

THE DEVELOPMENT AND COMPOSITIVE APPLICATION OF THE PARTICULAR REPRODUCING REPAIRING TECHNOLOGY

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Abstract: Since 1980s, with the rapid development of our industry, abrasion, scuffing and fracture of the hardware in the running devices have affected so many enterprises' production. Only traditional repairing ways can not solve it. By very hard research and practice, Aoyuksin company invents a kind of particular reproducing repairing technology. It eliminates lots of technical puzzles of the reproducing device and hardware-repairing, It brings more and more economy benefits for the enterprises.

Keywords: reproducing , special repairing, composit application.

1. Foreword

For a long time, the repairing of mechanical accessories' abrasion, the edge break down damage and invalidation is an important technical problem. The traditional way uses way of electric welding, gas welding to repair the mechanical accessories, however, electricity welding and gas welding bring so much heat as to make metal accessories **distort**, and metallographical near repair welding point will greatly change, as a result, durability of the reproducing accessories will be awfully reduced. the way of electricity welding and gas welding can be only used to repair metal accessories, so lots of accessories made by new materials such as plastic, porcelain and latex won't be repaired by the way of electric welding and gas welding. Moreover, it's necessary to dismantle down the accessories from the machine for repairing it.

With the rapid development of our country industry, lots of devices in the industry enterprises can not work normally because of scratch , abrasion and fracture of the accessories after the 1980's, especially for some important devices and import devices, an important accessory malfunction will often **make the whole devices not work regularly**, furthermore, the product line will **maybe be affected**, and the enterprises will get a great economic loss.

To resolve the repairing problem of mechanical accessories' abrasion, scratch and invalidation, Beijing Aoyuksin Surface Engineering Technology Co., Ltd has synthetically applied and analyzed all kinds of special repairing technologies since the 1990's. It resolved the compositive problem that single technology could not meet the reproducing

repairing request and that it's difficult to repair in a locale, from the aspect of repairing quality, technical and economic benefit. Based on all kinds of sophisticated technologies, such as electric brush plating tech, resistance fusing welding technology, repairing Adhesive technology and so on, Aoyuksin company practised them nearly 20 years and repaired lots of homemade and import devices for many industry enterprises through composite application of all kinds of sepcial repairing technologies. The facts prove that the composite application of special repairing technologies resolved numerous problems that single technology resolved difficultly, created prominent technical and economic benefit and laid a solid foundation of composite application of special repairing technologies for reproducing technology.

2. Development and choice of reproducing special repairing technology

The development of reproducing special repairing technologies goes fast, effect of application in production is prominent after the 1980's. All kinds of special repairing technologies, such as oxygen-acetylene blaze spray, plasma spray, electric spray, laser remelting, electric brush, resistance fusing welding, repairing Adhesive technology, lay a solid foundation of accessory-repaired technics and play an important role whether in past or in today. Each special repairing technology has its own character and application scope in process of reproducing, how to choose an appropriate composite repairing method to convenience repairing and attain high quality accessory- repaired effect is an important task for us.

By experience that Beijing Aoyuksin Surface Engineering Technology Co., Ltd practises and applies

nearly 20 years, we think that electric brush technology has many advantages such as device easy to manipulate, flexible technics, good repairing effect, pollution-free, wide applying scope, this technology can repair many accessories other technologies can not repair and bring great economic benefit. During 20 years, this technology was applied in many fields such as transport, petroleum, mechanism, printing, electric power, mine, architecture and war industry, it repaired malfunctioned devices and made it back to work rapidly.

There are some cases in the process of accessories-repaired that the area of abrasion and scratch of the repaired accessory is small, but depth of them is quite big, then, only electric brush technology can't resolve the problem well. As a result, resistance fusing welding technology has begun to be used to repair deep pit, flute, scratch and casting disfigurement of the mechanical accessories. Using resistance fusing welding technology can attain perfect repairing effect especially for cast steel, cast iron, aluminium and copper products.

To repair accessory's huge abrasion, deep scratch, rupture, casting blow hole and sand hole, using repairing adhesive is a good choice, it's a convenient and rapid way can be used to repair special devices in chemical, metallurgy, electric power and so on fields.

