

# 全集成自动化在鞍钢热轧带钢厂的应用

## TIA in Hot-rolled Strip

### Plant of Anshan Iron and Steel Group

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项目所在地是在被喻为共和国钢铁工业的长子的鞍钢中的新钢铁有限责任公司热轧带钢厂。热轧带钢厂新建了1780机组,和一条分卷平整线,引进日本三菱集团轧机的成套技术,集纳美国、德国、加拿大等有关计算机、液压、仪表之所长,属当今世界上最先进的第四代热轧带钢机组,于2000年5月6日正式竣工投产,年生产能力350万吨。2000年11月具有鞍钢知识产权的1700中薄板坯连铸连轧短流程热轧带钢生产线(ASP)在热轧带钢厂建成投产。两条新生产线的建成投产和老1700半连轧的淘汰,使鞍钢热轧带钢厂成为世界上装备最先进的热轧带钢厂之一。但是在上述两条线生产达产后,显然一套平整分卷机组的生产能力已不能满足生产需要,按照“高起点、少投入、快产出、高效益”的技术改造原则,鞍钢决定在热轧带钢厂再建一套平整分卷机组即“1780生产线2#平整分卷机组”。鞍钢自动化公司为鞍钢新钢铁有限责任公司热轧带钢厂新建设的17802#热分卷线机组提供全套电气传动及自动化控制系统。

该平整分卷机组的主要设备组成如下:入口钢卷运输车、入口钢卷车、开卷机、矫直机、平整机、上切剪、卷取机、出口钢卷车、出口钢卷运输车、液压系统、润滑系统等。其中入口钢卷运输车、入口钢卷车、出口钢卷车、出口钢卷运输车使用西门子SIMATIC S7-200 PLC控制,从开卷机到卷取机的控制采用西门子SIMATIC S7-400 PLC控制,平整机的压下系统采用西门子

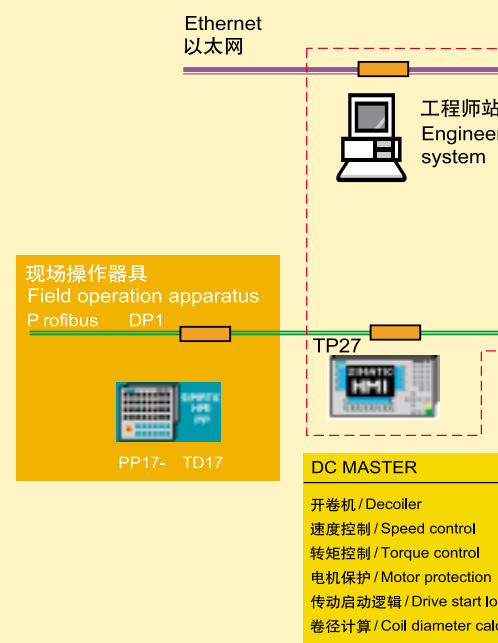
SIMADYN D多微机控制器控制。开卷机、矫直机、平整机、卷取机的主传动控制系统采用西门子SIMOREG DC-MASTER 6RA70调速装置。张力控制采用西门子工艺控制板T400。

This project is located in Hot-rolled Strip Plant of New Steel Co., Ltd. of Anshan Iron and Steel Group, the “eldest son” of the Chinese steel industrial. Recently, the hot-rolled strip plant established a type 1780 mill unit and a decoling and temper rolling line, introduced packaged milling technology from Japanese Mitsubishi Group, and integrates advantages of USA, Germany and Canada etc in respect of computer-controlled system, hydraulics and instruments, which thus makes it becoming the fourth-generation and the most advanced mill in the world. It was put into operation on May 6, 2000 officially, with the annual capacity of 3.50 million tons. Similarly, in Nov. 2000, the type 1700 medium / thin slab continuous casting and tandem rolling mini production line (ASP), whose intellectual property right is owned by Anshan Iron and Steel Group, was finished and put into production in the plant. And along with elimination of the old 1700 semi tandem rolling line, it enables the plant to become one of the same kinds that possess the most advanced equipment in the world. However, with production of the 1780 and 1700 lines, it becomes

evident that productive capacity of one set of decoling and temper rolling line cannot meet the requirement of production. Based on the technical reconstruction principle of “high starting point, less input, quick output and high benefit”, Anshan Iron and Steel Group decided to establish a new one, i.e. “1780 production line 2# decoling and temper rolling unit”. Anshan Iron and Steel Group Automation Company provided the whole set of electric drive and automatic control system for it.

