Metal Market Specialists

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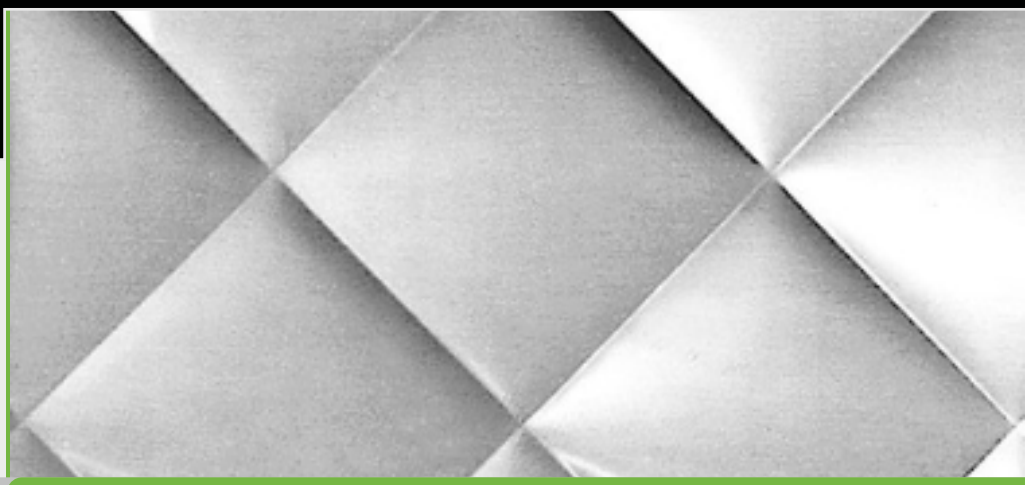

3" Diamond (Image enlarged to show detail)

3" Diamond Product Description:

3" Diamond is manufactured by Metal Market at its manufacturing plants in the United Kingdom, United States, Australia and South Africa. It is stocked by other Metal Market Companies in France, Germany and Spain and at all Metal Market agents. 3" Diamond is a two sided embossed pattern in the shape of a teardrop. The benefits of the design are its aesthetic appearance and its resistance to scratches and pedestrian or other impact damage due to the presence of a raised patterned surface. This makes 3" Diamond a durable finish and suitable for wearing environments such as airport and terminal buildings, elevators, column covers etc and for anti-vandal applications. 3" Diamond is attractive in appearance which makes it ideal for use in building components. The 3" Diamond design can diffuse light to reduce the oil canning effect common with satin or brush polished stainless steel to provide an optically flat appearance for architectural cladding or roofing systems. Low reflectivity can be obtained by using dull surface finishes and substrates in combination with the 3" Diamond pattern.

3" Diamond Finish Options:

Various finishes can be applied to the 3" Diamond pattern to provide different tone or appearance. These include 2 finishes produced by the manufacturing stainless steel mill which are #4 substrate and BA substrate. To these can be added a number of Metal Market finishes - see Metal Market's Granex™ finishes and Coloured Stainless Steel – see Metal Market's ColourTex® range.

Consistency of Appearance:

Stainless steel varies in tone and appearance between different manufacturers and batches of product. This can be controlled to give a consistently finished product for panel and architectural applications by batch ordering which, if required and important, should always be addressed in the specification process and at the time of order. Shadows or rail-track lines from the mill manufacturing process can be present in commercial quality stainless steel. These are not usually a problem or noticeable. If it is necessary that they are not present, material can be obtained from the mill supplier without them; if required and important this should also be addressed in the specification process and at the time of order.

Typical Surface Characteristics:

An Ra reading of 0.5 or lower is typically the standard accepted for reflectivity for roof and cladding systems. The measurement of a materials gloss also provides a reference for reflectivity and a gloss reading of 120 and below is indicative of a dull material finish. There is no correlation between the two measurements. Stainless steel that has low reflectivity can be created by using a combination of substrates and finishes with the 3" Diamond pattern.