3. Application of reproducing special repairing technology

With the rapid development of our nation industry, there is so much wrong with lots of enterprises's devices for their mechanical accessories' abrasion. To be sure that repaired accessories can meet the usage requirement, we should choose the appropriate repairing technics by accessories' working condition, working environment and pressing condition. For surface abrasion of the mechanical accessories, we confirm the repairing method by abrasion area and depth. Generally, electric brush technology is fit for repairing the accessory with small area abrasion, small depth abrasion and thin plating layer. It's too highly efficient to repair the large-scale precision accessory and over stroke of precious accessory, and can repair malfunction without disassembling the devices. Electric brush technology could not be used to repair the accessory with big area and thick plating layer, and it's not used in

volume-produce. Electric brush can provide 0.01mm~0.1mm plating layer, it can even provide 3mm, when repairing the groove and scratch. During 20 years, we repaired thousands upon thousands machine tool guide rail, engine crank shaft, imprinter roller and so on, and got excellent repairing effect.



Repairing of crank shaft neck abrasion by electric brush



Repairing of mating faces of engine rotor axle tree abrasion by electric brush



Repairing of machine tool guide rail abrasion by electric brush

After 1990s, on the basis of application of electric brush technology, we find that it's difficult to repair the accessories with big local abrasion, deep hole in surface, cast blow hole, cast sand hole and so on with electric brush technology. Casting industry is the cornerstone industry of our country. Every year, there is several hundred millions ton casting with casting disfigurement, as a result, there is several decadal billion yuan loss. So we research and develop casting disfigurement repairing machine by ourselves. The

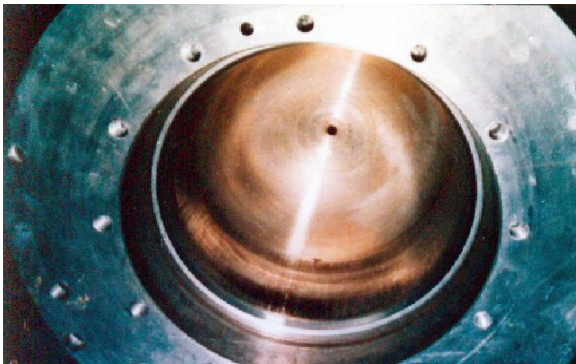
machine can repair the blow hole and sand hole in the casting surface, It also can repair accessory's local disfigurement. We can get the effect like new product after machining repaired accessories. By this method, we make lots of casting with disfigurement come back to life and bring considerable technical and economic benefit for our casting industry.



Repairing of casting blow hole and sand hole by casting disfigurement repairing machine



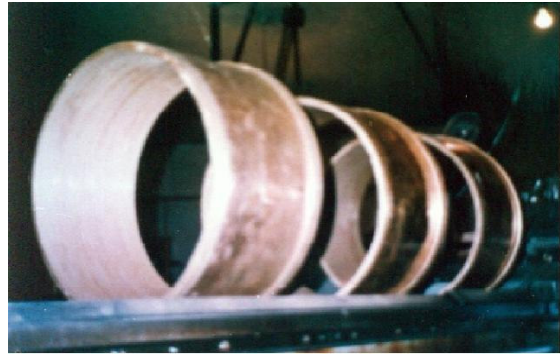
Repairing of blow hole, sand hole abrasion and scratch in machined surface by casting disfigurement repairing machine



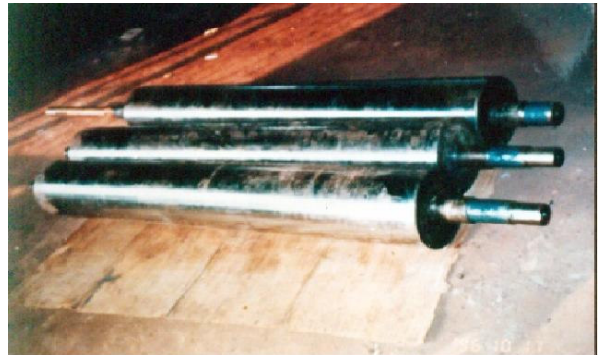
Repairing of abrasion of hydraulic pressure cylinder by adhesive



Repairing of abrasion of hydraulic pressure machine's column by adhesive



Repairing of abrasion of hydraulic pressure machine's copper cover by adhesive



Repairing of abrasion of mechanical bearing matching surface by adhesive



Repairing of casting disfigurement by adhesive

By experience of device-repaired work many years, we knew that electric brush technology and resistance fusing welding technology had their own advantage, while any technology isn't omnipotent. For some malfunction like big abrasion, deep disfigurement, casting disfigurement and some special repairing request such as acid resisting and alkali resisting, AK series industry adhesive developed by Aoyuksin company is good choice. AK series industry adhesive repaired lots of abrasion and scratch of machine tool guide rail, hydraulic pressure cylinder, pressure valve, solved many technical problems.

