



What is CRCA Steel? CRCA is an abbreviation of “cold rolled close anneal”. This is a steel grade in which cold rolling is done after hot rolling and pickling, to reduce the thickness of steel. Cold rolling makes the material hard. This cold rolled steel is then annealed in a closed container where nitrogen or any other non-oxidizing gases softens it for use and also guards it against oxidation.

What is the application of CRCA steel

Application of this type of steel sheet metal is in the automobile and manufacturing industries for body and panel applications. These steel uses are in forming process and in drawing process which transforms the shape of the quadrilateral sheet to a beneficial 3D shape.

What is a cold rolling process and what value it adds to CRCA steel?

Cold rolling process is necessary for manufacturing low thickness steel sheet below than 1.6 mm. These low thickness cold rolled steel sheets applications need a noble surface quality whereas hot rolled steel surface has a rough surface having pits and different irregularities.



Why close annealed process is applied to CRCA material?

Close anneal operation relates to an annealing operation in which steel is heated to a high temperature of just less than seven hundred and twenty degree Celsius. This process duration is for an extended time period may be two or three days and are normally done in a bell furnace. This close annealing transforms the lamellar pearlite to spheroidal cementite



CRCA Steel - Cold Rolled and Close Annealed

and considerably develops ductility. Ductility is a fundamental requirement of steel so as to be processed through drawing process. The drawing process categorizes in simple drawing, deep drawing, extra deep drawing and non-aging extra deep drawing quality grades. The close annealing process also improves other mechanical properties, for example, strain hardening coefficient and planar anisotropy.

Advantages and Disadvantages of CRCA Steels

Some of the advantages are below:

Precise and Accurate Dimensional Tolerances

Robust surface finish

Improved mechanical & physical properties

Improved draw-ability

Some of the disadvantages of the cold rolled close anneal steels are below:

Less Corrosion Resistant

Sensitive to the Moisture content

Examples

Some of the examples of CRCA steel are listed below:

SPCC-AS steel (commercial quality close anneal cold rolled)

SPCD-AS steel (drawing quality close anneal cold rolled)

SPCE-AS steel (deep drawing close anneal cold rolled)

SPCG-AS steel (extra deep drawing non-aging close anneal cold rolled)

SPHC steel which is hot-roll steel is not a CRCA steel since it has not undergone cold rolling nor it has undergone annealing in the closed furnace. Therefore this grade has poor dimensional tolerances, rough surface finish, less draw-ability, poor mechanical and physical properties.