



# heat & corrosion

**RESISTANT NICKEL ALLOYS**

**CI** **corrotherm**<sup>®</sup>  
INTERNATIONAL

LOCAL PRESENCE – GLOBAL SUPPORT



## Corrotherm, a Global Operation

**With offices in four continents  
Corrotherm offers an International service**

“We understand you. Your local office speaks your language  
and is open when you are open.”

### **solution**

our highly qualified and experienced people will solve  
your problems and deliver on our promises

### **integrity**

consistently high standards in everything we do

### **application**

whatever the application we can provide the right  
material at the right price and on time

### **innovation**

to meet the needs of new technology and a changing market

United Kingdom • U.A.E • Saudi Arabia • South



## Introduction

Dedication to providing our clients with everything they need and more is the cornerstone of Corrotherm International. Managed by a team with more than 150 years' combined industry experience between us, we know and understand the pressures involved in the supply, specification, selection and use of heat and corrosion resistant Nickel Alloys.

Not only do we have a wide range of high alloy materials to meet those requirements, we can deliver products off-the-shelf and keep back-up stock

to support projects. This ensures our clients get the fastest and most cost-efficient service. Our unique relationship with **Special Metals** means our portfolio is continually updated and puts us, and our customers, at the heart of any technological innovations.

The unrivalled product portfolio is not our only strength. With a network of offices in the United Kingdom, Middle East, India, South Africa, Australia, China and South Korea, we seek to create a close, long-term relationship

with our clients. At the outset we aim to facilitate a smooth delivery process from front-end engineering and design to delivery complete with project dossiers. It is this overview of the whole process that creates reassurance, and more importantly, value for money and peace of mind.

With a continual enhancement programme, the company strives to maintain a market-leading position through research, investment and innovation.

*Jan Ward CEO*



# performance and reliability...

## About the Company

Corrotherm International was established in 1992 by the current directors Jan Ward (CEO), Ian Newman (Managing Director), Peter Strand (Technical Director) and Barrie Jones (Commercial Director). The company was established to capitalise on a gap in the market for supplying multi-product, multi-metal packages in the Middle East region.

A fully operational Middle East base was opened in the United Arab Emirates in 1998 and has since widened its presence in the Middle East by establishing offices in Abu Dhabi and Saudi Arabia. Over the past 8 years the company has expanded its global market base and now has sales offices in India, South Africa, Australia, China and South Korea. The UK warehouse was expanded in 2008

to sustain a high level of product delivery and enhancing customer service by accommodating the head office and an expanded stock range.

Operating professionally and responsibly are key goals for us. We have an excellence rating with COFACE and ensure continuous improvement in our team through membership of the Energy Industries Council, the Institute of Directors and Institute of Export.

Quality is key to our product and the service conditions it is used for, consequently our management systems meet the requirements of ISO 9001:2008 and all stock fulfils the requirements of NACE standards where appropriate. To demonstrate our keen commitment to both Health

& Safety and environmental matters we have adopted an Integrated Management System meeting not only the requirements of ISO 9001:2008 but also ISO 14001:2004 and OHSAS 18001:2007. This helps to ensure that we minimise our impact on the environment and maintain a safe and productive working environment and this system has been fully audited by SGS UK.

Customer Care is our priority and we pride ourselves on being able to tackle complex issues quickly and effectively. Our extensive market and product knowledge allows us to provide beneficial and complete solutions for our customers. No client problem is too big or too small.



K o r e a   .   I n d i a   .   S o u t h   A f r i c a   .   A u s t r a l i a   .   C h i n a

## Making a Difference

We stand out from the crowd because we do more than just supply a range of high alloy materials. Our pre-sales and after-sales support means clients are looked after at every stage of the supply process, whether it be for a bespoke or off-the-shelf product. The wealth of knowledge offered by our highly-trained staff enables any issue, large or small, to be dealt with quickly and efficiently with the best outcome for the client always our end goal.

### We achieve this in a number of ways:

#### Supplier Network

Our unrivalled product portfolio of high alloy materials is created through the strong relationships we hold with a wide range of suppliers. All customer enquiries can be discussed creatively enough to identify the best solution. The distribution agreements we hold bolsters this position and gives us the opportunity to give and receive feedback on new working practices and industry trends.

#### Knowledge Bank

The combined expertise of 150 years from the team underlines the importance placed on knowledge of the industry throughout our company. This approach is backed up with extensive ongoing training for all members of staff. As a result, when clients require advice or guidance they get an immediate and informed response.

Because of our comprehensive understanding of the manufacturing process we are able to analyse client requirements and translate them into something that a mill can supply.

We are flexible enough to document and expedite jobs to suit the needs of the customers own systems, and so ensure an immediate fit between our documents and the customers needs.

