Engineering
Performance

xHale^{Plus} is the online system for determining the remaining lifetime of alternately loaded power plant and system components

DMT – Smart Inspection & Monitoring (SIM)

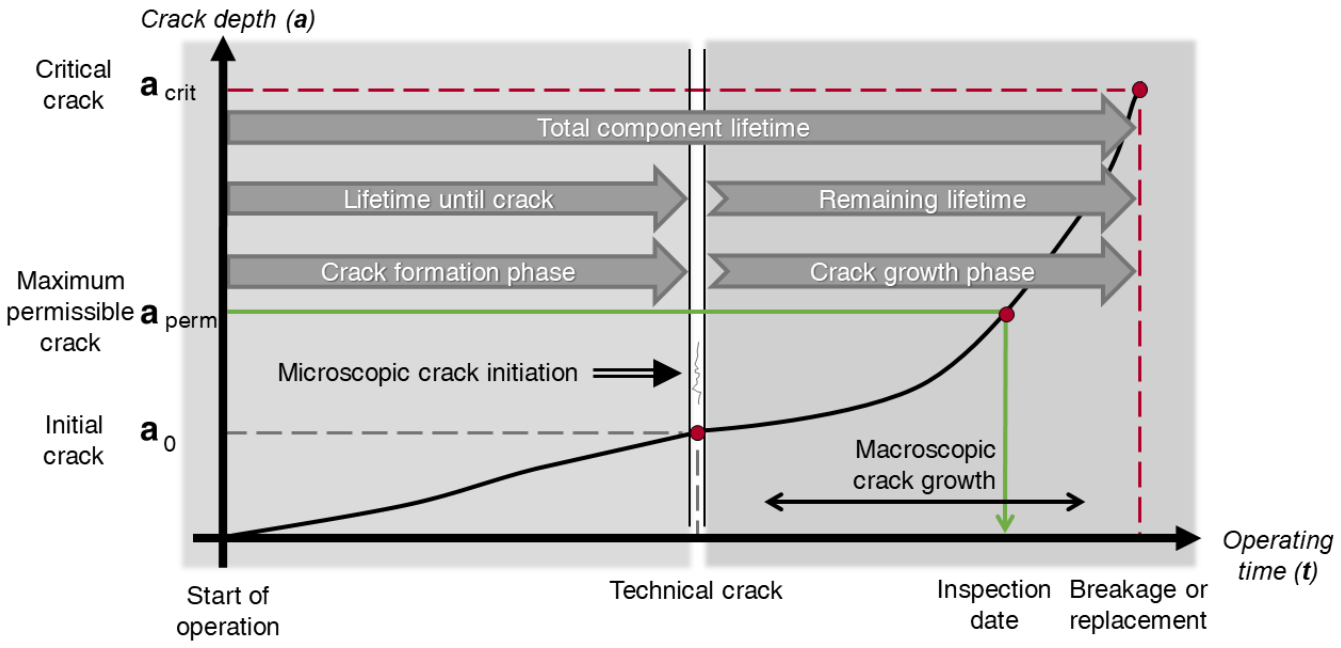
Power plant and system components such as piping, valves and boilers are often subject to severe wear caused by alternating thermal loads. These loads can cause microcracks in the material, which develop into technical incipient cracks in the course of the operating time.

Normally, the use of the affected component then ends in an early repair measure or replacement, although the possible remaining service life has not yet been exhausted. Or relevant cracks are discovered too late. This results in unnecessary downtimes and repair costs.

This is where ***xHale***^{Plus} comes in:
xHale^{Plus} provides time-accurate load data and calculates the gradual growth of potential cracks. This leads to the derivation of flexible inspection intervals as well as to an optimized lifetime evaluation of thermally alternating loaded plant components.

