

MV

# MV SUPER ALLOYS PVT. LTD.

“ Supplying The Process Industries”

An ISO 9001 : 2015 Certified Company



[sales@mvsapl.com](mailto:sales@mvsapl.com) | [info@mvsapl.com](mailto:info@mvsapl.com)



[www.mvsuperalloys.com](http://www.mvsuperalloys.com)

## About us :

Since our inception in 1979, MV Super Alloys (formerly known as Metal Trading Corporation) has grown from a small business dealing in Stainless Steel and other Non Ferrous Metals to one of the leading stockists of High Performance Metals (Hastelloy C22, Hastelloy C276, Inconel 600, Inconel 625, Inconel 800/800HT, Inconel 825, Nickel 200 and Monel 400 in the form of sheets, pipes and fittings in the country. Supplying to the process industries, our highest priority lies in providing quality products to our customers in a timely manner.

## Our values :

At MV Super Alloys, we believe that excellence is a moving target. From profitability to sustainability, we are constantly setting benchmarks and strive to outdo ourselves everyday. Our commitment to be better is reflected in our journey to be more efficient and value driven. As we gear for a new and dynamic era for India and the world, we believe that our efforts to be better everyday will help us serve our customers better and create lasting value.

## Our Vision :

Innovating for our customers to power their success.

## Our Mission :

Aspire to achieve business excellence through optimum utilisation of resources and maximising returns for our customers with highest ethics and standards.

## Industries We Serve :



Speciality Industries



Pharma Industries



Oil & Gas & Refining  
Industries



Power Industries



ALLOYS	COMPOSITIONS	SPECIFICATIONS			ALLOY CHARACTERISTICS & APPLICATIONS
<b>ALLOY 200/201</b> (UNS N02200 / 02201)	Ni+Co Min 99.0 Cu .... 0.25 max Fe .....0.4 max Mn ....0.35 max C .....0.02 max Si .....0.35 max S .....0.01 max	<b>Forms</b>	<b>ASTM</b>	<b>ASME</b>	A commercially pure wrought nickel alloy. Alloy 201 was modified to control carbon (0.02 Max) which keeps it being embrittled by intergranular precipitates at temperatures of 600°F to 1400°F. The Alloy is dual certified and is widely used to handle caustic soda.
		Sheet, Plate & Strip Bar Seamless Pipe & Tube Condenser & Heat used Exchange Tubing	B-162 B-160 B-161 B-163	SB-162 SB-160 SB-161 SB-163	
<b>ALLOY 400</b> (UNS N04400)	Ni .....Balance Cu ..... 32.0 Fe ..... 2.0 C .....0.15 max	<b>Forms</b>	<b>ASTM</b>	<b>ASME</b>	A nickel-copper alloy with excellent corrosion resistance to atmospheric attack and sea water corrosion which provides many applications in the marine industry. Good resistance to reducing acids and salts allows the use of the alloy in many process plant applications. Refineries find excellent use of Alloy 400 in HF Alkylation, Cumene Systems MEA reboilers.
		Sheet, Plate & Strip Rod & Bar Sms Pipe & Tubing Condenser & Heat Exchange Tubing Fittings Some Stub Ends Welded Pipe Forgings	B-127 B-164 B-165 B-163 B-366 MSS SP 43 B-725 B-564		
<b>ALLOY 600</b> (UNS N06600)	Ni+Co Min 72.0 C .....0.15 max Si .....0.50 max Fe .....6.0-10.0 Cu ..... 1.0 max Mn .....1.0 max Cr .....14.0-17.0	<b>Forms</b>	<b>ASTM</b>	<b>ASME</b>	A nickel - chromium alloy designed for use from cryogenic to elevated temperature in the range of 2000°F (1093°C). The high nickel content of the alloy enables it to retain considerable resistance under reducing conditions and makes it resistant to corrosion by a number of organic and inorganic compounds. The nickel chloride-ion stress-corrosion cracking ans also provides excellent resistance to alkaline solutions, Its chromium content gives the alloy resistance to sulphur compounds, various oxidising environments and makes it superior to commercial pure nickel under oxidising conditions.
		Bar Sheet, Plate & Strip Smls Pipe & Tubing Welded Pipe Welded Tube	B-166 B-168 B-167 B-517 B-516	SB-166 SB-168 SB-167 SB-517 SB-516	
<b>ALLOY 800H/HT</b> (UNS N08810 /08811)	Ni+Co30.0.0.35.0 Cr .....19.0-23.0 Al .....0.15-0.60 Ti .....0.15-0.60 Fe ..... Balnce C .....0.10 max Si .....0.4 Mn .....1.50max	<b>Forms</b>	<b>ASTM</b>	<b>ASME</b>	An iron-nickel chromium alloy the same basic composition as Alloy 800 but with significantly higher creep rupture strength. The higher strength result from close control of carbon, aluminum and titanium contents in conjunction with a high temp anneal, 800H/HT modification was to control (0.05 to 0.10%) and grain size (>ASTM 5) to optimize stress rupture properties. 800H/HT was further modified to combined titanium and aluminium levels (0.85 to 1.2%) to ensure optimum high temperature properties, 800H/HT is dual certified with combined properties of both forms.
		Plate & Strip Seamless Tube and/ or Pipe Bar Forgings	B-409 B-163 B-407 B-408 B-564	SB-409 SB-163 SB-407 SB-408 SB-564	



