



# DMV 8367

DMV 8367 alloy is a super austenitic stainless steel with outstanding resistance to chloride pitting and crevice corrosion. DMV 8367 alloy offers a means to upgrade corrosion resistance significantly from 316L stainless, but without the expense of using alloy C-276 and other high nickel alloys.

Because of its nitrogen content, DMV 8367 alloy has greater tensile strength than common austenitic stainless, while retaining high ductility and impact strength.

The ASME allowable stresses for DMV 8367 alloy are up to 40% higher than for 316L stainless, and more than twice those for alloy 400 (Ni-Cu).

Carbon <b>C</b> < 0.03	Chromium <b>Cr</b> 21	Nickel <b>Ni</b> 24.5	
Molybdenum <b>Mo</b> 6.5	Nitrogen <b>N</b> 0.18-0.25		
Manganese <b>Mn</b> < 2	Silicon <b>Si</b> < 1	Phosphorus <b>P</b> < 0.04	Sulphur <b>S</b> < 0.03

Chemical composition nominal %

## 1. Applications

- Flue gas desulfurization (FGD) equipment
- Reverse osmosis desalination equipment and pumps
- Chemical process tanks and pipelines
- Seawater heat exchangers
- Tall oil distillation columns and packing
- Offshore oil and gas production equipment
- Pulp bleaching plant washer, vats, press rolls, and pipelines
- Salt dryers

## 2. Features

- Excellent resistance to pitting and crevice corrosion in chloride solutions
- Practical immunity to stress corrosion cracking in NaCl environment
- High strength and toughness

## 3. Description

### 3.1 Reference Standards

- UNS: N08367
- ASTM: B 688, A 240, B 675, A 312, B 676, A 249, B 804, B 690, A 479, B 462, A 182, B 564, B 366, B 472
- ASME: SB-688, SA-240, SB-675, SA-312, SB-276, SA-249, SB-690, SA-479, SB-462, SA-182, SB-564, SB-366 Case Code N-438-3, B31.1 Case 155-1

### 3.2 Chemical Composition

	% min.	% max.
<b>Ni</b>	23.5	25.5
<b>Cr</b>	20.0	22.0
<b>Mo</b>	6.0	7.0
<b>Mn</b>		2.0
<b>Cu</b>		0.75
<b>Si</b>		1.0
<b>C</b>		0.03
<b>N</b>	0.18	0.25
<b>S</b>		0.03
<b>P</b>		0.04
<b>Fe</b>		balance

## 3.3 Physical Properties

**Density:** 0.291 lb/in<sup>3</sup>  
**Melting Range:** 2410 - 2540°F **Electrical Resistivity at 20 °C:** 535 Ohm-circ mil/ft

(°C)	Coefficient* of Thermal Expansion, in/in°F x 10 <sup>-6</sup>	Thermal Conductivity Btu ft/ft <sup>2</sup> hr °F	Modulus of Elasticity Dynamic, psi x 10 <sup>6</sup>
<b>21</b>		6.7	28.3
<b>93</b>	7.9	7.5	27.4
<b>149</b>	8.3	8.1	
<b>204</b>	8.4	8.7	26.1
<b>316</b>	8.6	10.0	24.8
<b>371</b>	8.7	10.6	
<b>427</b>	8.8	11.2	23.4

\*70°F to indicated temperature

## 3.4 Mechanical Properties

Minimum Specified Properties, ASME SB-688 Plate

	MPa	ksi
<b>Ultimate Tensile Strength</b>	655	95
<b>0.2% Yield Strength</b>	310	45
<b>Elongation %</b>	206	30
<b>Hardness MAX, HRC</b>	210	30.5

### 3.4.1 Mechanical Properties Cont.

Typical Tensile Properties, Plate

Temp. °C	Ultimate Tensile	Ultimate Tensile Strength, ksi	0.2% Yield Strength, MPa	0.2% Yield Strength, ksi	Elongation, %	Charpy Impact V-notch, ft-lbs
<b>-267</b>	1.503	218.0	979	142.0	36	322*
<b>-196</b>	1.351	196.0	737	107.0	49	85
<b>21</b>	744	108.0	365	53.0	47	140
<b>93</b>	688	99.9	340	49.4	47	
<b>204</b>	622	90.3	278	40.4	46	
<b>316</b>	592	86.0	250	36.3	47	
<b>427</b>	599	87.0	248	36.0	48	
<b>538</b>	576	83.6	234	34.0	50	

\*K<sub>IC</sub> Fracture Toughness

ASME Maximum Allowable Stresses

Temp. °C	DMV 8367	316L	Alloy 400
<b>93</b>	27.1	20.0	18.7
<b>204</b>	24.6	19.3	18.7
<b>316</b>	23.3	17.0	18.7
<b>427</b>	22.6	15.9	15.0

### 3.5 Corrosion Resistance

	DMV 8367	ZERON® 100	316L
<b>PRE<sub>N</sub></b>	44	41	24
<b>CPT, °C</b>	78	82	20
<b>CCCT, °C</b>	43	42	<-2

PRE<sub>N</sub> = %Cr + 3.3%Mo + 16%N

Critical Crevice Corrosion Temperature (CCCT) - ATSM G48B

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