

4.1.2. RESIDUAL RESOURCE DIAGNOSTICS

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Residual resource diagnostics (the main direction of safety) is based on following principles:

- Introduction of the definitive technical parameters set;
- Consideration of the initial resource by the condition at the moment of putting an object into operation;
- Consideration of operation conditions, including load history, and what is even more important, history of overloads;
- Construction of physic-mathematical model of object functioning.
- For residual resource diagnostics it is necessary:
 - to use methods of evaluation, measurements and testing;
 - to create data bank of damages and failures
 - to have physic-mathematical model of the object could be presented as state and resource equations.

Object diagnostics must investigate defectiveness parameters, damage parameters of process (micro level, macro level, nano level), destruction parameters of process in the time, failure parameters of process in the time.

Object degradation must study indicators of degradation, kinetics and mechanics of degradation.

If is necessary to know influencing environment loads, stress-deformed state of the object, damageability mechanism.

Interaction of heterogeneous, processes is based on the of cause-effect relations link. Link structure includes the cause group consisting of a cause and condition for implementation of cause-effect relation and effect group formed by an effect and condition occurred following implementation of this relation. Kernel represents an ensemble of operators, simple or complex mathematical models and algorithms, which describe relation of causes and effects groups matching with occurred side effects of system operation (effect group).