ALLOYS	COMPOSITIONS	SPECIFICATIONS			ALLOY CHARACTERISTICS & APPLICATIONS			
<b>ALLOY 625</b> (UNS N06625)	Fe ..... 0.3 max Cr .....22.0 Ni .....Balance Mo .....9.0 Nb .....0.5 C .....0.025 max Si.....0.4 max	<b>Forms</b>	<b>ASTM</b>	<b>ASME</b>	Nickel-chromium-molybdenum alloy with excellent resistance to a range of severely corrosive environment, particularly to pitting and crevice corrosion, and with high strength from cryogenic temperatures to around 980°C (1500°F), and good oxidation-resistance at high temperatures. Application include chemical processing, marine and off shore engineering, pollution control, nuclear engineering and aerospace, Inconel alloy 625 has composition and processing controlled to provide optimum resistance to low-cycle and thermal fatigue at temperatures up to 650°C (1200°F)			
		Plate & Sheet	B-443	SB-443				
		Rod & Bar	B-446	SB-446				
		Seamless Pipe & Tube	B-444	SB-444				
		Bare Wire	A-5.14	SFA-5.14				
		Coated Electrodes	A-5.11	SFA-%.11 E NiCrMo-3				
<b>ALLOY C-276</b> (UNS N010276)	Ni .....Balance Cr ..... 15.5 MO .....16.0 W .....4.0 Fe .....5.0 C.....0.01 max Si.....0.8 max	<b>Forms</b>	<b>ASTM</b>	<b>ASME</b>	A nickel - chromium-molybdenum alloy with universal corrosion resistance unmatched by and other alloy. It has outstanding resistance to a wide variety of chemical process environments such as ferric and cupric chlorides, hot contaminated mineral acids, solvents, chlorine and chlorine contaminated media, both inorganic and organic, dry chlorine, formic and acetic, acetic anhydride, sea water and brine acids, solutions, Alloy C-276 is also excellent in chlorine gas hypochlorite and chlorine dioxide solution.			
		Plate & Sheet	B-575	SB-575				
		Bar	B-574	SB-574				
		Welded Pipe	B-619	SB-619				
		Seamless Pipe & Tubing	B-622	SB-622				
		Welded Tubing	B-626	SB-626				
		Fitting	B-366	SB-366				
		Forms	AWS	ASME				
		Bare Wire	A5.14	SFA5.14				
		Coated Electrodes	A5.11	SFA5.11 E NiCrMo-4				
<b>ALLOY C-22</b> (UNS N06022)	Ni .....Balance Cr ..... 21.0 MO .....13.5 W .....3.0 Fe .....4.0 C.....0.01 5 max Si.....0.08 max	<b>Forms</b>	<b>ASTM</b>	<b>ASME</b>	A nickel - chromium-molybdenum alloy which has outstanding resistance to both reducing and oxidising media and because of its resistability can be used where 'upset' conditions are likely to occur.			
		Plate & Sheet	B-575	SB-575				
		Bar	B-574	SB-574				
		Welded Pipe	B-619	SB-619				
		Seamless Pipe & Tubing	B-622	SB-622				
		Welded Tubing	B-626	SB-626				
		Fitting	B-366	SB-366				
		Forms	AWS	ASME				
		Bare Wire	A5.14	SFA5.14				
		Coated Electrodes	A5.11	SFA5.11 E NiCrMo-10				
<b>ALLOY 825</b> (UNS N08825)	Ni .....38.0-46.0 Fe ..... 22.0 min Cr .....19.5-23.5 Mo .....3.0  Cu .....1.5-3.0 Mn.....1.0 max Si.....0.5 max S .....0.3 max Ti ..... 0.6-1.2	<b>Forms</b>	<b>ASTM</b>	<b>ASME</b>	A nickel - chromium-molybdenum alloy with additions of molybdenum, copper, and titanium, The alloy is exceptionally resistant to chloride-ion stress corrosion cracking. The alloy has outstanding resistance to reducing environments such as those containing sulfuric and phosphoric acids.			
		Country Code	Plate	Billet		Tube	Fittings	Forgings
		UK BS	NA 16	3072	3076	3074	-	-
		USA	UNS					
			N08825	B424	B425	B423	B366	B425
		Germany Din	2.4858	17750	17752	17751	-	17754



