



Amstrong® Ultra 1100QL

Amstrong® Ultra 1100QL: a High Yield Strength steel for welded and weight - saving structures

Amstrong® Ultra 1100QL is a quenched and tempered steel for structure with higher strength.

Thanks to a minimum yield strength of 1100 N/mm², Amstrong® Ultra 1100QL enables to make weight savings or support higher stresses and thus carry higher payload.

With a good quality of steel making process, an adapted chemical analysis (low alloying content) and a good manufacturing process (uniform mechanical characteristics), Amstrong® Ultra 1100QL is easy to machine, to bend and to weld which simplify production and maintenance.

PROPERTIES

STANDARDS

Amstrong® Ultra 1100QL is produced as per Industeel technical data sheet.

CHEMICAL ANALYSIS - WEIGHT% max

C	Mn	Si	Cr	Mo	P	S	V	Ni	Cu	Al
0.20	1.4	0.3	0.8	0.7	0.002	0.010	0.10	1.5	0.30	0.080

CARBON EQUIVALENT

	Thickness range - mm (")	C.Eq	CET
$C_{eq} = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Ni+Cu}{15}$	8 - 15 mm (.31" - .59")	≤ 0.75	≤ 0.47
$CET = C + \frac{Mn+Mo}{10} + \frac{Cr+Cu}{20} + \frac{Ni}{40}$			

MECHANICAL PROPERTIES

Thickness range - mm (")	Yield Strength R _{eH} (MPa)	Tensile Strength R _m (MPa)	Min Elongation A _{l0} = 5.65√S ₀ (%)
8 - 15 mm (.31" - .59")	1100 (160)	1250 - 1450 (181 - 210)	10

Minimum values

PROPERTIES

PHYSICAL PROPERTIES

Impact tests

Minimum value (guaranteed on 3 tests),

Temperature	Longitudinal direction	Transversal direction
- 40°C (- 40°F)	30 J (22ft.lbs)	27 J (20 ft.lbs)

DELIVERY CONDITIONS

SIZES AND TOLERANCES

Thicknesses		Width			Flatness mm per 2 m
mm	inches	mm	feet	Tol./Th mm	
8 - 15	.37 - .59	1200 - 2500	4.92 - 8.20	± 0.5	8

Length max: 13 000 mm (42.6 ft)



PLATE PROCESSING

BENDING

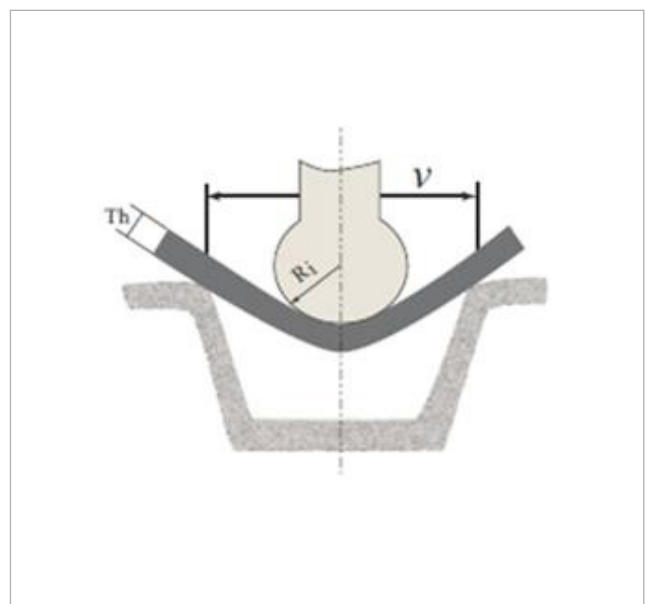
Thanks to the quality of steel making process, Armstrong® Ultra 1100 is easy to shape providing the following conditions are respected:

- > Dressing (or grinding) of the ridges caused by gascutting to limit the hardened zones,
- > Sufficiently powerful equipment,
- > Respect of minimum forming radius

	Perpendicular to the rolling direction	Parallel to the rolling direction
Bending internal radius R_i (mini)	4 x th	5 x th
Die opening V (mini)	10 x th	12 x th

th = thickness

In hot condition, Armstrong® Ultra 1100 is unsuitable for hot forming at a temperature higher than 300°C (570°F).



MACHINING

Amstrong® Ultra 1100 can be machined without any difficulty using the same methods as those used for the classical steels.

WELDING

The reduced carbon and alloying elements content of Armstrong® Ultra 1100 allow welding in very good conditions with excellent characteristics.

Weld preparation

The preparation of joints and surfaces is obviously very important to work in safe conditions:

- > **Removing all traces of grease and water,**
- > **Grinding of cuts to remove any oxides, slag of grooves from cutting with excessive oxygen pressure,**
- > **Grinding of any sheared edges, tears, final drips.**

Welding process

Any conventional fusion welding method can be used, such as submerged arc welding (SAW), manual metal arc welding (SMAW), flux core wire arc welding (FCAW), MIG, MAG (GMAW) and TIG (GTAW). Interpass temperature should be limited to a maximum of 175 °C (350 °F).

Preheating

Amstrong® Ultra 1100 can be welded without any crack risk according to recommended conditions (forecast for highly clamped weld) .

Please, contact our technical assistance.

Process	SMAW	GMAW	FCAW	SAW
Standard	AWS 5.5 EN ISO 18275	AWS 5.28 EN ISO 16834	AWS 5.36 EN ISO 18276	AWS 5.23 EN ISO 26304
VABW	BÖHLER FOX EV 100 E12018-G E 89 4 Mn2Ni1CrMo B 4 2 H5	Union X96 ER120S-G G 89 5 M21 Mn4Ni2,5CrMo	BÖHLER Kb 90 T-FD E120T5-M21A4-GH4 T89 4 Mn2Ni1CrMo B M 3 H5	
ESAB	OK 75.78 E 89 6 Mn 3 NiCrMo B 42 H5	OK AristoRod 89 ER120S-G G89 4 M Mn4Ni2CrMo	Coreweld 89 E120T15-M21A4-G-H4 T 89 4 Z M M 3 H5	
FSH		SELECTARC F79G ER120S-G G 89 4 M21 Mn4Ni2CrMo	SELECTARC FCW 79-M E120C-H4 T 89 6 Z M M 1 H5	
OERLIKON	TENACITO 100 E 12018-G H4 E 89 4 Mn2Ni1CrMo B 4 2 H5	CARBOFIL 2NiMoCr ER 120 S-G G 89 4 M21 Mn4Ni2CrMo	FLUXOFIL 45 E120T5-GM-H4 T 89 4 Z B M 2 H5	FLUXOCORD 45 / OP121TTW

These lists of filler materials have been determined according to suppliers datas, please confirm this choice for your application with your supplier.

APPLICATIONS



Booms of mobile crane



Booms of mobile crane



Crawler crane

YOUR CONTACTS

Patrick Toussaint
Tel. +32 71 44 16 27
patrick.toussaint@arcelormittal.com

<http://industeel.arcelormittal.com>

Industeel Belgium
266, rue de Châtelet
6030 Marchienne-au-Pont

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