









BUTTING



Your stock in Canada: Duplex & superduplex stainless steel pipe

-  Corrosion resistant pipes
-  Clad pipes
-  Special pipes and components ready for installation
-  Prefabricated piping/spools
-  Vessels, tanks and columns
-  Fittings



BUTTING



Duplex and superduplex pipe stock in Canada

BUTTING Canada stocks longitudinally welded pipes in UNS S31803/UNS S32205 and UNS S32750. The sizes available range from 8" to 24" in wall thicknesses 10S and 40S.

Characteristics of the duplex pipes:

- Manufactured acc. to ASTM A / SA 790
- 100 % X-ray tested
- Bevelled ends acc. to ANSI B16.25
- In conformity with NACE MR 0175, MR 0103
- Corrosion test acc. to ASTM G48, Method A
- Corrosion test acc. to ASTM A923, Method C

Characteristics of the superduplex pipes:

- Manufactured acc. to ASTM A928, Class 1
- 100 % X-ray tested
- Bevelled ends acc. to ANSI B16.25
- Acc. to NORSOK M-630, MDS 52
- In conformity with NACE MR 0175, MR 0103

Manifold made from superduplex



Table 1: Pipe chart

Outside diameter (inch)	Wall thickness (mm)		Weight (lbs./ft.)* (kg/m)*	
	SCH10S	SCH40S		
8"	SCH10S	3.76	13.40	20.27
8"	SCH40S	8.18	28.55	43.20
10"	SCH10S	4.19	18.65	28.20
10"	SCH40S	9.27	40.48	61.22
12"	SCH10S	4.57	24.20	36.54
12"	SCH40S	9.53	49.56	75.01
14"	SCH10S	4.78	27.73	41.99
16"	SCH10S	4.78	31.75	48.07
16"	SCH40S	9.53	62.58	94.70
18"	SCH10S	4.78	35.76	54.15
18"	SCH40S	9.53	70.59	106.83
20"	SCH10S	5.54	46.05	69.70
20"	SCH40S	9.53	78.60	118.95
24"	SCH10S	6.35	63.41	95.92
24"	SCH40S	9.53	94.62	143.20

* Indications are guidelines only

No guarantee for correctness



1 600 m of BUTTING pipes – the flareline for the project Snøhvit

Properties of duplex steel

Duplex steel takes its name from its two-phase micro-structure of ferrite and austenite in almost equal measure. Compared to austenitic steels, duplex steels contain less nickel (about 4–8 %). This results in a very good price/value relationship: Cost-effective materials are used and the high-quality properties of ferritic materials are maintained. At the same time, the excellent corrosion resistance of austenite continues in duplex.

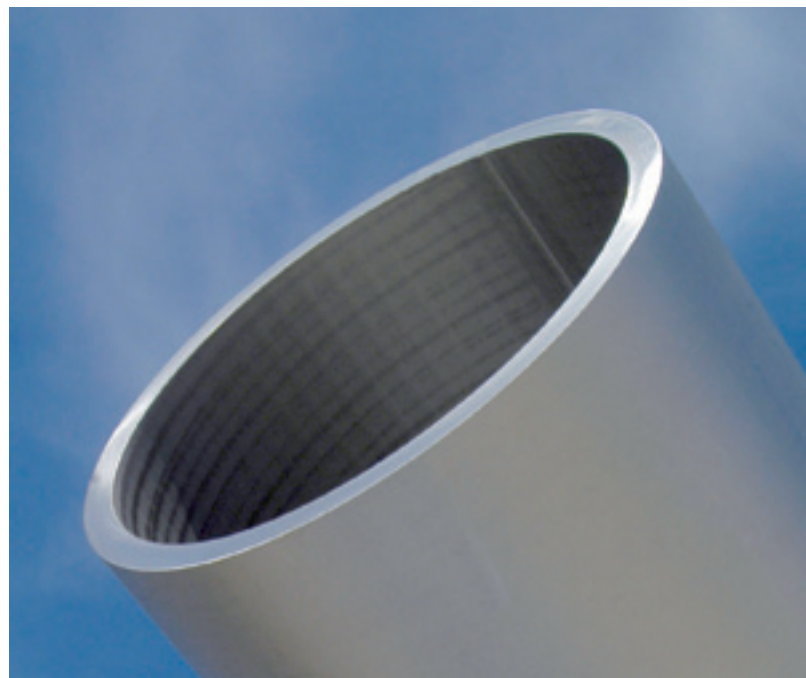
According to the ASTM/ASME standards (ASTM A240, ASTM A789/A790, ASTM A928), the materials UNS S31803 and UNS S32205 have become predominant among duplex steels.

