Special steel profiles for door hinges

Company information

VOL Steel Middle East FZCO official supplier of hot rolled and cold drawn special steel profiles with the production plant in Russia.

Our production site in Russia, is a complete steel mill with its own steel-making furnaces, rolling mills, cold drawing benches and milling machines. Modern production equipment and rich experience gathered through decades cover the production process on all stages of the value chain and provide a unique capability to control quality of manufactured products and adjust their properties, if required.

Steel melting furnaces and modern rolling mills, in particular, represent our main competitive advantage, which enables us

not only to manufacture special profiles with high accuracy and defect free surface, but also to choose freely between wide range of steel grades and modify their chemical composition, in case if customer requires specific properties of material that are no delivered by standard grades.



Surface roughness: Ra < 2.5 µm



Cross section: from 10 mm² – 6500 mm²



Precision: from h12 to h9

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Length: from 2 m to 12 m, or in 800 kg coils



Steel melting At this stage scrap is melted into steel.

During melting process chemical composition is being constantly controlled and alloying components are added in order to achieve the desired steel grade.



Continuous casting

After steel arrives to the required temperature and chemical composition, a ladle with molten steel is transported to the top of continuous casting machine.

Going through the continuous casting machine molten steel gradually cools down and obtains square shape, which is suitable for further deformation.



Cold rolling

At this production step hot rolled material is used as semiproduct for further cold deformation.

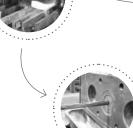
Hot rolled semiprofile is rolled in a cold condition, which allows to better control deformation process and obtain higher precision in comparison with hot rolling.

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Hot rolling

Square billets produced on a previous stage are heated to the temperature of about 1150°C and then rerolled into the desired shape.

In order to obtain a small profile from a billet, material must be sequentially rolled on several lines, which is set by a high draft ratio for



Cold drawing

At this production step hot rolled material is used as semiproduct for further cold deformation.

Hot rolled semiprofile is drawn through a stiff tungsten carbide die in order to deform material and achieve necessary geometry of profile.

For profiles with complex shapes and narrow tolerances up to 8 drawing

steps might be required to reach the desired value.

Between each drawing step material spends hours in a heat treatment furnace. Heating to a high temperature and a subsequent slow cooling (annealing) release internal stresses in steel, refine microstructure and thus remove hardness from cold deformation and prepare material for the next drawing step.

Special steel profiles for door hinges

As parts of the car body, door hinges underlie strict requirements from the side of OEMs in regards to the geometry, surface quality and mechanical properties. Thanks to the extensive expertise in this field VOL Steel Middle East FZCO is able to provide producers of door hinges with high quality hot rolled profiles that will not only meet standard requirements but will also help customers to reduce their processing costs.

The key to the optimization of processing costs is our ability to adjust chemical composition of steel grades in order to improve machinability and leave mechanical properties untouched. Our specially developed modified grades show up to 4 times better results on such processing steps, as milling and drilling, in comparison with standard S355J0 grade. This allows not only to save on tooling costs, but also to reduce electricity consumption and to extend maintenance intervals of the equipment.

Main advantages of VOL Steel Middle East FZCO profiles:

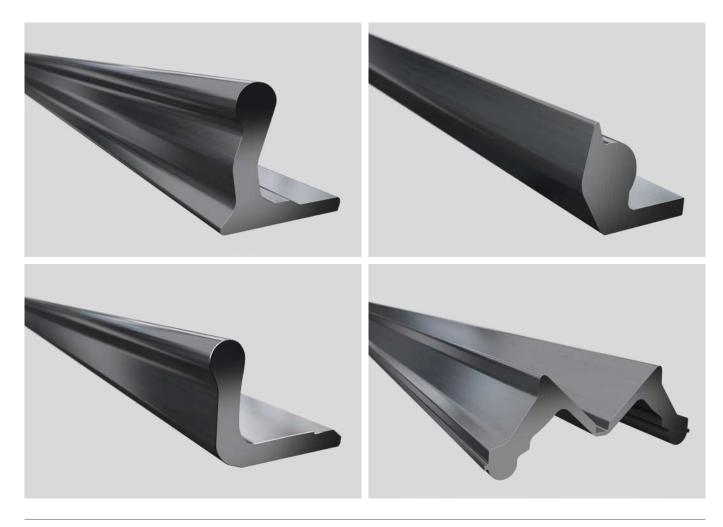
A	Shape tolerances up to 0,6 mm
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- High quality surface
- S Modified steel grades that save processing costs

 \Box Bar length between 6 and 12 meters



 ${}^{\scriptsize}$ Single and double profiles





VOLSTEEL

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