We seek to share our knowledge and information with the use of free brochures and product literature. Our metallurgist regularly runs specially tailored seminars which creates a forum for our customers to discuss alternative solutions or ways of working.

We also ensure that our team's expertise extends to include an insight into the cultural differences of working with operations in the many parts of the world and how to create strong, long-lasting relationships.



services

HEAT AND CORROSION



performance and reliability...

tube  
pipe  
flanges

*solution-application-integrity*

ON RESISTANT NICKEL ALLOYS

technology changes daily - our values never

### **Logistics**

Once an order is received our work really starts. We make sure it is expedited, inspected, properly marked and delivered on time with all the right paperwork. No two orders and no two project data books are the same so ensuring the correct documentation is in place reassures the client and eases the workload. This is a vital service that guarantees goods clear customs smoothly and comply with our client's goods inwards requirements.

Our ability to offer flexible payments terms gives customers the confidence to place orders no matter what their time frame requirements.

### **Testing**

We understand that every product may not come with the exact certification required. We offer an independent analysis and metals testing service, with state-of-the-art facilities that are among the best in the world. Test programs, management systems and equipment operate within a strictly controlled, audited and accredited environment, so that clients get the information they need.

### **Fast Track Delivery**

Long lead times for high alloy materials can be prohibitive and costly, especially with breakdowns or major maintenance shutdowns. We can offer alternatives and efficiently locate the right products through matching our client requirements, to material availability and mill capabilities.





# products

flanges  
forged socket weld fittings

seamless and welded fittings



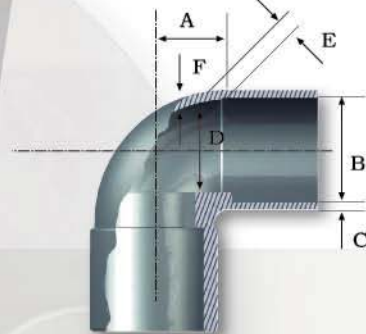
## Plate and Sheet

0.5 mm - 100 mm thick



## Bar

ROUND	4 mm - 300 mm Dia
SQUARE	6 mm - 76 mm
HEXAGON	6 mm A/F - 40 mm A/F
FLAT	25 X 4 mm - 76 X 25 mm

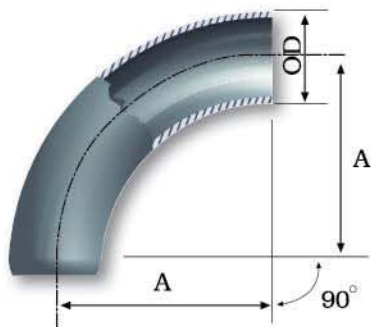


## Forged Socket Weld and Threaded Fittings

1/4" NB - 2 1/2" NB

High alloy materials are designed to save money by providing a longer life and consequently lower maintenance costs in applications where there is a high level of corrosion or high temperature processes. High grade heat and corrosion resistant Nickel Alloys can extend the life of plant and equipment while improving production rate. Meeting international and industry standards, our products fulfil the requirements of ASTM, ASME, NACE, and BS EN standards where appropriate.





### Seamless and Welded Butt Weld Fittings

1/4" NB - 100" NB



### Seamless and Welded Pipe

1/4" NB - 100" NB

### Seamless and Welded Tube

1/8" OD - 6" OD

## Stocks

In addition to specially mill manufactured products, we have stock of standard items available. We hold extensive stocks of INCONEL® alloy 625, INCONEL® alloy 600, INCONEL® alloy C276, MONEL® 400, NICKEL 200/201, INCOLOY® alloy 825, and INCOLOY® alloy 800HT, seamless pipe.

In addition to the flexibility, reassurance and quick response this offers our clients, it also enables us to supply specialist items manufactured from start stock material to be delivered faster and more cost efficiently. Our warehouses also hold back-up stock for ongoing projects, to project specific specifications, which reduces the financial pressures on projects and lowers prices by eradicating the need to order minimum mill production quantities.

## Core Materials

From over 110 alloys available we have identified core products that give customers the most cost effective materials for extremely aggressive environments. All have been extensively used in the field and have a proven track record providing reassurance and reliability.

These products are suitable for a range of applications in the oil, gas, petrochemical, desalination and power generation industries.

