

Modentic Valves

SUPER ALLOY SERIES



The typical Austenitic Stainless Steel – 18%Cr + 10% Ni have been adopted in corrosion resistant application for decades. In accordance with more and more application, the typical Austenitic stainless steel is not capable for more severe environment. More and stronger corrosion resistant ability by manifesting the feature of various element, are demanded by the market. With wider sources of castings and bar material, Modentic decide to involve more in this field. And now, **Ball valves in material Alloy 20, Hastelloy, Monel & Duplex, end connection of ANSI 150#RF flanged and threaded, size from 1/2" to 6" are available ex-stock from our warehouse. Customized products machined from bar are also welcomed.**

Material Code	Elements Content (%)	Casting		
		ASTM	DIN	UNS
Austenitic Stainless Steel				
General				
SS304	19Cr-9Ni	CF8	1.4308	J92600
SS304L	19Cr-9Ni-C<0.03%	CF3	1.4306	J92500
SS347	19Cr-10Ni-Nb	CF8C	1.4552	J92710
Specific				
SS316	19Cr-10Ni-2.5Mo	CF8M	1.4408	J92900
SS316L	19Cr-10Ni-2.5Mo-C<0.03%	CF3M	1.4404	J92800
SS317	19Cr-11Ni-3.5Mo	CG8M	1.4437	J93000
SS317L	19Cr-11Ni-3.5Mo-C<0.03%	CG3M	1.4438	J92999
Super Austenitic Stainless Steel				
904L	21Cr-25Ni-4.5Mo-1.5Cu-N	-	1.4539	-
254 SMO	20Cr-18Ni-6.5Mo-Cu-N	A351 CK3MCuN	1.4547	J93254
Highly Corrosion-resistant Alloy				
Austenitic Stainless Steel (Iron base)				
Alloy 20	29Ni-20Cr-3.5Cu-2.5Mo	A351 CN7M	2.4660	J95150
Ni-Mo Alloy				
Hastelloy B	28Mo-5Fe-V	A494 N-12MV	2.4882	N30012
Hastelloy B2	28Mo-1Fe	A494 N-7M	2.4617	N30007
Ni-Cr-Mo Alloy				
Hastelloy C276	16Cr-17Mo-6Fe-4W-V	A494 CW12MW	2.4686	N30002
Hastelloy C22	21Cr-13.5Mo-4Fe-3W	A494 CX2MW	2.4602	N26022
Ni-Cu Alloy				
Monel 400	65Ni-32Cu	A494 M-35-1	2.4365	N24135
Nickel				
Nickel CZ100	97Ni	A494 CZ-100	2.4066	N02100
Titanium				
Grade 2	99Ti	B367 C2		
Grade 5	6Al-4V	B367 C5		
High Temperature Alloy (Nickel base)				
Inconel 600	15Cr-8Fe	A494 CY-40	2.4816	N06040
inconel 625	22Cr-9Mo-3.5Nb-2.5Fe	A494 CW6MC	2.4856	N26625
Duplex Stainless Steel				
1A	25Cr-5Ni-2Mo-3Cu	A890 Gr.1A CD4MCu	1.4517	J93370
1B	25Cr-5Ni-2Mo-3Cu-N	A890 Gr.1B CD4MCuN		J93372
2A	24Cr-10Ni-3.5Mo-N	A955 Gr.2A CE8MN		J93345
2205/4A	22Cr-5Ni-3Mo-N	A955 Gr.4A CD3MN	1.4470	J92205
Super Duplex Stainless Steel				
2507/5A	25Cr-7Ni-4Mo-N	A890 Gr.5A CE3MN	1.4469	J93404
Z100/6A	25Cr-7Ni-3.5Mo-Cu-N-W	A890 Gr.6A CD3MWCuN	1.4471	J93380
329	25Cr-4Ni-Mo		1.4460	

Effect of Major Alloying Elements

CHROMIUM

A stainless steel contains a minimum of 10.5% chromium because this level of chromium causes the spontaneous formation of a stable, transparent, passive, protective film. Increasing the level of chromium enhances corrosion resistance. At elevated temperatures, chromium provides resistance to oxidation and sulfur-containing and other corrosive atmospheres; contributes to high temperature creep and rupture strength; and, in some alloys, increases resistance to carburization.

