

INFORMATION OF A DOCTOAL THESIS IN ENGINEERING

Name of PhD candidate: Hoang Trung Kien

Name of thesis: **“Research the effect of some technological parameters to the productivity of the bottom slag cooling equipment for circulating fluidizing bed boiler”**

Specialization: Mechanical Engineering

Code No: 62.52.01.03

Full name of the scientific supervisor:

Assoc.Prof.Dr. Nguyen Chi Sang

Prof.Dr. Tran Van Dich

Training institutions: National Research Institute of Mechanical Engineering –
Ministry of Industry and Trade

SUMMARY OF NEW CONCLUSIONS OF THESIS

1. Regarding scientific significance

- Researched and selected the calculation method of heat exchange for the bottom slag cooling equipment on the basis of convection heat exchange process between the surface of machine wall and cooling water, heat conduction and heat radiation between hot slag and surfaces of machine wall. This is scientific basis for setting up the calculation model in service of design and operation of the equipment;
- By experimental research, built the relationship between output parameter namely cooling productivity and 3 main technological parameters: Velocity of slag (v), cooling water volume (q) cooling water temperatue (t), From this relationship the suitable parameters to improve the productivity of slag cooling equipment also calculated.

2. Regarding practical significance

- Applying main technological parameter set for operating the bottom slag cooling equipment for CFB boiler.

- Applying the calculation method of heat exchange for designing the bottom slag cooling equipment for CFB boiler of the unit 55 MW, achieved result proved scientific reliability and reality value.
- The calculation method can be used to serve the work of research and design for similar heat exchange equipment with different capacity.

3. New contributions of the thesis

- The dissertation subject researched theory and carried out experiment on the bottom slag cooling industrial equipment for coal-fired boiler CFB in Vietnam to determine the effect of 3 main technological parameters to the productivity of the bottom slag cooling equipment for CFB boiler;
- Researched and selected the calculation method of heat exchange on the basis of mixed process: *convection heat exchange, heat radiation and heat conduction*, the result was applied, checked in designing, manufacturing a screw-type slag cooling equipment, applied to the production reality, achieved the result with high reliability and stability.

Hanoi, th December 2017

Supervisor group

PhD candidate

Assoc.Prof.Dr. Nguyen Chi Sang Prof.Dr. Tran Van Dich

Hoang Trung Kien