

# Deutsche Akkreditierungsstelle GmbH

## Annex to the Accreditation Certificate D-PL-21039-02-00 according to DIN EN ISO/IEC 17025:2018

**Valid from: 25.08.2020**

Date of issue: 25.08.2020

Holder of certificate:

**Framatome GmbH  
Prüflabor Thermohydraulik und Komponententests**

with its locations

**Paul-Gossen-Straße 100, 91052 Erlangen  
Seligenstädter Straße 100, 63791 Karlstein**

Tests in the fields:

**thermal, fluidic and process-engineering investigations and diagnostics of components and systems of power or process plants under operational and accident conditions as well as type and repeated in-service tests**

**The testing laboratory is permitted within the specified testing fields, without being required to inform and obtain prior approval from DAkkS,**

**the free choice of standard or equivalent testing methods;  
the modification and refinement of testing methods.**

**The listed testing methods are exemplary. The testing laboratory maintains a current list of all testing methods within the flexible scope of accreditation.**

The used test methods are identified with the symbols of the locations stated below:

E = Erlangen

K = Karlstein

This document is a translation. The definitive version is the original German annex to the accreditation certificate.

Abbreviations used: see last page

*The certificate together with its annex reflects the status at the time of the date of issue. The current status of the scope of accreditation can be found in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH.  
<https://www.dakks.de/en/content/accredited-bodies-dakks>*

## 1 Thermal, fluidic and process-engineering

<p><b>Test area (E,K):</b>  <b>Thermal, fluidic and process-engineering on components and systems of power and process plant technology under operational and accident load conditions</b>          Thermal hydraulic investigations for devices, facilities and components of power and process plants as well as testing of fluidic facilities of power plant technology, flows through facilities and performance of pressure drop measurements and critical heat flux measurements</p>	
<p><b>Test range:</b>          Thermal, fluidic and process-engineering investigations</p>	<p><b>Test type:</b>          Measurement methods for detection of:</p> <ul style="list-style-type: none"> <li>- <b>thermo hydraulic and process engineering measurements</b> (e.g.: Temperature distribution, heat transfer, critical heat flux, flow rate, pressure, differential pressure, level, velocity distribution, debris, superficial velocities, steam quality, mass flow, concentrations (e.g. boron or boric acid), ignition limits)</li> <li>- <b>elektrical measurements</b> (e.g. current, voltage, power, effective power, resistance)</li> <li>- <b>mechanical measurements</b> for components under load conditions (e.g.: force, expansion, distortion, length, velocity, acceleration, vibrations)</li> </ul>
	<p><b>Test specimen/test objects:</b></p> <ul style="list-style-type: none"> <li>- <b>Component test facilities</b> for adaptation of test objects as for example: valves, safety valves, pilot valves, pumps, nuclear core components (e.g. fuel assemblies, rod cluster control assemblies), components for nuclear auxiliary systems (e.g. sealings, sump sieves, instrumentation lance nozzle closures), components of fossil-fired steam generators, catalysts</li> <li>- <b>System test facilities</b> for simulation of accidental scenarios and integration of test objects: simulation of „large, medium or small break LOCA“, „loss of residual heat removal system under shut down conditions“, „station blackout“, „debris-transport“</li> <li>- <b>Separate effect test facilities</b> for adaptation of test objects for simulation of scaled or original sized parts of components</li> <li>- or comparable facilities</li> </ul>
	<p><b>Thermo hydraulic measures:</b>          temperature, pressure, volume flow, mass flow, humidity</p> <p><b>Mechanical measures:</b>          force, mass, length, expansion, distortion, velocity, acceleration, frequency</p> <p><b>Elektrical measures:</b>          current, voltage, power, effective power, resistance</p>
<p>For the test area no standards are applicable as a basic principle</p>	
<p><b>Technical Instructions for test area:</b> FAW T-1001 (E), FAW T-3036 (K), FAW T-3021 (K), FAW T-3009 (K), as well as          Quality management manual FAW T-0001 (E, K) with reference to all test methods of the test body</p>	

-Translation-

**Annex to the accreditation certificate D-PL-21039-02-00**

FAW-T-1001, Rev. B 2009-06	Thermal hydraulic investigations for devices, facilities and components of power or process plants	E
FAW-T-3009, Rev. B 2008-05	PAR Ignition Tests in VB 12000 (Passive autocatalytic recombiner (PAR) ignition tests within test vessel VB 12000)	K
FAW-T-3021, Rev. C 2015-12	Instruction for performing tests of pressure drop and critical heat flux measurements with the KATHY test facility	K
FAW-T-3036, Rev. C 2015-12	Testing of fluid dynamic devices for power plants, devices with flow through	K

