

螺旋焊管机组剪板机压脚结构的改进

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我公司原剪板机压脚采用密布式单向油缸结构(共 11 个单向油缸,如图 1 所示),在使用时压脚下力过小,特别在剪切高强度、大壁厚的钢带时压不住钢带,影响剪切质量。而且单向油缸易损坏,造成漏油,污染钢带表面,影响正常生产。



图 1 原剪板机压脚结构

1 原剪板机压脚机构存在的问题

(1) 压脚机构在压紧钢带时,各个单向油缸动作不能精确同步,造成在钢带宽度方向上压紧力不一致。

(2) 在剪切高材质、大壁厚钢带(例如材质 X70、壁厚 14.6 mm)时出现压脚压紧力不够,压不紧钢带,造成板边剪切质量欠佳,且剪刀磨损严重。

(3) 剪板后,压脚机构的单向油缸柱塞靠弹簧缩回,现场使用时柱塞缩回缓慢,而且缩回程度不一致,经常被钢板顶坏、造成油缸漏油,液压油严重污染了钢带表面。由于单向油缸维修困难,影响了正常生产。

2 改进方法

针对以上问题,制定了剪板机压脚机构技术改造方案,采用双油缸推动高强度压梁结构(如图 2 所示)取代密布式单向油缸压脚结构。

(1) 将 11 个单向油缸结构简化为高强度压梁,保证钢带在板宽方向上压紧力均匀可靠。材质选用 45# 钢板,采用变截面梁,根据现有空间压

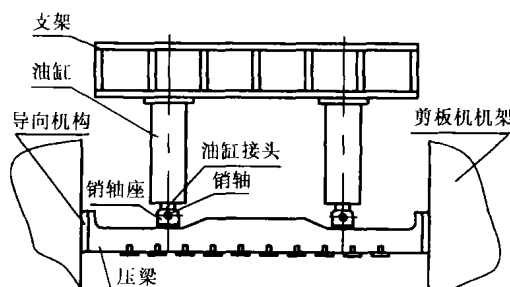


图 2 剪板机压脚改进后结构

梁尺寸尽量高些,以提高梁的强度和刚度。

(2) 为保证压梁上下运动平稳,在剪板机架两侧增设导向机构,且导向长度尽量长些。

(3) 采用两个大油缸驱动压梁压紧钢带,保证最大压紧力不小于 25 t。油缸选用标准件,即使发生故障只需更换新油缸即可,保证生产顺利进行。

(4) 为保证两个油缸动作同步,液压控制部分采用两个分流集流阀控制油缸动作同步。

3 结 语

通过现场应用比较,改造后的双油缸推动高强度压梁机构具有结构简单,压梁动作同步灵活,压紧力均匀可靠,压梁整体强度、刚度高等特点。保证了钢带剪切后的板边质量,提高了剪刀的使用寿命,减少了设备故障,保证了生产的正常进行。

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control of welding parameter. The original Control system adopt time relay to control welding parameter and the performance target of control accuracy, stability and reliability, etc. can not meet the requirement. To adopt FPI1 - CI4 PLC of Japan National Co greatly increase the performance of welder with pre - tune and display function through write protection function program, time data input program and control the weld process program.

Key words: PLC Cu - Al pipe butt resistance welder welding current welding voltage

Discuss on Inside Welding Monitoring Scheme

Zhang Mengjun, Xie Shuxia, Liu Huanjun (55)

Abstract: The article put forward that to build a inside welding monitoring unit carry out inside welding monitoring scheme by using a PLC, step by step motor, shift sensor, and man-machine interface, etc. according to present actuality of inside weld monitoring for high quality, heavy wall thickness spiral submerged arc welded pipe. The inside welding monitoring unit adopt non-contact type measurement, and can obtain the correct alignment of strip and inside weld movement unit through calculating the rotation angle of step by step motor to meet the purpose of inside weld control and the system can obtain 0.3 mm inspection accuracy for strip misalignment.

