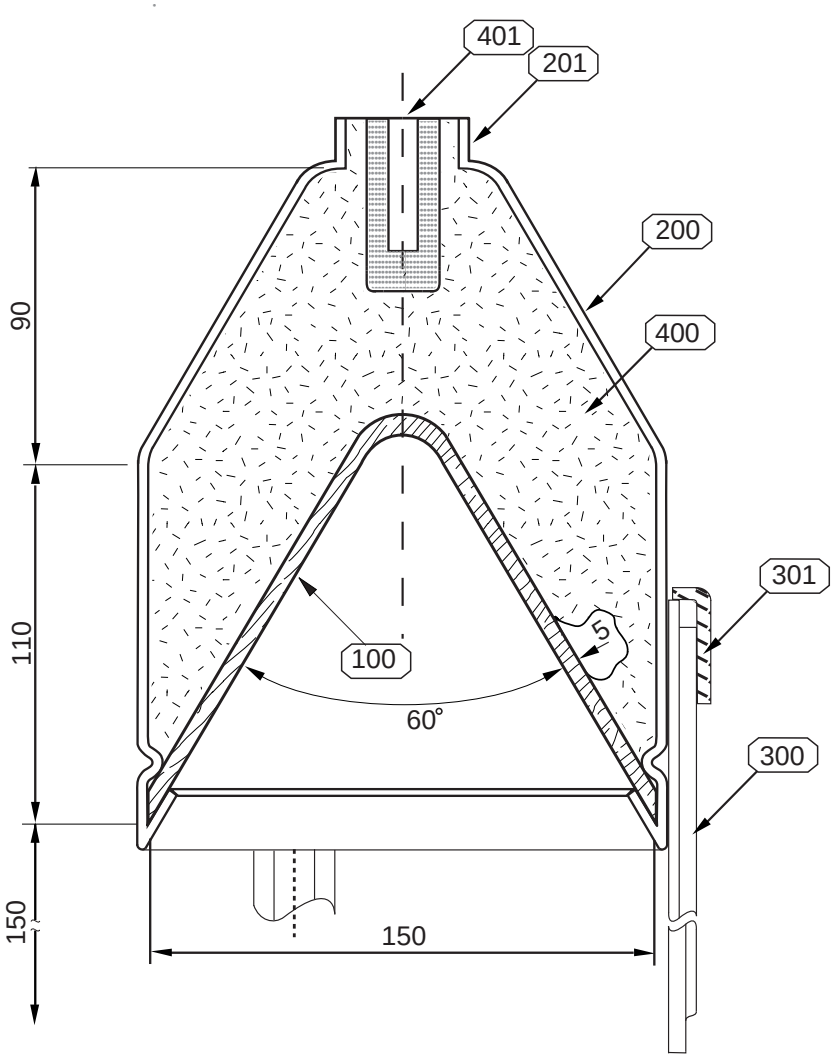
Shaped Charge 150mm [SC 150]

PART NO:	QTY	DESCRIPTION	MATERIAL
401	1 off	Primer	PETN / WAX
400	3.1 kg	Explosive Fill	RDX / TNT
301	3 off	Leg Attachment Brackets	Sheet Aluminium
300	3 off	Stand Off Legs	Pressed Steel
201	1 off	Primer Well Fill/Port	Aluminium Pipe
200	1 off	Charge Casing	3mm Thick Aluminium
100	1 off	Conical Liner	Copper or Steel



