



**A novel invention for metal surface preparation to remove Mill Scale, Rust, and Residues**

The environment friendly replacement for acid pickling process, which produce rust-resistant, lustrous surface in Hot & Cold Roll Strip, Sheet, Coil



- ◆ Valgro EPMS process does not use hazardous chemical;
- ◆ No Disposal restrictions from Pollution Control Board;
- ◆ Save the Building, Equipment, People, Land, Environment etc.;
- ◆ Space saving against traditional pickling line;
- ◆ Rust free, Rust resistant surface;
- ◆ Lower energy consumption;
- ◆ Increasing the Productivity - Reduce Rejection;
- ◆ Enhance production in current pickling process by Retrofitted EPMS Station;

De-Scaling De-Greasing De-Burring Cleaning Finishing Polishing



Rusty surface



Oil patch



Oxide surface



Un-pickled surface



Over pickled patch

Valgro EPMS process effectively remove Un-pickled patch, Depth oxide, Rust, Oil patch, and other residue from sheet surface. After cleaning process blank or strip is flushed again with washing medium on both side.

### Rust Resistance surface

Result at Valgro R & D Center

The most amazing property of surface condition steel is its ability to resist rusting without protective oil or coatings. After ordinary hot band has been surface condition processed, existing rust is removed and it WILL NOT RUST again if stored in a dry indoor environment.

Before



After



Low Carbon spring steel strip

Before



After



Hot roll strip



Cold rolled strip



Oil Patch on cold roll coil



Aluminum sheet



CR coil after color coating



Copper sheet / strip



Brass sheet

Increases profits, Never before surface.

## “WASHERman” retrofitted scaled removing Machine for Steel Plants

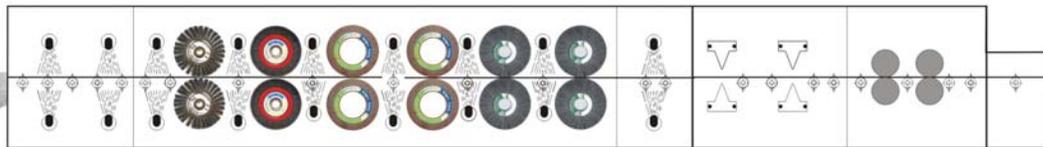
Increase pickling process speed in large continuous pickling line by first pass scaled removal of FeO, Fe<sub>2</sub>O<sub>3</sub> & Fe<sub>3</sub>O<sub>4</sub>.



Replace acid tank with VALGRO EPMS station.  
Reduce chemical concentrated for normal gauge.  
Replace the cleaning section of heavy gauge galvanizing line to allow the coating of hot band material directly from the hot mill.  
This saves the time and cost of separate pickling operation



## Eco Pickled Line for Coil manufacturer steel plants



Schematic concept drawing. (Patt.Panding)

VALGRO EPMS gives you a smooth, clean, matte surface that's similar to cold rolled. It's the kind of surface needed for glossy paint coatings and defect-free welds. It reduces surface preparation time and offers other valuable advantages compared to a traditional acid pickled (P&O) or conventional shot and slurry blasted product:

### Paint Shop

- Superior paint finish, consideration to more uniform surface texture by VALGRO brush • Eliminates hazardous acid wash solution
- Strong paint adhesion with good reflection

### Weld shop

- No oil film to burn off reducing welding fumes • More stronger welds, with more uniform bead • Before welding preparation not required (wiping, grinding) • Cleaner, healthier environment for welders.

### Laser & plasma Cutting shop

- Less smoke in laser and plasma cutting. Uniform clean surface reduces beam diffraction for smoother uniform cutting

### STAMPING

- Lubricants get directly to the steel ( Oil film barrier) so it can perform optimally

### Testing

- Paint tests have determined the curing, adhesion, corrosion resistance (salt fog exposure testing) meet industry standards

### ROLLFORMING AND TUBE PRODUCTION

- Roll tooling slips less when there's no oil film • Great shape + clean surface=better seam weld • No need to strip off or sandblast finished part or tubes • Finished tubes and parts much less susceptible to rusting

### MATERIAL MANAGEMENT

- Consolidate orders for hot roll black, HRPO and pickled dry into a single order for VALGRO- EPMS processed strip
- **Inventory will be rust free. Fabricated parts, either in-process or on the shelf, will stay rust free. No claim for rust rejection.**

## Valgro - EPMS WARRANTIES: "Rust free surface"

Valgro EPMS processed material whether dry or with oil applied is warranted to remain free of rust longer than traditional acid-pickled steel with a medium coat of oil, when handled in same manner.

We are so confident of the rust resistance of Valgro EPMS processed material; we offer the following warranty for our Valgro EPMS processing:

Valgro EPMS processed material whether dry or with oil applied, is warranted against rust formation on the sheet or coil surface for 30 days from the date of processing for issues reported within same period. It is not warranted against rust resulting from improper handling or storage practices that bring the surface into direct contact with moisture including rain or temperature change condensation, and surrounding atmosphere condition which can be detrimental in rusting.

## Valgro - EPMS : Invention for Green Steel

### ECO pickled surface is environment friendly process compared to acid pickling.

The VALGRO EPMS working system is a mechanical brushing system combination with Flexible abrasives roller wire brush, Eco friendly chemical and normal water. That improves hot rolled black strip, making it a better base material for fabrication and OEMs.

There are no hazardous chemicals or byproducts involved. The removed scale plus any depleted grit filtered from the system can be used in other industrial processes or included with scrap steel. VALGRO EPMS processing burns no fossil fuels for process heat, so energy costs are stable.

## Valgro - EPMS : Background of Invention

- ◆ Acid used in acid bath of the sheet metal is corrosive, Oxide & Rust generated very fast due to corrosive acid chemical
- ◆ Used hazardous chemical require special storage and disposal restrictions from P. C .B.
- ◆ Acid fumes damaging the Building, equipment, people, land Environment etc.
- ◆ Large space require in acid pickling line
- ◆ Over pickling damage sheet surface, Rinse stain, metal lose, dimples etc.
- ◆ Higher maintenance cost, require frequent replacement of Acid pump and other rusted component
- ◆ Acid pickling process require immense energy, though the production line is stoped, due to the natural gas consumed in heating the acid tanks.



ISO 9001:2008 Certification is another example of Valgro India's leadership. It assures that every aspect of our manufacturing operations meets international standards and that we deliver high quality products. Our highly trained staffs at our facility and field sales representatives are ready to assist you



Valgro®, Eco pickled metal surface™ EPMS, Eco Pickle line, EPL are a registered trademark of respective company.

[www.ecopickledsurface.com](http://www.ecopickledsurface.com)

[www.brushingmachine.com](http://www.brushingmachine.com)

**Eco Pickled Metal Surface**  
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