In UNS S32205, the minimum chromium, molybdenum and nitrogen content has been increased compared to UNS S31803.

Both materials are distinguished by a high corrosion resistance, especially to pitting corrosion and stress corrosion cracking. In addition, the strength values are around twice as high as for normal stainless steels.

According to ASME Boiler and Pressure Vessel Code (ASME Section II Part D) and ASME Code for Pressure Piping (ASME B31.3), duplex may be used when temperatures are between -60 to $+600$ °F.

BUTTING has been supplying duplex pipes for worldwide use since 1979





Properties of superduplex steel

The nitrogen alloyed ferritic-austenitic steel UNS S31803/UNS S32205 was the basis for the development of a third generation of ferritic-austenitic steels. These higher alloyed duplex steels are called superduplex steels.

The UNS S32750 normally contains 25 % chromium, 7 % nickel, 4 % molybdenum and 0.25 % nitrogen. This material is especially noted for an even higher resistance to pitting corrosion, crevice corrosion and stress corrosion cracking, as well as higher strength properties.

Table 2: Chemical analyses of some duplex grades and superduplex grades

Grade	Standard	% C	% Cr	% Mo	% Ni	% N
UNS S31803	ASTM A240	Max. 0.030	21.0 – 23.0	2.5 – 3.5	4.5 – 6.5	0.08 – 0.20
UNS S32205	ASTM A240	Max. 0.030	22.0 – 23.0	3.0 – 3.5	4.5 – 6.5	0.14 – 0.20
UNS S32750	ASTM A240	Max. 0.030	24.0 – 26.0	3.0 – 5.0	6.0 – 8.0	0.24 – 0.32

Table 3: Mechanical-technological properties of the raw material at ambient temperature

Grade	Standard	R _{p0.2} [MPa]	R _m [MPa]	A ₅ [%]	Hardness
UNS S31803	ASTM A240	≥ 450	≥ 620	≥ 25	HRC ≤ 31
UNS S32205	ASTM A240	≥ 450	≥ 655	≥ 25	HRC ≤ 31
UNS S32750	ASTM A240	≥ 550	≥ 795	≥ 15	HRC ≤ 32

Table 4: Yield strengths (R_{p0.2}) at elevated temperature

Grade	212 °F [MPa]	392 °F [MPa]	482 °F [MPa]	536 °F [MPa]
UNS S31803	≥ 360	≥ 315	≥ 300	≥ 285
UNS S32205	≥ 360	≥ 315	≥ 300	≥ 285
UNS S32750	≥ 480	≥ 420	≥ 405	≥ 395

Table 2–4: No guarantee for correctness



BUTTING – a name that stands for quality

The name BUTTING has stood for more than 230 years for quality and reliability in the metal processing industry. We are a leading global manufacturer of stainless steel longitudinally welded pipes and piping components.

The BUTTING Group focuses on the processing of stainless and clad materials. Our core competences are materials, welding and forming technology and comprehensive quality assurance.

Our parent plant is in Knesebeck, in Northern Germany. With sites in Canada, China, Brazil and Belgium, the BUTTING Group is international in character. This allows us to cover our projects all over the world, and yet still be close to our customers.

Fabricated duplex pipes



BUTTING's duplex and superduplex products are used all over the world for a wide range of applications:

- Oil and gas industry (oil sands, offshore applications, pipelines, FPSO etc.)
- Chemical and petrochemical plants
- Desalination plants
- Mining industry
- Many other branches of industry



We deliver pipes for seawater desalination plants

On-site for you, all over the world: BUTTING Canada

Proximity to customers is of great importance to BUTTING. Since 2005 we have had a Canadian sales office in Cochrane/Alberta. BUTTING Canada provides our services directly on-site to customers in the North American market. We have recently acquired a stocking facility in Canada to cater to your requirements on short notice.

BUTTING Canada has already begun many successful projects. Duplex and superduplex pipes and spools were supplied in close collaboration with the parent plant in Knesebeck for many projects:

- Kearn Oil Sands Project
- Project Escal platform of Eurogas
- Husky White Rose
- And many more



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