**Nickel 200/201®, INCONEL® alloy 600, INCONEL® alloy 601, INCONEL® alloy 625, INCONEL® alloy 617, INCONEL® alloy C276, MONEL® alloy 400, INCOLOY® alloy 800/800H/800HT, INCOLOY® alloy 825 and INCOLOY® alloy 925.**

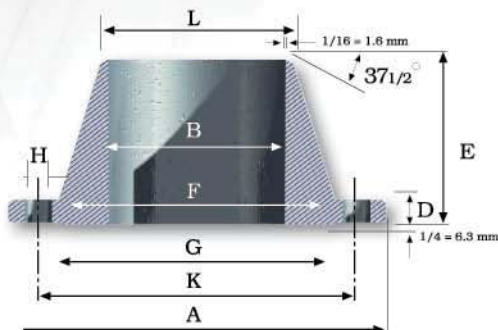
## Bespoke

With the ability to access a vast array of industry technology and products we are able to satisfy a wide range of customer requirements - many of which are bespoke. Our expertise provides us with the knowledge to assess individual needs to create the perfect solution.

On many occasions there is no standard solution and using the input and knowledge of the whole team we often come up with some unique and novel solutions.

**Technical brochures, detailing individual alloys and their applications, are available.**

durable and timely...



## Flanges

WELD NECK, BLIND, SLIP ON  
THREADED, ORIFICE, SPECTACLE

SIZE RANGE 1/2" - 72"

RAISED FACE / FLAT FACE / RING JOINT  
150 LB - 10000 LB

**The development of high alloy materials is a dynamic industry with new products and applications becoming available regularly.**

The company is constantly monitoring these new developments and the potential end uses, with particular emphasis on high-end specialist applications and, coupled with our comprehensive knowledge of the market and close customer contact, we ensure this information is made readily available to the client.

# markets & applications

The team's past experience combined with up to the minute information enables us to draw on past experience and current knowledge to find the perfect solution.



## Markets and Applications

Heat and corrosion resistant Nickel Alloys are used in a wide range of industrial applications. The more common applications are listed below but clients can talk to our team about precise requirements.

### Aerospace Engineering

Applications include - commercial jet engines, supersonic military aircraft, helicopters and space exploration programmes. Chosen for their strength at high temperatures, INCONEL®, NIMONIC®, INCOLOY® and UDIMET® alloys are used in civil and military engines from combustors, through power turbines to exhaust systems. NILO® alloys are ideally suited to tooling for the production of composites.

### Automotive Engineering

New applications for the Incoloy, INCONEL® and NIMONIC® alloys have been being created by pollution control legislation worldwide. Other uses include systems valves, ignition equipment, sensors, electronic switch gear and safety devices.

### The Chemical & Process Industries

The most long term tried and tested applications for nickel alloys where corrosion-resistance in process applications has become a standard industry demand. The uses range from vessels, piping and heat exchangers, to pumps and valves and are principally used in the wrought forms in pure Nickel and INCOLOY®, INCONEL® and MONEL® alloys.

### Thermal Processing and Heat Treatment

High-temperature strength and resistance to corrosion by furnace atmosphere makes INCOLOY®, INCONEL® and NIMONIC® alloys particularly suited to furnace components such as radiant tubes, muffles, retorts, belts and hearths. These alloys are also ideal for the jigs

and carriers that support the work through the heat-treatment processes. KOTHERM® and NIOOTHERM® alloy wires and INCOTHERM® alloy seamless tubing are used for thermocouples.

### Electronics & Telecommunications

The physical properties of the pure nickel grades and nickel-iron alloys are ideal in a range of applications from precision components to glass/metal seals, magnetic shields and integrated circuits.

### Marine Engineering

Resistance to seawater corrosion in marine and submarine applications makes MONEL® alloy 400 ideal for offshore platforms and in power and process plants using sea water as a coolant.

### Oil & Gas Extraction Industries

INCONEL®, INCOLOY® and MONEL® alloys are suited to a range of on-land and offshore applications from downhole tubulars and tools, to well-head hardware and processing equipment, to flare booms. Some are particularly useful for sour wells operating at high temperatures which create major operating problems.

### Power Generation

The corrosion-resistance and high-temperature strength of INCONEL®, INCOLOY®, NIMONIC® and UDIMET® are essential in all areas from land-based gas turbines to feedwater and superheater tubing in coal and oil-fired utilities. Industry specific products are also employed in solar engineering and nuclear fission development programs.

### Petrochemical Processing

The predictably reliable performance of high-temperature corrosion resistant INCOLOY® and INCONEL® makes them ideal for use in vessels, reactors, heat-exchangers, pyrolysis tubing, pigtails, headers and transfer piping.

### Pollution Control & Waste Processing

The highest known performance from metallic materials working in aggressively corrosive environments is crucial in this area to help meet new standards for clean-up and conservation. Applications include stack linings, scrubbers, boiler tubing and heat exchangers.

### Electrical Resistance Heating

Uses for alloys of RESISTOHEAT® and BRIGHTRAY® alloys from industrial furnaces to household ranges, water heaters and toasters. These materials are particularly well suited to wire ribbon and strip heating elements. INCOLOY® and INCONEL® alloys are used in the form of seam-weld tubing for element sheathing. Some alloys are used for starter and traction resistors in locomotives and other heavy engineering applications.

