



# Butt Weld Fittings

Prepared for :

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**Statement of Confidentiality:**

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# Introduction

Duplex Supply Inc has revolutionized and mastered the art of manufacturing the highest quality stainless steel and plates supplies in addition to our various other materials and products for nearly two decades. We at Duplex Supply Inc, master the process of manufacturing premier Duplex Stainless Steel with instant delivering speeds and high quality packaging at unbelievable cost pricing. Duplex Supply Inc knows the potential requirements and quality needs for your purpose for Duplex Stainless Steel built by us. Known as a Stainless-Steel manufacturing powerhouse, Duplex Supply Inc works for the utmost precision Duplex Stainless Steel with our generating of the materials respectively. We are keen on providing you with the best of the lot of the many manufacturers in the market today. The vast array of Duplex stainless steel products and a backing of elite and satisfied customers and industries, Duplex Supply Inc takes pride in delivering Duplex Stainless Steel along with the various other products in the same branch of material respectively. High quality emphasis has been made sure to provide these products for longevity and utmost resistance to push and pull. Making waves in the steel market at impeccable strides by laden details given to the products to assure just the right fit and fix for your specific needs. The products have been custom looked after and quality tested by ISO 9001:2008, ISO 14001:2004 ISO 9001:2008, ISO 14001:2004, OHSAS 18001:2007 certifications respectively.



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# Product

## **Duplex Steel:**

The term “Duplex” has been coined for this type of stainless steel because it uses two phase microstructures consisting of grains of ferritic and austenitic stainless steel and combines many of the beneficial properties of the two types which in return helps in providing resistance to localized and uniform corrosion. The chemical composition of the Duplex Steel is balanced approximately to give equal amounts of ferrite and austenite in solution-annealed condition. The higher the annealing temperature degree, the higher the ferrite content in the steel taking place. Although Duplex steels are prone to precipitation to nitrides and carbides type of acids that cause embrittlement and reduced corrosion resistance. If the temperature is about 4750C, probably say in the range of 3000-5000C, it can cause embrittlement and also the decomposition of ferrite content. Duplexes have excellent ductility and toughness but they cannot reach the superior values of purity in austenitic grades.

## **Butt Weld Fitting:**

A pipe fitting defined as a part used in a piping system, for changing direction, branching or for change of pipe diameter, and which is mechanically joined to the system. There are many different types of fittings and they are the same in all sizes and schedules as the pipe. Buttweld (BW) fittings whose dimensions, dimensional tolerances et cetera are defined in the ASME B16.9 standards. Lightweight corrosion resistant fittings are made to MSS SP43. **BEVELLED ENDS:** The ends of all buttweld fittings are bevelled, exceeding wall thickness 4 mm for austenitic stainless steel, or 5 mm for ferritic stainless steel. The shape of the bevel depending upon the actual wall thickness. This bevelled ends are needed to be able to make a “Butt weld”. A seamless butt weld pipe fitting is made directly from a section of seamless pipe material, by applying heat and pressure to transform pipe directly into an elbow or other shape. A seamless fitting has no welded parts by itself, a characteristic demanded in some critical applications. By comparison, a regular butt weld fitting has one, two or more welds, depending on dimension, shape and manufacturing method. No weld means less risk of weld yield and porosities.

## **Upset Weld:**

The parts that are to be welded are clamped edge to edge in copper jaws of the welding machine and brought together in a solid contact so that their point of contact forms a locality of high electric resistance, while current flows to heat the joint. At this point the pressure applied upsets or forges the parts together. Upset buttwelding is used principally on nonferrous materials for welding bars, rods, wire, tubing, formed parts, etc.

## **Standards:**

EN 1993-1-8, which covers the design of joints in the design of steel structures, defines a set of provisions for welding structural steel.



# Product Cont.

## **Hand welding:**

A joint between two members aligned approximately in the same plane. Butt welding can also be achieved through traditional blow torches in the most common form of butt joints, a process that uses some variety of flux, usually a tin-based solder and precise hand-eye coordination that is common for hand-made boxes of copper, brass, and silver. There are two types of butt welding; one is carried out by smiting and another is carried out by welding two work pieces by non-overlapping. The process consists of two desired strips of metal that are lined with flux that is lightly dried with a blowtorch until it is a sticky consistency, followed by cutting a strip of solder that is generally 20% of the full joint's size. Applying heat gently makes the gel-like flux now appear white and powdery which now is primed to be welded in which the blow torch is arched so that the “heat cone”, the bluest and hottest part of the flame, is now directly upon the solder melting the joints together evenly. The joint is then cooled and cleaned in a solution of sulfuric acid diluted in 20 parts water – commonly known as “pickle” – to remove imperfections. Sanding and polishing then achieves the desired finishing.

