Development of Foamer Heavy Barrel Cleaning System

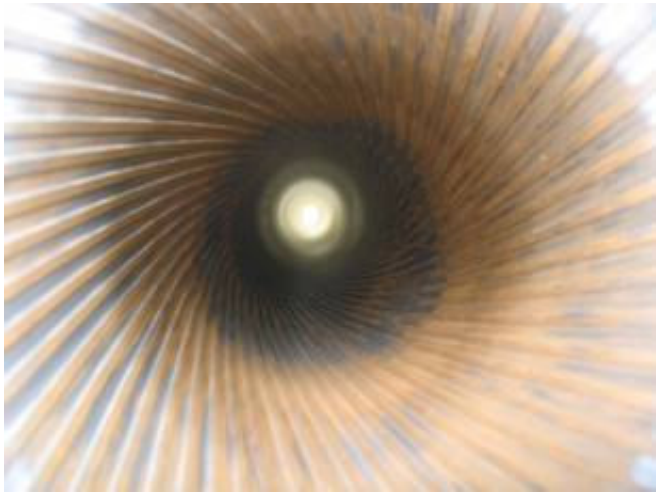
Finnish Defence Forces

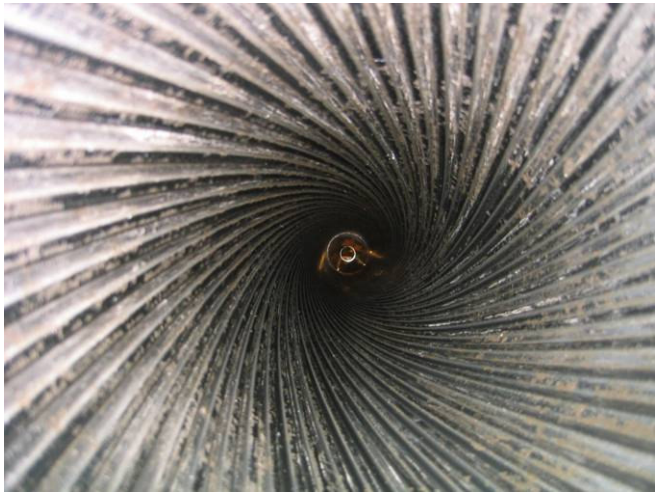
Background Of The Cleaning System Project

- In early 90's new conscript training program reduces the time for maintenance
- New Artillery guns were delivered 1985 – 2001
  - New ammunitions, barrel length increased
  - Cleaning problems started to arise
- The need for better cleaning and cost saving methods increased
  - Demands for cleaning system was launched 1998

155mm/52 cal

- Challenges for barrel maintenance
  - Barrel length
  - Triple based powders
  - Less soldiers in crew
  - Coppering increasing
    - Even 250 rounds can make the barrel dimension too small for the inspection tool
    - Crew is unable to take the copper away, corrosion starts beneath the copper in a week





