

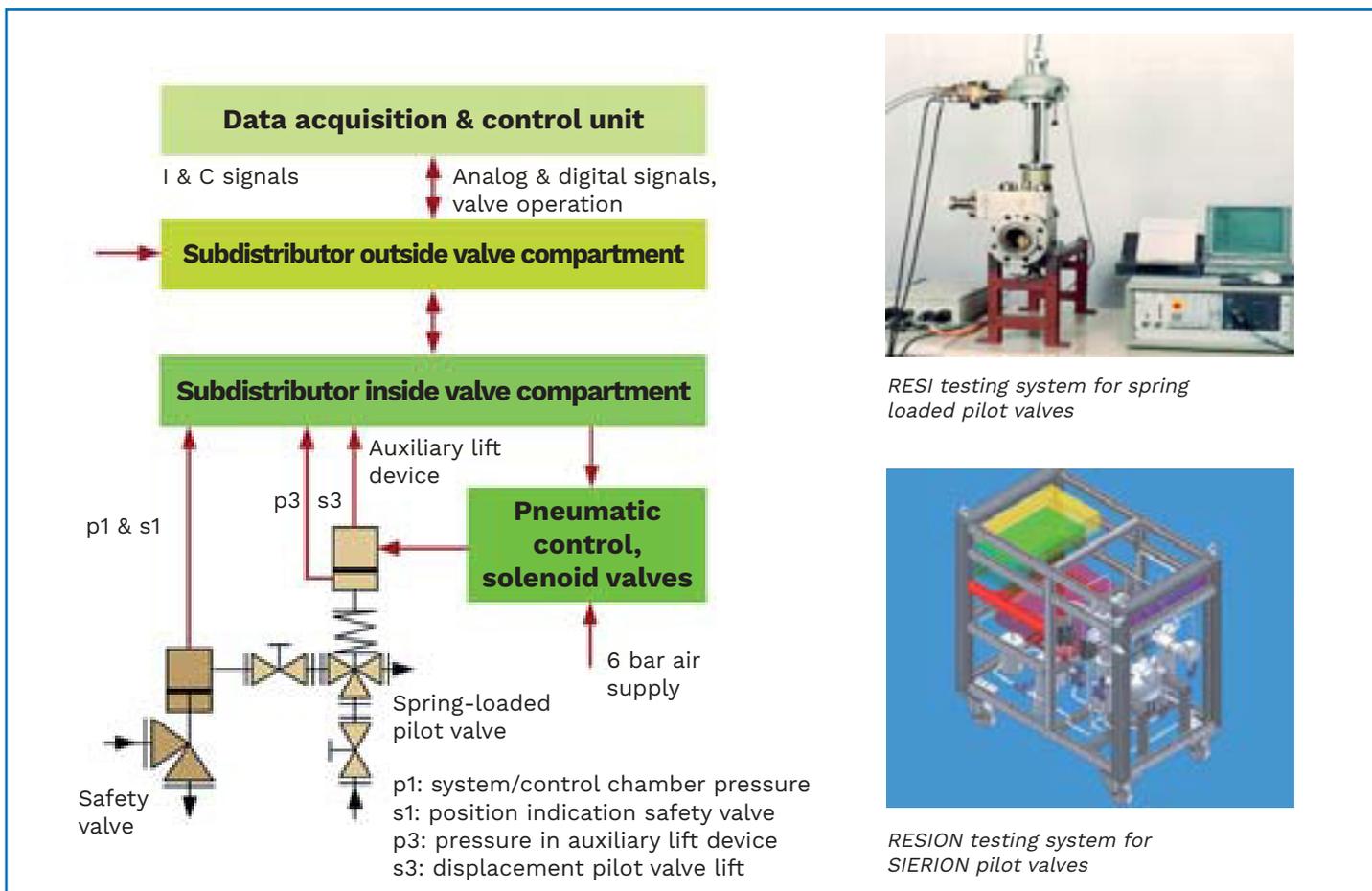
## RESI – Test System for Pressurizer Safety Valves

RESI ensures the functional reliability of fluid-operated pressurizer safety valves and their pilot trains for PWR plants

### RESI Functions

RESI tests the functional reliability of fluid-operated pressurizer safety valves and their pilot trains both during initial plant startup and during in-service inspections each year. On these occasions, the spring-loaded pilot valve settings are also checked.

For safety reasons and to avoid unnecessary stress on system components, the tests are carried out at a pressure below the closing pressure of the pilot valves. The RESI test system has been in use at many German PWR plants since 1990. This test method meets all requirements of the KTA Nuclear Safety Standards and the Steam Boiler Standard TRD 421.



RESI testing system for spring loaded pilot valves



RESION testing system for SIERION pilot valves

RESI flow chart with auxiliary lift device for spring-loaded pilot valves

**Your performance**  
is **our** everyday **commitment**

**RESI** records valve lift and opening and closing pressures. The system automatically and immediately determines test results, such as opening and closing reliability, opening and closing delay times and closing differential pressure. The automatic test sequence ensures reproducible test results in all cases.

Plug connectors in permanently installed cabling and subdistributors provide considerable time savings, particularly during test-system setup, test preparations, and transfer from one valve to the next. These savings in time, along with operating the controls from a location outside the valve compartment, reduce the radiation exposure of test personnel.

The main features are:

- Less stress on the valves due to extreme system pressure reduction during the test.
- In-service adjustment of spring-loaded pilot valves below their closing pressure without primary loop transients.
- Remarkable time saving due to ease of test preparation, as well as to automated testing, evaluation and documentation
- Easy realization of customer-specific changes in test procedure and documentation.
- Self monitoring system reliably prevents unintentional opening of the pilot valves in the event of fault.

### **RESI Applications**

**RESI** is used on all kinds of spring-loaded pressurizer safety valves, regardless of their operation principle, whether based on pressurization or depressurization. The system is suitable for a wide range of tests, including:

- Pressure-relief valves
- Setting tests for spring-loaded pilot valves performed below their closing pressures (approx. 135 bar).
- Testing pressurizer safety valve actuating force at partial pilot lift.
- Functional testing of the relief train.
- Functional testing of the primary-system bleed function of safety and relief valves, including the associated pilot valves.
- The **RESION** test system has been developed for testing the settings of SIERION pilot valves actuated by static pressure

### **Your benefits at a glance**

- Ensures functional reliability of fluid-operated pressurizer safety valves for PWR plants
- Avoids unnecessary stress of system components by testing at lower pressure
- Approved test method meets all KTA and steam boiler standard TRD 421 requirements

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