

## LDX 2101® Chosen for Sewage Gate over 304L and 316L Stainless



### Specifications

**UNS:** S32101 **W. Nr./EN:** 1.4162 **ASTM:** A 240, A 479, A 276, A 789, A 790  
**ASME:** SA-240, SA-479, SA-790, SA-789 Section IV Code Case 2603, Section VIII Code Case 2418

### 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

Lean duplex stainless steel, LDX 2101, was chosen for the fabrication of a sewage gate in a sewage containment holder in Ohio. The entire project used nearly 4,000 pounds of ¼ inch plate in LDX 2101.

Sarka Sheet Metal & Fabrication Inc. ([www.sarkaconveyors.com](http://www.sarkaconveyors.com)) located in Tiffin, Ohio was chosen for the complete fabrication and installation of the gate overflow system. Sarka Sheet Metal & Fabrication has been fabricating and erecting heavy gage dust collection equipment, tanks, hoods, hoppers and chutes since 1985. Having worked with a variety of stainless steels as well as lean duplex stainless steel, Sarka Sheet Metal & Fabrication quotes a variety of projects.

This new sewage overflow gate construction was previously done using 304L stainless steel. The previous design using 304L stainless steel lasted about 15-18 years before needing to be replaced. The corrosion of the sewage caused severe general thinning of the 304L stainless steel. The end user of the sewage overflow gate asked that another alloy, such as 316L stainless steel, be used for increased corrosion resistance. After investigation and work with Rolled Alloys, Sarka Sheet Metal decided that LDX 2101 duplex stainless steel would provide a similar corrosion resistance to 316L stainless steel at a much lower cost. The nearly doubled strength of the LDX 2101 over 316L stainless steel was also considered an additional advantage.



### Case History, Continued

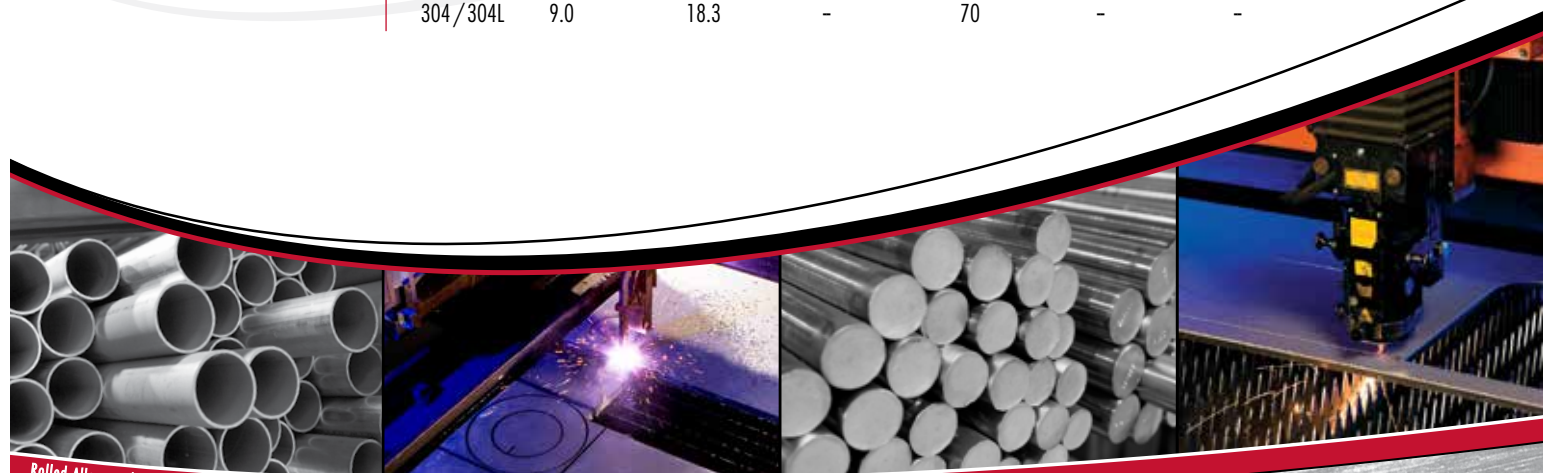
The table at right gives a comparison of some key advantages for LDX 2101 compared to 304L and 316L stainless steel. The improved corrosion resistance of LDX 2101 is essential due to the variability of bacteria and chemicals in the sewage and waste water treatment facilities. Having twice the yield strength allows for either stronger structures or the potential for weight reduction by using a thinner gage of material.

All these factors were considered when selecting LDX 2101 for this project. LDX 2101 is a lean duplex stainless steel designed for general purpose use. Like other duplex stainless steels, LDX 2101 provides both superior strength and chloride stress corrosion cracking resistance compared to 300 series stainless steels. The use of manganese ensures proper ferrite-austenite phase balance, while allowing a reduction in nickel content. As a result, LDX 2101 is priced competitively with 304L and 316L stainless steels.

Alloy	Ultimate Tensile Strength, ksi	0.2% Yield Strength, ksi (min)	*CPT, °F	**PRE <sub>N</sub>
LDX 2101	101	65	61	26
316/316L	75	30	61	26
304/304L	75	30	41	21

\*Critical Pitting Temperature (CPT), 5.8% NaCl, ASTM G 150 | \*\*PRE<sub>N</sub> = Cr + 3.3Mo + 16N

Alloy	Ni, wt %	Cr, wt %	Mo, wt %	Fe, wt %	Mn, wt %	N, wt %
LDX 2101	1.5	21.5	0.3	70	5.0	0.22
316/316L	10.2	16.4	2.1	69	-	-
304/304L	9.0	18.3	-	70	-	-



Rolled Alloys and RA are registered trademarks of Rolled Alloys • LDX 2101 is a registered trademark of Outokumpu Stainless



The Global Leader in Specialty Metals