### Welding

Our Welding Products Company has the INCO-WELD®, INCO-CORED® and NI-ROD® trademarks. It produces a variety of products including coated electrodes, filler metals and flux-cored filler wires, weldstrip and fluxes for joining nickel alloys, dissimilar metals, high-performance steels, and cast irons.

## Materials Cross Reference

® Special Metals Corporation

UNS	Common Name	Werkstoff	Trade Name	Electrode	Filler
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### Nickel Alloys

N02200	Alloy 200	2.4066/2.4060	Nickel 200	141	-
N02201	Alloy 201	2.4066/2.4060	Nickel 201	-	-
N04400	Alloy 400	2.4360	MONEL <sup>®</sup> alloy 400	190	60
N05500	Alloy K500	2.4375	MONEL <sup>®</sup> alloy K500	190	60
N08800	Alloy 800	1.4876	INCOLOY <sup>®</sup> alloy 800	INCOWELD <sup>®</sup> A	82
N08810	Alloy 800H	1.4876	INCOLOY <sup>®</sup> alloy 800H	INCOWELD <sup>®</sup> A	82
N08811	Alloy 800HT	1.4876	INCOLOY <sup>®</sup> alloy 800HT <sup>®</sup>	INCOWELD <sup>®</sup> A	82
N08825	Alloy 825	2.4858	INCOLOY <sup>®</sup> alloy 825	135	65
N06002	Alloy HX	2.4665	INCONEL <sup>®</sup> alloy HX	-	HX
N07718	Alloy 718	2.4668	INCONEL <sup>®</sup> alloy 718	-	718
N10276	C276	2.4819	INCONEL <sup>®</sup> alloy C276	C276	C276
N06600	Alloy 600	2.4816	INCONEL <sup>®</sup> alloy 600	132 + 182	82
N06601	Alloy 601	2.4851	INCONEL <sup>®</sup> alloy 601	112	601
N06625	Alloy 625	2.4856	INCONEL <sup>®</sup> alloy 625	112	82 + 625
N06626	Alloy 625LCF	2.4856	INCONEL <sup>®</sup> alloy 625LCF	112	265
N06022	Alloy 622	2.4602	INCONEL <sup>®</sup> alloy 622	112	686CPT
N06686	Alloy 686	2.4606	INCONEL <sup>®</sup> alloy 686	112	686CPT
N07750	Alloy X750	2.4816	INCONEL <sup>®</sup> alloy X750	-	-
N06617	Alloy 617	2.4663	INCONEL <sup>®</sup> alloy 617	117	617
N07751	-	-	INCONEL <sup>®</sup> alloy 751	-	-
N06985	G30	2.4619	INCONEL <sup>®</sup> alloy G3	-	-
N06075	NIMONIC <sup>®</sup> alloy 75	2.4951	NIMONIC <sup>®</sup> alloy 75	-	-
N07080	NIMONIC <sup>®</sup> alloy 80A	2.4631	NIMONIC <sup>®</sup> alloy 80A	-	-
N07090	NIMONIC <sup>®</sup> alloy 90	2.4632	NIMONIC <sup>®</sup> alloy 90	-	-
N19903	Alloy 903	-	INCOLOY <sup>®</sup> alloy 903	-	-
N09925	Alloy 925	-	INCOLOY <sup>®</sup> alloy 925	-	-
-	-	1.4862	INCOLOY <sup>®</sup> alloy DS	NC 80/20	-
N09945	Alloy 945	-	INCOLOY <sup>®</sup> alloy 945	INCOWELD <sup>®</sup> 725	NDUR
S35045	Alloy 803	-	INCOLOY <sup>®</sup> alloy 803	117	617
N08126	25-6 Mo	1.4529	INCOLOY <sup>®</sup> alloy 25-6 Mo	112	686CPT
-	27-7 Mo	-	INCOLOY <sup>®</sup> alloy 27-7 Mo	122	622
N06690	Alloy 690	-	INCONEL <sup>®</sup> alloy 690	152	52
N06693	Alloy 693	-	INCONEL <sup>®</sup> alloy 693	-	53MD

### Copper Nickel Alloys

C70600	CuNi 90/10	2.0872		MONEL <sup>®</sup> 67	MONEL <sup>®</sup> 187
C71500	CuNi 70/30	2.0882		MONEL <sup>®</sup> 67	MONEL <sup>®</sup> 187





**CI** **corrotherm**<sup>®</sup>  
INTERNATIONAL



GB12-86368



GB12-86369



GB12-86370

meeting the requirements of the ISO standards...





## HEAT AND CORROSION RESISTANT NICKEL ALLOYS



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