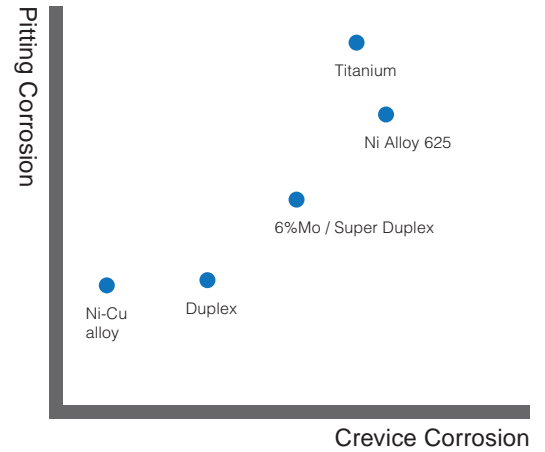
NICKEL

Nickel in stainless steels promotes the stability of austenite. Austenite is stronger and more stable at higher temperatures than ferrite. Less nickel is needed to retain an austenitic structure as the nitrogen or carbon levels increase. When sufficient nickel is added to a chromium stainless steel, the structure changes from ferritic to austenitic. Adding nickel improves toughness, ductility, and weldability. Nickel increases resistance to oxidation, carburization, nitriding, thermal fatigue, and strong acids, particularly reducing acids. It is an important alloying element in stainless steel and nickel-base alloys used for corrosive and high temperature applications.

MOLYBDENUM

Molybdenum additions improve resistance to pitting and crevice corrosion in chloride-containing environments and corrosion by sulfuric, phosphoric, and hydrochloric acids. The elevated temperature mechanical properties of austenitic stainless steels and the strength and tempering resistance of martensitic stainless steels are improved by molybdenum.

Comparative Corrosion Performance



Material Code	Typical Application
Austenitic Stainless Steel	
General	
SS304	Pulp and paper mills, Industrial water pipe and, and oil pipelines.
SS304L	
SS347	
Specific	
SS316	Food and biotechnology, seawater service, fertilizers processes textile and dyeing service, Industry wastewater reclamation.
SS316L	
SS317	
SS317L	
Super Austenitic Stainless Steel	
904L	Chemical and pharmaceutical industries, flue gas desulfurization, acid and alkali reactor, salt manufacturing processes and seawater desalination, chemical processes for highly concentrated chloride.
254 SMO	
Highly Corrosion-resistant Alloy	
Austenitic Stainless Steel (Iron base)	
Alloy 20	Sulfuric acid, acetic acid, phosphoric acid, nitrate acid, dilute hydrochloric acid, dilute hydrofluoric acid, and dilute alkali.
Ni-Mo Alloy	
Hastelloy B	Corrosion resistant processes handling chlorine, sulfuric acid, phosphoric acid, acetic acid and hydrogen chloride gas, also for processes handling chloride with high concentration at high temperature. (max. temp 60°C)
Hastelloy B2	
Ni-Cr-Mo Alloy	
Hastelloy C276	Processes handling oxidizing acid, formic acid, dilute sodium hydroxide, acetic anhydride, also for chemical processes handling fluoride. (max. temp 60°C)
Hastelloy C22	
Ni-Cu Alloy	
Monel 400	Harsh corrosive chemicals processes, hydrofluoric acid, caustic soda, potash liquor, and sulfuric acid. (max. temp 100°C)
Nickel	
Nickel CZ100	Corrosion resistant from many kinds of alkali, especially caustic soda.
Titanium	
Grade 2	Chemical and pharmaceutical industries, medical and biotechnology, seawater service, corrosion resistant from most kinds of acid and alkali, but could be not used in hydrofluoric acid (HF).
Grade 5	
High Temperature Alloy (Nickel base)	
Inconel 600	Combustion chambers · heat-treating equipment · chemical and petrochemical applications, phenol condensers, soap manufacture, vegetable and fatty acid vessels and many more. (high tensile at 800°C)
inconel 625	
Duplex Stainless Steel	
1A	Corrosion resistance and tensile than CF3M, food and biotechnology ,seawater service, fertilizers processes textile and dyeing service, Industry wastewater reclamation, also for dilute sulfuric acid, dilute phosphoric acid, dilute formic acid, dilute acetic acid. (Tensile >650MPa)
1B	
2A	
2205/4A	
2205/4A	
Super Duplex Stainless Steel	
2507/5A	Corrosion resistance and tensile than CF3M, food and biotechnology ,seawater service, fertilizers processes textile and dyeing service, Industry wastewater reclamation, also for dilute sulfuric acid, dilute phosphoric acid, dilute formic acid, dilute acetic acid. (Tensile >650MPa)
Z100/6A	
329	