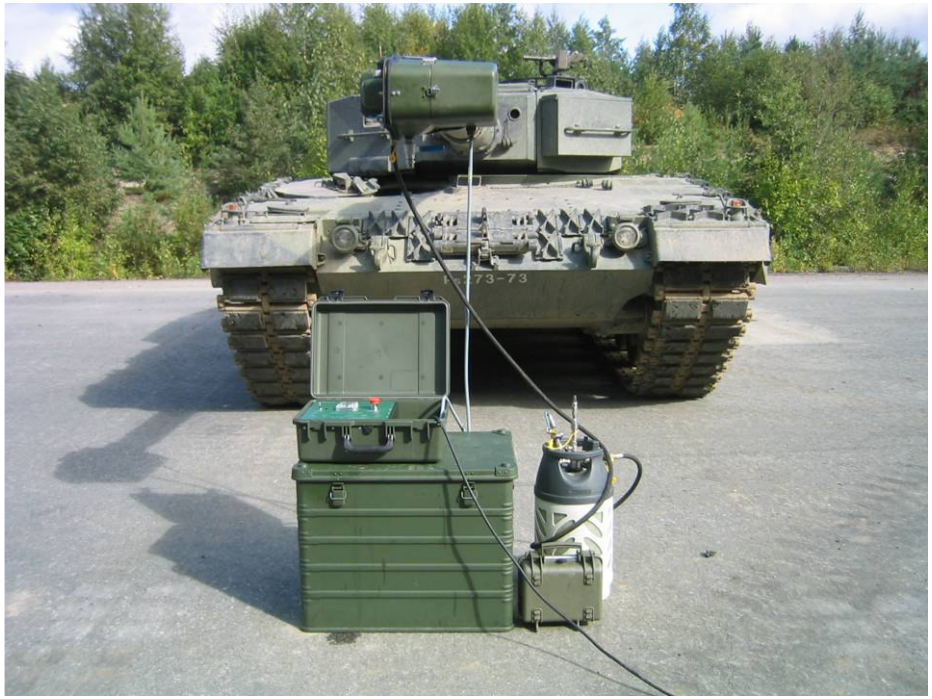
The Truth of barrel condition after copper has been taken off
155/52 cal 2001, 383 rounds,

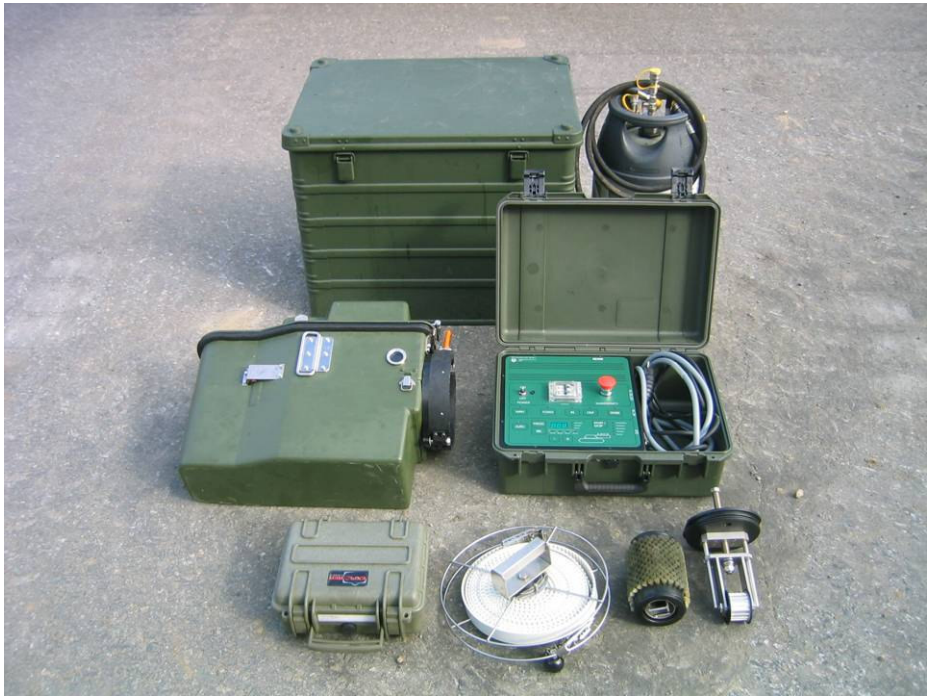
Demands For Cleaning System

- Solves the residue problem
- Reduces manpower (cost savings)
- Done at user level
- Extends the barrel life and operational use
- Standardises cleaning at user level
- Environmentally safe for user and nature

Project “Foamer”

- Started 2001
  - Decision to use foam cleaning technology, which was already tested and approved 1996-2000
  - First prototype for trial and evaluation 2002
    - Focusing on cleaning result and concept
  - Second prototype 2003 - 2004
    - Improvements for handling and operability, US Naval Surface Warfare Center / Dahlgren joins to the Project
  - Design of Foamer 2005
    - Improvements for serial production and for field ability
    - Finnish Defence Forces approves the system for operational use





FOAMER 2005