



**STAINLESS STEEL BALUSTRADE
AND HANDRAIL PRODUCTS**

Tel (08) 9302 3686

Fax (08) 9200 5673

sales@metforce.com.au

**Warehouse – 86 Furniss Road,
Landsdale, 6065, WA**

Postal - P O Box 194, Joondalup DC

**6919, WA, Australia
ABN 95 132 832 065**

BASIC DIFFERENCES BETWEEN 304, 316/L & 2205

Before we start –

Metforce assumes no risk and shall not be subject to any liability for any indirect, special, incidental, or consequential damages or for any loss of profits sustained by buyers or any party dealing with buyers in connection with the information contained in this report or resulting from the use or application of any of the recommendations contained in this report. The buyer is ultimately responsible for making all decisions and applying the appropriate technology based on good engineering practices.

What type of stainless steel?

304

Also known as 1.4301, this material has a full Austenitic structure and has sufficient corrosion resistance to act as a stainless steel in most general environments. Used predominantly in kitchens, transport, hospitals, architecture, etc.

316L

Also known as 1.4401 (or 1.4435 for 316L), this material is also has a full Austenitic structure and is superior in corrosion resistance to grade 304 due to a higher Nickel content and also added Molybdenum, which also makes this material more expensive. Used mainly in more corrosive areas such as marine environments or more polluted or acidic areas.

2205

Also known as S31803 or 1.4462, this material is a stainless steel which has enough Chromium to form an Austenitic crystal structure and therefore it consists of a mixed structure which is both Austenitic and Ferritic.

With the controlling of Nitrogen in the composition, the structure is around 50% Austenite and 50% Ferrite.

Failure to control the Nitrogen may hinder the Austenite formation which will affect the weldability and other properties.

Because of its high Chrome content, it has superior corrosion resistance in most environments to grade 316 or 316L.

Invented only recently (in the last 30 years) it is replacing grade 316 in many marine environment applications.

How good is it in marine conditions?

Let me illustrate using tables by SWCC.gov:

In natural sea water at 50 deg C -

	E pit mv (resistance to pitting)
304L	94
316L	154
2205	629



**STAINLESS STEEL BALUSTRADE
AND HANDRAIL PRODUCTS**

Tel: (08) 9302 3686

Fax: (08) 9200 5673

sales@metforce.com.au

**Warehouse – 86 Furniss Road,
Landsdale, 6065, WA**

Postal - P O Box 194, Joondalup DC

**6919, WA, Australia
ABN 95 132 832 065**

For coastal areas 2205 is far superior to grade 304, 316 or 316L
It may still stain if not maintained, but pitting will take longer to occur.

What does it contain?

	<u>304</u>	<u>316</u>	<u>2205</u>	(min %)
Chrome	18%	16%	21%	
Nickel	8%	10%	4.5%	
Molybdenum	-	2%	2.5%	

What are the mechanical properties?

	<u>304</u>	<u>316L</u>	<u>2205</u>
Ultimate Tensile MPa	515	515	700
0.2% Proof Strength	205	205	570
Hardness Brinell (max)	200	200	290

Differences to machine and cut?

Machining of 2205 is harder than 304 or 316 and you will use more consumables.
Cutting speed is about 20% slower on 2205.

Clamping products, such as glass clamps and spigots?

From our experience, “Splaying” is around 50% less than 304 or 316/L when using 2205.

Cost?

Generally 2205 costs around 20% more than 316, and 316 is around 40% higher than 304.

If you have any questions, please speak to us at Metforce.