

## LDX 2101® Storage Tank Operating After Nearly 8 Years in Service



### Specifications

UNS: S32101 W. Nr./EN: 1.4162 ASTM: A 240 ASME: SA-240

### Chemical Composition, %

	Ni	Cr	Mo	Mn	Cu	Si	C	N	S	P	Fe
MIN	1.35	21.0	0.1	4.0	0.1	—	—	0.2	—	—	—
MAX	1.7	22.0	0.8	6.0	0.8	1.0	0.04	0.25	0.03	0.04	balance

### Case History

LDX 2101 was chosen as the material of construction for a storage tank at a chemical company located in southeastern U.S. After nearly 8 years in service, the tank is still in operation. This tank, with an approximate capacity of 1.25 million gallons, has stored a chemical intermediate used to make plastics. This 50 ft. diameter, 48 ft. high tank was fabricated using approximately 75 tons of LDX 2101 plate. Sizes range from 3/16" up to 1" thick.

Fisher Tank Company, with offices in Chester, PA, Lexington, SC, and Cropwell, AL, was chosen as the fabricator and erector for this chemical storage tank. Since 1948, Fisher Tank Company has been designing, erecting, repairing, and modifying above ground bulk storage tanks. They focus their efforts on carbon and stainless steel bulk storage tanks throughout the eastern part of the United States.

LDX 2101 was chosen as the material of construction for this storage tank over 316L stainless steel. LDX 2101 offers many benefits when compared to 316L stainless including increased strength and resistance to chloride SCC. Because of the strength of LDX 2101, Fisher Tank was able to reduce the wall thickness for three of the six elevations versus 316L, reducing material weight by over 11,000 pounds. This resulted in a 10% material reduction for the tank walls, although no thickness reduction was made for the floor or the roof of the tank.



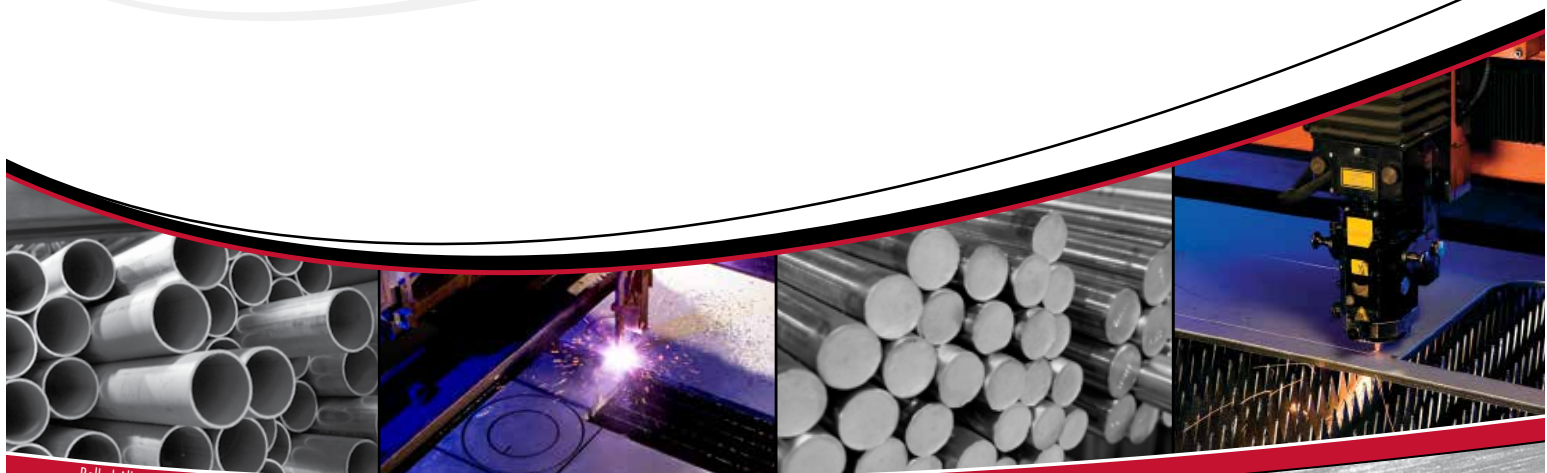
### Case History, Continued

The table below shows the mechanical properties of LDX 2101, 316L, and 304L. As you can see, LDX 2101 has much higher strength values compared to 304/L and 316/L stainless.

Alloy	Ultimate Tensile Strength, ksi (min)	0.2% Yield Strength, ksi (min)
LDX 2101	94	65
304/304L	75	30
316/316L	75	30

Due to the storage tank containing chemicals at elevated temperatures, it was necessary to insulate the entire tank to allow for minimum heat loss. To resist under insulation cracking in 316L stainless, the tank would have needed to be painted to resist chloride SCC. Because LDX 2101 is resistant to chloride SCC, there was no need to paint the tank before insulating, saving time and money during fabrication. The tank was welded from the inside and out, using a submerged arc welding process (SAW) LDX 2101 filler metal. Duplex stainless steel was chosen for the pipe and fittings.

Rolled Alloys® supplied over 150,000 pounds of plate and 1,350 pounds of weld wire to Fisher Tank for this project. Rolled Alloys stocks plate, sheet, pipe, round bar, and welding consumables in various thicknesses and sizes in LDX 2101.



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