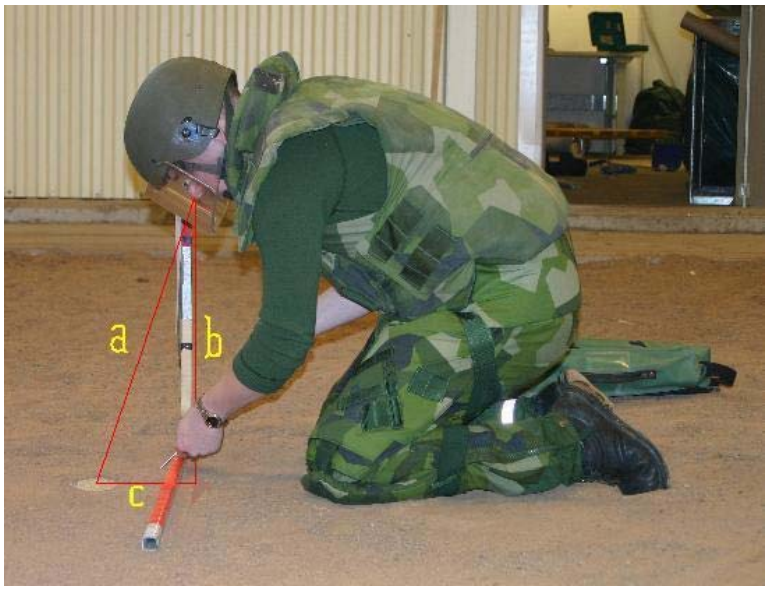
Study of deminers' working position as input to the CEN Workshop on Test and Evaluation of HMA Personal Protective Equipment (CW 26)

The distance from a deminer to the blast is of great interest as it is well known that the risk of injury is strongly correlated with the proximity to the detonation centre. Each demining accident has a unique set of distances and angles related to the detonation centre and the various body parts. A definition of distance could involve a fixed point defining the position with respect to a detonation centre. The fixed point used in this study is the nose tip. Another important thing is that the fixed point should be easily described and controlled and is relevant to the demining situation where it is used. Closely connected to the distance is the angle described by both the horizontal plane through the detonation centre, and the line through the detonation centre and the fixed point. The distance and the angle describes the relative position of the fixed point to the detonation centre, and can therefore provide useful information about how far the fixed points are located within the blast cone. This is important since the blast generates different effects in different zones of the blast cone.

Within the CEN Workshop (WS) on Test and Evaluation of Personal Protective Equipment (CW 26) a position study has been conducted at SWEDEC. Video material from SWEDEC, as well as from MAG and NPA were used in the study. Video analysis software was applied to analyse the videos digitally. Distances and angles have been determined using the deminers' nose tips relative to an imaginary detonation centre (see Picture 1).

Picture 1



a=mine/nose distance, b= nose height over the surface

The study showed that the distances measured from the nose tip to the detonation centre are very different depending on several factors such as type of tool, working methodology etc.) The observed range varied from 30 to 80 cm. The WS recognised that it would be impossible to cover all situations and after discussion the WS participants agreed to use as standard position in the blast test a distance of 45 cm measured at the angle of 70 degrees. Realising that the International Mine Action standards (IMAS) request face protection to withstand a blast ata distance of 60 cm, the WS Participants decided to undertake further investigations and consult further reports and studies on the subject before the next WS meeting .