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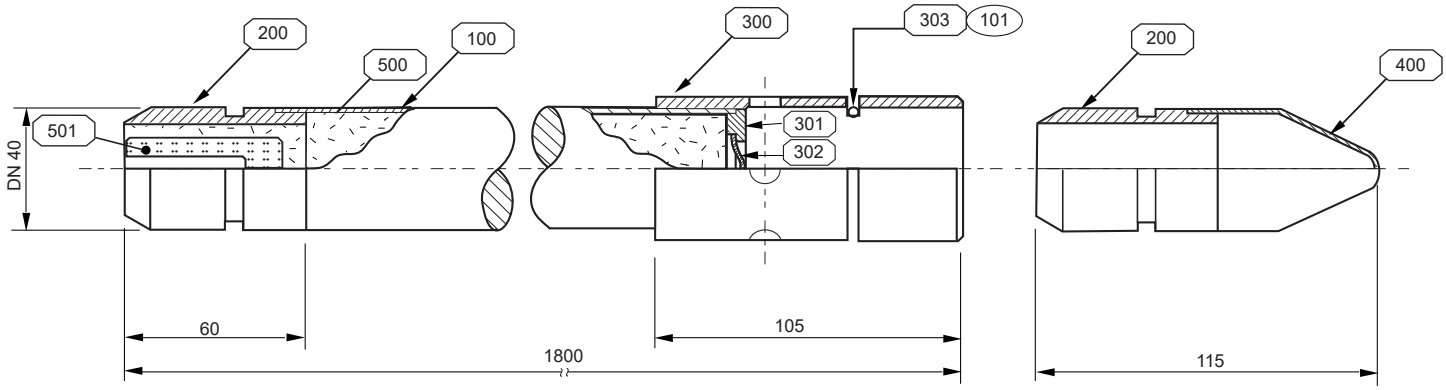
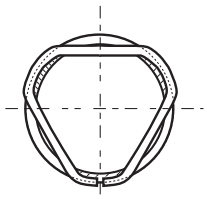
Bangalore Torpedo

PART NO:	QTY	DESCRIPTION	MATERIAL
501	1 off	Primer	PETN / WAX
500	3.4 kg	Explosive Fill	RDX / TNT
400	1 off	Guide Cone	Sheet Steel
303	1 off	Locking Spring	Spring Wire
302	1 off	Detonation Transmission Cap	Pressed Steel
301	1 off	End Plug	Machined Steel
300	1 off	Female End	Machined Steel
200	1 off	Male End	Machined Steel
100	1 off	Outer Casing	Steel Tube





Detail 101

Locking Spring - cross section

Detailed specifications available on request

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CROSS SECTION
CHARGE, CUTTING, LINEAR

AET currently manufacture W24,W29 & W31 Linear Cutting Charges and we have scaleable designs for W40, 50, 87, 92, 100 & 200 and we can, through scaling laws, predict, to an extent, their likely performance in mild steel. (see below)

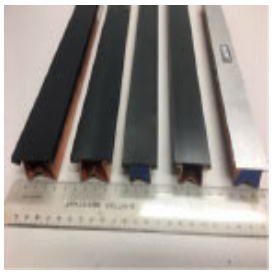
Item	Kg/m(PE4)	mm severance minimum single side severance 250 mpa steel plate	mm minimum opposed severance 250 mpa steel plate
W24	0.42	25 actual	50 actual
W29	0.6	30 actual	60 predicted
W31	0.684	35 actual	70 predicted
W40	1.47	40 predicted	80 predicted
W50	2.357	50 predicted	100 predicted
W87	6.19	90 predicted	180 predicted
W92	6.91	95 predicted	190 predicted
W100	8.22	100 predicted	200 predicted
W200	18.6	200 predicted	400 predicted

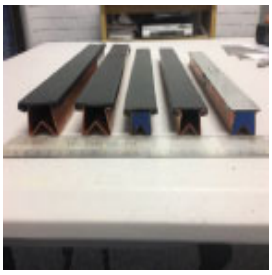
CCL IS AVAILABLE AS:
PE4 fill
Pentolite fill
Comp B fill
Empty casings for field fill with PE

Max length 900mm
W24 - 420g/m
to sever 25mm 1020 steel (PE4 fill)

W29 - 600g/m
to sever 30mm 1020 steel (PE4 fill)

W31 - 680g/m
to sever 35mm 1020 steel (PE4 fill)


