



Stainless Steel GX5CrNiMo19-11-2 (EN 1.4408)

GX5CrNiMo19-11-2 is a popular austenitic stainless steel for casting purposes; it is an austenitic corrosion-resistant casting steel. GX5CrNiMo19-11-2 is defined in standards EN 10213, EN 10283, and ISO 11972, with the EN designation being 1.4408. DIN 17445 also have the stainless steel grade EN 1.4408 with name of G-X6CrNiMo18-10. In fact, GX5CrNiMo19-11-2 (EN 1.4408) is the same stainless steel material as SS316 and X5CrNiMo17-12-2 (EN 1.4401) in EN 10088-3.

Casting Methods in Casting Quality Industrial:

- Sand Casting
- Investment Casting (Lost Wax Casting, Precision Casting)

Reference Casting Standards:

EN 10213:2007+A1:2016 Steel castings for pressure purposes

EN 10283: 2019 Corrosion resistant steel castings

ISO 11972:2023 specifies cast steels for general corrosion-resistant applications.

DIN 17445:1984 Stainless steel castings

GX5CrNiMo19-11-2 (EN 1.4408) Equivalent Stainless Steel Grade:

American: ASTM A351 CF8M (J92900)

American: ASTM A743 CF8M (J92900)

American: ASTM A744 CF8M (J92900)

American: ASTM A297 CF8M (J92900)

Japanese: JIS 5121 SCS14A

Chinese: GB/T 12230 CF8M(ZG0Cr18Ni9Mo2),

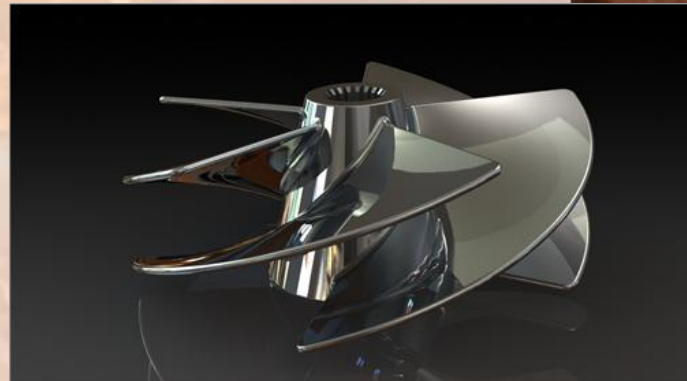
France: AFNOR GX5CrNiMo19-11-2, Z 6 CND 17.11

UK: BS3100 316C12

Korea: KS D4103 SCS14A

EN 10088-3: X5CrNi17-12-2 (EN 1.4401)

SS316



GX5CrNiMo19-11-2 (EN 1.4408) Physical Properties:

Density at 20°C, kgs/dm ³ :	7.90
Mean thermal expansion, 10 ⁻⁹ k ⁻¹ (20°C to 100°C):	15.8
Thermal conductivity, W/(m.k) at 50°C:	14.5
Specific heat, j/(kg.k) at 20°C:	530
Magnetic properties:	none to slight magnetic

GX5CrNiMo19-11-2 (EN 1.4408) Heat treatment process:

Solution annealing + water quenching (+AT)

Heat to 1080-1150°C for sufficient time to heat casting uniformly to temperature and water quench



GX5CrNiMo19-11-2 (EN 1.4408) BENEFITS

- Corrosion and pitting resistance
- Better for abrasive applications
- Higher strength than standard stainless steel
- Improved ductility and weldability
- Better resistance to embrittlement

GX5CrNiMo19-11-2 (EN 1.4408) Welding conditions:

No Preheated, solution anneal post weld heat treatment required.

GX5CrNiMo19-11-2 (EN 1.4408) Typical Casting Application: it's the most popular stainless steel.

- Pump industry, valves, pipe fittings.
- Machinery spare part
- Automobile industry
- Food industry
- Construction industry

GX5CrNiMo19-11-2 (EN 1.4408) Chemical requirements and Mechanical Property

Standard	EN 10213	EN 10283	ISO 11972	EN 10088-3	DIN 17445
Grade	GX5CrNiMo19-11-2	GX5CrNiMo19-11-2	GX5CrNiMo19-11-2	X5CrNiMo17-12-2	G-X6CrNiMo18-10
EN number	1.4408	1.4408	1.4408	1.4401	1.4408
Chemical requirements					
C max	0.07	0.07	0.07	0.07	0.07
Si max	1.50	1.50	1.50	1.00	1.50
Mn max	1.50	1.50	1.50	2.00	1.50
P max	0.04	0.04	0.04	0.045	0.045
S max	0.03	0.03	0.03	0.015	0.030
Cr	18.0-20.0	18.0-20.0	18.0-20.0	16.5-18.5	18.0-20.0
Mo	2.0-2.5	2.0-2.5	2.0-2.5	2.0-2.5	2.0-3.0
Ni	9.0-12.0	9.0-12.0	9.0-12.0	10.0-13.0	10.0-12.0
Cu max	0.50	-	-	-	-
N max	-	-	-	0.11	-
Mechanical Property					
Thickness, mm	150	150	150	75	-
Tensile Mpa, min	440-640	440	440	520-670	440-640
0.2% proof Mpa, min	-	185	185	220	185
1% proof Mpa, min	210	210	-	260	-
Elongation, %, min	30	30	30	Long 45 Tr 45	20
Impact Kv,J, min	60	60	60	Long 100 Tr 60	60
Hardness	-	-	-	-	130-200 HB