1. V-006



2. V-255



3. V-356



4. MD-82



5. MD-51



6. V-S06



7. V-M05



Super Alloy Valves
CASTING

1. V-006

2 PIECES, Full Port, Threaded End
PRESSURE: 1000 psi
SIZE: 1/2" ~ 2"

2. V-255

3 PIECES, Full / Reduced Port
Threaded / Socket / Butt Weld End
PRESSURE: 2000 / 1500 psi
SIZE: 1/2" ~ 2"
OPTION: API607 Fire Safe Approved

3. V-356

3 PIECES, Full Port
Threaded / Socket / Butt Weld End
PRESSURE: 2000 psi
SIZE: 1/4" ~ 2"

4. MD-82

2 PIECES, Full Port, Flanged End
ANSI Class 150 / 300 / PN16 / PN40
SIZE: 1/2" ~ 12"
OPTION: API607 Fire Safe Approved

5. MD-51

1 PIECE, Reduced Port, Flanged End
ANSI Class 150 / 300
SIZE: 1" ~ 6"
OPTION: API607 Fire Safe Approved

Super Alloy Valves
BAR

6. V-S06

2 PIECES, Full Port
Threaded End
PRESSURE: 1000 psi
SIZE: 1/4" ~ 2"

7. V-M05

3 PIECES, Full Port
Threaded / Socket / Butt Weld End
PRESSURE: 1000 psi
SIZE: 1/4" ~ 2"

**1. Gate Valve
GTF**



**2. Globe Valve
GBF**



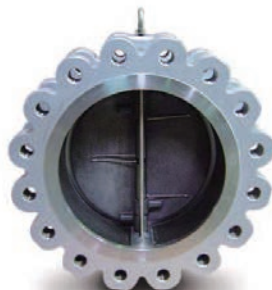
**3. Check Valve
SF**



**4. MV-1220
Wafer Type**



**5. MV-1221
Lug Type**



**6. NV-0060
NV-0061**



Super Alloy Valves

API600 / API603 Design
Gate • Globe • Check Valves

1. GTF - Gate Valve

ANSI Class 150 / 300 / 600
SIZE: 2" ~ 24"

2. GBF - Globe Valve

ANSI Class 150 / 300 / 600
SIZE: 2" ~ 24"

3. SF - Check Valve

ANSI Class 150 / 300 / 600
SIZE: 2" ~ 24"

Super Alloy Valves

API594 / API6D Design
Dual Plate Check Valves

4. MV-1220 Wafer Type

ANSI Class 150 / 300 / JIS10K / PN16 / PN40
SEAT: NBR / EPDM / Viton / Metal
SIZE: 1-1/2" ~ 60"

5. MV-1221 Lug Type

ANSI Class 150 / 300 / PN16 / PN40
SEAT: NBR / EPDM / Viton / Metal
SIZE: 2" ~ 20"

6. Needle Valve (from bar)

NV-0060 Female x Female
NV-0061 Male x Female
CWP: 6000 psi
SIZE: 1/4" ~ 2"