Rolled Reinforcement

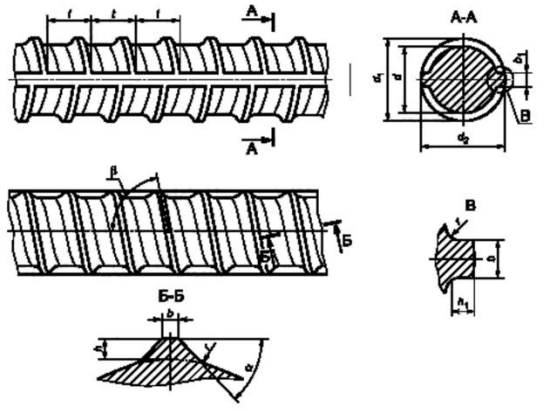
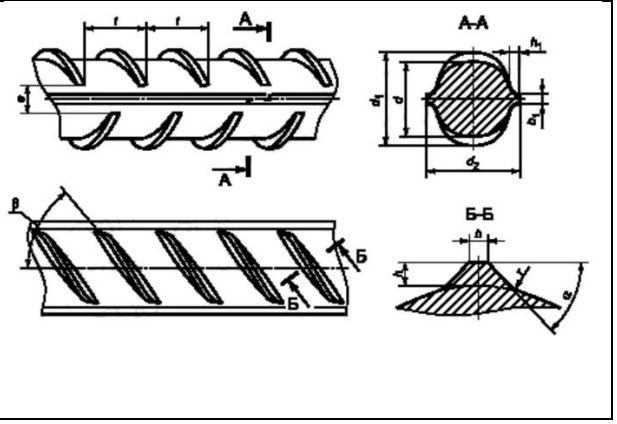
Rolled Reinforcement from a group of plants in Russia that produces more than 5 million metric tons of metal products per year.

Periodic profile reinforcement is manufactured according to GOST **34028-2016** from steel grades A400, A500 by hot rolling.

GOST is a *set of international technical standards* maintained by the Euro-Asian Council for Standardization, Metrology and Certification (EASC), a regional standards organization operating under the auspices of the Commonwealth of Independent States (CIS).

Product A400

Rolled reinforcement for reinforced concrete structures of periodic profile with 2 types of forms: 1ϕ and 2ϕ.

Form 1ϕ	Form 2ϕ
	

The A400 reinforcement is produced by hot rolling.

Diameters of the rods: 8 to 40 mm.
Diameters of coils: 6 to 16 mm.
Production method 2: hot rolling of smooth and periodic profile without controlled cooling in the rolling mill flow

Chemical composition of A400 and A500 reinforcements:
C < 0,22%
Si < 0,90%
Mn < 1,6%
P < 0,05%
S < 0,05%
N < 0,012%
Cu < 0,35%

Product A500, A500C

A500C reinforcement is also produced by hot rolling without subsequent processing or thermomechanically hardened in the flow rolling, which is more advanced and its production began recently.

Conform to: *GOST 34028-2016*.
This standard applies to rolled reinforcement bars of smooth and periodic profiles of classes A240, A400, A500 and A600, intended for use in reinforcing precast reinforced concrete structures and in erecting monolithic reinforced concrete.

Diameters: from 8 to 25 mm.

- **Reinforcement A500C: technical characteristics and differences from reinforcement A400**

One of the most popular types of reinforcement today is A500C. The material is a rod of grade A5 with a diameter of 6 to 40 mm. The material is related to structural elements that undergo thermomechanical treatment during the rolling process.

The A500S reinforcement is considered universal due to its excellent performance characteristics. The low carbon content in the steel and its thermomechanical treatment during the production of rolled products ensure plasticity and improved weldability of the final product. The material is also characterized by increased durability and viscosity. In terms of its properties, reinforcement of this class meets the requirements of international standards. The State Construction Committee of Russia recommends using the A500S grade in

reinforced concrete structures instead of and along with reinforcement At-IIIS (GOST 10884-81) and A-III grades 35GS and 25G2S (GOST 5781-82) of the same diameter.

- **Decoding of markings**

The letter A in the marking indicates that this type of material is hot-rolled and is thermally and mechanically reinforced. The letter C indicates the possibility of using welding to connect the elements. The number 500 in the marking indicates the yield strength of the material.

- **Delivery form**

Rolled products of class A500C are supplied in two forms: as coils or rods. If the cross-section diameter is up to 6 mm, the material is formed into coils, from 6 to 12 mm it is supplied in coils or rods at the customer's request. If the diameter is more than 12 mm, the rolled products are sold only in the form of rods.

- **Production**

The reinforcement of this class is produced under the control of GOST R 52544-2006 and STO-ASChM 7-93. Low-carbon steel grades 35G2S and 35GS is used as the manufacturing material. The carbon content is no more than 0.22%. Two methods are used to produce A500S: cold-drawn and hot-rolled. In the first case, wire and rolled reinforcement is created, in the second - rod. It should be noted that the second type of rolled products is characterized by higher strength. The raw materials for A500S contain fewer alloying components than their analogues, which ensures a more favorable cost of the final product.

- **Application**

Reinforcement A500S is widely used in the construction industry for the creation of reinforced concrete structures, pouring foundations, etc. The material is used for reinforcing or strengthening load-bearing structures (in accordance with GOST 10884-94) or the simplest reinforced concrete structures (in accordance with GOST 5781-81).

- **Advantages**

The A500C has many advantages, we will list the main ones:

    - increased design resistance to loads, which ensures a quantitative reduction in the consumption of reinforcement for the creation of structures;

- cost-effectiveness due to the low cost of thermomechanical processing of the material;
- increased strength and plasticity due to the absence of hardening in the welding zone;
- unification – that is, the possibility of replacement with reinforcement of classes A240, A300 and A400.