

### ONLINE CONFIGURATORS

To assist in the quick pricing of **Wagner Rail Systems**, configuration tools are now available online at [www.wagnercompanies.com/Railing\\_Designer\\_Index.aspx](http://www.wagnercompanies.com/Railing_Designer_Index.aspx).

Configurators permit the entry of dimensions and selection of products with quick output of a take-off and pricing. They are presently available to aid in the selection of components for **Cable Railing** and **Glass Railing**. **Wagner Rail** configurators are also available which will provide drawings, pricing and bill of materials.

Additional online configurators will be added as they are completed.

### CUTTING OPTIMIZATION TOOL

This tool is located at <http://design.wagnerail.com/optimizer>. It automatically calculates the number of stock lengths based on your cutting list.

Simply enter the standard length of the material you will be using and then enter your cutting list. The configurator will calculate how many stock lengths of material will be needed to meet your needs.

### ONLINE VIDEOS

To assist in understanding the use of **Wagner** products, videos are now available online. They can be viewed at [www.wagnercompanies.com/Videos.aspx](http://www.wagnercompanies.com/Videos.aspx).

Presently videos are available for: **Strait-O-Flex™**, **Bikerail™**, **Splice-Lock™**, **Wedge-Lock™**, **650 Swager**, **PanelGrip™**, using **Epoxy** to assemble components, and **Universal Bracket Saddles**. More will be added as they are completed.

### CUSTOM PRODUCT TOLERANCES

For custom work, our quotation will be based on the tolerance chart on each drawing. If decimals are used, we will work to three places; if no tolerance is specified, we will work to the specifications of our standard railing products.

### STANDARD TOLERANCES

- Hole Sizes:
  - .015" to .025" over the listed dimensions unless specifically mentioned
- Product inside diameter (ID) and outside diameter (OD)
- Produced within commercial, dimensional tolerances
- Bend Tolerances and Angle of Bend:
  - +/- 2°
- Cutting Tolerances on Pipe and Tube:
  - +/- 1/16"
- Multiple Bend Tolerances
  - +/- 2° and +/- 1/8" center-to-center thru 2.50" OD
  - +/- 1/4" center-to-center above 2.50" OD

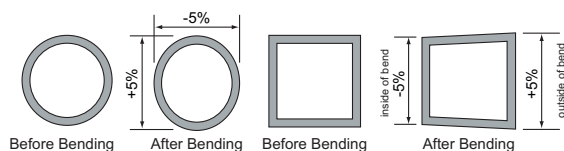
### DEFORMITY ISSUES WITH STOCK BENDS

The process of bending pipe and tube results in deformation which is unavoidable.

In round sections, this causes some ovality in the bent sections of material that may result in a mismatch between the elbow and stock, straight material. The deformation may be as much as +5% in the vertical dimension and -5% in the horizontal dimension.

In square and rectangular tube sections, the tube will tend towards a trapezoidal deformation. The deformation may be as much as -5% on the inside of the bend and +5% on the outside of the bend.

This may be avoided by ordering **Elbows with Tangents** since the tangent sections will be unaffected by the bending process.



### VERIFY OUTSIDE DIAMETER FOR FLANGES

**Wagner Flanges** are sized to +.015" to .025" above outside diameter as noted on pages 188 to 200. Confirm the dimensions on your pipe or tube as tolerances may vary. Also be aware that **galvanizing or painting will increase the diameter of your material and may result in a mismatch.**

### VALUE ENGINEERING

**Wagner** provides in-house CAD assistance to augment customer designs and facilitate product and process development. Computerized bar-coded **Bill of Materials** and **Routings** are used to provide accurate, fast service and order delivery.

### QUALITY CONTROL

**The Wagner Companies** is committed to providing superior value to our customers through Advanced Quality Planning Activities, Process Innovation and Team-Based Continuous Improvement. **Wagner** is presently taking steps to obtain ISO certification by April 2009.

**Wagner's** in-house quality engineering staff employs quality tools to ensure parts are made to specification and processes are stable. Verification activities are always available for review.

### QUALITY EXPECTATIONS

**For: Architectural castings, forgings, and stampings; handrail mouldings and terminals; ball style fittings and architectural shapes:**

**The Wagner Companies** sells these products for their uniqueness and aesthetic qualities – critical to the manufacture of beautiful railings. The components which make up these families of products are manufactured using methods, tooling and patterns which have been shown to exhibit variation over time. No two products can be expected to be exactly alike. Additionally, any dimensions indicated are for reference only. The buyer must expect some fabrication to occur, as these products are not meant for simple assembly. For example, a forged baluster may need occasional straightening. A terminal casting may show an inclusion when polishing is completed. Ornamental stampings may show varying levels of detail. Ball style fittings will vary in finish and dimension.

Continuous improvement of these products is essential to the success of our customers. We use the data collected from product feedback to determine when tooling or method modification is needed. These modifications must also be weighed against the traditional expectations of end-users. Change is not made unless expectations can be satisfied while still improving the product.

Recognizing that the uniqueness of the product may not work for all situations, customers are encouraged to evaluate samples whenever possible. **Wagner** sales staff will make every effort to satisfy inquiries into a specific product or family of products. Should purchase be made and the product found to be unsuitable, the standard return policy of **The Wagner Companies** will apply.

### CASTING POROSITY

Porosity is a normal attribute of cast products. Every effort is made to minimize the appearance of porosity but minor pitting can not be avoided and is to be expected.

### ALUMINUM REACTION WITH CEMENT

When aluminum components come into contact with cement or lime mortar, exposed aluminum surfaces should be painted with heavy bodied bituminous paint, water-white methacrylate lacquer or zinc chromate.

### DISSIMILAR METALS

Metals are rated according to their *nobility*. When dissimilar metals are in contact with each other in the presence of oxygen and moisture, the more noble metal will corrode the less noble. Contact between dissimilar metals should always be avoided. If contact can not be avoided, the adjacent surfaces should be painted with