



Innovative Solutions

The Utilisation of Technology used in Military Projects



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Best Practise in the Military!



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Objectives



1. We have no bombs!
2. Case Studies
3. Technology utilisation
4. Future directions
5. Possible benefits

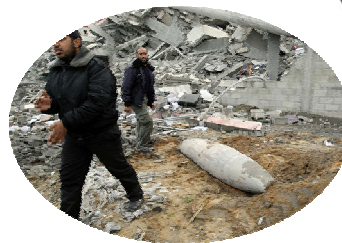


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Our usual environment



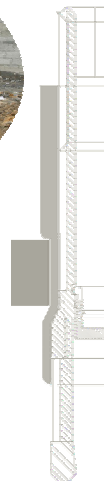
Improvised Explosive Devices



Explosive Ordnance Disposal

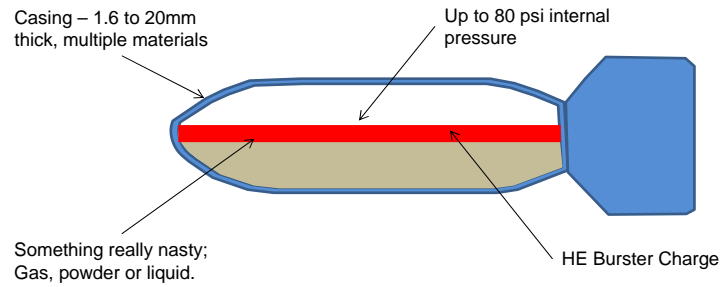


Legacy Munitions



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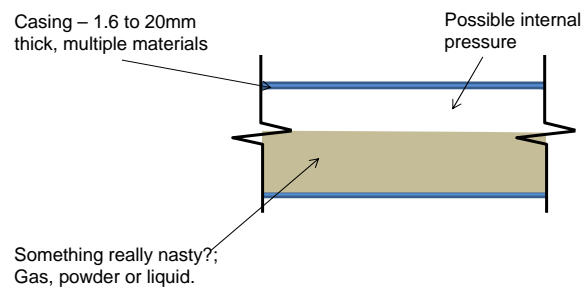
But we don't have a lot of bombs!



Anatomy of a Chemical Weapon

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But we do have a lot of pipes and vessels!



Anatomy of a Pipe, Vessel or Container

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Different environments – same challenges

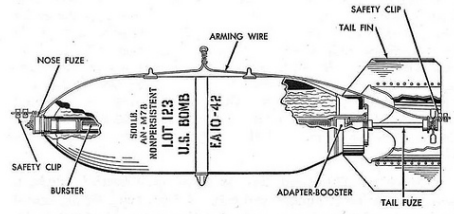
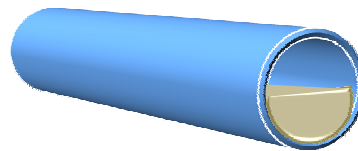
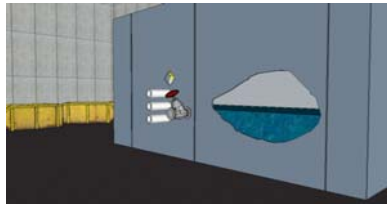


Figure 27. Bomb, gas, nonpersistent, 500-pound, AN-M78.



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Case Studies.



UNMOVIC – SAKR 18



Post conflict – R400



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Different environments – same challenges



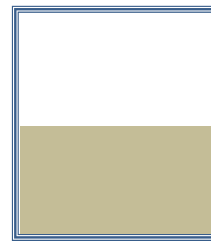
*The internal environment is hazardous
but
There is a need to look/work inside*

1. Do I know what is inside and what condition it is in?
2. If yes, then how do I get through the wall to;

Sample it

Get it out

Put something in that will help.



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Making a hole without making a hole!