CCL Casings 1


CCL Casings 2


Casings PE4 filled


Assembled CCL on target


Severed targets 1


Severed Targets 2


Severed Targets 3


Severed Targets 4


CCL on beam


CCL opposed on beams 1


CCL opposed on beams 2


Flange Severance


Double Beam Severance 1


Double Beam Severance 2

Detailed Specifications available on request

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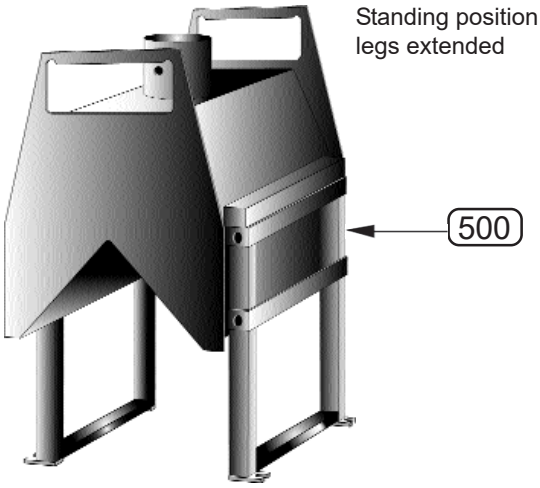
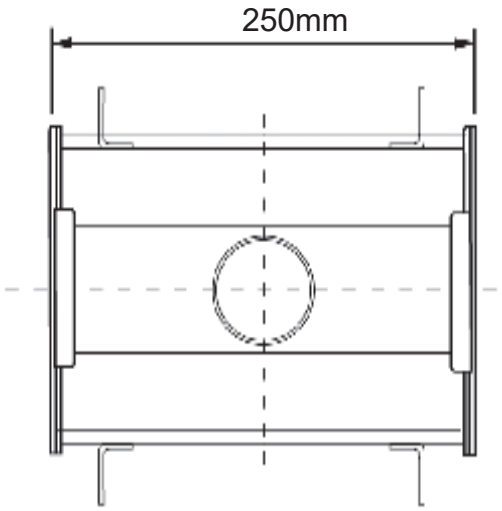
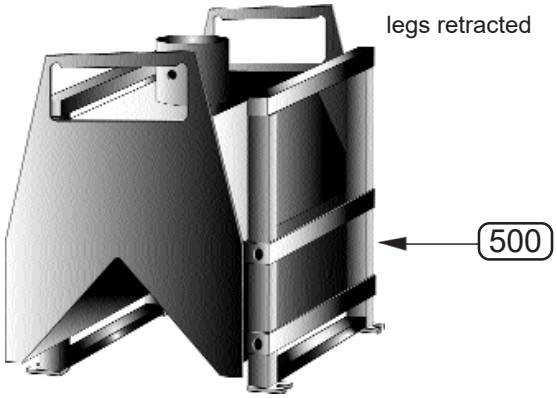
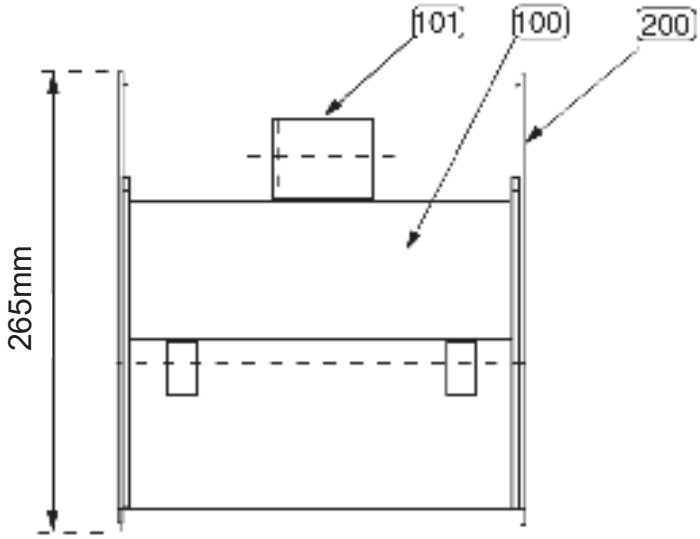
HAYRICK PARTS LIST

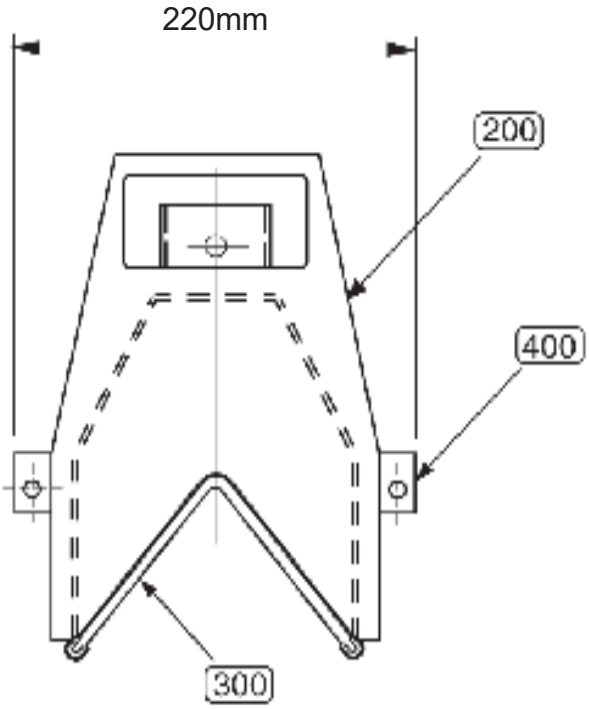
100. Hayrick Casing
101. Primer Well (part of Hayrick Casing)
200. End Plate
300. Liner
400. Leg Bracket
500. Leg Assembly











