Description.

Stainless steel is not a single specific material, it is a given name to a group of corrosion resitant steels normally containing at least 11% chromium and bearing additions of nickel, molybdenum, titanium and niobium.

Composition.

Chromium	Gives corrosion resistance. Ferrite former.
Carbon	Gives hardness. Powerful austenite former.
Nickel	Gives ductility. Increases high temperature strength. Austenite former.
Manganese	Combines with Sulphur to form sulphides which are austenite formers.
Silicon	Increases high temperature strength. Prevents carburization. Ferrite former.
Molybdenum	Increases corrosion resistance and high temperature strength
Titanium and Columbium	Stabilise
Sulphur and Selenium	Increase machinability. Lower ductility and corrosion resistance.
Nitrogen	Powerful austenite former.
Copper	Increases corrosion resistance for sulphuric applications. Austenite former.

Material Grades.

The two standard grades of stainless steel utilised by Component Developments are:

304 (BS 1449: PART 2:1983) 1,4301 (BS EN 10088-1.1995)

An austenitic grade for general purposes with good resistance to atmospheric corrosion and to many organic and inorganic chemicals.

316 (BS 1449: PART 2: 1983) 1,4436 (BS EN 10088-1,1995)

An austenitic grade with good resistance to uniform corrosion, pitting and crevice corrosion.

Both grades have excellent formability, weldability and impact strength making them suitable for fabrication of products used as surface drainage and protection.

Physical Properties.

	304	**316**
Density	7.9kg/dm3	8.0 kg/dm3
Modulus of Elasticity	200 Gpa	200 Gpa
Thermal Expansion	16 10-6°C	16 10-6°C
Thermal Conductivity	15 W/m°C	15 W/m°C
Thermal Capacity	500 j/kg°C	500 J/kg°C
Electrical Resistivity	0.73 mWm	0.75 mWm
Magnetisability	No	No