## **Advantages**

- Flanges connect pipes by bolting them together, whereas butt weld fittings connect pipes by welding them together.
- Depending on size, butt weld fittings require 10% to 75% less material than a flanged connection, which means lower material cost and lower weight.
- Welded construction permits greater freedom in designing a layout; this system uses less space, is more compact, and has greater strength.
- Butt weld fittings provide optimum flow characteristics, without pockets or sharp corners, creating less frictional resistance, no pressure loss, less turbulence etc.



# Application

Used in chemical processing, transport and storage basis. Oil and gas exploration and processing equipment. Marine and other high chloride environments. Used in pulp and paper digesters, liquor tanks and paper machine industries respectively. They component for structural design of buildings. Rotors, impellers and shafts also require these types of bolting. Reinforcing bars for concrete structures. Used for firewalls and blast walls for offshore platforms and protection. Usage has also been made sea-water systems, cargo tanks and pipe systems in chemical tankers. Pulp and paper industries use Butt Weld Fittings highly. Last of the many uses it can also be used as sheets for constructing the base of an architecture or buildings Fittings are used wherever liquids, gases, chemicals and other fluids are created, processed, transported, or used. Range of industries is very wide, as shown below: Energy related. Oil and gas industries, including upstream (exploration and production), midstream (transportation by ships, pipeline, rail, trucks; storage and wholesale) and downstream (refining into fuels or chemicals; marketing and distribution). Power plants using fossil or nuclear fuels. Geothermal energy for harnessing heat from the earth. Food and beverage production. From basic ingredients to elaborate desserts. From milk, to juices and other beverages. Cold chain to keep produce fresh, drinks and frozen foods at a set temperature. Desalination plants to transform seawater into drinking water for arid areas and various tropical islands. Pharmaceuticals and biotech production. Medicines and vaccines that treat illnesses and help restore bodies and minds to their top conditions. Semiconductor manufacturing: Microchips that go into all electronics, including smartphones, tablets, computers, television sets, telecom networks. Pulp and paper production. Newsprint, glossy paper, cardboard boxes, books, writing paper. Production of construction materials and plastics. From roofing materials, to glassmaking for windows, to copper wiring for transporting electricity, and various plastics throughout houses and office buildings.

## FITTING SIZES AND DIMENSIONS:

Pipe fittings are measured by their diameter, wall thickness (known as “schedule”), and shape or configuration. (Fittings are also defined by their material grade and whether they are welded or seamless.)

Diameter refers to outside diameter of a pipe or fitting.

The North American standard is known as Nominal Pipe Size (NPS). The International Standard is known as Diameter Nominal (DN). Pipes and fittings are actually made in similar sizes around the world: they are just labeled differently.

From ½ in to 12 inch “Nominal Pipe Size”, outside diameters are slightly larger than indicated size; inside diameters get smaller as schedules grow.

From 14 in and larger “Nominal Pipe Size”, outside diameters are exactly as indicated size; inside diameters get smaller as schedules grow.

As with other North American standards (inch, foot, yard, mile, ...), many pipe standards (diameters up to 12 inch and wall thickness) are based on historical precedents (a toolmaker’s dies during US Civil War) rather than a “scientific” method.



# 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 Butt Weld Fittings. 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 Butt Weld Fittings 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. Butt Weld Fittings 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 Butt Weld Fittings. We uniformly export our products to all the 5 continents in the world. Butt Weld Fittings 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 Butt Weld Fittings, 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 Butt Weld Fittings. 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 Butt Weld Fittings 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.



# Testing & Value Add.

## Testing we emphasize on:

Pipe fittings are tested to assure conformity with standards and performance in their applications. Standard, commodity fittings are tested by sampling during manufacturing process, with both destructive and non-destructive approaches. Custom-made fittings are regularly tested during manufacturing process with non-destructive approaches, as required for the application or as specified by end-users. After a destructive test, fittings can no longer be used in the field, because they were bent, pulled or abused until breakage point. For this reason, destructive tests can only be performed on a small sample of fittings; otherwise, all fittings would be destroyed during tests. A non-destructive test measures performance for regular operating conditions, or by means that do not destroy the fitting. Bending: fittings are bent until deformation appears on their side, face or root. Charpy impact: named after Georges Charpy who developed it, this test measures toughness of a fitting by determining the amount of energy absorbed during its fracture from impacts.

Corrosion: fittings are exposed to corrosive fluids or materials until corrosion appears.

Metallographic: this test studies physical structure and components of metal samples, typically by microscopy. Samples are taken from actual fittings.

Tension: fittings are stretched until deformation appears; measures are taken for strength, yield, elongation.

## Value Addition

We offer top notch experience in terms of buying and payment accessibility along with being known to have quickest delivery rapport. We also provide test report guided for quality checks having high pressure sustainability during transport and product replacement warranty. Duplex Supply Inc perform the utmost required procedures for your guaranteed satisfaction with intense care and detailed efforts for your product.