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PYROTECHNIC SIMULATORS

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AET Pyrotechnic Simulators are for use by Armed Forces and Police units for training in battlefield, MOUT and IED environments. Both ADF and State Police utilise these simulators as elements of their training regimes

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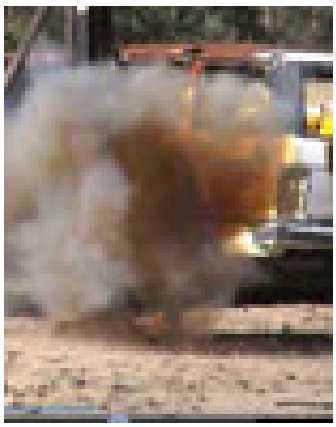
Ball Charges

UN: 0430
CLASS: 1:3G

BS001
BS001-E
BS002
BS002-E

BS-Series Ball Charges are designed for use as dishpan mortar lifters, or underwater lifters, for special effects. They are very powerful and efficient high-energy gas producers.

BS Series Effects



BS001: very loud report and propulsive effect; Brief yellow flash and scanty brown smoke.

BS001-E: very loud report and propulsive effect; Brief white flash and ball of thin white smoke.

BS002: very loud report and propulsive effect; Brief yellow flash and scanty brown smoke.

BS002-E: very loud report and propulsive effect; Brief white flash and ball of thin white smoke.

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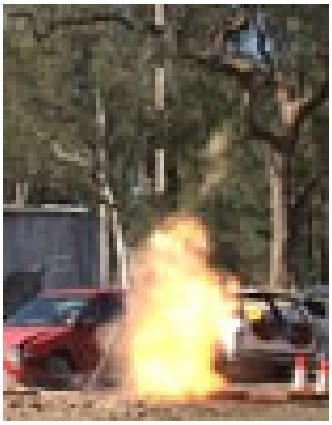
Fire Flash Bursters

FF001
FF002
FF003

The FF (Fire-Flash) Series Bursters are designed to produce a very brief, large, orange fire-flash, with scanty smoke, accompanied by a loud report.

UN: 0430
CLASS: 1:3G

FF Series Effects



FF001:
loud report and nominally 2x2m orange fire-flash.

FF002:
loud report and nominally 3x3m orange fire-flash.

FF003:
loud report and nominally 5x5m orange fire-flash.

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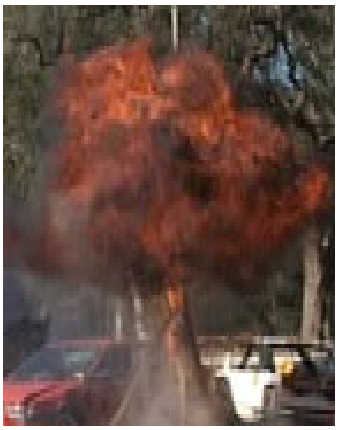
Cork Block Fire Flash

UN: 0430
CLASS: 1:3G

CBFF001
CBFF002
CBFF003

Cork Block Fire-Flash (CBFF) Charges are pyrotechnic items that, when functioned, produce an orange/red fire ball, with black smoke, and a burst of cork fragments.

CBFF Series Effects



CBFF001: report and nominally 2 x 2m orange/red fireball, black smoke cloud, cork fragments

CBFF002: report and nominally 3 x 3m orange/red fireball, black smoke cloud, cork fragments

CBFF003: report and nominally 4 x 4m orange/red fireball, black smoke cloud, cork fragments

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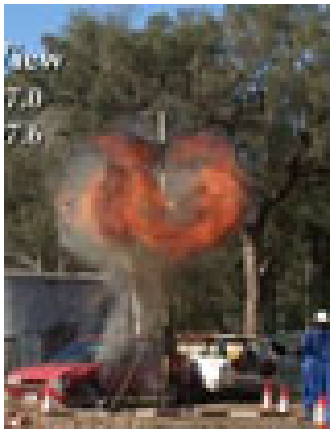
Fire Ball Charges

UN: 0430
CLASS: 1:3G

FB001
FB002
FB003
FB004

The FB (Fire-Ball) Series Charges are designed to produce a large orange/ red fire-ball with black smoke.

