



UR™ 16

UR™ 16: A 304L nitric acid grade

UR™ 16 is a very low C content 304L type steel specially developed for nitric acid service. Its low content of sulfur, phosphorus and silicon (which are detrimental to corrosion resistance in nitric media) and higher nickel content improve UR™ 16 corrosion resistance in concentrated nitric acid up to 65%.

PROPERTIES

STANDARDS

> ASTM 304L NAG

CHEMICAL ANALYSIS - WEIGHT %

C	Si	Mn	S	P	Cr	Ni	Mo	N
≤ .015	≤ .1	≤ 1	≤ .005	≤ .015	18 - 20	11.5 - 12.5	≤ .2	≤ .04

MECHANICAL PROPERTIES

- > Rp 0.2 (typical value) = 265 MPa (38 ksi)
- > Rp 0.2 (minimal value) = 200 MPa (29 ksi)
- > Rm (typical value) = 570 MPa (83 ksi)
- > Rm (minimal value) = 500 MPa (73 ksi)
- > Elongation A = 45

Temperature (°C)	Rp0.2	Rm
	MPa	
20	≥ 175	≥ 450
70	≥ 130	≥ 380
100	≥ 110	≥ 340
200	≥ 100	≥ 300

PLATE PROCESSING

FABRICATION

The fabrication of this steel doesn't present any difference compared with the one of a 304L type steel, except on 2 points:

Heat treatment

The delivery state of plates consists of a heat treatment at a temperature between 900°C and 1000°C.
Please consult technical services for any heat treatment during fabrication.

PLATE PROCESSING

Welding

Without deposited metal, UR™16 can be welded with GTAW, PAW, EBW processes which have no influence on the chemical composition of the deposit (C, Si, S, P very low).

Concerning the weldings with deposited metal, i.e. GTAW with deposited metal, manual welding with electrode..., it would be better to consult Industeel technical services for the choice of suitable deposited materials.

Products of the following type have been successfully used:

C	Cr	Ni	Mo	Cu	Fe
≤ 0.030	28	36	3.8	1.8	base

W 2.4656



APPLICATIONS

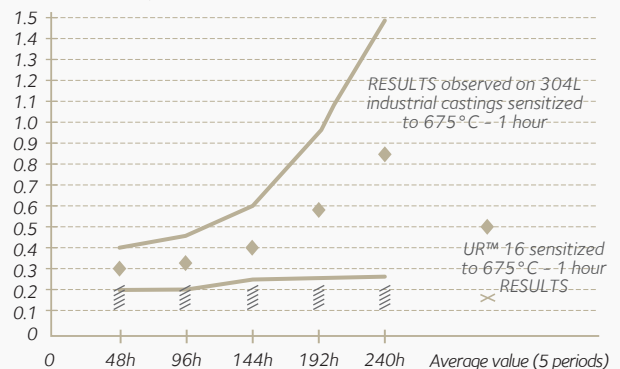
This steel is used preferably to a UR™ 304L low carbon content steel in nitric media of middle concentration (up to about 65%), especially when a great functioning security is required.

Examples :

- > dissolver for re-treatment industry
- > water and acid rinsers

HUEY TESTS (A262-C) 5 PERIODS IN HNO₃ (65% - BOILING)

Attack rate (mm/year)



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Technical data and information are to the best of our knowledge at the time of printing. However, they may be subject to some slight variations due to our ongoing research programme on steels. Therefore, we suggest that information be verified at time of enquiry or order. Furthermore, in service, real conditions are specific for each application. The data presented here are only for the purpose of description, and considered as guarantees when written formal approval has been delivered by our company. Further information may be obtained from the address opposite.