Stainless Steel Grade Selection:

[1] American Iron & Steel Institute [2] Euro Norm

3" Diamond can be manufactured in coil or sheet in most metals including aluminium, brass, bronzes and stainless steels.
When using stainless steel the appropriate grade selection is important for a successful specification. A summary of stainless steel options for 3" Diamond are:

- **AISI[1] ref: 304 or EN[2] ref: 1.4301** with either a 2B (dull) or a BA (bright) substrate.
  For specification purposes material options are AISI references grades 304 2B or 304 BA or EN references grades 1.4301 2B or 1.4301 BA. • This is the most common grade of stainless steel commercially available and is suitable for most interior uses except when corrosive elements are present e.g. in a laboratory or a swimming pool. • This grade can be used for external applications where corrosive elements are not present. • This grade of stainless steel is readily available and is able to be fabricated by a reliable contractor. • Contains 8% nickel and 18% chromium to provide corrosion resistance and malleability in fabrication respectively.

- **AISI ref: 316 or EN ref: 1.4401** with either a 2B (dull) or a BA (bright) substrate.
  For specification purposes material options are AISI references grades 316 2B or 316 BA or EN references grades 1.4401 2B or 1.4401 BA. • This grade should be used for external applications and especially in normal marine environments or other internal or external locations where there is the potential for corrosion. • Internal use is usually an over specification unless there is a corrosive element present e.g. in a laboratory environment or swimming pool. • This grade is commercially available but can have lead time requirements. It is approximately 25% more expensive than grade 304 / 1.4301 due to the higher nickel content which gives it higher corrosion resistance. • This grade is readily fabricated by a reliable contractor. • Contains 11% nickel, 17% chromium and 2% Molybdenum to provide corrosion resistance and malleability in fabrication respectively.
  For severely contaminated environments such as locations subject to heavy industrial pollution and marine corrosion it can be necessary to consider special grade stainless steels developed for such applications. This would require further analysis and review.

- **AISI ref: 430 or EN ref: 1.4016** with either a 2B (dull) or a BA (bright) substrate.
  For specification purposes material options are AISI references grades 430 2B or 430 BA or EN references grades 1.4016 2B or 1.4016 BA. • This grade should be used for internal applications only. It is not suitable for most exterior applications as it will be liable to corrode. • It is cheaper than the other grades above and is worth consideration for appropriate applications, however, it can perform differently to other stainless steels in manufacturing and flatness tolerances may need to be agreed.

This grade is commercially available. • Contains 0% nickel and 17% chromium to provide some basic corrosion resistance and malleability in fabrication respectively.

Note: There are other grades of stainless steel with low or zero nickel content that are alternatives to these standard commercially available grades. This makes them cheaper. However, they are not always readily available but will become more so as demand increases. Different flatness and manufacturing tolerances will be applicable to these grades. Alternatives to grade 304 / 1.4301 are grade 201 / 1.4372. Alternatives to grade 316 / 1.4401 are grade 444 / 1.4521.

Fabrication:

Metal Market's finishes are readily fabricated by reasonably skilled contractors with appropriate equipment. Fabrication trials should be undertaken if unfamiliar with the product. It is important at all times to avoid cross contamination of stainless steel by other materials such as carbon steels and other metals in warehousing, fabrication and installation processes as this can cause long term corrosion. Material will be coated with a protective tape. Care should be taken at all times to avoid handling and transportation damage.

Installation:

3" Diamond has directionality and should be installed to follow the rolling direction of the material. To assist this process material can be supplied with arrows on the protective tape to indicate direction and you are advised to install the material accordingly. If directionality of the material is important to a particular requirement this needs to be included in the specification and when the order is given to Metal Market. Metallic surfaces can be sensitive to misalignment of panels on differing planes and therefore care should be taken to ensure that installation occurs within reasonable tolerances and which suit the visual requirements of the Metal Market product. All material should be cleaned after installation

Coating:

Metal Market supplies its materials with standard protective tape purchased from manufacturers. Metal Market supplies no warranty as to the suitability of the protective tape supplied. If a warranty is required the user should obtain this direct from the tape manufacturer. This applies to laser suitable tapes as well as standard protective tapes. Protective tape should be removed as soon as it is practical to do so and should not be stored in environments and temperatures likely to cause de-lamination of the adhesive on the tape. Do not allow taped material to sit in direct sunlight or in high temperature areas. Once the material is on a building or in application it should be regularly checked to determine the state of the protective tape and to remove it as soon as possible. Should adhesive remain on the material after the protective tape has been removed this should be cleaned away immediately.