**-Translation-**

**2 Components and systems of power and process plants under operational and accident load conditions**

<p><b>Test area (E,K):</b>  <b>Components and systems of power and process plants under operational and accident load conditions</b>          Functional tests and qualifications of components and systems of power and process plant engineering under operational and accident load conditions, as well as performance and type tests, replicate tests of power plant components for proof of LOCA accident resistance</p>	
<p><b>Test range:</b>          functional tests, qualifications, type- and replicate tests</p>	<p><b>Test type:</b>          Measurement methods for detection of:</p> <ul style="list-style-type: none"> <li>- <b>thermo hydraulic measurements</b> (e.g.: temperature, pressure, pressure difference, level, mass flow, volume flow)</li> <li>- <b>elektrical measurements</b> (e.g. current, voltage, power, effective power, resistance)</li> <li>- <b>mechanical measurements</b> for component under load conditions (e.g.: force, expansion, distortion, momentum, length, velocity, acceleration, frequency)</li> </ul>
	<p><b>Test specimen/test objects:</b>          Valves with actuators, safety valves, pilot valves, pumps, nuclear core components (e.g. fuel assemblies, rod cluster control assemblies, control rod drive mechanisms), components of nuclear auxiliary Systems (e.g. sealings, rupture disks, instrumentation lance nozzle closures) – or comparable facilities</p>
	<p><b>Thermo hydraulic measures:</b>          temperature, pressure, volume flow, mass flow, humidity  <b>Mechanical measures:</b>          force, mass, expansion, distortion, , length, velocity, acceleration, momentum, frequency  <b>Electrical measures:</b>          current, voltage, power, effective power, resistance, isolation resistance, electric charge</p>
<p>For the test area no standards are applicable as a basic principle</p>	
<p><b>Technical Instructions for test area:</b> FAW T-2001 (E), FAW T-3006 (K), as well as Quality management manual FAW T-0001 (E, K) with reference to all test methods of the test body</p>	

FAW-T-2001, Rev. F 2018-09	Testing and investigations on components and systems of power or process plants under operational and accident conditions	E
FAW-T-3006, Rev. E 2018-05	Performance tests and type tests of components for power plants for verification of the safety margin against loss-of-coolant accidents	K

-Translation-

### 3 Diagnostic tests for components of power and process plants

<p><b>Test area: (E)</b>  <b>Diagnostic tests for components of power and process plants for validation of functioning and function stand by and whose impact to plant availability</b></p>	
<p><b>Test range: diagnostic tests</b></p>	<p><b>Test type:</b>          Measurement methods for functional, qualification and acceptance tests for detection of:</p> <ul style="list-style-type: none"> <li>- <b>thermo hydraulic measurements</b> (e.g.: temperature, pressure, pressure difference, level, mass flow, volume flow)</li> <li>- <b>elektrical measurements</b> (e.g. current, voltage, power, effective power, resistance)</li> <li>- <b>mechanical measurements</b> for components under load conditions (e.g.: length, force, expansion, distortion, momentum, velocity, acceleration, frequency)</li> </ul>
	<p><b>Test specimen/test objects:</b>          Valves of all types (e.g. safety valves, check valves, diaphragm valves) with actuators (e.g. elektrical, solenid, pneumatic, SIEKA), safety valves, pilot valves, components of nuclear auxiliary systems (e.g. pumps, condensators) and comparable facilities in installed or work shop conditions – or comparable components</p>
	<p><b>Thermo hydraulic mesasures:</b>          temperature, pressure, volume flow, mass flow  <b>Mechanical measures:</b>          force, mass, expansion, distortion, length, velocity, acceleration, frequency, momentum  <b>Electrical measures:</b>          current, voltage, power, effective power, resistance, isolation resistance</p>
<p>For the test area no standards are applicable as a basic principle</p>	
<p><b>Technical Instructions for test area:</b> FAW T-2003 (E),          as well as          Quality management manual FAW T-0001 (E, K) with reference to all characteristic test methods of the test body</p>	

FAW-T-2003, Rev. G  
2018-09

Diagnosis tests on components of power plants

E

-Translation-

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**Abbreviations used:**

FAW-T-0xxx	Technical Center Fachanweisung of Framatome GmbH at the location Erlangen and Karlstein
FAW-T-1xxx	Technical Center Fachanweisung of Framatome GmbH at the location Erlangen
FAW-T-2xxx	Technical Center Fachanweisung of Framatome GmbH at the location Erlangen
FAW-T-3xxx	Technical Center Fachanweisung of Framatome GmbH at the location Karlstein

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