机械控制系统

2X60MW 机组热工控制集散型控制系统工程采用 MACS 系统进行自动化工程监控后，可通过 CRT 及轨迹跟踪球/键盘并辅以少量的重要常规监控仪表完成对整台机组启动、联锁保护、正常监控及紧急停机的全部监控功能，并在机组控制室内能满足各种工况运行要求。控制室内控制盘、台分开布置, DCS 操作员站布置在机组控制台上，打印机布置在控制室内打印机台上。DCS 工程师站布置在控制室内设置的工程师站室内。

After automatic monitoring through MACS system, 2X60MW Assembling Thermal-control Terminal Control Systematic Engineering can fulfill all the monitoring functions such as starting the whole sets of assembly, interlock protecting, regular monitoring and emergent shutdown through CRT and tracking ball / keyboard with less important conventional monitoring instruments. It also can meet the requirements under various kinds of operating modes in the control room of the assembly. In the console cabinet, control panel and platform are decorated separately; operator's station of DCS is decorated on the assembly ' s control platform; the printer is fixed up on printer platform and engineer station of DCS is assigned in the engineer room.

采用 MACS 分散控制系统（DCS）实现：
a. 数据采集和处理系统（DAS）
b. 模拟量控制系统（MCS）
c. 顺序控制系统（SCS）等控制功能。

Adopt the MACS decentralized control system(DCS)
a. Data Acquisition & Process System (DAS)
b. Analog Control System (MCS)
c. Sequential Control System(SCS) and other control functions

1.1. 1 活塞杆
该汽缸活塞杆由碳钢制成，外着一层防护涂层，以增强其运转性能并使其具有防腐功能。此种表面防护层的应用，使得活塞杆具有相当的耐腐蚀性。
要确定活塞杆的直径，设计时要考虑如下因素：
· 抗弯曲，基于球形的轴承引起的，设计力以及任何横向力或者摩擦力矩。
· 由于外加电压和张力引起的压力。
· 有关活塞安装及驱动结构的附件的螺旋状要求。

1.1.1 PISTON ROD
The cylinder piston rod is made of carbon steel and is provided with a surface coating to improve the running characteristics and to prevent corrosion. The type of surface finish applied to the rod determines to a great extent the corrosion resistance of the piston rod.
In determining the diameter, a number of aspects are taken into account in the design. These aspects are:
· The resistance to bending, based on the design force and on any transverse forces or frictional moments from spherical bearings

· Stresses occurring as a result of the applied pressure and tensile force
· Geometric requirements relating to the mounting of the piston and the attachment to the driven construction

操作简便
所有控制、检测、监视和保护信号均送到现地PLC，并可通过人机操作面板（触摸屏）和计算机监控系统进行监控。液压系统和电控系统中所有元器件标识清楚，部分元器件还带有灯光指示，操作一目了然。

Convenient operation
All the signals of control, measure, monitoring and protecting are sent to PLC filed, and can be monitored through the touch-sensitive screen and computer monitoring system. All components and parts in the hydraulic pressure and electric control systems are identified clearly, even some of them with light instruction, which makes operation is very convenient.

易于维护
液压系统所有控制阀件均集中安装于阀块上，检修和更换方便。
液压系统和电控系统所有元件均具有通用性、互换性，更换方便。
液压系统管路上设有手动隔离阀，方便检修。

Easy Maintenance
All control valves in the hydraulic pressure system are installed on the collectively. It is apt to safeguard to control the valve one to install on the valve block, which makes maintenance and renewal conveniently.
All components in hydraulic pressure and electric-control system have common-ability and interchangeability. It makes the replacement easily.
Manual isolated valve on the pipeline of hydraulic pressure system makes the maintenance convenient.