The formation of hard accumulation in boilers (stone and mud) is caused by some impurities and corrosion products contained in water. Examples of water impurities are; dissolved calcium, magnesium chloride, sulfate and silicon elements; Examples of corrosion products include iron and copper. The water impurities in the boiler consist of condensate leaks and boiler feed water (make-up); Corrosion products, as a result of corrosion, also comes from the condensate and feed water.

Deposits cause a waste of fuel in the boiler, a slight decrease in productivity, and more importantly, overheating occurs metal annealing and pipe explosion. The boiler zone where the accumulation causes the biggest problem is the evaporator pipes around the burners in the combustion chamber. The system that is used to prevent the problems caused by these hard accumulation compounds and to expurge hard materials from the boiler is called Boiler Automatic Bottom Blowdown Systems.

**ACCUMULATION (STONE) TYPES**

Calcium carbonate (the most common type of stone), calcium sulfate, silica, phosphate stones, magnesium and magnesium stones, aluminum, iron oxides (usually in the boiler and condensate line is the product of corrosion).

**ACCUMULATION EFFECTS**

Reduced thermal conductivity: stones are poor heat conductors and act as insulators as indicated by the various conductivity values. The resulting furring layer causes the reduction of steam generation. In addition, the resulting furring layer increases the fuel consumption and increases the unit cost of steam generation.

Temperature build-up in the metal wall: As a stone-coated wall prevents heat transfer, the wall temperature rises. This is called overheating and the metal may lose some of its mechanical properties (elasticity, etc.). These cause local shape disturbances and cause pipe explosion.

**Blowdown Systems Components**

- **BLOWDOWN VALVE V-3F**
  - **Body and Cover**: AISI 304 Stainless Steel (Opt. AISI 316)
  - **Working Temperature**: -50 / +210°C
  - **Pressure Class**: PN40

- **TIME CONTROLLER**
- **ACTUATOR TYPE**: SINGLE EFFECTIVE PNEUMATIC ACTUATOR SPRING
- **SOLENOID VALVE**
- **LIMIT SWITCH**

**Note**: The settings are not changed when the 220 V 50 Hz power is cut off in the timer.
**PROGRAMMING BOTTOM BLOWDOWN SYSTEM**

Â To set the time period 1 and 2, press P key 1 time after applying power to the device.
Â The second period of time on the right side of the display will flash for the second period.
Â Set the 2nd time period with the + and - keys for a maximum of 10 seconds adjustment.
Â Press P twice to store the seconds period.
Â The display will show the hour and minute period, which means 1. Time period. The hour function remains steady and the minute function flashes.
Â The time function of the time period is set with the + and - keys for a maximum of 59 minutes, and pressing the P key to set the minutes function.
Â After this operation, the time function of the 1st time period will start to flash.
Â The time function of the time period is set with the + and - keys for a maximum of 23 hours, and pressing the P button to store the clock function.
Â After this operation, the screen will be steady and the device will be programmed.
DBV-10 BOILER AUTOMATIC BOTTOM BLOWDOWN SYSTEMS

INSTALLATION