

MULTIPHASE FLUID HAMMER PHENOMENON

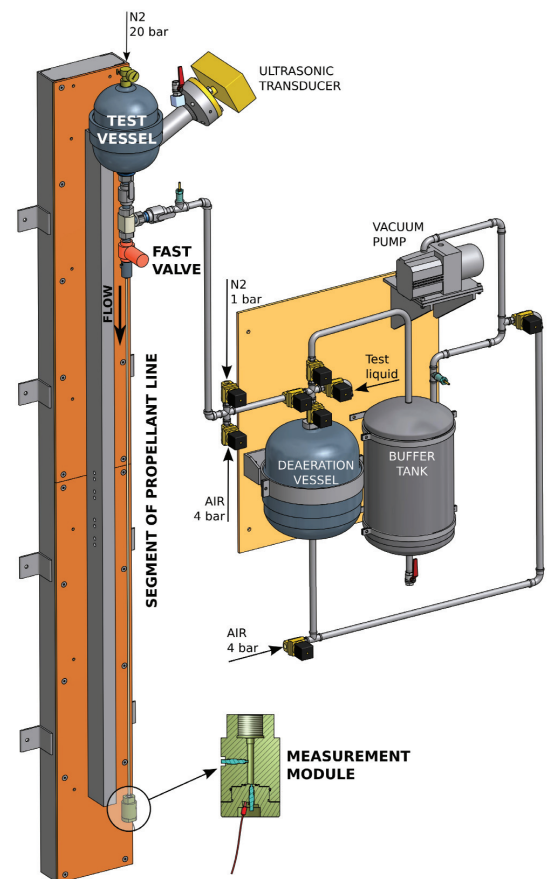


In the frame of ESA GSTP and TRP, the VKI EA department is carrying out a research activity to study the adverse fluid hammer phenomenon occurring during the priming operation in satellite propellant lines.

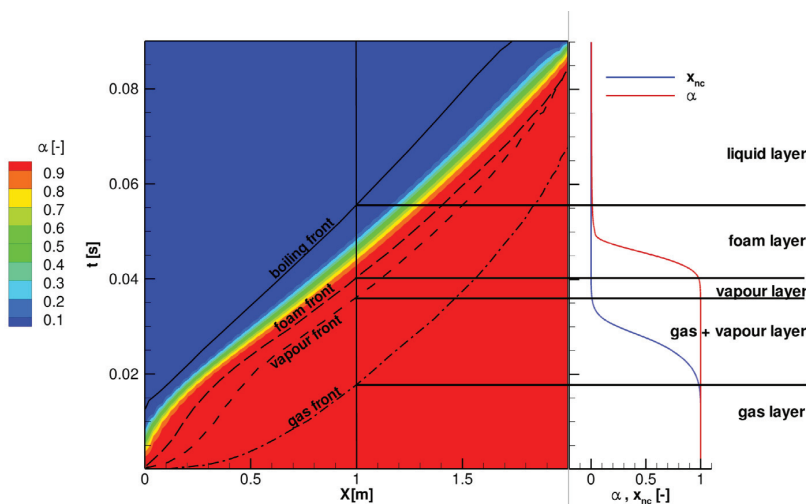
This project is driven by a strong experimental program coupled to numerical simulations. An original new experimental facility has been developed and built.

The numerical modelling of propellant line is achieved using EcosimPro/ESPSS and CFD-ACE+ codes; both numerical tools commonly used by ESA supporting the design of satellites propulsion systems.

An important outcome of numerical studies presently performed is the prediction of the formation of a two-phase front, to be experimentally observed using high speed imaging.



VKI multiphase fluid hammer facility



**Multiphase front developed during priming.
Code: EcosimPro/ESPSS**



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