

... SOMETIMES THE CHEAPEST CAP EX (CAPITAL EXPENDITURE) RESULTS IN VERY EXPENSIVE OP EX (OPERATING EXPENSE)

14 Technology

We have selected some pictures showing extreme sports. Despite the various disciplines displayed require different approach, there is one factor that associates all of them: extreme performance requires tedious care of all the details and meticulous preparation. If you look at the dragster (also displayed in our set of pictures) the target is to cover the distance of a quarter of a mile in the shortest possible time and the fraction of seconds makes the difference. The study and the improvements of the smallest details result in a potentiality of winning the race.

At this point the Readers might believe that, this time, the narrator was off topic talking about dragsters and displaying pictures of extreme sports like cross-country motorcycling or dragster.

In reality also the plants for producing nonferrous commodities are requested to provide extreme performances; very extreme performances summarized under the general concept of "heavy duty operations".

During the years the engineers have defined some unequivocal factors to define how good is a capital equipment and to assess the possible payback time:

- >> the first factor to be introduced is the so called Reliability (R), which takes into account how many hours per year are lost due to fault of the plant;
- >> the second factor is the Availability (A), which takes into consideration how many hours per year are lost due to the scheduled and non-scheduled maintenance;
- >> the third factor is the Index of Quality (IQ). This parameter takes into account the working hours lost due to non-quality of the produced product (talking about rod, if the quality is not for sale, whatever time has been spent for production is time lost due to non-quality).

The combination of Availability, Reliability and Index of Quality represents the fundamental parameter that is universally known as Overall Equipment Efficiency (OEE).

If you have an aluminium rod plant with a nominal capacity of 4.0 tph, exercised 300 days per year, 24 hours per day and the total output of green labeled rod (i.e. approved for sale) is 24,000 tpy, it means that the OEE of your plant is 83%.

Therefore, considering that in 300 days there are 7,200 hours, if we apply the OEE of 83% defined above, it means that during about 6,000 hours the plant not only runs, but also produces product of a standard suitable for sale; again an extreme performance!

For achieving this extreme performance the thousand components (between 10,000 and 20,000 depending on the size and complexity of the plant) that are included in one rod line must incorporate:

- >> state-of-the-art-design
- >> high standard components and instrumentation
- >> first class workmanship

Since some years, for small lines (up to a nominal production of 4.0 tph) are available on the market imitations of those Properzi Rod Lines designed and manufactured during the 1970s and 1980s. The assemblers of such equipment, located in Far East, have targeted the dramatic reduction of costs using design and components unable to achieve reasonable OEE and reasonable man power requirement.

The pictures near here have been included in this short article with the aim of showing the differences between a genuine state-of-the-art Properzi Rod Line and the imitation.

We should add that the aggregated investment for establishing a plant for producing aluminium rod includes not only the complete casting line but also building, auxiliaries, transformers, etc. For giving our Readers a more tangible feeling, based on our seven decades of experience we have sketched a summary including the main equipment and/or activities:

- >> **Building civil workshops**
- >> **Overhead cranes**
- >> **Air compressor unit**
- >> **Cooling tower**
- >> **Transformers and power line**

Top performances need first class
equipment and motivated people



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Properzi Rod Mill 4.5 tph



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- >> Gas pressure reduction station
- >> Power line and control cables
- >> Forklifts
- >> Laboratory and workshop
- >> Metal works accessory to the WRM
- >> Offices

As we said, either the investor buys an original CCR Properzi Rod Line or the imitation, the expenses associated to the items listed above (we can refer to those as Structural Expenses) are part of the game.

Realistically, based on western costs the fraction of Structural Expenses versus the cost for the Production Line is summarized by the two graphs here below.

Being the Structural Expenses same in both cases, we can see that the cost of the Production Line is 39% of the total if the investor purchases a Properzi genuine CCR Line, while it is 17% of the total when he decides to buy the imitation. The graphs are self-explanatory.

Very seldom we have encountered a Client that has obtained more than 50% OEE from a copied line; on the contrary, Properzi plants run with OEE ranging from 83% through 95% (some specialists in Middle East). Even being very conservative, the gap of OEE between imitation and genuine CCR Line is 33%.

Counting 6,000 hours of actual production (we said 83% OEE) each point of OEE is equivalent to 72 hours approximately. When the investor buys the imitation line, in one year the lost time to production can reach almost 2,400 hours. In such lost time the manpower must be paid anyway and the cost associated to Structural Expenses cannot be repaid.

Well, it was our feeling but we have now the evidence: buying cheap production equipment (imitation or similar), supposed to perform in heavy duty, is too expensive!!

By C.M.B.

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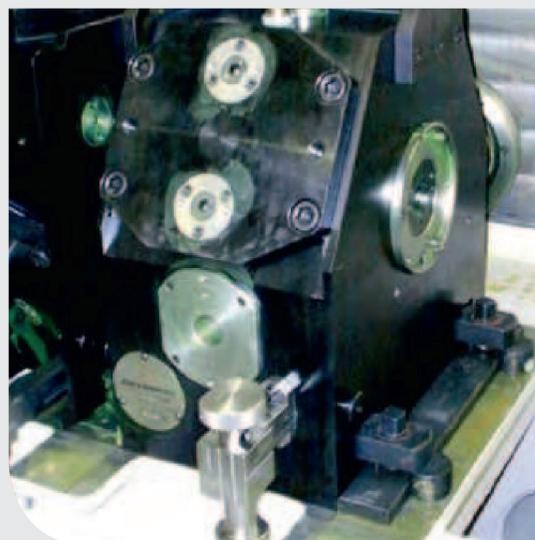


Gear of Properzi Rod Mill



Gear of copied Rod Mill

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Properzi Stand



Copied Stand