4. Composite application of reproducing special repairing technology

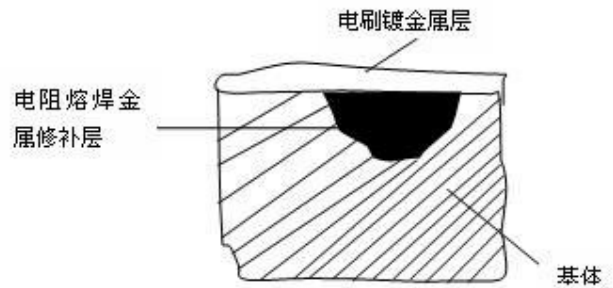
During past two decades, we used electric brush technology, resistance fusing welding technology and repairing adhesive technology to repair lots of abrasion, scratch and cast disfigurement of all kinds of mechanical accessories for many domestic enterprises. In the process of repairing work, we find that using composite special repairing technics can solve a lot of repairing problem that single technology can't repair. It has greatly improved the repairing quality and efficiency.

What they call special repairing technology is that to choose two or more special repairing technology to synthetically repair the accessory disfigurement according to character of each repairing technology, mechanical accessory's disfigurement and abrasion area. Special repairing technology can assure the repairing quality and improve the repairing efficiency.

With the rapid development of repairing technology and more and more repairing experiences, composite technics of several special repairing technologies is a new development direction. Aoyuksin company mastered many types of composite technics such as composite technics of resistance fusing welding technology and electric brush technology, composite technics of conductive adhesive technology and electric brush technology. We company repaired a lot of accessories that single technology can not repair with all kinds of composite technics, and got excellent repairing effect and considerable technical and economic benefit.

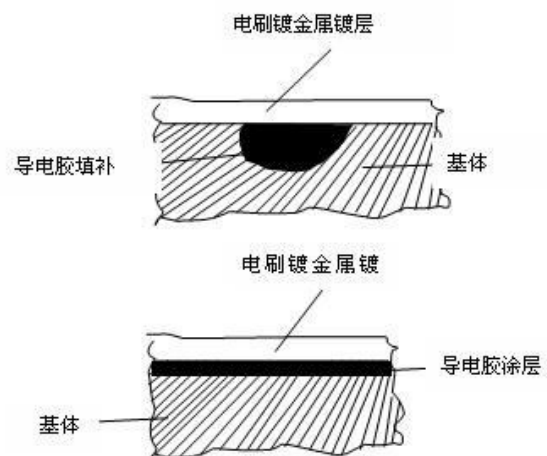
The composite repairing technics of resistance

fusing welding and electric brush technology aims at repairing of deep disfigurement, bigger repairing area and blow hole or sand hole in the casting working face. Firstly, filling the hole by casting disfigurement repairing machine made by resistance fusing welding technology, secondly, grinding by hand or machine, finally, brushing it, then, we can get repairing effect like new products.



Repairing of the accessory by composite technics of resistance fusing welding and electric brush

When using repairing adhesive and electric brush technology to repair the bigger abrasion, deep pit and scratch, firstly, fills the point up with conductive adhesive, then burnishes it and brushes it with electric brush.





Filling the hole with conductive adhesive then repairing the accessory with electric brush technology

5、conclusion

From the effect of wide application of the reproducing special repairing technology, we can draw the conclusion that it is an important way that we use all kinds of special repairing technologies and their composite application to resolve the reproducing accessories repaired problem, attain high repairing quality and high technical and economic benefit. On the basis of 20-year successful application experiences of Aoyuksin special repairing technology, we believe that it will resolve the more repairing problems of reproducing devices and accessories and create more technical and economic benefit for the industry enterprises.

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