

The logo consists of the letters 'A-T' in a bold, sans-serif font, enclosed within a white circle. This circle is set against a blue background that features a stylized gear or circular arrow pattern.

ARMATUREN-TECHNIK GMBH | Oberhausen | Germany
Isolating, Control Valves and Turbine Bypass Systems
for the Electric Power Industry,
Steam Plant Utilities and Process Industry



HEATER BYPASS

Type UV & SV

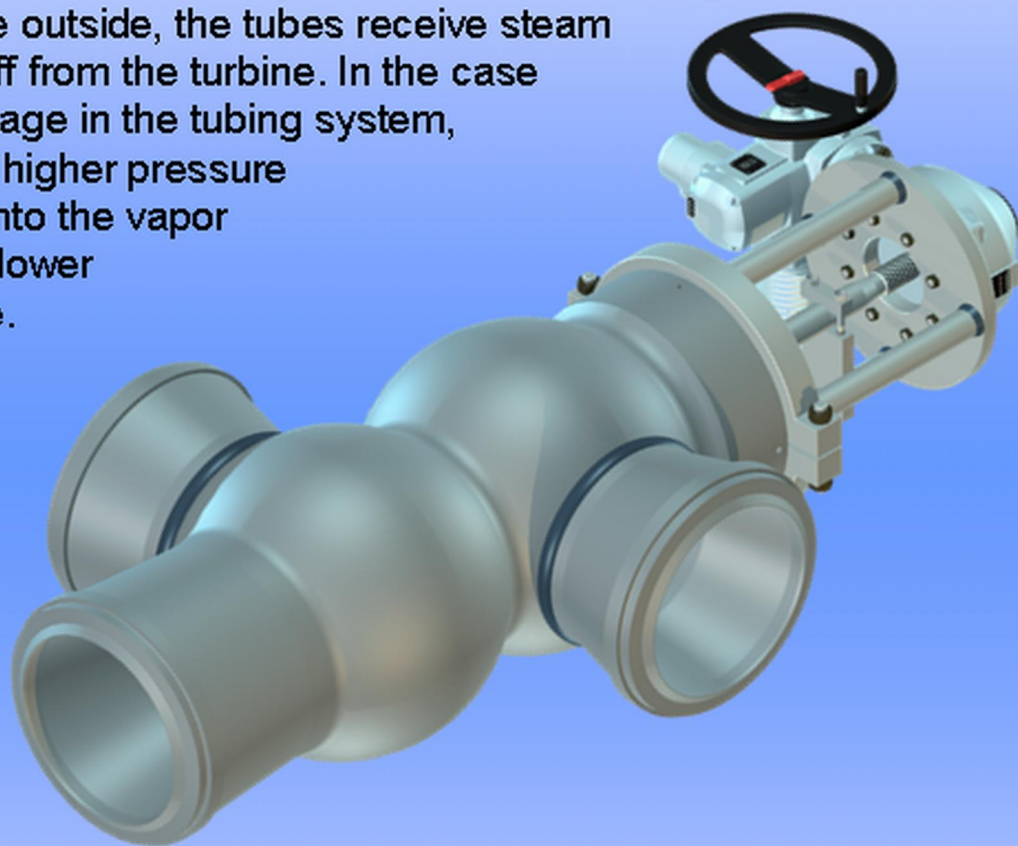
**Automatic Heater
Protection Unit for
Electric Power Plants
and
Steam Plant Utilities**



Application

To improve the efficiency of a steam boiler system, feed-water flowing from the feedwater tank to the boiler, is preheated by a heater. The heater is a heat exchanger with tubes containing feed-water.

From the outside, the tubes receive steam drawn-off from the turbine. In the case of a leakage in the tubing system, water of higher pressure rushes into the vapor room of lower pressure.