FB Series Effects



FB001: report and nominally 3x3m orange-red fireball evolving to a black smoke cloud.

FB002: report and nominally 4x4m orange-red fireball evolving to a black smoke cloud.

FB003: report and nominally 5x5m orange-red fireball evolving to a black smoke cloud.

FB004: report and nominally 8x8m orange-red fireball evolving to a black smoke cloud.

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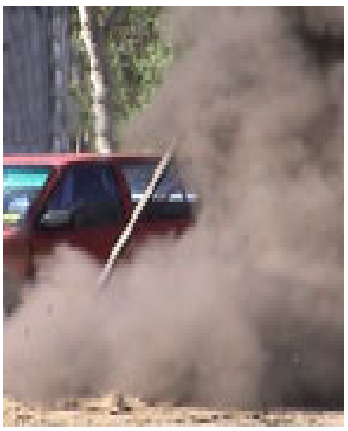
Dust & Smoke Bursters

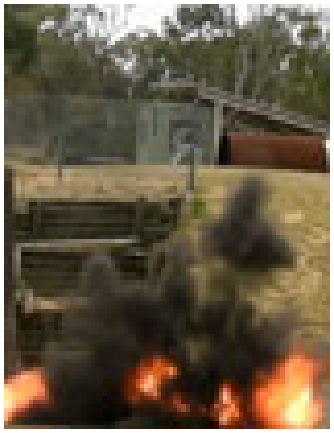
DS001
DS002
DS003

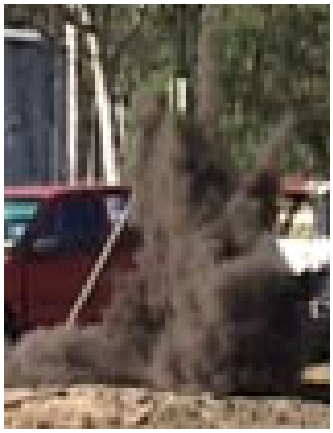
The DS (Dust and Smoke) Series Bursters are designed to produce a large puff of black or grey dust that simulates the smoke witnessed subsequent to the detonation of military high explosive items.

UN: 0430
CLASS: 1:3G

DS Series Effects







DS001: loud report and nominally 2x2m cloud of black or grey dust.

DS002: loud report and nominally 3x3m cloud of black or grey dust.

DS003: loud report and nominally 5x5m cloud of black or grey dust.

DS003-E: loud report and nominally 6x6m cloud of black or grey dust.

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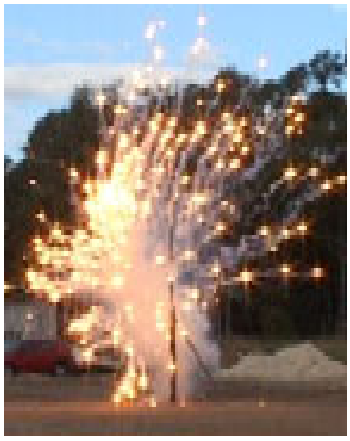
White Phosphorous

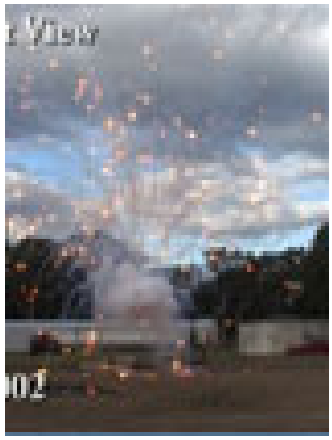
WP001
WP002

The WP-Series Charges produce a soft report and propulsive effect; Dense puff of white smoke. Expansive burst of yellow stars, with white smoke trails for a 20 metre radius. Stars continue to burn for short period while on the ground.

UN: 0430
CLASS: 1:3G

WP Series Effects





WP001:
soft report and propulsive effect; Dense puff of white smoke. Expansive burst of yellow stars, with white smoke trails for a 10 metre radius. Stars continue to burn for short period while on the ground.

