



Inconel Flanges

Prepared for :

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Introduction

Duplex Supply Inc. are the suppliers of Inconel Flanges over the past decade. We are one of the nonpareil brands in alloy industry. We go with the saying “Customer is king” thus we make our Clients buying feel esteemed and exemplary. Inconel Flanges supplied by Duplex Supply Inc. are of superior Quality. Today, our industry is filled with high volume but low-quality suppliers which are below the line with what the industry requires. Because of such circumstances, it results in lapse of the quality of goods and hence, the entire project. We also look after it that our industrial Hazards are dumped appropriately and not polluting the environment also we have such procedures in factory by which the harm-full chemicals are directly ventilated which doesn't harms environment and houses located around our factory. We present customers in various countries for all size demand. We have always kept our Vision clear which serves best in achieving our mission. We amend the changes required in industry with changing time and keep getting superior Control over the quality of our product. The main aim of this organization is to provide commodities of determined quality, in addition to making our client's buying experience world-class and a memorable one. Today our firm is one of the admirable Organization in Industry, Which makes us secluded in such a Competitive Industry. Our Product Reliability and performance has made us one of the top brands. Because of such service our clients recommend us to other prospectors which is more than enough to prove our distinction in steel industry. Duplex Supply Inc. Works in consideration of Clients, Environment and best Quality we do no compromises in these matters.



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Product & Application

A flange is a forged or a cast ring of a metal designed to connect sections of pipe or join pipe to a pressure vessel, pump or any other integral flanges assembly. Inconel Flanges are connected to each other by bolting and joined to the piping system by welding or threading. Basic types of flanges are Stainless steel flanges, Alloy Flanges, Carbon flanges, etc.

Flanges are designed to following pressure rates:
150lb,300lb,400lb,600lb,900lb,1500lb and 2500 lb

Inconel Flanges have variety of applications in the following industries:

- Oil & Gas
- Petrochemical Refineries
- Pipeline Transmission
- Pulp And Paper Manufacturing
- Research & Development
- Plumbing
- Submarines

The most common facings machined on Inconel Flanges are:

1. Raised face, 1/16 inch for 150lb and 300lb 1/4th inch for 400lb and heavier
2. Flat face, for 150lb and 300lb only, other may be flat face on request.
3. Ring type joint, may be applied to all pressure ratings.

Various types of Inconel Flanges are as follows:

- Weld neck flange
- Slip on flange
- Socket weld flange
- Threaded Flange
- Lap Joint Flange
- Blind Flange

Special pipeline Inconel Flanges:

- Orifice Flange
- Long Weld neck Flange
- Reducing Flange
- Expander Flange
- Nipo Flange
- Nozzle Flange
- Weldo Flange
- Spades and ring spacer
- Spectacle Flange



Flange Facing

1. Raised Face

Raised Face is the most applied flange facing type and easy to identify. Gasket surface is raised above the bolting plane. The principle of raised face is to establish more pressure on a smaller gasket area the thereby increase the pressure containment capability of the joint. As per ANSI/ASME B16.5, flanges designed under pressure class 300 lbs has 1.6mm raised face height and 6.4mm for flanges over 400 lbs and 2500 lbs pressure class.

2. Flat Face (FF)

Flat Face Flanges have gasket surface in the same plan that of the bolting surface. Mostly flat facing is applied on flanged ends which are produced by castings or fiber glass.

Flat Face flanges are never to be bolted against a raised face or any other. If required, the raised face should be removed prior to installing. Failing to which will result in damage and shut down of the process.

3. Tongue & Groove (T&G)

Like Male-Female, Tongue & Groove Inconel Flanges also must be matched too. One flange has a raised ring called as Tongue machined into the face while the mating flange has a matching depression or the groove.

Prominently found on flanged pump covers and valve bonnets. Also used for high temperature and high pressure applications. None of the facing should be inter-joined to create any flange joint.

4. Ring Type Joint (RTJ)

Ring Type Joint have grooves cut into their faces to accommodate a steel ring gasket between two similar RTJ facing and form a tight seal when the bolt is tighten.

An RTJ Flange may have a raised face with a ring groove but it does not serve as any part of the sealing assembly. Ring Type Joint Inconel Flanges are applied for high pressure high temperature application with “initial line contact” mechanism served by the metallic ring gaskets.

5. Male & Female (M&F)

Male & Female Grooved Inconel Flanges must be matched. One flange has an area that extends beyond the normal flange face, which is male joint. The other flange or mating flange has a matching depression or groove machined into its face to create the locking mechanism.

Male Female Joint Flanges are commonly used for high pressure and high temperature services namely Heat Exchanger & Boiler assemblies.



