



## H-P Products

Engineered Tube Bends

### SPECIAL SERVICES

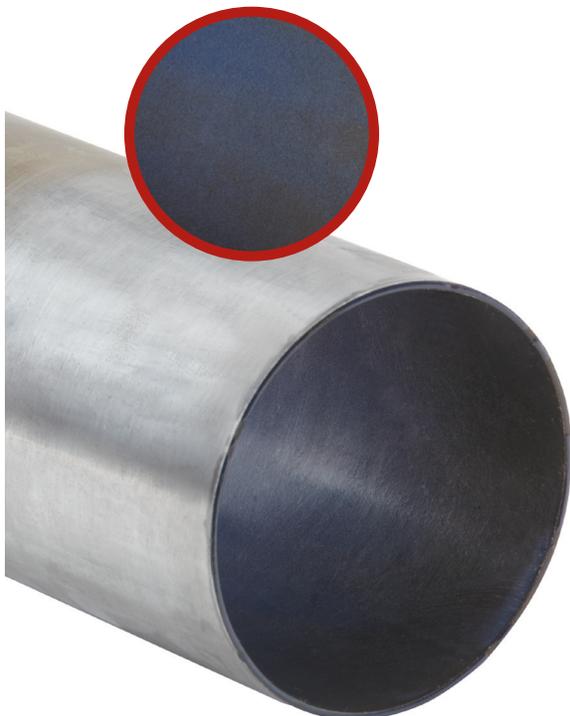
SHOT PEENING, PORCELAIN LINING,  
SPIRAL GROOVING AND CERAMIC COATING



#### DIRECTIONAL SHOT PEENING

Transported resin pellets tend to degrade when contact is made with internal tube or pipe surfaces. The velocity of the pellets result in friction and heat, which can cause them to smear within tubing and elbows. When these smeared pellets are dislodged from the interior of tube or pipe they can easily clog material lines and hoppers. The result is potential lost production time.

Directional shot peening produces a dimpling effect that has been found to reduce the formation of fines, fluff, and streamers within pneumatic conveying systems. The directional surface finish has the added benefit of hardening the tube or pipe, extending its life over non-treated surfaces. Shot peening has been reported to result in one third the fines or angel hair typical in non-treated systems.



#### PORCELAIN LINING

Porcelain lining is used due to its resistance to corrosive attack, atmospheric pollution, extreme weather conditions, and abrasion. In these extreme environments, standard steel tube, pipe, and elbows can have a limited service life.

Porcelain enamel is a glassy compound that is adhered to the inside diameter of tube or pipe. This compound is applied as a liquid slurry to the interior of carbon or stainless steel. When baked, the result is a glassy interior surface that is rated at 6 to 7 on the Moh's scale of hardness; diamonds are the hardest at a rating of 10. The surface will easily resist scratching from a steel blade.

Porcelain lining is available in single or double coat, and the thickness of the coating is checked before shipment. Single coating is .004-.007" thick, and double coating is .008-.012" thick. Tube or pipe up to 10' in length can be porcelain lined.



## SPIRAL GROOVING

Streamers, angel hair or snakeskins are formed as transferred plastic resins melt and smear along the walls of transfer tubing. With time, the melted plastic accumulates and forms large ribbons or streamers that flake off in the moving pellet stream. This can cause down time when these ribbons collect to block lines and equipment.

Spiral grooving the tube or pipe ID creates turbulence in the conveying air stream, which minimizes the frequency of impact and reduces pellet smearing. Spiral grooving can be applied to stainless steel and aluminum tubing with a minimum 2" OD and 14GA (.083") wall thickness. The resulting groove depth varies from .015-.020" deep. The finish is cut into the surface of stainless steel, and rolled into aluminum. Straight length tubing up to 20' can be processed, and bends can be processed after grooving. Mandrel bending after the grooves have been applied may reduce the consistency of the grooves.



## CERAMIC COATING

In extreme industrial environments where abrasive materials are pneumatically conveyed, unprotected elbows can wear out in just a few weeks.

Ceramic coating is composed of a proprietary matrix of high alumina ceramic beads and fillers. This matrix is then covered in a fiberglass wrap that adds structure and additional wear resistance. Once the original substrate wears through, the ceramic coating adds additional service life. Coating can be added to all materials offered and in almost any part configuration.



330-875-5556  
Fax: 330-875-7155  
[www.h-pproducts.com](http://www.h-pproducts.com)  
512 W. Gorgas Street  
Louisville, OH 44641  
07/11