Maintenance:

Stainless steel will function for decades without problem, but as with all materials it does need to be appropriately specified, subject to proper design and fabrication and used alongside compatible materials in the construction process. Regular maintenance is advised as a matter of good practice to enhance the life of the product and to maintain the appearance of the material. Detailed cleaning information can be obtained from Metal Market but in general terms most cleaning can be successfully undertaken using any bleach-free and non-abrasive detergent or appropriate cleaning agent with a non-abrasive application process. Areas that regularly collect moisture and or debris such as corners and crevices are potential areas of corrosion and should be avoided in design or must be regularly cleaned.

Green Credentials of Stainless Steel:

Stainless steel is highly recyclable and typically contains 70% recycled material. This percentage is increasing. By using recycled stainless steel in the production of new material less ores are sourced to be used in the manufacturing process so reducing the carbon footprint of the product. Source: International Stainless steel Forum.

Stainless steel also has excellent life cycle benefits. It has high corrosion resistance. Add the benefits of Metal Market's finishes and stainless steel has aesthetics combined with reduced maintenance requirements combined with increased longevity of the product. For example stainless steel buildings are now being designed to last 100 years and when the building is eventually demolished the stainless steel will be recovered, recycled and re-used. There are no emissions from stainless steel which enables environmental credits to be claimed. Stainless steel finishes manufactured by Metal Market can be designed to reflect heat to reduce building temperatures as well as the overall heat island affect of a building. Stainless steel yields long life and value qualities

Fire Resistance:

Stainless steel is structurally fire resistant to 1,080°C / 1976°F.

The colour on Metal Market's ColourTex® coloured stainless steel products is colourfast to 200°C / 392°F.

Warranties:

Metal Market provides written warranties for its products on an individual contract basis. Please contact Metal Market for further details.

Disclaimers:

Product images are not to scale and are intended to give visual representation of the product only.

Pattern definition will change with thicker gauges and can differ to issued samples. Pattern definition can also vary with different batch materials and with separate orders. The pattern definition can fall outside definition and registration requirements for gauges thicker than 1.5mm / 16g / 0.059".

Supplied samples are for promotional purposes only and are not to be used as control samples for goods supplied. If control samples are required for a specific order this needs to be agreed with Metal Market at the time an order is placed. Should a specific protective tape be needed such as protective tape with arrows to indicate directionality of the material, this must notified to Metal Market when an order is placed. The given Ra and Gloss readings are indicative of scales of low reflectivity: independent testing should be undertaken to obtain accurate measurement if required. All data, images, drawings, descriptions and other information supplied by Metal Market Metals Group including verbal information, in or on its website, catalogues, brochures, CD's, pamphlets, price lists, documents or any other promotional media are intended to be as accurate as possible but are given for general information purposes only and are not binding on Metal Market in respect of a particular order. All information, unless stated otherwise, is subject to reasonable variation. Metal Market does not accept responsibility for errors or information which is found to be misleading. Before using products supplied or manufactured by Metal Market the customer should satisfy itself of suitability for any required purpose. All assistance and advice given by Metal Market Metals Group and its affiliated companies, on its web site including all downloaded information and drawings, in its literature and by its personnel is given in good faith. Such assistance is not intended to form any part of a contract or to be a guarantee or warranty of any Metal Market product or design to be fit for any purpose and no liability can be accepted for errors contained in such advice or information. You are advised to check all information provided with other sources. Written and drawn information, specifications, tests results and all information received from Metal Market is intended as suggestions only and accuracy cannot be guaranteed in any way.

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