Materials

Inconel Alloy Applications & Properties

Inconel is typically used in applications where high temperatures are present due to a thick, stable passivating oxide layer which is formed when Inconel is heated. This layer protects the Inconel's surface making it resistant to heat. In addition to heat, Inconel has a high resistance to corrosion, pressure and oxidation. Inconel super-alloys also have excellent mechanical properties and are frequently used in the chemical and aerospace industries.

Industries We Serve

Our range of Inconel alloys serve a wide variety of different industries including:

- Aerospace
- Jet Engine Components
- Commercial Gas Turbines
- Food Processing
- Chemical Processing
- Cryogenic Storage Tanks

The Inconel family of alloys was first developed in the 1940s by research teams at Wiggin Alloys (Hereford, England), which has since been acquired by SMC, in support of the development of the Whittle jet engine. Inconel alloys are oxidation and corrosion-resistant materials well suited for service in extreme environments subjected to high pressure and kinetic energy. When heated, Inconel forms a thick and stable passivating oxide layer protecting the surface from further attack. Inconel retains strength over a wide temperature range, attractive for high-temperature applications where aluminum and steel would succumb to creep as a result of thermally induced crystal vacancies (see Arrhenius equation). Inconel's high temperature strength is developed by solid solution strengthening or precipitation strengthening, depending on the alloy. In age-hardening or precipitation-strengthening varieties, small amounts of niobium combine with nickel to form the intermetallic compound Ni3Nb or gamma prime (γ'). Gamma prime forms small cubic crystals that inhibit slip and creep effectively at elevated temperatures. The formation of gamma-prime crystals increases over time, especially after three hours of a heat exposure of 850 °C, and continues to grow after 72 hours of exposure. Inconel is a difficult metal to shape and machine using traditional techniques due to rapid work hardening. After the first machining pass, work hardening tends to plastically deform either the work piece or the tool on subsequent passes. For this reason, age-hardened Inconel's such as 718 are machined using an aggressive but slow cut with a hard tool, minimizing the number of passes required. Alternatively, the majority of the machining can be performed with the work piece in a solutionized form, with only the final steps being performed after age hardening.

External threads are machined using a lathe to "single-point" the threads or by rolling the threads in the solution treated condition (for harden able alloys) using a screw machine. Inconel 718 can also be roll-threaded after full aging by using induction heat to 1,300 °F (704 °C) without increasing the grain size. Holes with internal threads are made by thread milling. Internal threads can also be formed using a sinker EDM (electrical discharge machine). Cutting of a plate is often done with a water jet cutter. New whisker-reinforced ceramic cutters are also used to machine nickel alloys. They remove material at a rate typically eight times faster than carbide cutters. Apart from these methods, Inconel parts can also be manufactured by selective laser melting. More often than machining, water-jet or laser, grinding is a preferred and economical method for forming Nickel alloy components to shape and finish. Due to the hardness of the abrasives used, the grinding wheels are not as affected by the material work hardening and remain sharp and durable.

This material is further used to create a product i.e. Inconel flanges.



Quality

Duplex Supply Inc. strongly has characteristic Quality control over all our products and our esoteric work quality and product quality makes us one of the top manufacturers in Industry. We provide Best Quality Inconel Flanges. Quality is our peak concern. We sustain high Quality Standards through our Committed Personnel and Sound Infrastructure. Not even a single fitting is left without a 3 layer inspection of chemical test, mechanical test, visual inspection, dimension inspection, pressure test, gauge test and conformity to the order. Quality Assurance System is beacons by Axioms that support our work culture which hooks in respect, self-administration, imaginative-ness and self-articulation. Duplex Supply Inc. is backed by all the possible certifications of a world class mill including ISO 9001:2008, ISO 14001:2007, OH-SAS 18001: 2004 & CE-PED 97/23/EC. We are also members of various renowned agencies and Chambers of Commerce including MASSMA, EEPC, FICCI, FIEO, Indian Merchants Chamber etc.

We are Highly Concerned about our customer's expectations.



We Strain To always act with probity and Honesty.

We Aim To be Paramount in our Industry.



We do our absolute best to esteem our commitments.

We are delighted to be saturated with loads of order 50 days schedule ahead of time. Every single piece of our product is attached with test certificates and authentication certificate of our Quality Product. Day by Day we keep moving to improve Quality of our products for our client. We also welcome any third party inspection from an agency nominated by the customer to comply with NACE 3.2 Certification if required by customer at an extra costs satisfaction. Our Quality Management systems and work plans ensures pursuance of total Quality Management .We never compromise in terms of Quality of Inconel Flanges and also for our other products. We follow stringent Quality Norms and ethics by monitoring each production process which leads in supreme product quality. With years of experience in manufacturing we offer High Quality, Lower cost and Best service. Quality Assurance begins with understanding Customer's needs and is continued till the customer is completely convinced with the delivery of products and services. Inconel Flanges is one of the rough and tough product due to its great quality. We efficiently fulfil customer's needs in terms of Cost, Quality and Delivery.



