

What is the carburization process?

Carburising is “thermochemical” treatment that carried out in the temperature range 820°C to 900°C. It is a heat treatment method that produces a wear resistant surface while conserving the hardness and strength of steel structures.

The carburization process can be done in both liquid and gas atmosphere. Demsa Heat Treatment carries out carburization process in gas atmosphere Controlled Band type (Continuous) heat treatment furnaces.



How does the carburization process take place and what are the process details?

The carburization process is based on three main principles.

1. A rich CO atmosphere is created. carbon diffusion takes place in the main metal.

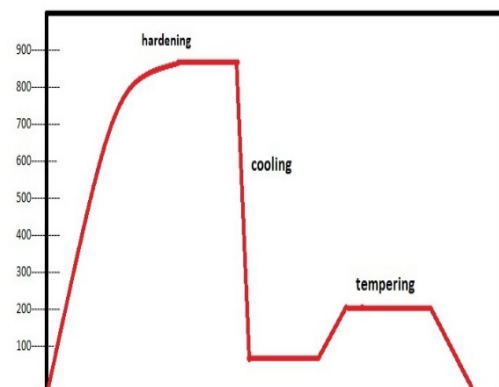
It is made to obtain a harder wear-resistant layer on the surface than the core. % 0.5-0.9 carbon component is given to

the atmosphere. The gas composition consists mainly of CO.

2. Sudden cooling is done in a constant temperature. It is aimed to create martensite structure which is a hard structure in the core. Special heat treatment oil is used as cooling medium.

It is aimed to minimize distortions that will occur in the material.

3. Tempering process is applied to give the structure ductility and strength.



How to determine the depth of the carburization layer?

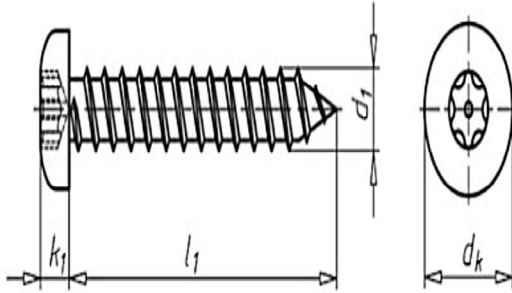
Appropriate process data are set according to surface hardness tolerances and hardness depths specified in standards or customer specific conditions. Depth of carbon layer depends on time, temperature, type of steel used and the amount of rich atmosphere in the furnaces. We can hardening to 0.20 mm depth with the carburization process.

What are the Advantages of Carburization Process?

- Higher surface hardness is achieved compared to hardening process.
- Higher wear resistance is achieved compared to hardening

process.

- Higher corrosion resistance is achieved compared to hardening process.
- Improves fatigue life is achieved compared to hardening process.
- It is better for high temperature applications.
- Better surface hardness is obtained in low alloy or simple



carbon steels.