Metal	Compositions %	Specifications			Metal
		Forms	ASTM	ASME	
<b>ALLOY K-500</b> (UNS) N05500	Ni - 63 min C - 0.25 max Mn -1.5 max Fe 2.0 max S 0.01 max Si 0.5 max Cu 27 -33 Al 2.3 -3.15 Ti 0.35 - 0.85	Bar Rod Wire Forging	B 865 B 865 ERNiCu - 7 QQ N 286	SB 865 SB 865 -	MONEL alloy K-500 ) is a nickel-copper alloy which combines the excellent corrosion resistance with the added advantages of greater strength and hardness. The increased properties are obtained by adding aluminum and titanium to the nickel-copper base, and by heating under controlled conditions. Typical applications for MONEL alloy K-500 products are chains and cables, fasteners and springs for marine service; pump and valve components for chemical processing; oil well drill collars and instruments, pump shafts and impellers
<b>Grade SS 904L</b> (UNS) N08904	Ni 23 - 28 Cr 19 - 23 Mo 4 - 5 Mn 2.0 Si 1 Cu 1 - 2 Max S 0.035 P 0.045 Fe Balance	Forms	ASTM	ASME	Grade 904L stainless steel is a non-stabilized austenitic stainless steel with low carbon content. This high alloy stainless steel is added with copper to improve its resistance to strong reducing acid. The steel is also resistant to stress corrosion cracking and crevice corrosion. Grade 904L is non-magnetic, and offers excellent formability, toughness and weldability. Applications Pharmaceutical Industry and Gas Production off shore processe quipment,Chemical process equipment for the production of sulfuric, heat exchangers and piping systems
		Sheets Plates Pipes Fitting Bar/Rod Fastners	B 625 B 625 B 677 B 366 B 649 B 625	SB 625 SB 625 SB 677 SB 366 SB 649 B 625	



## Stainless Steel

Stainless steel is not a single alloy but an iron based alloys containing a minimum of 10.5% chromium. Other elements such as nickel and molybdenum are added and the chromium content increased to improve corrosion resistance, improve heat resisting properties, and improved fabricating characteristics.

Stainless steel does not readily corrode, rust or stain with water as ordinary steel does. There are different grades and surface finishes of stainless steel to suit the environment the alloy must endure. Stainless steel is used where both the properties of steel and corrosion resistance are required.

Grade Designation	C	MN	SI	S	P	CR	NI	MO	TI
AISI	max	max	max	max	max				
304	0.08	2.00	0.75	0.030	0.045	18-20	8-12		
304L	0.03	2.00	0.75	0.030	0.045	18-20	8-12		
309	0.20	2.00	0.75	0.030	0.045	22-24	12-15		
309S	0.08	2.00	0.75	0.030	0.045	22-24	12-15		
310	0.25	2.00	0.75	0.030	0.045	24-26	19-22		
310S	0.08	2.00	0.75	0.030	0.045	24-26	19-22		
316	0.08	2.00	0.75	0.030	0.045	16-18	10-14	2-3	
316L	0.03	2.00	0.75	0.030	0.045	16-18	10-14	2-3	
316TI	0.08	2.00	0.75	0.030	0.045	16-18	10-14	2-3	5xCmin
317	0.08	2.00	0.75	0.030	0.045	16-18	10-14	3-4	
321	0.08	2.00	0.75	0.030	0.045	17-19	9-12		5xCmin