WP002:
soft report and propulsive effect; Dense puff of white smoke. Expansive burst of yellow stars, with white smoke trails for a 20 metre radius. Stars continue to burn for short period while on the ground.

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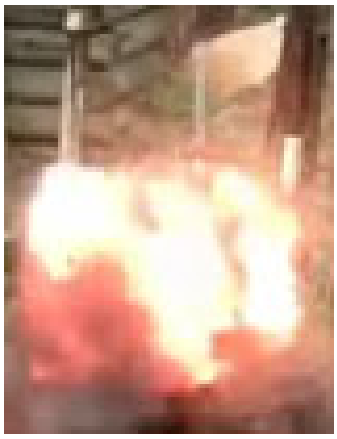
Maroons M00 Series

M001
M002
M003
M008

The Maroons are constructed from convolute fibreboard tubes, closed with corks at both ends, and sealed with shellac. The tubes contain the pyrotechnic composition complete with electric or shock tube igniters. Lead wires, or shock-tube, protrude from one end of the sealed tube.

UN: 0430
CLASS: 1:3G

M00 Series Effects



M-Series (M001, M002, M003 & M008) Maroons are pyrotechnic items that, when functioned, burst with a bright yellow or white flash, scanty brownish or white smoke, and a loud report.

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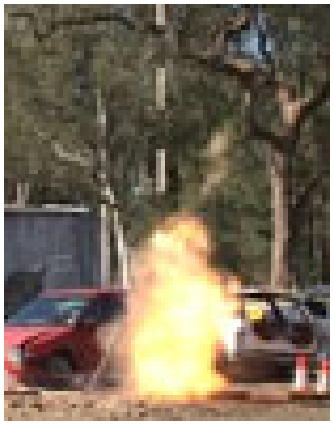
Maroons M008 HG-PW

M008 HG PW

Actuated with a pull wire fuse igniter. Fuse delay approximately 6-7 seconds - Bursts with white/ yellow flash and white smoke.

UN: 0430
CLASS: 1:3G

M008 HG-PW Effects



M008-HG-PW: Used for simulation of a hand grenade. It includes a pull wire fuse lighter so that it may be thrown in the same manner as a live grenade.

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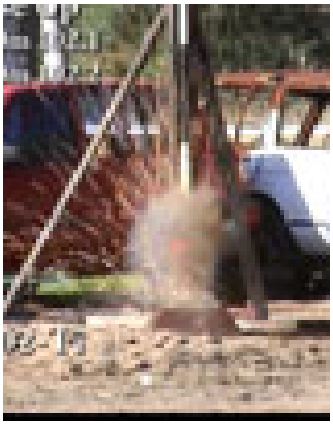
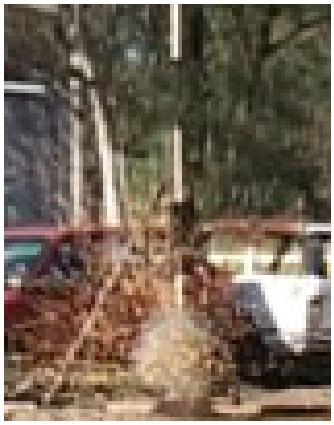
Maroons M00 Ti Series

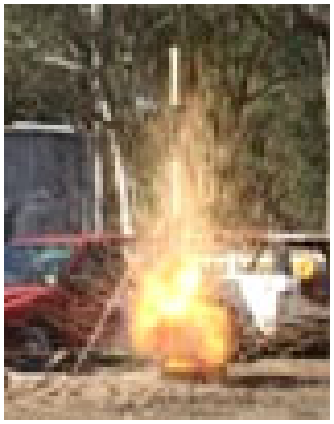
M00 Ti Series OF-Ti Maroons burst with a vivid, bright orange flash, a small amount of white smoke, a loud report with copious, bright yellow-white, fast moving sparks emanating from the burst.

UN: 0430
CLASS: 1:3G

M00 Series Ti Effects







M00 - Ti Series Effects

E-Ti Maroons burst with a white flash, some white smoke and copious, bright yellow-white, fast moving sparks emanating from the burst. These serials are also very powerful, as for the E-series above.

Ti Maroons burst with a vivid, bright orange flash, a small amount of white smoke, a loud report with copious, bright yellow-white, fast moving sparks emanating from the burst.