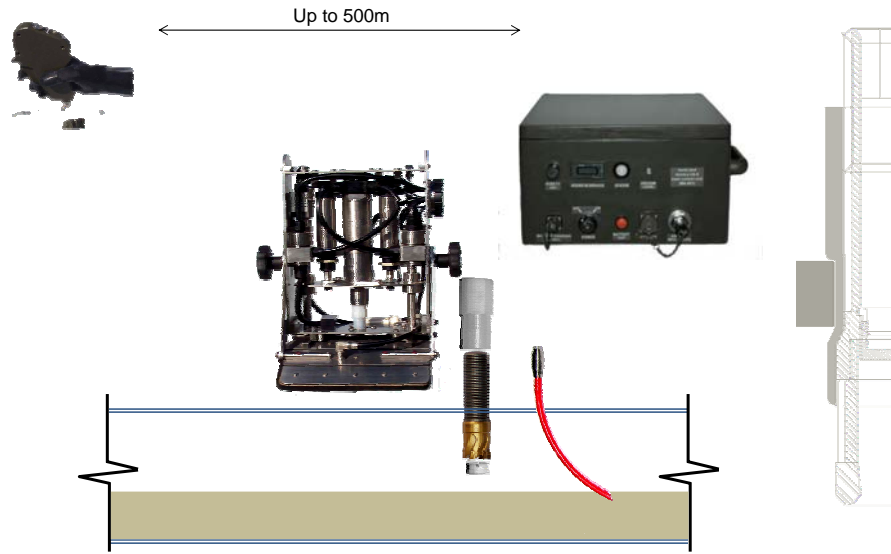


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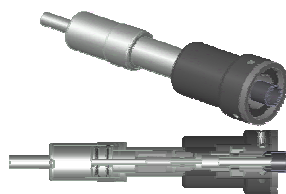
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How it works.

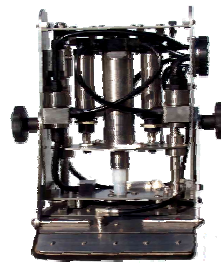


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How it works - Drilling Motor



MIDAS



MONICA



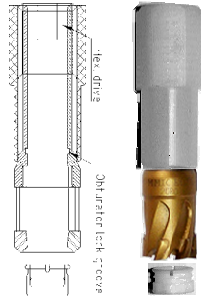
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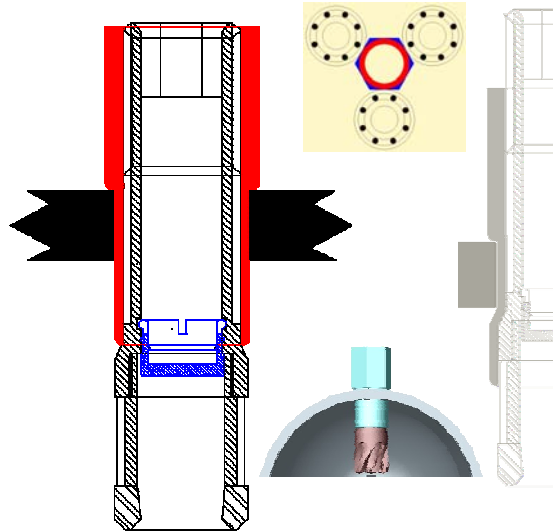
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How it works – drilling & sealing