## Typical Application For Stainless Steel

Stainless steels of various kinds are used in thousands of applications. Mentioned below the following gives the full range:

- i) Domestic  $\rightarrow$  cutlery, sinks, saucepans, washing machine drums, microwave oven liners, razor blades
- ii) Architectural/Civil Engineering  $\rightarrow$  cladding, handrails, door and window fittings, street furniture, structural sections, reinforcement bar, lighting columns, lintels, masonry supports
- iii) Transport  $\rightarrow$  exhaust systems, car trim/grilles, road tankers, ship containers, ships chemical tankers, refuse vehicles
- iv) Chemical/Pharmaceutical  $\rightarrow$  pressure vessels, process piping
- v) Oil and Gas  $\rightarrow$  platform accommodation, cable trays, subsea pipelines.
- vi) Medical  $\rightarrow$  Surgical instruments, surgical implants, MRI scanners.
- vii) Food and Drink  $\rightarrow$  Catering equipment, brewing, distilling, food processing
- viii) Water  $\rightarrow$  Water and sewage treatment, water tubing, hot water tanks.
- ix) General  $\rightarrow$  springs, fasteners (bolts, nuts and washers), wire

### ASTM Specification for Stainless Steel Tubing & Piping

Specification	Allowable Outside Diameter Variation in mm			Allowable Wall Thickness Variation		Exact Length Testing Tolerance in mm		Testing
	Nominal Diameter	over	under	over	under	over	under	
ASTM - A213 Seamless Boiler Superheater and Heat Exchanger Tube	Under 25.4 25.4-38.1 incl 38.1-50.8 excl 50.8-63.5 excl 63.5-76.2 excl 76.2-101.6 incl	.1016 .1524 .2032 .254 .3048 .381	.1016 .1524 .2032 .254 .3048 .381	20 +22 +22 +2 +22 +22	-0 -0 -0 -0 0 -2	3.175 3.175 3.176 4.46 4.46 4.46	0 0 0 0 0 0	Tension Test Flattening Test Flare Test Hardness Test 100% Hydrostatic test Refer to ASTM A-450
ASTM - A249 Welded Boiler Superheater Heat Exchanger and Condensor Tubes	Under 25.4 25.4-38.1 incl 38.1-50.8 excl 50.8-63.5 excl 63.5-76.2 excl 76.2-101.6 incl	.1016 .1524 .2032 .254 .3048 .381	.1016 .1524 .2032 .254 .3048 .381	10 +10 +10 +10 +10 +10	-10 -10 -10 -10 -10 -10	3.175 3.175 3.176 4.46 4.46 4.46	0 0 0 0 0 0	Tension Test Flattening Test Flare Test Reverse Bend Test Hardness Test 100% Hydrostatic test Reverse Flattening Test Refer to ASTM A-450 wherever appl.
ASTM - A269 Seamless & Welded Tubing for General Services	Upto 12.7 12.7-38.1 excl 38.1-88.9 excl 88.9-139.7 excl 139.7- 203.2 excl	.13 .13 .25 .38 .76 .76	.13 .13 .25 .38 .38 .76 .76	15 15 -10 -10 -10	- +10 +10 +10 +10	3.2 3.2 4.8 4.8 4.8	0 0 0 0 0	Flare Test Flance Test (Welded Only) Hardness Test Reverse Flattening Test Welded Only 100% Hydrostatic test Refer to ASTM A-269
ASTM - A270 Seamless & Welded Sanitary Tubing	25.4 38.1 50.4 60.5 76.2 101.6	.05 .05 .05 .28 .08 .30 .08 .38	.20 .20 .28 .05 .28 .05 .28 .05 .28 .05	12.5 12.5 -12.5 -12.5 -12.5 -12.5	- +12.5 +12.5 +12.5 +12.5 +12.5	3.2 3.2 3.2 3.2 3.2 3.2	0 0 0 0 0 0	Reverse flattening Test 100% Hydrostatic Test External polish on all tubes Refer to ASTM A-270
ASTM - A312 Seamless & Welded Pipe	3.175-38.1 incl 38.1-1016 incl 101.6-203.2 imcl	.4 .79 1.59	.79 .79 .79	Minimum Wall 12.5% under nominal wall Specified		6.4 6.4 6.4	0 0 0	Tension Test Flattening Test 100% Hydrostatic Test Refer to ASTM A-530
ASTM - A358 Welded Pipe	219.08-750mm or 0.01 inch	0.5%		-0.3		6.0		Refer to ASTM A-530
ASTM A-409 Welded austenitic pipe	355.6 - 750 mm	$\pm 0.2\%$ $\pm 0.4\%$	to	-0.46				Refer to ASTM A-530



