



**TECHNICAL  
ARTICLE  
SERIES**

# Polypropylene Pumps Help Roll Away Costs

**ARTICLE #** TL-118

**INDUSTRY:** Metal Finishing

**ENTITY:** Worthington Steel

**SOLUTION(S) PUMPED:** Acids, Caustics

**PUMP TYPE(S):** CHEM-GARD Horizontal Centrifugal Pump, SUMP-GARD Thermoplastic Vertical Pump

**Vanton Pump & Equipment Corp.**  
201 Sweetland Avenue  
Hillside, NJ 07205 USA  
Telephone: 908-688-4216  
Fax: 908-686-9314  
E-Mail: [mkt@vanton.com](mailto:mkt@vanton.com)  
[www.vanton.com](http://www.vanton.com)

**Vanton Pumps (Europe) Ltd**  
Unit 4, Royle Park  
Royle Street  
Congleton, Cheshire, UK CW12 1JJ  
Telephone: 01260 277040  
Fax: 01260 280605  
[www.vantonpump.com](http://www.vantonpump.com)

# Polypropylene Pumps Help Roll Away Costs

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## Steel processor has lowered maintenance and raised productivity

The use of polypropylene pumps has played a major role in helping a custom processor of flat rolled steel lower maintenance costs and raise productivity.

Worthington Steel occupies a unique niche between the integrated mills that concentrate on large-volume, standard product orders and the metal service centers that generally have limited processing capabilities. Worthington has made significant capital investment in its steel-processing equipment, with the emphasis on maintaining quality while reducing production and maintenance costs.

Most of Worthington's customized-steel processing operations involve the cleaning, pickling, and plating of steel strip.

Polypropylene pumps are used because of their ability to resist the acids and caustic chemicals required for surface preparation and finishing of the rolled steel strip.

Inert thermoplastic can be applied safely over a broad pH range, handling acids and alkalis at temperatures from -30° F to 185° F. Worthington employs the Vanton Sump-Gard® Model SG-PY2400 vertical centrifugal pump with all wetted parts of polypropylene, including a thick sectioned sleeve over the full length of the steel shaft.

The undersides of the steel cover plates, which support the bracket and motor of the sump pumps handling the acidic plating solutions, are laminated with polypropylene to preclude any metallic corrosion or contamination.

The initial group of four polypropylene sump pumps was installed in 1984. According to Worthington's plant engineer, the pumps are still operating without trouble, requiring only routine maintenance and not causing shutdowns for repairs. These 6-in. x 4-in. thermoplastic pumps operate at 1.175 rpm and deliver 300 gpm at 42 TDH.

Caustic rinse waters are handled by a Vanton Model PY1800 polypropylene sump pump that moves the alkaline fluid at 150 gpm against a 70-ft. head.

As part of the efficient scrubbing system designed to collect fumes from both the alkaline cleaners and the hydrochloric acid pickle, Worthington depends upon a Vanton Chem-Gard® polypropylene centrifugal pump with a double mechanical seal. This pump recirculates the corrosive streams at 170 gpm against a 45-ft. head.

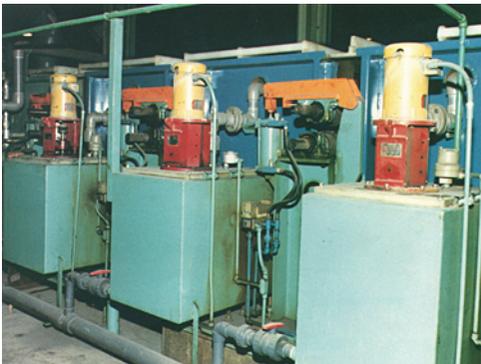
The pump's unique open seal area and retractable front bearing minimize maintenance and extend seal life. No metal is ever in contact with the corrosive fluid, but the pump is completely armored in metal to



Vanton Chem-Gard® polypropylene centrifugal pump recirculates corrosive liquids involved with the scrubbing of fumes from alkaline cleaners and the hydrochloric acid pickle.



These Vanton Sump-Gard® polypropylene sump pumps handle acidic plating solutions (TOP) and caustic rinse waters (BOTTOM) required for surface preparation and finishing of rolled steel strip at Worthington steel.



protect against accidental damage from material-handling equipment.

Plant officials believe that polypropylene pumps have led to higher productivity and lower maintenance costs.