

# STAINLESS STEEL InvariBlend® DATA SHEET



## Grade Selection

The long term performance of InvariBlend® is dependent on proper grade selection. In most environments, Type 304 will be sufficient to prevent corrosion. In normal seacoast applications, Type 316 should be specified. If parts are to be welded, the low carbon versions of these grades (304L/316L) should be used. Highlights of chemical analyses and properties appear in Table I. Severe environments such as seacoast atmospheres subjected to salt water spray and chemical plants will require different alloys, subject to application review.

## Pounds Per Piece

Thickness (in.) x Width (in.) x Length (in.) x .292

## Available Sizes

Please refer to Table II. Coils and cut lengths up to 288" are available.

## Typical Surface Characteristics

Ra .....10 - 25

## Fire Resistance

Since stainless steel is dimensionally stable up to 2000°F, InvariBlend® provides an added measure of protection in the event of a fire.

## Flatness

InvariBlend® is supplied to ASTM (American Society for the Testing of Materials) standard commercial allowances.

## Fabrication

InvariBlend® is readily welded or soldered. A grade of welding wire more noble than the work piece should be used. While formation of a heat tint scale can be avoided in lighter gauges through use of shield gasses, care must be taken to remove this scale through mechanical or chemical means. Since InvariBlend® is directional, it is necessary to orient panels in relation to the rolling direction.

Flux residue must be thoroughly removed after soldering.

## Product Description

*InvariBlend® is a two-step, abrasive polished finish with excellent matching characteristics designed for use in architectural applications. It has a more linear appearance than traditional #4 polish, lending itself to repair and blending in the field. InvariBlend® can be applied to wall panels, elevator cabs, coping and trim. Since InvariBlend® has no coatings to deteriorate, it will last indefinitely with little maintenance.*

Table I		304/304L	316/316L
<b>CHEMICAL ANALYSIS</b>			
Nickel		8%	10%
Chromium		18%	16%
Molybdenum			2%
<b>TYPICAL MECHANICAL PROPERTIES</b>			
Yield Strength (psi)		50,000	50,000
Tensile Strength (psi)		96,000	92,000
Elongation in 2 inches		50%	48%
Hardness (Rockwell B)		85	84
<b>PHYSICAL PROPERTIES</b>			
Density (lb./cu. in.)		.292	.292
Modulus of Elasticity in Tension (x 10 <sup>6</sup> lb./sq. in.)		28.0	28.0
Mean Coefficient of Thermal Expansion per °F (x 10 <sup>-6</sup> )	32 - 212°F	9.6	8.9
	32 - 600°F	9.9	9.0
	32 - 1000°F	10.2	9.7
Melting Point Range °F		2550 - 2650	2500 - 2550

Table II		Size Range (inches)				
THICKNESS	WIDTH					
	.75 - 18	>18 <24	24 - 36	>36 - 49	>49 - 60	
.135 - .1874	●	●	●	●		
.075 - .1250	●	●	●	●		
.0291 - .075	●	●	●	●		
.0178 - .029	●	●	●	●		
.015 - .0177						

## Installation

InvariBlend® is supplied with a high grade UV resistant protective plastic covering designed to withstand the elements for several weeks. However, it is advisable to remove this material promptly after installation to prevent adhesive residue from remaining on the stainless steel finish.

While this product's appearance is very uniform, it should be noted, however, that any metallic surface, even a painted one, is sensitive to misalignment of panels on differing planes. Care should be taken to ensure installation within reasonable tolerances in order to get the full benefit of this material's homogeneous appearance. After installation is completed, any rust stains from tools or construction debris must be removed.

## Maintenance

Designed to be essentially maintenance free, InvariBlend® will last for decades without requiring attention. It may, however, be appropriate to clean the surface to maintain its original appearance. Specific stainless steel agents are available on the market. Any detergent/ammonia solution can be effective for general cleaning. A sodium carbonate paste can be applied with a warm water rinse to address stains. Severe stains can be removed with tri-sodium phosphate and caustic soda solutions. More tenacious contaminants, like adhesive residue will respond to pure acetone. Chloride-containing products must be avoided. Areas where incidental debris can collect, such as gutters, must be cleaned on a regular basis. For more information, please refer to "Cleaning Stainless Steel Finishes" in the Resources section of our website at [www.metalresources.net](http://www.metalresources.net).



**CONTRARIAN METAL RESOURCES**

Phone: 724-779-5100  
Toll-Free: 866-360-5100

Visit us on the web at:  
[www.metalresources.net](http://www.metalresources.net)

## Limited Warranty

Contrarian Metal Resources (CMR) warrants its ASTM Grades 304, 304L, 316, 316L products against corrosion for a period of thirty (30) years from the date of purchase, subject to the limitations described in this warranty and provided the material is utilized solely for architectural applications and in normal atmospheric conditions. For purposes of this warranty, corrosion is defined as through wall penetration of the stainless steel. No warranty is made regarding mechanical damage, physical damage or damage as a result of substandard workmanship after receipt of the product from CMR (including but not limited to welding, shaping, or forming using methods that are not best practices for stainless steel of the grade in question) or using inappropriate cleaning solutions. This warranty does not cover any product that has been subject to misuse, neglect or accident. Use on chemical or manufacturing facilities, which produce or use chemicals known to have a deleterious effect on stainless steel, is excluded from this warranty. Please contact CMR prior to purchase if there is any question regarding application.

THE EXPRESS WARRANTY GIVEN ABOVE IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY, WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR WARRANTY THAT THE WHOLE OF THE GOODS CONFORM TO ANY SAMPLE OR MODEL. WITHOUT IN ANY WAY LIMITING THE GENERALITY OF THE FOREGOING, IN NO EVENT SHALL CMR BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES, LIABILITIES OR EXPENSES (INCLUDING, WITHOUT LIMITATION, ANY LOSS OF PRODUCTION OR ANTICIPATED PROFITS), DIRECTLY OR INDIRECTLY INCURRED BY BUYER WITH RESPECT TO THE MATERIAL FURNISHED OR AGREED TO BE FURNISHED BY CMR. THE EXCLUSIVE REMEDY AGAINST CMR WITH REGARD TO ANY CLAIM ARISING OUT OF THE ORDER IS, AT CMR'S OPTION, REPLACEMENT OF SUCH GOODS OR CANCELLATION OF THE ORDER AND REFUND OF THE PURCHASE PRICE. IN NO EVENT, REGARDLESS OF THE LEGAL THEORY ON WHICH A REMEDY IS SOUGHT, SHALL CMR'S LIABILITY EXCEED THE PURCHASE PRICE OF THE MATERIAL IN QUESTION. NO ACTION, REGARDLESS OF FORM, ARISING OUT OF THIS SALE MAY BE BROUGHT BY EITHER PARTY MORE THAN TWO (2) YEARS AFTER THE CAUSE OF ACTION HAS OCCURRED.