

THE ENHANCED PROTECTION POSITIVE PRESSURE RESPIRATOR (EP3R)

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ABSTRACT

During certain CBR incidents, operators may need respiratory protection equipment that uses either a powered blower unit or compressed air to provide very high levels of respiratory protection. Although these systems work well, they are bulky and heavy, and therefore impinge on the performance of the operator.

Working in conjunction with UK industry, Dstl has developed the Enhanced Protection Positive Pressure Respirator (EP3R). By using an integrated miniature blower delivering around 15 litres of air per minute (cf 150 l/min for a typical powered system) through a specially designed dual-bed canister, outstanding levels of protection can be achieved with the E3PR. Importantly, it is lightweight, has a low power demand and dispenses with the need for a bulky blower unit, cumbersome hoses or compressed air.

In addition to providing guidance on the design of the EP3R, Dstl played a pivotal role assessing the protection offered by system in a limited volunteer study, comparing it with a range of other commercially available respiratory protection devices. The E3PR was shown to perform significantly better than a conventional negative pressure respirator and can provide increased levels of protection compared with positive pressure systems.

This paper will discuss the history, development and future application of the EP3R.