Key words: spiral welded pipe inside welding monitoring weld misalignment monitoring

Discussion on Forming Components of Longitudinal Edge Forming Unit

Yang Xian, Wang Junwei, Gao Jinyan (57)

Abstract: The article introduces the composition and working principle of forming components of longitudinal edge forming unit and use of each component. It put forward 5 kinds improved forming components of longitudinal edge forming unit, i. e. a pair of bottom crossbeam of row rollers shall be longitudinally moved along rolling line direction. The angle of rollers can be adjusted and realize adjustment by computer aid. To add support rollers under row rollers; To adopt four roller universal stands in finishing forming segment. After adopting the above mentioned improvement, the forming procedure of row rollers has better flexibility and adaptability.

Key words: longitudinal forming natural flexible forming pre-bending row roller

A New Type Bending Pipe Unit

Duan Jinhu (60)

Abstract: A new type bending pipe unit is designed faced to the problem of poor bending quality, heavy labour and low working efficiency etc. of original serpent pipe bending unit. The article introduces the technical parameter, working principle and operation procedure of this bending unit as well as the hold down roll structure—the oval degree of key parts of controlling bending pipe. The new type bending pipe unit improves the quality of pipe bending and increases work efficiency.

Key words: bending pipe unit working principle bending pipe oval degree labor strength working efficiency

Discuss on Setup of Inside Welding Multiple Wire Welding

Specification in Longitudinal Submerged Arc Welded Pipe

Ma Jun, Li Junzuo (63)

Abstract: It takes a great deal of experiments for the setup of inside welding multiple wire welding specification in longitudinal submerged. It is found there is certain rule in setup of inside welding multiple wire welding specification in submerged arc automatic welding through the analysis of experiment welding specification. It can effectively reduce weld defect produced such as weld gas pore, slag inclusion and burn through, etc. by use this rule.

Key words: submerged arc automatic welding multiple wire welding specification setup weld defect

Polyethylene Wrap Coating Procedure of Pipe Outside Coating

Wen Hongwei (65)

Abstract: The article analyses and discusses wrap coating procedure of 3PE outside coating pipe production aim at the real problem existed in production and production procedure. And puts forward it can improve the quality of polyethylene wrap coating to pipe through the method of control the temperature of polyethylene and adhesive, keep suitable melting viscosity and pressure, different diameter pipes adopting different coating rate and mend vertically and horizontally mechanical performance differential of polyethylene film layer as well as adopt reasonable hold down roller and water cooling, etc. with great ease.

Key words: pipe coating wrap coating polyethylene adhesive fusion bond epoxy powder

Betterment to Press Stand Structure of Strip Shearing Unit of Spiral Welded Pipe Unit

Chen Qiwei, Zhang Yabin, Zhang Zhongxiu (67)

Removing of Surface Scratch on Welded Pipe

Jie Shengqi (68)

Abstract: People more and more pay much attention to removing of surface scratch on welded pipe through the increasing surface quality requirement to welded pipe by end users. The article analyses and considers that slide friction produced between strip and forming rollers due to the differential of each point linear speed of rollers is the root reason that produce surface scratch on welded pipe. It can effectively prevent the produce of surface scratch on welded pipe by reasonable design the structure of roller, exactly installation and adjustment of rollers and suitable adopt lubricate, etc.

Key words: welded pipe surface of welded pipe scratch roller

Develop Status of Pipe for Generate Electricity Boiler in Japan

Translated and edited by Zhang Chaosheng (71)

Abstract: The article introduces develop status of pipe for generate electricity boiler. At present, the development of generate electricity technology is to increase its generate electricity efficiency as emphasis. The direction of steamer conditions of boiler develops from ultra critical pressure to VSC, i. e. to increase the steam temperature and steam pressure of boiler. In order to meet the demand of generate electricity, Japan Steel Co had developed out low alloy, ferrite, Austenitic thermal resistance pipe and is under developing to exploit Ni base alloy tubular, etc.

Key words: Japan coal generate electricity boiler thermal resistance pipe material performance