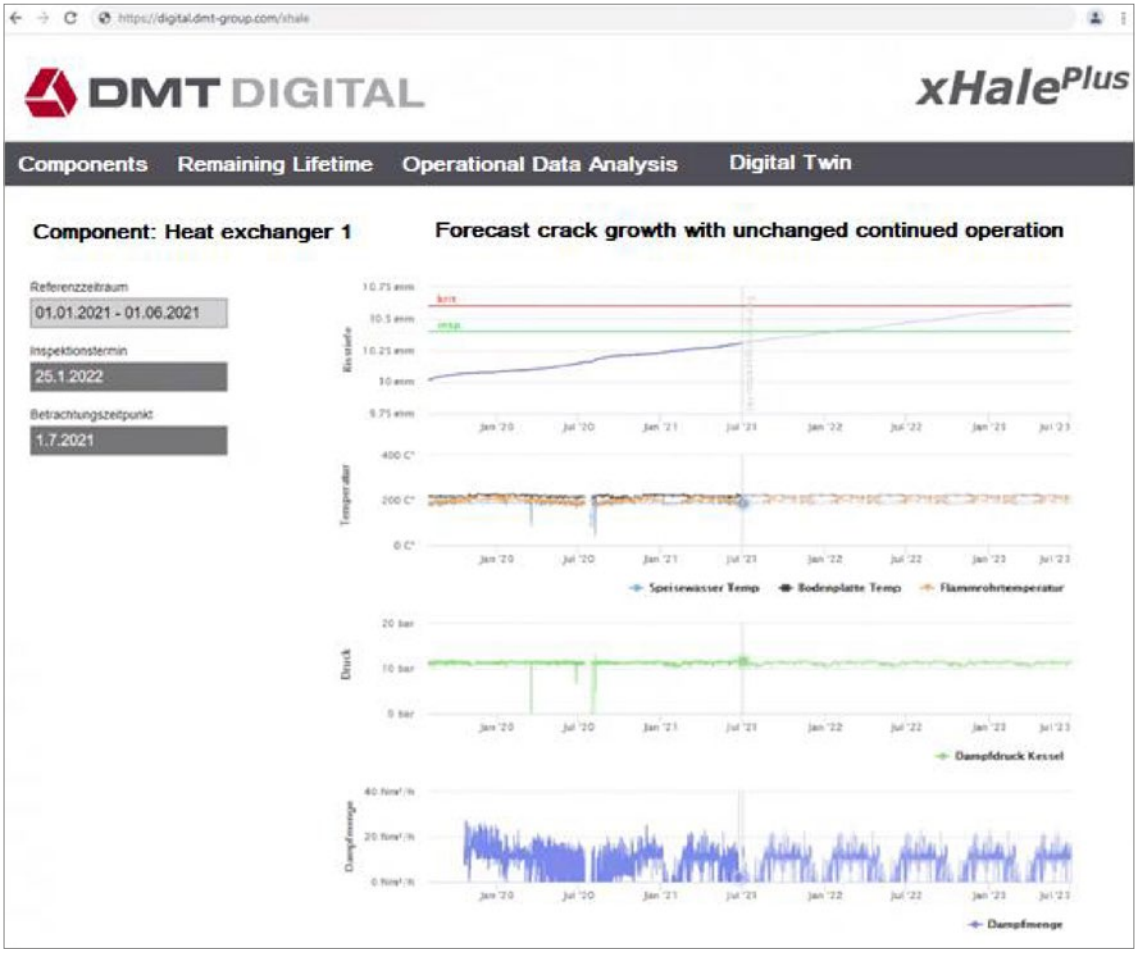
- Modern, web-based user interface
- Secure access via user name and password
- Both cloud and on premises operation possible
- Management of plant components
- Possible archiving, loading and exporting of analyses
- Connection to any process control system and the existing online monitoring can be implemented

Service life phases of a component subjected to cyclic loading,
[Source: VdTÜV leaflet MB DAMP 468].



Overview of *xHale*^{Plus} functions

- **Operating data analysis:**
  Historical operating data is displayed and crack growth values are calculated from it. This analyzes the effects of previous operating modes and shows the correlations with the damage progression.
- **Digital twin:**
  Crack-prone locations can be visualized using the finite element model of the monitored component.
- **Prediction of crack growth and test date with unchanged further operation:**
  Here, the potential crack growth is calculated on the basis of repetitions of a selected driving mode from the past. As a result, the user receives the calculated test date as well as the representation of the crack growth development.
- **Prediction of crack growth and test date with configurable load factorization:**
  The selection of a selected driving mode is also based on historical data. In addition, however, a load increase or load decrease via factorization is possible here.
- **Prognosis of crack growth and test date with configurable load transients:**
  Crack growth and next test date are calculated on the basis of freely defined load/time curves.



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DIN EN ISO 9001
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