

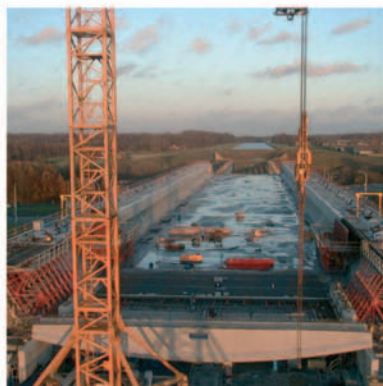
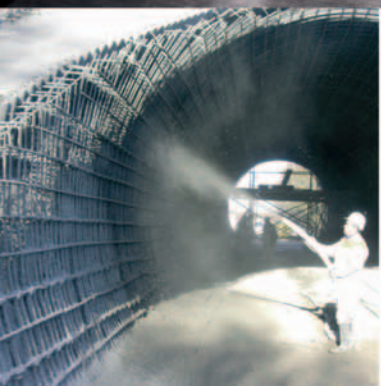
Rebars
ARES

Strength



 arcelor

Rebars





Rebar (Reinforcement bar for concrete structures)

- Rebar is common steel reinforcing bar, an important component of reinforced concrete structures. It is formed from mild steel, and is given ribs for better frictional adhesion to the concrete.
- Rebars are an economical solution and flexible in use, high adaptation power is given.

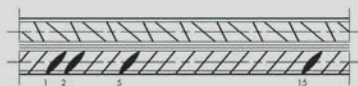
ARES Rebar:

- Delivered according to European and American standards.
- Quality guaranteed by Certifications for several countries and by own quality management.
- The most sold rebar is the TEMPCORE 500 which corresponds to the standard in Germany, Belgium, Netherlands, France and Switzerland and would correspond to B500B in the future European standard EN 10080.

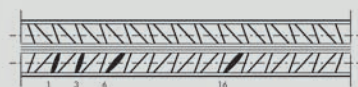
TEMPCORE 500:

- is hot rolled and water cooled, according to the Tempcore method. This method consists of a managed thermic treatment, giving the wanted mechanical characteristics.

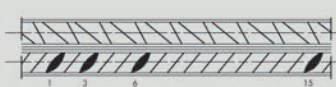
TEMPCORE 500



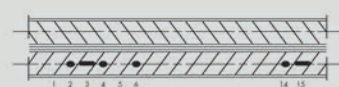
- The TEMPCORE 500 is of excellent ductility, bend properties and has a high yield strength. Its chemical composition with a max $C_{eq} < 0.45$ guaranties its weldability.



ARES 500SD



ARES 500S



CARES Grade B500B

ARES Brief History

Established in 1872 under the name of S.A. des Hauts Fourneaux de Rodange, the enterprise limited its activity to the production of pig iron until 1907 when a Thomas steel melting shop was installed, along with several rolling mills. Meanwhile, in 1905, the company had merged with S.A. Ougrée-Marhay, a Belgian iron and steel producer of which the plant at Rodange became a division.

In 1935, the works again became autonomous with its incorporation as a distinct limited company under the denomination of S.A. Minière et Métallurgique de Rodange.

The installed section mill was completed by a 600mm mill train for special sections and a 300mm bar mill train to which was added, in 1950, a wire rolling train. During the 1950's, the Thomas melting shop was adapted to bottom-blowing with enriched air. An LDAC converter was installed in 1964. In 1971 the Thomas converters were adapted to blowing with pure oxygen by the OBM process.

The bar and wire mill was completely modernized in 1969, and in 1970 a new blooming mill came into operation.

In 1973 the company merged with the Athus division of Cockerill (Belgium) to form S.A. Métallurgique et Minière de Rodange-Athus. At the time, more than 5,400 people worked on the industrial site of Rodange-Athus. Industrial restructuring, enforced by the steel industry crisis which began in 1974, led to the complete shut-down of the Athus division, located in Belgium, and the cessation of hot metal production at the Rodange works in the Grand Duchy.

An agreement reached in 1977 with the Belgian and Luxembourg governments, as well as with ARBED, enabled the company to make a fresh start as a reroller, and thus to undertake, on an improved basis, the investments needed to guarantee high technical levels and improved productivity.

The section mill was modernized in stages: installation of a walking-beam reheating furnace, modernization of the layout of the mill train and of the rail finishing shop. A pilot installation for heat treatment of rails put into operation at the end of 1985 enables Rodange to maintain its position in the leading group of manufacturers of rails, a product which has always been the speciality of the company.