- First seal phase
- Internal pressure up to 120psi
- Automatic process

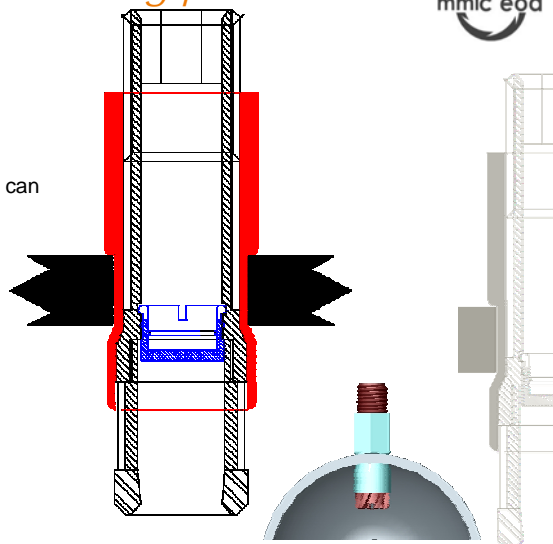
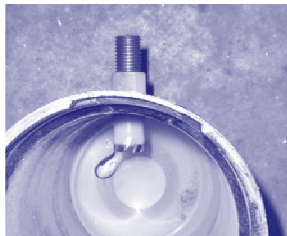


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How it works – the sealing process

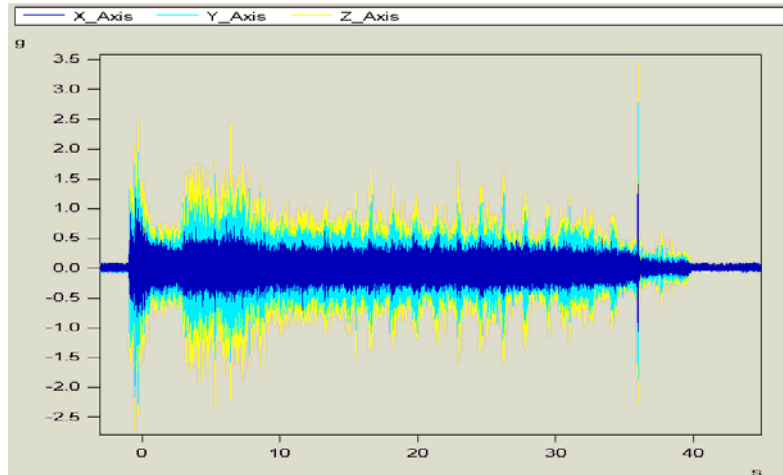


- Full seal phase
- Internal pressures up to 1000psi
- ZIF (zero insertion force) process so can operate with thin materials



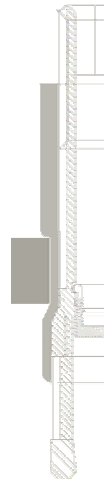
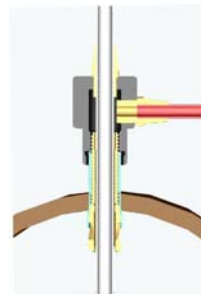
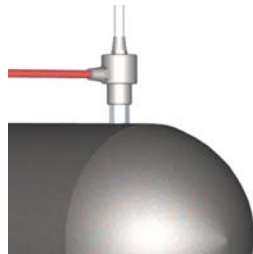
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Minimal vibration during drilling



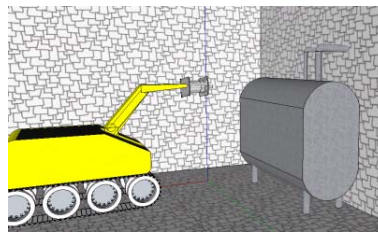
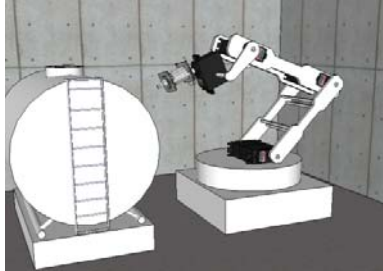
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Remedial works - out and in



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The future is remote operations



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Possible Benefits



Safety

- No need to "open" a system
- Reduced contamination risk
- Re-useable opening – reduce additional exposure

Productivity

- Projects become "possible"
- Minimal containment system required
- One hole – many tasks
- Fast, any material, any shape

Cost Savings

- Minimal containment systems
- Reduced clean up
- Reduction in man hours
- Reusable equipment



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