To avoid any damages by

- penetration of feed-water into the turbine,
- build-up of inadmissible pressure in the heater jacket,

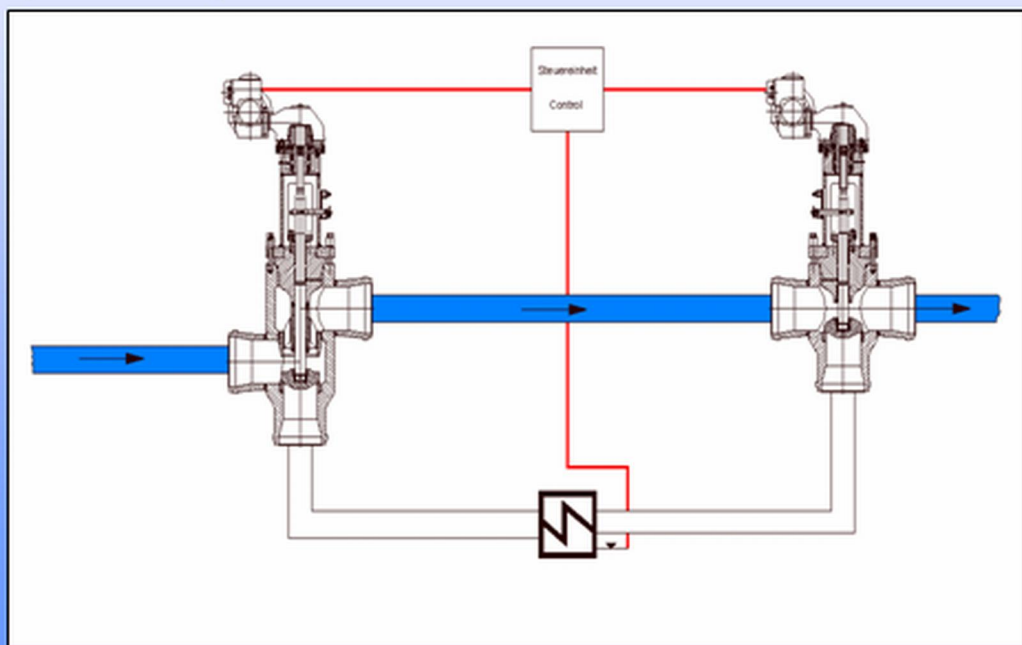
the heater must be separated from the feed-water pressure tube as soon as possible. This will be provided by the heater protection unit, i.e. by quick closing valves which are controlled by their own medium and located at the in- and outlet of the heater. Usually a change-over valve is located at the inlet and a stop valve is located at the outlet.



Single-strand heater, operated by control valves with electric drive

The control valve with electric drive receives an electrical pulse from the level sensor and opens the pulse tube.

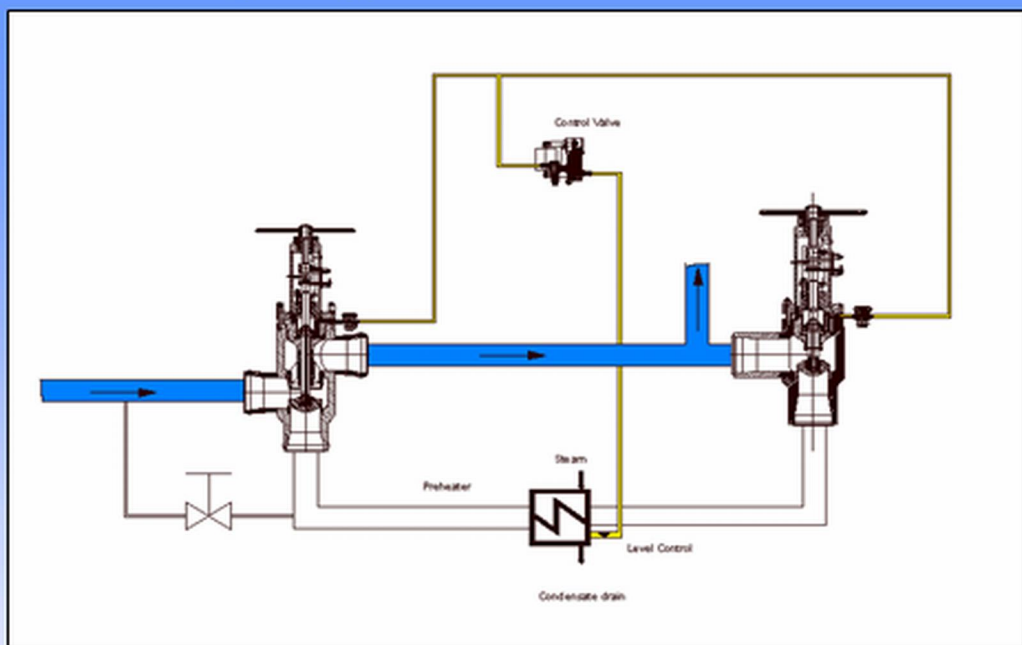
The pressure below the control piston of the two main valves, the change over valve and the quick stop valve shift.



