

Governing System and Protection System

Governing System

1. Type: mechanical hydraulic governing, digital electric governing
2. Comparative analysis

Mechanical hydraulic governing

Controller is composed of mechanical components, and actuator is composed of hydraulic components. Usually it only has narrow closed-loop speed governing function and overspeeds tripping function, and its response speed is very low. Because the mechanical gap could cause high slow-rate, a static characteristic is fixed and cannot be changed arbitrarily. Mechanical hydraulic governing has high reliability and can meet the basic requirement of unit operation.

Digital electric governing

The controller is composed of microcomputer while its parts are composed of hydraulic components. It has fast response speed and accurate governing, and can adjust the static characteristic according to different operating condition.

3. Advantage of digital electrical governing

Besides possessing all the advantages of hydraulic governing, the digital electrical governing also has many functions which improves reliability. It has fast speed of treating data, high governing quality and good static and dynamic characteristic of system. It improves operating condition and can be accessed to DCS system to achieve the control operation in control room.



Protection System

Basic system: Over-speed protection system, axial displacement protection system, and emergency trip protection system.

The full hydraulic governing system consists of the abovementioned three basic systems.

The corresponding protection signal unit is added in various digital controllers, which can capture all signals from site and perform the relevant task according to the signal. More comprehensive supervisor & protection systems, specially the TSI and ETS systems, are included in the protection system. They can directly monitor the running turbine. The independent digital controller and DCS provide double protection.