

## NEW DEVELOPMENTS IN MEASUREMENT TECHNIQUES AT TNO-PML

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Experimental research still plays an important role in blast research. Often the conditions the measurement techniques are exposed to are harsh and there exists the risk of destroying the instrumentation, like close to a detonating charge. Current measurement tools often do not survive in such a hostile environment. In addition, the improved quality of predictive codes requires more accurate and reliable measurement results for verification and validation. Therefore, there is still a great demand for more robust and accurate measurement techniques.

In the present paper a number of new developments, ongoing at TNO-PML, with regard to developing more robust and reliable measurement techniques, will be presented:

- A prototype of a so-called Impulse Plug, which can be used to measure the combined blast and fragment load, even close to a fragmenting charge, has been designed, built and tested. First results will be presented.
- At MABS 15 Klaus et al. (1995) presented a newly developed cheap pressure gauge based on Carbon Resistors. Therefore, such transducers can also be used in harsh measurement situations, where there is a great risk of severely damaging it. At TNO-PML such Carbon Resistor-based transducers have been build and tested, and compared with conventional Endevco gauges. Results of this comparison study and first applications in concrete will be presented.
- A phase-stepped double-reference-beam holographic interferometer has been designed to visualise the shock wave interaction with scale models of structures. By smart reconstruction of the hologram, this interferometer set-up also allows the automated computation of the instantaneous pressure distribution from the interferograms. Comparison with local pressure gauge measurements and pressure contours as obtained by simulations with the BLAST-code showed good agreement. In the paper the set-up will be explained and some results will be presented.
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