Why Clients Choose us ?

Our clients have their trust in us and our Products because Duplex Supply Inc. is the most popular vendor of Inconel Flanges. We uniformly export our products to all the 5 continents in the world. Inconel Flanges are supplied majorly in Middle Eastern countries. Our all products are of marvelous quality. We have always followed saying of "Customer is king" for us and their satisfaction is what we aim for. Product replacement warranty is given. Our products can sustain high pressure. As of 2015, we stocked 500 tons of Inconel Flanges, highest in the country. With Duplex Supply Inc. you get un-comparable buying experience of products made from best raw materials. We execute both small and bulk orders. Every 4 months a 3rd party inspection is conducted.

Customer is king

Duplex supply Inc. furnishes MTC with EN10204 NACE 3.1, NACE 3.2 specifications. All clients are provided with a copy of the same. Duplex Supply Inc. have the distributor in more than 15 countries. With ISO 9001:2008, ISO 14001:2004, OHSAS 18001:2007 certificate We are majestic manufacturer and exporter of Inconel Flanges. Duplex Supply Inc. has emerged to become the most trusted company in several European, African and gulf based companies.

No compromises are made even when it comes to the packing of our products for sea as well as air transport. Also, the raw material taken for manufacturing is of the highest grade. Our specialized logistic team focuses on delivering the first model, which provides for instant dispatch against the receipt of bank transfer copy. At competitive pricing, Duplex Supply Inc. has become the ultimate destination of Inconel Flanges buyers Duplex Supply Inc. is looking forward to providing you with your specialty metal needs. Also the Customization we do on personal demand of customers gets us client satisfaction and our high quality products with flexible pricing makes us admired by our clients our clients feel delighted in buying our products and consumer satisfaction in itself is the biggest achievement for our firm.



Technical Details

Chemical Composition of Inconel 600, %											
	C	Mn	Si	P	S	Cr	Mo	Ni + Co	N	Fe	Cu
Min	-	-	-	-	-	14	-	72	-	6	-
Max	0.15	1	0.5	NA	0.015	17	NA	79	NA	10	0.5

Chemical Composition of Inconel 625, %														
	C	Mn	Si	P	S	Cr	Mo	Ni	N	Fe	Nb+Ta	Al	Ti	Co
Min	-	-	-	-	-	20	8	58	-	-	3.15	-	-	-
Max	0.1	0.5	0.5	0.015	0.015	23	10	-	NA	5	4.15	0.4	0.4	1

Mechanical Properties of Inconel 600	
UTS Min (MPA)	551
Yield Min (MPA)	170
Elongation MIn (%)	35
Hardness Max (HRB)	88
Heat Treatment	1090°C - 1150°C

Mechanical Properties of Inconel 625	
UTS Min (MPA)	827
Yield Min (MPA)	414
Elongation MIn (%)	35
Hardness Max (HRB)	100
Heat Treatment	1095 - 1200



Production

Production of Inconel Flanges:

The production Raw material is subject to heat treatment for optimum use of dye for processes ahead. Then the flanges are made as per dimensions specified in the ANSI Standards with hub or without addition of the hub. Then the flanges are machines and finished followed by marking. Process of flanges is as follows.

Production process of Inconel Flanges includes Flange Face Finishing process which has following steps:

1. Stock Finish

Most widely used among any flange face finish and practically suitable for flanges under all ordinary service conditions. Under bolting compression, the soft face from a gasket will embed into this finish, which helps create a seal and a high level of friction is generated between the mating surfaces.

2. Spiral Serrated

Spiral serrated finish is a continuous or photographic spiral groove but it differs from the stock finish in that the groove typically is generated using a 90-deg tool which creates a "V" geometry with 45-deg angled serration in Inconel Flanges.