## TITANIUM

Titanium is a chemical element with the symbol Ti. It is a lustrous transition metal with a silver color. Highly resistant to heat & corrosion, these titanium products are also non-toxic and non-allergic. These products feature perfect combination of high strength along with low weight. A wide range of Titanium products that are used in different applications and are known to impart high performance in them.

The titanium array includes rod, sheet, pipe wires strips, plates, fittings, forgives and others in various shapes, sizes and in different grades, as well. The different grades of the products include Grade-1, Grade- 2, and Grade-5 & Grade 7

### Ti – Grade 1, UNS R50250

Grade 1 is the softest titanium with the highest ductility, good cold formability which gives Ti Grade 1 an excellent resistance from mild to high oxidization.

Available forms are seamless pipe, welded pipe, seamless tube, welded tube, bar, wire, sheet, plate, forgings, pipe fittings and flanges.

### **Chemical Analysis of CP Titanium Grade 1**

C	MN	P	S	Si	Cr	Ni	Mo	Cu	Co	Cb + Ta	Ti	Al	Fe	Nb	Other
.08 max	.03 max	.18 max	.015 max								bal		.20 max		

### **Specifications**

Sheet/Plate	Round Bar/Wire	Pipes	Tube	Fitting	Forgings
ASME SB-265	ASME SB-348 ASTM F-67	ASME SB-337 ASME SB-338	ASME SB-337 ASME SB-338	ASME SB-363	ASME SB-381

### Titanium Grade 2, UNS R50400

Ti Grade 2 has moderate strength with excellent cold formability, weldability. This titanium also has excellent resistance to high oxidization.

Available forms are seamless pipe, welded pipe, seamless tube, welded tube, bar, wire, sheet, plate, forgings, pipe fittings and flanges.

### **Chemical Analysis of CP Titanium Grade 2**

C	MN	P	S	Si	Cr	Ni	Mo	Cu	Co	Cb + Ta	Ti	Al	Fe	Nb	Other
.08 max	.03 max	.18 max	.015 max								bal		.20 max		

### **Specifications**

Sheet/Plate	Round Bar/Wire	Pipes	Tube	Fitting	Forgings
ASME SB-265 AMS 4902	ASME SB-348 ASTM F-67 AMS 4921	ASME SB-337 ASME SB-338	ASME SB-337 ASME SB-338 AMS 4942	ASME SB-363	ASME SB-381



**Titanium Grade 5/Titanium 6AL4V UNS R56400**

Ti -6Al-4V is heat treatable and has high strength and ductility along with good weldability and fabricability. Available forms are seamless pipe, welded pipe, seamless tube, welded tube, bar, wire, sheet, plate, forgings, pipe fittings and flanges.

**Chemical Analysis of CP Titanium Grade 1**

C	MN	O	H	Si	Cr	Ni	Mo	Cu	Co	V	Ti	Al	Fe	Nb	Other
.08 max	.05 max	.20 max	.0125							3.50 4.50		5.50 6.75	.25 max		

**Specifications**

Sheet/Plate	Round Bar/Wire	Pipes	Tube	Fitting	Forgings
ASME SB-265 AMS 4911	ASME SB-348 AMS 4928 AMS 4965 AMS 4967				MIL-T-9046 MIL-T-9047

**Titanium Grade 7 UNS R52400**

Titanium Grade 7 is the most resistant to corrosion in reducing acids with physical/mechanical properties equivalent to Gr. 2. Grade 7 also has excellent weldability and fabricability.

