	Hot Forming	Warm Forming	Cold Forming
Characteristics	Forming with material heated above its recrystalization temperature.	Forming done at temperatures between those for hot and cold forming.	Forming done at / near room temperature.
Forming Temperature	1100°C ~1250°C (2012°F ~ 2282°F)	300°C~850°C (572°F ~ 1562°F)	Forming done at/near room temperature.
Required Loads	Low forming loads required	Medium loads required	Large loads required
Level of Precision	✗	✓	✓✓
Quality of Surface Finish	✗	✓	✓✓
Level of Geometry Complexity	✓✓	✓	✗
Ideal Production Quantity	Best for mid-to-small scale production	Best for medium scale production	Best for large scale production
Pros / Cons	Because material is heated to above its recrystallization temperature, smaller loads are required to form material. Greater deformation is also possible allowing for very large or highly complex geometries. However, surface finish is often poor for steel products compared to warm and cold forming because surface oxidation and decarbonation occurs above 900‹C(1652‹F). The level of precision achieveable is also poor due to the expansion /contraction of metal as it is heated and cooled.	Warm forming aims to combine the strong points of hot and cold forming. It allows for better surface finishes than hot forming, but temperature control is difficult. More complex geometries are possible than with cold forming, but precision is not as high.	Because no heat is added to material, cold forming allows for high precision, high quality surface finishes, and high speed production. However, compared to hot forming the loads required to deform material are high and material deformability is low, thus requiring a high degree of manufacturing experience to achieve complex geometries. Tooling life varies by product, but it is common for tooling to last into the 10,000 parts range and higher.