

M M Co-Chair
Ladies and Gentlemen

The European Commission mandated the European Committee for Standardization to investigate the need for standards in Mine Action. One of the defined areas was mechanical equipment for Mine Action.

Thank you very much for giving me the opportunity to present the work that is ongoing towards a Test Protocol for “Demining Machines”.

The use of machines in Mine Action has increased. The knowledge how to use them under different circumstances has become better. More types of machines has become available on the market. but we didn't had any agreed way to how to measure and compare the performance and overall quality of the machines. A test protocol that will give the opportunity not only to compare the performance of different machines it will also make it possible to share or use test result from test done by other organisations.

To have a “full Standard” is a very long process and it is not possible to use in this case. The European Committee for Standardization (CEN) has a procedure that is a short cut to have an agreed way of working. It is called CEN Workshop Agreement thaqt is what we are aiming for.

The Swedish EOD and Demining Centre (SWEDEC) is the Driving Force and the work is carried out together with Geneva International Centre for Humanitarian Demining (GICHD) and the Croatian Mine Action Centre (CROMAC). The Secretariat is held by Swedish Standard Institute.

I would like to give you some background, what we are aiming at and of course the solutions.

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The financial resources has been made available by the EC Aid co-operation office and of course manufacture and Demining organisations and others who's expert has participated in the work.

As mentioned before a CEN Workshop Agreement is a less complicated than a “ Full Standard” but for this purpose it is good enough. The procedure in summary as follows: CEN allocate a Driving Force who will produce a business plan.

The business plan is published on the CEN WEB page together with a invitation to a Kick Off meeting.

At the Kick Off meeting the business plan is discussed and the participant agree on the final version of the business.

The workshop, which could consist of several meetings will agree, as in this case, a test protocol that my have a similar content as a standard but much easier to achieve. The CEN Workshop is not restricted to CEN member.

Please remember, if you don't participate, you have no vote.

Finally the workshop report back to CEN and they will register it as an CEN Workshop Agreement (CWA) and make it available for anyone who would like to use it.

The CEN Workshop number 12, Demining Machines, had the Kick Off meeting in Brussels in June 2003.

We have had three meetings during autumn 2003 in Sweden and in Croatia. A draft Workshop agreement is circulated for comments. A review will be done next week and if no big surprises shows up we will have a complete Workshop Agreement very soon.

The contract with the European Commission terminate in October 2004.

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The overall aim is to have comparable test result concerning performance and survivability as a first step. As a second step is to test the suitability in different environment.

The last step is to have the Workshop Agreement included into IMAS which means that we have to convince the IMAS Revision Board about the quality of the document.

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The test protocol is divided in the following sections:

- Pre-test Conditions
- (Pre-trial assessment)
- Performance test
- Survivability Test for the machine and for the operator
- Acceptance test
- Agreed test targets

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A manufacturer who would like his machine to be tested has to provide data of the machine such as weight, approach and depart angles etc.

To make it easier to estimate operational cost it is important to the consumption of fuel, spare part etc.

The most important thing is that we require that the machine should operate for 6 consecutive days 8 hour per day and everything such as fuel consumption, maintenance, failures should be logged. Why? To often machines arrive to the test site directly from the factory and already the first day they break down usually caused by simple thing that easily could have been avoided.

The CWA will not require or describe if or how a pre-trial assessment should be done but we strongly recommend that before starting any test, read the pre-test conditions go and take a first look at the machine.

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The Performance test is done in a controlled environment and it will not replicate real conditions.

It will give us comparable result of the clearance capability during the test conditions. It is important to understand that this will only give the truth up to a certain level, in the end the environment such as soil, moisture, vegetation etc. will make a difference. Still, we are convinced that the result from Performance test will provide you with necessary information.

We use test lanes with three types of soil. Gravel, sand, and topsoil.

In each soil we deploy 150 targets, in total 450 targets.

They will be deployed in three different depth, flush to surface, 10 cm and down to maximum depth for the machine not deeper than 20 cm.

Vegetation is so different depending where you are so we doesn't claim that we can test the capability to cut vegetation. But we will try it, just to demonstrate that it have a capability to cut vegetation.

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Survivability has two parts the first one is to test the survivability of the machine.

Step one is to test the blast effect on the tool.

Armour plate is delivered with a specification and a certificate. Prior to testing those specification should be evaluated. We don't believe that the amour plate has to be tested.

For AP mines we will use 240 g of explosives and for AT mines 8 kg.

The charges will be placed centrally and at the side of the tool. Most tools has a long axle we would like to see if the axle will stay straight. One weak point is if the tool is exposed for forces that might twist the tool. Therefore also at the side of the tool.

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If the machine has an operator on board the safety for him is of course crucial and has to be tested.

Therefore we will measure what will happen inside the operator's compartment when an AT-mine detonate under the tool.

We will also have a worst case scenario with a AT mine under the wheel or band in the nearest position to the cabin. This test is voluntary.

We are measuring the overpressure in internal organs and acceleration forces on the feet and spinal.

We will control displacement of the operator to estimate injuries due to this.

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The Acceptance test, also called Field test is the final step. This is a test that should be done in a similar environment where the machine should operate.

It is based of the test methodology that is developed by the Croatian mine Action Centre (CROMAC)

This test under real conditions, real minefield.

Every machine will be exposed for 20 AP-mines and 5 AT-mines and they should be representative for threat in the area.

The machines is divided into three categories depending of the weight. The heavier machine the bigger area has to cleared.

We adapt national safety regulations.

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Cutting of vegetation is also a part of the Acceptance test. We have four classes of vegetation.

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Test targets is usually a difficult part. GICHD had prepared this part of the workshop in an excellent way so this time it was easy.

We described the shape, size, weight, function and explosives.

The amount of explosives

We are talking about three categories

Live Mine Targets

Surrogate Mine

Simulated Mine

We will soon come back with a complete CEN Workshop Agreement on test of Demining Machines.

Thank you very much for your attention.