In 1994 the steel plant of Esch-Schiffange and the rolling mills of Rodange merged into one company ARES in which ProfilARBED participated with 76%. Esch-Schiffange is equipped with an electrical arc furnace which was installed in 1992.

With the merger in 2002 of Aceralia, Arbed and Usinor into ARCELOR, also ARES became part of this new group. Arcelor was created through determination of these three European groups to mobilise their technical, industrial, and commercial synergies in a joint venture to create a global leader with the ambition of becoming a major player in the steel industry.

ARCELOR

Arcelor was created in February 2002 by three steelmaking companies, Aceralia, Arbed and Usinor, with the intention of establishing a European company as the leader of the global steel industry. With a turnover of 32.6 billion euros in 2005, the company holds leading positions in its main markets: automotive, construction, household appliances and packaging as well as general industry.

The company - number one steel producer in Europe and Latin America - ambitions to further expand internationally in order to capture the growth potential of developing economies and offer technologically advanced steel solutions to its global customers.

Arcelor employs 96,000 associates in over 60 countries. The company places its commitment to sustainable development at the heart of its strategy and ambitions to be a benchmark for economic performance, labour relations and social responsibility.



ARES

- Operational unit of ARCELOR Long Product Sector
- Is producing steel since 1872
- Operates in Luxembourg, one steel plant in Esch-Schifflange and two rolling mills in Rodange on which are produced reinforcement bars, crane rails and special sections
- The sales of those products are handled by ARCELOR REBAR COMMERCIAL (ARC) and ARCELOR RAILS PILES AND SPECIAL SECTIONS (ARPS)
- Was implicated in the development of the Tempcore process for rebars and the inline heat treatment of rails
- The last major revamping of the rebar mill was realized in 2005 and the revamping of the section mill is planned for 2006.

Quality and Environment

- ARES is certified according to ISO 9001 (Quality Assurance) and 14001 standards (Environmental Management).
- Our Quality Assurance System is the guarantee for continuous high quality standards and products.
- Our environmental management standards exist to ensure that products and services have the lowest possible environmental impact.
- Quality Assurance System and Environment management structure are certified and regularly improved.

Service

- Aim to offer innovative solutions improving security, cost, speed and flexibility
- On-time delivery
- Reliability on orders and rolling schedules, delivery dates
- Special lengths, special bundling, or dimensional tolerances on request
- Good commercial communication
- Quick and accurate document handling
- Quick claim treatment.

ARES provides through ARCELOR LOGISTICS various port services:

- Shipping to ports worldwide
- Shipping Container (Conventional, Multimodal)
- Administrative formalities
- Port handling
- Agency management.

Rebars

Diameter [mm]	8	10	12	14	16	20	25	28	32	40	50	63,5
Nominal section area (mm ²)	50	78,5	113	154	201	314	491	616	804	1257	1963	3167
Metric Weight (kg/m)	0.395	0.617	0.888	1.208	1.578	2.466	3.853	4.834	6.313	9.865	15.413	24.86

ARES Designation :	Tempcore 500					ARES 500S		ARES 500SD	CARES
	B	NL	F	D	CH	E	P	E	UK
Yield strength R _E (N/mm ²)	500	500	500	500	500	500	500	500-625	500
Tensile strength R _M (N/mm ²)	550	550		550	580	550	550	575	
R _m /R _e	1.08		1.08	1.05		1.05	1.08	1.15-1.35	1.08
Elongation after fracture, A _{5d} (%)	14				14	12	12	16	14
Elongation after fracture, A _{10d} (%)	10			10					
Elongation at maximum force Agt (%)	5	3.25	5				5	8	5

Weldability : C max. 0.20%; C eq. max. 0.450%

Quality control : according to following standards and certifications

	Certifications body :	Standards :	Designation :
B	OCAB-Benor	NBN A-24-302	BE 500S
CH	EMPA	SIA 262/1 (2003)	Tempcore 500S
D	DIBT	DIN 488	Bst 500S-IV
F	AFCAB	NF A 35-016-1996	FeE 500-3
NL	KIWA	NEN 6008	FEB 500 HWL
E	AENOR	UNE 36-065 EX 200	B 500 SD
P	CERTIF	Rebap 349-C	A 500 NR
UK	CARES	BS 4449: 2005	Grade B500B

In addition to the standard rebar, ARES is producing special products like GEWI, KRYBAR®, Rock Bolts and Tie Bars.