3. Concentric Serrated

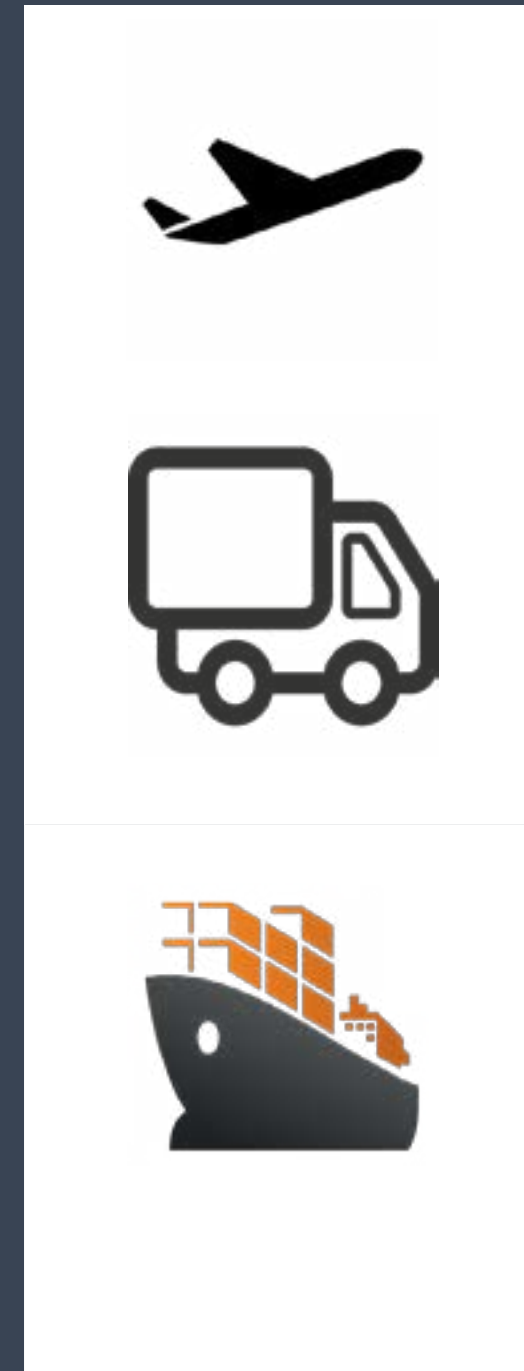
As the name suggest, concentric serrated finish comprised of concentric grooves. A 90-deg angle tool is used and serrations are spaced evenly across the faces of Inconel Flanges.

4. Smooth Finish

Smooth finish shows no visual apparent tool markings. These finishes are typically utilized for gaskets with metal facings such as double jacketed flat steel and corrugated metal. The smooth surfaces mate to create a seal and depend on the flatness of the opposing faces to effect a tight seal. This is typically achieved by having the gasket contact surface formed by a continuous spiral groove.



Packaging & Documentation



Duplex Supply Inc. provide the certificate of origin legalized/attested by the chamber. Also, a commercial invoice including HS code is provided. Our product packing lists which come with the product includes a number of boxes, net weight, and gross weight. We provide test certificate certifying NACE MRO103, NACE MR0175 during the delivery of Inconel Flanges to our Clients, Along with this, a raw material test report is provided as well. Our laboratory reports that are NABL approved also is provided to our loyal customers. Other reports like raw material reports, heat treatment charts and letter of guarantee is also provided by Duplex Supply Inc. Our Inconel Flanges are packaged in such a way that no damage is caused during the time of delivery. We provide a free sample kit for all clients against purchase order copy for quality approval free of cost. Request your free sample kit now and get your personalized orders at tip of your We offer price basis depending on your requirements. It can be based on previous works, FOB Nhava sheva, CFR, CIF, CPT your destination port or your door to door delivery duty which can be paid or unpaid finger by ordering it online.





About Duplex Supply Inc.

Duplex Supply Inc. is a privately held stockiest supplier and manufacturer of various alloy and metal products, the head office is located in Mumbai. DSI is committed to provide merit quality serviceability to all its customers with the minimal lead time.

Duplex supply Inc. provides shipping for all over global Customers. DSI has made noteworthy impact in metal Industry. With Duplex Supply Inc. you get un-comparable buying experience of products made from best raw materials. Duplex Supply Inc. has emerged to become the most trusted company in Indian market and in several European, African and gulf based companies. Duplex Supply Inc. is backed by all the possible certifications of a world class mill including ISO 9001:2008, ISO 14001:2007, OHSAS 18001: 2004 & CE-PED 97/23/EC.

“Your wish we Accomplish, You Demand we Deliver”



OUR MISSION

Our Aim is At Business Excellence through Higher business ethics and standards, Optimum use of resources, Spirit of Entrepreneurship.



OUR PRECISION

We are very Accurate from our Production System to our Delivery System we handle all our goods very precisely. We precisely fulfill all our promises to the clients and make sure that they have no complaints regarding our products.



OUR VISION

To provide best Quality products and service to our Clients and fulfilling their demands beyond their expectations and to be globally esteemed organization.



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We Look Forward to Hearing From You...

After knowing about all the information above mentioned regarding our products we look forward a hearing from you regarding any Queries and Orders we are delighted to serve all our customers the existing ones and also we welcome our new customer orders. We assure that our products will never disenchant you.



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