material properties

galvanized steel

ALLOY UNI 10142:90	Fe P02 GZ200	Fe E 250 GZ275 MA-C
Symbol Code	DX 51D	S 250 GD+Z
Numerical Code	1.0226	1.0242

CHEMICAL COMPOSITION	(% of the mass)
Fe	99,5
Si	0,27
Mn	0,37
P max.	0,014
S	0,009
Cr	0,071
Cu	0,25
Mo	0,016
Ni	0,012
Others	0,05

PHYSICAL FEATURES	
Specific weight (kg / dm³)	7,87
Thermal conductivity at 20° λ (W / m K)	60
Coefficient of thermal expansion c (mm / m °C)	0,0123
Module of elasticity E (N / mm²)	210.000
Electric conductivity Ω (Ω / mm / m)	0,0934

MECHANICAL FEATURES	
Yield Re (N / mm²)	220 - 300
Tensile strength Rm (N / mm²)	500
Elongation at break $A_{80\,mm}$ % min	22
Vickers Scale	200 - 250

REFERENCE STANDARDS

UNI EN 10326:2004 Continuously hot-dip coated strip and sheet of structural steels - Technical delivery conditions
UNI EN 10327: 2004 Continuously hot-dip coated strip and sheet of low carbon steels for cold forming - Technical delivery conditions

stainless steel

ALLOY	X5CrNi 18-10	X2CrNiMo 17-12-2
AISI acronym	304	316L
DIN acronym	1.4301	1.4404

CHEMICAL COMPOSITION*	(% of the mass)	
C	≤0,07	≤0,030
Si	≤1,00	≤1,00
Mn	≤2,00	≤2,00
P max.	0,045	0,045
S	≤0,030	≤0,030
N	≤0,11	≤0,11
Cr	17,5 - 19,5	16,5 - 18,5
Mo	-	2 - 2,50
Ni	8,0 - 10,5	10 - 13
Others	-	-

PHYSICAL FEATURES*		
Specific weight (kg / dm³)	7,91	8,00
Thermal conductivity at 20°C λ (W / m K)	17	17
Coefficient of thermal expansion (mm / m °C)	0,0103	0,0103
Module of elasticity E (N / mm²)	196.000	196.000
Electric conductivity Ω (Ω / mm / m)	0,714	0,714
Melting point (°C)	1400 - 1420	1400 - 1420

MECHANICAL FEATURES* (for cold-rolled strip)			
Tensile strength Rm (N / mm²)		540 - 750	530 - 680
Proportionality limit stress	0,2 % $Rp_{0,2}$	230	240
	1,0 % $Rp_{1,0}$	260	270
Elongation at break $A_{80\,mm}$ % min		45	40
Brinnel Scale HB (kg / mm²)		<165	<170

*UNI 10088-2 : 1997

REFERENCE STANDARDS

EN 10088 - 1 Stainless steel - List of stainless steels
EN 10088 - 2 Stainless steel - Material standard for stainless steel sheet, plate and strip for general purposes
EN 10088 - 2 Stainless steel - Material standard for stainless steel semifinished products, bars, rods and sections for general purposes
EN 114 - Determination of the resistance to the corrosion for austenitic stainless steel

corten steel

ALLOY	(Corten A)
EN 10027 - 1 ECISS IC10	S355J0WP

CHEMICAL COMPOSITION	(% of the mass)
C max	0,12
Si max	0,75
Mn max	1,0
P	0,06 - 0,15
S max	0,04
Ni max	0,65
Cr	0,30 - 1,25
Cu	0,25 - 0,55

PHYSICAL FEATURES	
Specific weight (kg / dm^3)	7,87
Thermal conductivity at 20 °C λ (W / m K)	60
Coefficient of thermal expansion c (mm / m °C)	0,0108
Module of elasticity E (N / mm^2)	210.000
Electric conductivity Ω (Ω / mm / m)	0,0934

MECHANICAL FEATURES		
Yield Re (N / mm^2)		355
Tensile strength Rm (N / mm^2)		510 - 680
Elongation at break $A_{80\,mm}$ % min	< 1,5 ≤ 2	14 - 16
	< 2 ≤ 2,5	15 - 17
	< 2,5 ≤ 3	16 - 18

REFERENCE STANDARDS

UNI EN 10131 Cold rolled uncoated and zinc or zinc- nichel electrolytically coated low carbon and high yield strength steel flat products for cold forming - Tolerances on dimensions and shape

brass (OT67 copper alloy)

ALLOY	Cold rolled laminate 10 H10
Alloy code	CW 506L
Designation	R350 / H095

CHEMICAL COMPOSITION*	(% of the mass)
Cu	66 - 68
Pb max	0,20
Fe max	0,15
Al max	0,05
Sn max	0,20
Si max	0,15
Mn max	0,10
Ni max	0,30
impurità	0,40
Zn	resto

PHYSICAL FEATURES*	Cold rolled laminate 10 H10
Specific weight (kg / dm^3)	8,50
Specific heat capacity at 20 °C (cal / g)	0,09
Thermal conductivity at 20 °C [cal / (s cm °C)]	0,278
Linear thermal expansion coefficient - 25 to 300 °C (1 / °C)	20,2 x 10^{-6}
Electrical resistivity an 20 °C (μ Ωcm)	6,63
Module of elasticity E (N / mm^2)	110.000
Melting point (°C)	905 - 940
Structure	Alfa

MECHANICAL FEATURES*	Cold rolled laminate 10 H10
Ultimate tensile strength R (N / mm^2)	350 - 430
Yield strength $S_{(0,2)}$ (N / mm^2)	200 - 360
Elongation A_5 (min %)	23
Brinnel Scale HB	95 - 125

*UNI 4894:1962

REFERENCE STANDARDS

UNI EN 1652: Copper and copper alloys - Plate, sheet, strip and circles for general purposes