Available forms are seamless pipe, welded pipe, seamless tube, welded tube, bar, wire, sheet, plate, forgings, pipe fittings and flanges

**Chemical Analysis of Titanium Grade 7**

C	MN	O	H	Si	Cr	Ni	Mo	Cu	Co	V	Ti	Al	Fe	Nb	Other
.08 max	.03 max	.25 max	.015 max	.12- .15							bal		.30 max		

**Specifications**

Sheet/Plate	Round Bar/Wire	Pipes	Tube	Fitting	Forgings
ASME SB-265	ASME SB-348	ASME SB-337 ASME SB-338	ASME SB-337 ASME SB-338	ASME SB-363	ASME SB-381



High Performance Alloys				
Name	Forms	ASTM		Alloys Characteristics & Application
Molybdenum Mo	Sheets Plates, Strips, Rods Wire	B 386 B 386 B 386 B 387 B 387		<u>Molybdenum</u> is an important alloying agent which contributes to the hardenability and toughness of quenched and tempered steels. It also improves the strength of steel at high temperatures. It is used in certain heat-resistant and corrosion-resistant nickel-based alloys. Almost all ultra-high strength steels contain 0.25% to 8% molybdenum. Applications. used in nuclear energy, for missile and aircraft parts. electrodes for electrically-heated glass furnaces. Refining of petroleum.

Tantalum Ta	Sheet Plate Strip Wire Rod	B 708 B 708 B 708 B 365 -12 B 365 - 12		Tantalum has good thermal conductivity Tantalum is also famous for its resistance to corrosion by acids. Applications: used is in the manufacture of heating elements, vacuum tubes and other high temperature parts. Another major use of tantalum is for electronic components, and due to its absorption properties. Heat exchanger in boilers where strong acids are vaporized.
----------------	--	--	--	---

Zirconium Zr	Sheet Plates Rod Bar Strip/Foil	B 551 B 551 B511 B 550 B 551		Zirconium is a lustrous, greyish white, soft, ductile and malleable metal zirconium is highly flammable, Zirconium is highly resistant to corrosion by alkalis, acids, salt water and other agents. zirconium metal typically contains 1–2.5% of hafnium. Typical Application. often used as an alloying agent in materials that are exposed to aggressive environments, such as surgical appliances, light filaments Cladding for nuclear reactor fuels, used in space vehicle parts for their resistance to heat.
-----------------	---	--	--	---



<p>Niobium Nb</p>	<p>Alloy Strip Alloy sheet Alloy Plate</p>	<p>B 393</p>		<p>Niobium is a shiny gray metal. Niobium metal is resistant to attack by most common chemicals. It does not combine with oxygen. Niobium occurs primarily in two minerals. Niobium always occurs with tantalum. Application: Niobium is used as an alloying agent in carbon and alloy steels and in non-ferrous metals, as it improves the strength of the alloy. It is also used in jet engines and rockets. Another popular use of niobium alloys is in the making of jewelry. Nuclear reactors are devices in which the energy of nuclear reactions is converted to electricity</p>
-----------------------	--	--------------	--	---

<p>Hafnium Hf</p>	<p>Strip Sheet Plate Rod</p>	<p>B 776</p>		<p>Hafnium is a lustrous, silvery, ductile metal. It resists corrosion due to formation of a tough impenetrable oxide film on its surface. hafnium chemically resembles zirconium and is found in zirconium minerals. Applications: Hafnium has a good thermal absorption so is used in control rods in nuclear reactors and nuclear submarines. It has been successfully alloyed with several metals including iron, titanium and niobium. It is also used in gas-filled and incandescent lights.</p>
-----------------------	--	--------------	--	--






# MV SUPER ALLOYS PVT. LTD.


“ Supplying The Process Industries”


An ISO 9001 : 2015 Certified Company

## Importer & Stockist of :

Nickel Alloys, Stainless Steel & Other High Performance Metals

 Office No. 8, 1st Floor, 102,  
Narayan Building,  
Ardeshir Dady Street,  
V. P. Road, Mumbai - 400 004.

 +91 22 2388 3922 | +91 22 2388 9792 | +91 22 2388 5515

 +91 22 2388 3937

 sales@mvsapl.com | info@mvsapl.com

 www.mvsupalloys.com