Function during automatic shifting to bypass

The solenoid control valve receives an electrical pulse from the level sensor and releases the pulse tube. The pressure below the control piston of the main valve decreases, and both, the change-over valve and the quick stop valve shift. The compensation bore

in the casing closure serves to compensate the pressure between the space above the control piston and the feed-water tube. The shifting speeds are set by the flow control valves. Blocking the two valves is carried out by screwing-down the threaded spindles.





Product Overview

- Combined Safety and Overflow Valve acc. to TRD421
- HP/LP Turbine Bypass Systems
- Steam Conditioning Valves
- Heater Bypass Systems
- HP Swing Check Valves
- HP Gate Valves
- Check Valves
- Valve Maintenance and Repair
- Overhaul of complete systems

Applications in

- Thermal and Nuclear Power Plants
- Combined Cycle Power Plants
- Heating Power Plants
- Incineration Plants
- Steam Utilities for Chemical Industries
- Hydrocracker for Refineries
- Paper and Pulp Industries

Manufacturing Certificates

- Certificate as per DIN ISO 9001/EN29001 Quality Management for Power Plant Applications and Environmental Technical Plants and Components by TÜV-CERT
- Certificate of manufacturing Qualification for Power Plant Applications as per AD 2000
- Certificate as per TRD421 German Steam Boiler Regulation by TUEV
- Confirmation of SIEMENS-KWU based on KTA 1401, QSP 4a, AVS D 100/50 and stated by TUEV in acc. with KTA 3201.3.3
- Certificate of Welding Requirements
- Certificate of additional Quality Requirements as per DIN EN 792-2
- Certificate of Test and Approval for Welders as per DIN 8560 and DIN EN 287

A-T ARMATUREN TECHNIK GMBH

is represented as a manufacturer of high pressure valves for conventional and nuclear power plants at the joint of the Federal Republic of Germany in Shanghai. From the beginning of the year 1995, A-T is worldwide the one of the most important supplier of HP bypass units and super heated steam gate valves for power plants applications. Actual projects can be considered at area A 008 at the industrial automation show in Shanghai. Chinese power plant operators appreciate the more than 20 years old experience of A-T engineers who guarantee a reliable operation of minimum 99,2 %. A-T valves are manufactured regarding the strict regulations of the German Industrial Safety Authority (TUEV) which ensure an operation time of minimum 25 years. During the operation time of at least 25 years A-T maintains a closed contact to customers according to the after sales services. The given feedback information constantly improves the design of high pressure valves and ensures an extreme steady operation. Stress tests are simulated by computational fluid dynamics and data analysis which influences the construction directly. A model can be seen at the joint in Shanghai which helps to understand the patented ring injection system. Independent of the pressure and temperature of the spray water the patented injection is guarantees a perfect cooling for every flow rate, down to a ratio of 1 : 100.