## 自动化系统简图

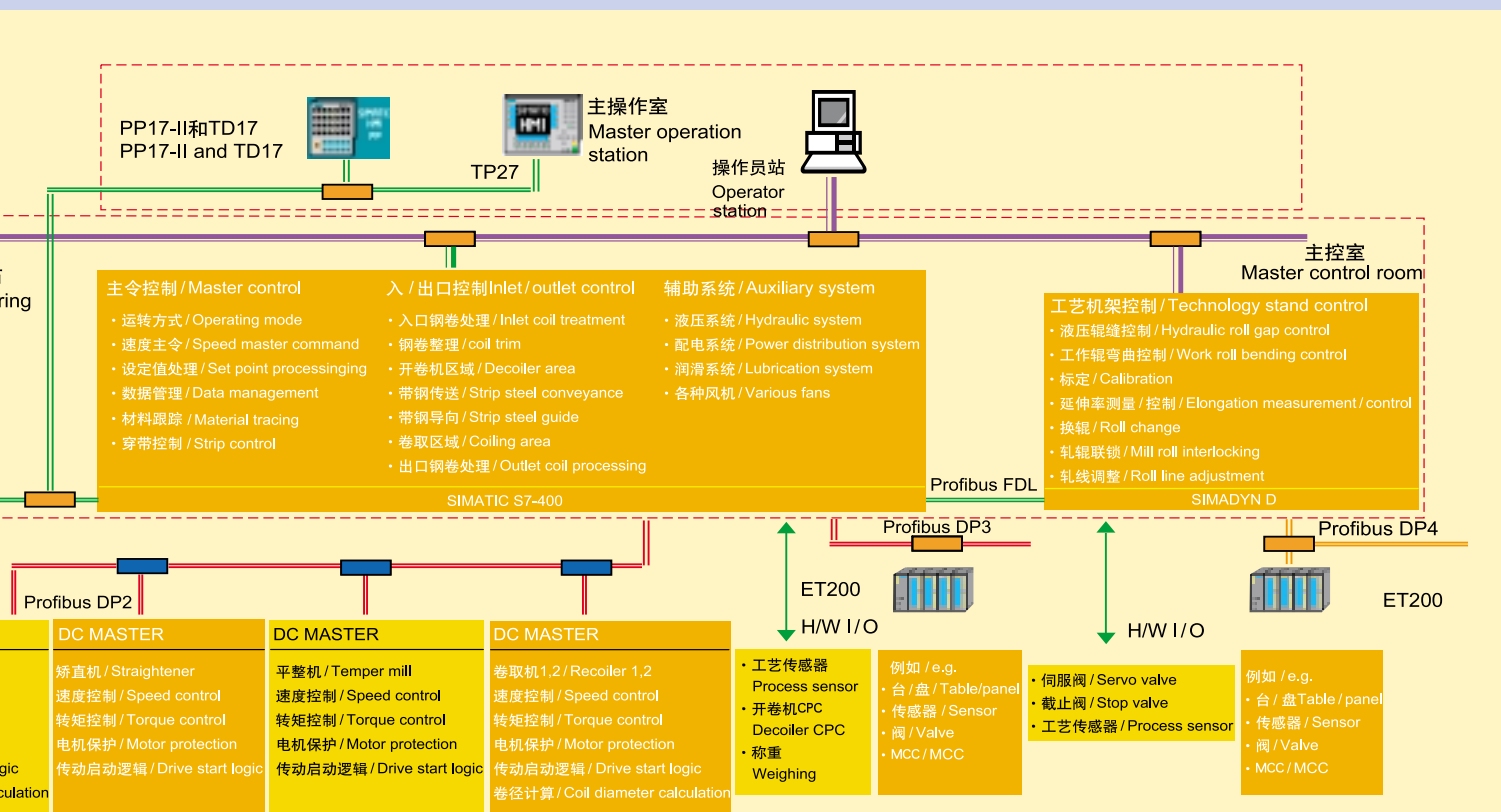
### Automation System Diagram



This decoling and temper rolling unit mainly consists of inlet coil conveyor, inlet coil winch, decoiler, straightener, skin pass mill, upper shearer, recoiler, outlet coil winch, outlet coil conveyor, hydraulic system, lubrication system etc, of which inlet coil conveyor, inlet coil winch, outlet coil winch and outlet coil conveyor are controlled by Siemens SIMATIC S7-200 PLC, from decoiler to skin pass mill by Siemens SIMATIC S7-400 PLC, pressing system of the skin pass mill by Siemens SIMADYN D multi-processor system, the master drive control system of decoiler, straightener, skin pass mill and recoiler by Siemens SIMOREG DC-MASTER 6RA70, and the tension control by Siemens technology board T400.



分卷平整机组的主要设备开卷机、矫直机、平整机  
Main devices of decoling and temper rolling unit: decoiler, straightener, skin pass mill



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