GX5CrNiMo19-11-2 (EN 1.4408) vs 1.4401 vs SS316 vs CF8M

- Si content different.
- S content different.
- Cr content different.
- Ni content different.
- Tensile strength different.
- Elongation different.

Standard	EN 10213	EN 10088-3	ASTM A240	ASTM A351
Grade	GX5CrNiMo19-11-2	X5CrNiMo17-12-2	SS316	CF8M
EN / UNS	1.4408	1.4401	S31600	J92900
Chemical requirements				
C, max	0.07	0.07	0.08	0.08
Si, max	1.50	1.00	0.75	1.50
Mn, max	1.50	2.00	2.00	1.50
P, max	0.04	0.045	0.045	0.040
S, max	0.03	0.015	0.030	0.040
Cr	18.0-20.0	16.5-18.5	16.0-18.0	18.0-21.0
Mo, max	2.0-2.5	2.0-2.5	2.0-3.0	2.0-3.0
Ni	9.0-12.0	10.0-13.0	10.0-14.0	9.0-12.0
Cu, max	0.50	-	-	-
N	-	0.11	0.10	-
Mechanical Property				
Thickness, mm	150	75	-	-
Tensile Mpa, min	440-640	520-670	515	485
0.2% proof Mpa, min	-	220	205	205
1% proof Mpa, min	210	260	-	-
Elongation, %,min	30	Long 45 Tr 45	40.0	30
Impact Kv,J, min	60	Long 100 Tr 60	-	-
Hardness, HB, max	-	-	201	-



Mechanical properties

ReH	Minimum yield strength / Mindestwert der oberen Streckgrenze / Limite d elasticite minimale
Rm	Tensile strength / Zugfestigkeit / Resistance a la traction
A	Minimum elongation / Mindestwert der Bruchdehnung / Allongement minimal
J	Notch impact test / Kerbschlagbiegeversuch / Essai de flexion par choc

Heat treatment conditions

- +A Soft annealed
- +AC Annealed to achieve spheroidization of the carbides
- +AR As rolled
- +AT Solution annealed
- +C Cold drawn / hard
- +CR Cold rolled
- +FP Treated to ferrite-pearlite structure and hardness range
- +I Isothermal annealing
- +LC Cold drawn / soft
- +M Thermo mechanical rolling
- +N Normalized
- +NT Normalized and tempered
- +P Precipitation hardened
- +PE Peeled
- +QA Air quenched and tempered
- +QL Liquid quenched and tempered
- +QT Quenched and tempered
- +S Treated to improve shearability
- +SH As rolled and turned
- +SR Cold drawn and stress relieved
- +T Tempered
- +TH Treated to hardness range
- +WW Warm worked
- +U Untreated



Stainless Steel Valve Body
Investment Casting
www.castingquality.com



As a professional manufacturer in China, We Casting Quality focus on Metal Parts OEM industry, and provide solutions and services in Metal Casting field as following:

1. **Sand Casting**
2. **Investment Casting, Lost Wax process**
3. **Shell Casting**
4. **Lost Form Casting**
5. **CNC Machining**
6. **CAD Design**
7. **Tools/Mold Design**

Material Supplied

- Cast Iron Castings (Grey Iron, Malleable Iron, Ductile Iron)
- Carbon Steel and Alloy Steel Castings
- Stainless Steel and Duplex Stainless Steel Castings
- Aluminum Castings
- Bronze and Brass Castings
- Titanium and Cobalt Alloy Castings

What We Can Do

➤ Design Ability

Our engineers will help you to improve the designs based on casting technology, then The simulation software will be processed to verify the casting pouring system. Pro/E, Solidworks, AutoCAD and ProCast are available in Casting Quality Industrial.

➤ Saving Cost

Some manufacture processes may lead high cost. We will analyze the designs and advise the suitable methods to our customers. The best solution will be adopted.

➤ Quality Control

From the raw material selecting to bulk production processing, all procedures will follow PPAP program if necessary. The certificates will be provided including chemistry, hardness, mechanical property or NDT testing.

➤ Production Capacity

The max iron/steel castings can reach 30tons in weight, meanwhile the minus casting is around 1 gram only.

We also have prototyping and 3D scanning ability for sample plan.

➤ Logistic Service

The products will be delivered directly to customer's workshop, which will save plenty of work for clients.

Contact with Us Immediately

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