

AL-6XN® Alloy Solves Seawater Desalination Corrosion Problems



Specifications

UNS: N08367 **ASTM:** B 688, A 240, B 675, A 312, B 676, A 249, B 804, B 691, 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-691, SA-479, SB-462, SA-182, SB-564, SB-366 Code Case N-438-3, B-31.1 Case 155-1

Chemical Composition, %

	Ni	Cr	Mo	Mn	Cu	Si	C	N	S	P	Fe
MIN	23.5	20.0	6.0	—	—	—	—	0.18	—	—	—
MAX	25.5	22.0	7.0	2.0	0.75	1.0	0.03	0.25	0.03	0.04	balance

Case History

The Waterfields Company Ltd., of Nassau, Bahamas owns and operates a seawater reverse osmosis desalination facility on the Bahamian island of New Providence. Built by DESALCO, of Georgetown, Grand Cayman, this 2.64 million gallon per day facility provides 20% of the Nassau's fresh water needs. The plant consists of a four train operation, utilizing diesel generator powered high pressure positive displacement pumps.

The seawater at this location contains 39,000 ppm total dissolved solids. After as little as six months operation, the original 316/316L stainless steel piping began to fail by corrosive attack. The 316/316L was replaced by AL-6XN alloy pipe to solve these corrosion problems and eliminate costly downtime and repairs. The AL-6XN alloy material has performed faultlessly since 1997.

Other AL-6XN seawater desalination installations include:

- Tampa Bay, Florida
- Margarita Island, Venezuela
- Las Palmas, Canary Islands
- Ashkelon, Israel
- Curacao
- Trinidad

Case History (cont)

AL-6XN alloy is a Super-Austenitic Stainless Steel with a nominal composition of 24% nickel, 20% chromium, 6.2% molybdenum, and 0.22% nitrogen. The alloy was developed specifically for seawater use. Since 1985, AL-6XN alloy has provided successful service in a wide variety of operating conditions from power plants, heat exchangers, to offshore oil platforms.

Rolled Alloys supplies AL-6XN alloy in all popular products forms including pipe, fittings, flanges, plate, sheet and bar.

Product Availability

AL6XN Products Available From Inventory

	ASTM	ASME	Sizes range from:
Plate	B688	SB-688	3/16" to 3"
Sheet	B688	SB-688	10 to 24 gauge
Bar	B691	SB-691	3/8" to 8" diameter

Pipe & Fittings

	ASTM	ASME	Wall	NPS
Welded Pipe	B675	SB-675	Schedule 10S, 40S & 80S	1/2" to 8"
Concentric Reducers Butt Weld	B366	SB-366	Schedule 10S, & 40S	1-1/2" x 1" to 6" x 4"
Equal Tees Butt Weld	B366	SB-366	Schedule 10S, & 40S	3/4" to 6"
Long Radius Elbows Butt Weld	B366	SB-366	Schedule 10S, & 40S	1/2" to 8"
Flanges 150# Raised Face	B462	SB462	RF Blind, Slip On RF Weld Neck, Sch 40S Bore	3/4" to 8" 1" to 6"
Stub Ends MSSA	B366	SB-366	Schedule 10S, & 40S	1/2" to 8"
Couplings 3000# Threaded	B691	SB-691	Full Half	1/4" to 2" 1/4" to 1"

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