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TB009

UN: 0428
CLASS: 1:1G

TB009 Thermobaric Warhead Pyrotechnic Simulators simulators are large (220 mm width, 240 mm height,5 kg gross mass,1.4 kg NEQ)) pyrotechnic items that, when functioned, burst with a bright orange/yellow flash/fireball and a large black/white/grey smoke plume. They are extremely loud and have a minimum safety distance of 40 meters They are intended to simulate the burst of a thermobaric warhead, which features a prolonged flash/fireball, a prolonged blast wave and dense white/grey smoke plume in comparison to conventional warhead bursts.

These pyrotechnic items are for use in defence training. They are to be used only by suitably qualified and licenced pyro-technicians.

TB009 simulators are constructed from convolute fibreboard tubes, closed with fibreboard discs at both ends, and sealed with Adhesives and Paper /Cloth tape. The tubes contain the pyrotechnic composition complete with a lead in of quickmatch, which is intended to be initiated with an electric or shock tube igniter. The quickmatch, when rolled out, is 200 mm.in length.

SAFETY

TB009 simulators are very powerful and contain highly effective gas producing compositions. TB009 simulators have an unusually high mass of pyrotechnic composition. Great care and circumspection is mandatory when the use of these items is contemplated.

Extensive training and familiarisation prior to use is required.

Serious injury can result if personnel are too close to the simulator when it is functioned.

Extensive training and familiarisation prior to use is required.

Serious injury can result if personnel are too close to the simulator when it is functioned.

DONT'S

DON'T use TB009 simulators if you have not been trained in their use.

DON'T use TB 009 simulators with powder leakage.

DON'T use a TB009 simulator with the quickmatch pulled out of the simulator.

DON'T use a simulator with quickmatch missing or out of position.

DON'T place a TB009 simulator on stony ground

DO place TB009 simulator on a thick rubber mat if possible

DO place TB009 simulator on sandbags if possible

DO place TB009 simulator on layer of sand or pebble free soil at least 50 mm thick

DO provide effective hearing protection and eye protection for training staff and troops

DO enforce a 40meter safety distance(minimum) from personnel.

WARNINGS

Blast/burn hazard: Hot, high speed gasses are produced by a functioning maroon; may cause blast and burn injuries up to a 20metre radius. Dry grass and leaves may be ignited.

Fragment Hazard: TB009 simulators may throw fragments of fibreboard casing up to 20 metres from point of burst; may project sticks or gravel at dangerous velocities – appropriate eye protection required for nearby personnel. Care should be taken to ensure that the device is thrown on ground free of projectible objects.

Hearing Hazard: TB009 simulators may cause hearing damage if ears unprotected – appropriate ear protection required for nearby personnel.

Flammable atmosphere hazard: hot flash, produced by functioning TB009 simulator may ignite flammable atmospheres.

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RECOMMENDATIONS FOR USE

Set upTB009 simulator

- at least 40 m away from personnel,
- on a rubber mat (min thickness 12 mm),
- or a couple of sandbags laying flat,
- or a layer of sand or pebble free screened
- free the rolled length of quickmatch from the rubber band that retains the roll.
- lay out the quickmatch
- insert an electric igniter into the open end of the quickmatch
- the igniter should be already connected to a shunted firing cable
- ensure the igniter bulb is in good contact with the black powder coated string inside the quickmatch cover
- tape the connection securely.
- Retreat to the firing position.
- Keep the TB009 simulator always in sight
- Only function the TB009 simulator when safe to do so.
- Check for firô€€•s after functioning the TB009 simulator.

PACKAGING
Fibreboard Box: 280 x 335 x 335mm (HxWxL)

UN No: 0428

Proper Shipping Name:
ARTICLES, PYROTECHNIC for technical purposes

Classification Code: 1.1G

DISCLAIMER
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DS001: IED Small (Dust & Smoke)

FF001: IED Small (Flash & Flame)

DS002: IED Medium (Dust & Smoke)

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FF002: IED Medium (Flash & Flame)



DS003: IED Large (Dust and Smoke)



DS003, FF003: IED Large (Flash & Flame)



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DS002, FF002: Combination (Dust & Smoke, Flash & Flame)



M002TI: 25mm HEI Cannon Strike Maroon



DS003, FB002, FB003, FF003: Combined Effect Car Bomb (Small)



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