RECP Best Practices Catalogue

Reducing copper loss in twisting machines generated by wire drawing machines

Developed within the framework of MED TEST II

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

switchmed

The SwitchMed Programme is funded by the European Union

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SECTOR:	**Metal, electrical and motor vehicle parts**
SUBSECTOR:	Manufacture of parts and accessories for motor vehicles
PRODUCTS	Electrical cables and wires, auto parts, wholesale accessories.
CATEGORY	Good Housekeeping
APPLICABILITY	Process

COMPANY NAME	N/A
COMPANY SIZE	305

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Description of the Problem (Base Scenario):	Wire breakage during wire drawing generates waste at the twister. Detailed analysis of the losses generated by the twisting machines as well as their consequences on the upstream wire drawing equipment (21% of the machines represent almost 50% of stoppages) give a: • Overall average breakdown rate: 3% • **Total copper waste = 0.4%** • Capacity loss and machine productivity of 12 to 30% due to technical shutdowns
Description of the Solution	In order to reduce losses and breakage of wire, it is proposed to: • Enhance preventive maintenance, • Rearrange the drum fleet better, if necessary, • Have good quality raw material (copper);

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Economic Gain	In order to institute the overall potential gains, we estimate that to achieve 65% (about 2/3), it is required to establish annual losses in both the twisting machines and the wire drawing machines: **Twisting:** By calculating in the actual cost of copper with a minimum of stoppages (1 stoppage per day) and across the year (300 days) as well as taking into account the cost of resale of waste, ➢ There will be a gain of € 263,127/year **Wire drawing:** By making the same calculation to losses generated with the same estimates ➢ There will be a total of € 4,582/year For a grand total estimate of € 267,709/year Assuming that the reduction rate of these losses is 65%, the operational gains will be **€ 174,000/year.**
Environmental Gain	Reduction of externally recycled waste by 80,730 kg
Health and Safety Impact	None

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Investment & Financial Indicators	**Spare part cost for drawing machines, € 90,909, (wire drawing machines are the cause of downstream process losses; twisting)** Cost of the drums: if necessary Time for Return on Investment: 6 months
Suppliers	Spare parts: ref to the supplier of the machines in the factory
Other aspects	Good quality: through the elimination of welding at the Toro machine
Implementation and new indicator	Scheduled for the end of 2018