# Manufacturing Process

We as Manufacturers own machines, presses and equipment to actually make fittings from pipe or plate. And as Suppliers are intermediaries between manufacturers and end-users: suppliers can be wholesalers, distributors, EPCs. Fitting manufacturers in North America and Europe with low-labor-cost. Butt weld fittings are used in the most demanding applications: oil & gas, nuclear, chemicals. A butt weld pipe fitting looks like a simple product, but many things can go wrong during design and manufacturing, causing problems later in the field: scratched inner surface, thinner wall at outside radius, oval fittings, out-of-specs welding-end finish, invisible cracks, wrong chemical composition of steel grade. Manufacturing close to end-users in North America or Europe with experienced and highly skilled workers assures highest quality. Also as Western manufacturers are being used to compete by emphasizing technology, product development and highly efficient manufacturing processes.

Key steps we use in manufacturing process at Duplex Supply Inc:

Planning: based on fitting specifics and client requirements; includes creating part identification in manufacturing system.

Selection of raw material: metal; plate or pipe.

Cutting

Heating.

Forming.

Welding: for fittings that are not simple elbows, returns, bends, reducers or caps.

Inspection and tests: according to standards and client requirements.

Coating (if required).

Preparation of documentation.

Shipping.

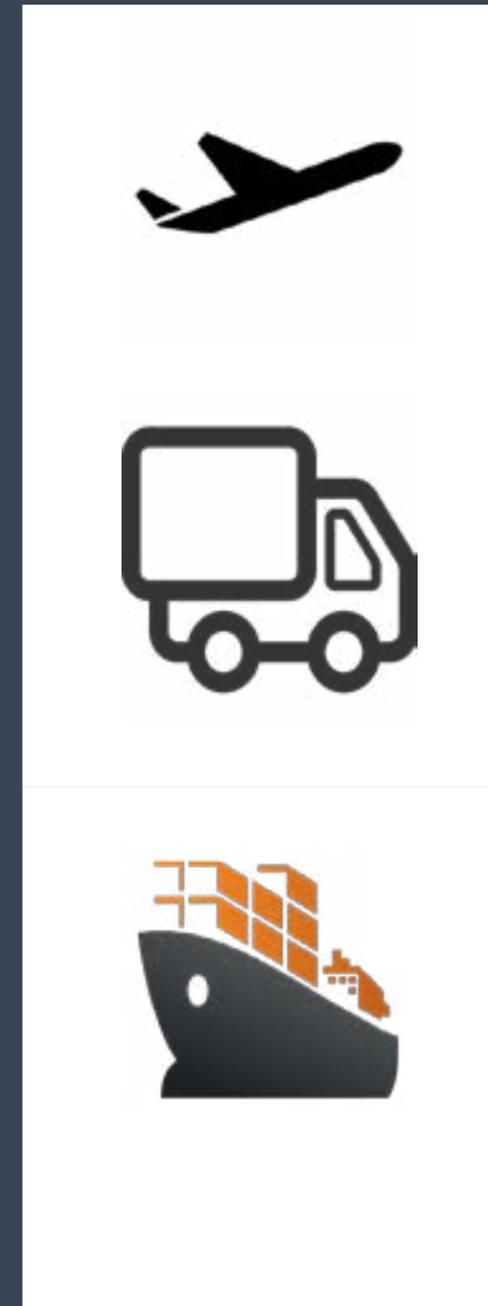
Dye or liquid penetrant: low-cost test to detect surface hairline cracks or porosity in fittings, by applying a special liquid to its surface.

Ferrite content: ferrite content in Duplex, Super Duplex and stainless steel has to be just right to achieve yield strength, fracture toughness and corrosion resistance. Ferrite content is measured in weld seams by magnetic induction. Hydrostatic: a fitting is filled with a liquid, often colored water, and pressure is applied; measurements are taken to see if there is pressure loss due to any defects.

Magnetic particles: uses a magnetic field to detect surface or slightly subsurface discontinuity or weakness in a fitting. Macrography: makes photographs, sometimes in 3 dimensions, of items visible to naked eye. Micrography: uses microscopes to make photographs of metal and obtain information about its properties. Pneumatic pressure: a fitting is filled with pressurized air; measurements are taken to see if there is pressure loss due to any defects. Positive material identification: analysis of a metal alloy by identifying percentage for each of its elements. Uses specialty equipment, including X-ray fluorescence or optical emission spectrometry. Radiography: uses X-rays or gamma rays to detect any weakness in fittings.



# 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 Butt Weld Fittings to our customers, 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. Packaging of Butt Weld Fittings are done in such a way that there is no damage caused to the product during 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

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



## OUR PRECISION

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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

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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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