SPECIFICATIONS

Commercial	CRF and CRC
EN	Euro Codes 1-4

Guidelines for the selection of the correct stainless steel grade in structural applications according to the service environment: Euro Codes 1 to 4 provide a procedure for selecting the appropriate grade of stainless steel for the service environment of structural members. The environment is assessed using Corrosion Resistance Factor (CRF) and the stainless grades are placed in Corrosion Resistance Classes (CRC) I, I, III, IV & V according to CRF value.

CALCULATION OF CORROSION RESISTANCE FACTOR (CRF)

The Corrosion Resistnace Factor is comprised of three elements: F1, F2 & F3.
F1 rates the risk of exposure to chlorides from salt water/sea water or de-icing salts
F2 rates the risk of exposure to Sulphur Dioxide
F3 rates the cleaning regime or exposure to washing by rain

CALCULATING F1: RISK OF EXPOSURE TO CHLORIDES

M is distance from sea
S is distance from roads where de-icing salts are used

F1 Value	Description
1	Internal, Controlled Environment
0	Low Risk of Exposure: M.10km or S>0.1km
-3	Medium Risk of Exposure: 1km<M<10km or 0.01km<S<0.1km
-7	High Risk of Exposure: 0.25km<M<1km or S<0.01km
-10	Very High Risk of Exposure: Road Tunnels where de-icing salts used
-10	Very High Risk of Exposure: M<0.25km: North sea coast of Germany & All Baltic Coastal Areas
-15	Very High Risk of Exposure: M<0.25km - InclAll other European/UK Coastal Areas

CALCULATE F2: RISK OF EXPOSURE TO SULPHUR DIOXIDE

Note: In European coastal environments the SO2 value is usually low. For inland environments the value is either low or medium. High values are usually associated with heavily industrialised locations or sepcific environments such as tunnels.
In the table the deposition values are given in the units micro-grams per cubic metre

F2 Value	Description
0	Low Risk of Exposure: 10 average deposition
-5	Medium Risk of Exposure: 10-90 average deposition
-10	High Risk of Exposure: 90-250 average deposition

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CALCULATE F3: CLEANING OR RAIN WASHING

F3 relates to either the Cleaning Regime or the expsoure to Washing by Rain.
NB: If F1 + F2 = 0 then F3 = 0

F3 Value	Description
0	Fully exposed to washing by rain
-2	Specified cleaning regime
-7	No washing by rain or specified cleaning regime

CALCULATION OF CRC

The Corrosion Resistance Class (CRC) required for the given enviroment is given by first calculating the Corrosion Resuistance Factor (CRF) through adding F1+F2+F3.

CRF	CRC
1	I
0 to Under -7	II
-7 to Under -15	III
-15 to Under -20	IV
Over -20	V

CRC BY GRADE

An appropriate stainless steel garde for the environment can now be chosen from the table below showing the CRC for the various commonly available grades.

CRC Class	Grades
I (Ferritic)	1.4003 / 1.4016 (430) / 1.4512 (409)
II (Standard 18/8 Austenitic)	1.4301 (304) / 1.4307 (304L) / 1.4311 / 1.4541 / 1.4318 / 1.4306 / 1.4567 / 1.4482
III (Mo-Austeniic & Lean Duplex)	1.4410 / 1.4404 / 1.4435 / 1.4571 / 1.4429 / 1.4432 / 1.4578 / 1.4462 / 1.4362 / 1.4062 / 1.4162
IV (Super-Austentic & Duplex)	1.4439 /1.4539 / 1.4462
V (Super-Austentic & Duplex)	1.4565 / 1.4529 / 1.4547 / 1.4410 / 1.4501 / 1.4507

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REVISION HISTORY

Datasheet Updated	18 July 2019

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