MÜLLER SCHUPFNER
& PARTNER

Bavariaring 11
D-80336 München
Telefon: + 49-89-21 99 12 0
Telefax: + 49-89-21 99 12 20
E-mail: maximark@propat.de

European Patent No. 3 191 613
Aleris Aluminum Duffel BVBA
MSP ref: 27448 PT-EP Ch
October 12, 2021

Auxiliary Request 1

1. Method for continuously annealing aluminium alloy sheet at final thickness, by continuously moving uncoiled heat-treatable AlMgSi aluminium alloy sheet in the direction of its length through a continuous annealing furnace arranged to heat the moving aluminium sheet to a set soaking temperature (T_{SET}) in the temperature range of 500°C to 590°C, the continuous annealing furnace has an entry section and an exit section, the moving aluminium sheet moves substantially horizontally through the continuous annealing furnace, the continuous annealing furnace is heated by means of convective heating means, preferably gas firing means, and wherein the moving aluminium sheet is rapidly cooled from T_{SET} to below about 100°C on leaving the exit section, and wherein before the entry section of the continuous annealing furnace the moving aluminium sheet is pre-heated to a temperature of 5°C to 100°C below the T_{SET} using an average heat-up rate as function of the sheet thickness of at least $Y = -31.\ln(X) + 50$, wherein "Y" is the heat-up rate in °C/sec and "X" is the sheet thickness in mm, wherein the aluminium alloy sheet at final gauge has a thickness in the range of 0.3 to 4.5 mm.

2. Method according to claim 1, wherein before the entry section of the continuous annealing furnace the moving aluminium sheet is pre-heated to a temperature of 5°C to 100°C below the T_{SET} using an average heat-up rate as function of the sheet thickness of at least $Y = -50.\ln(X) + 80$, and more preferably of at least $Y = -62.\ln(X) + 100$, wherein Y is the heat-up rate in °C/sec and X is the sheet thickness in mm, wherein the aluminium alloy sheet at final gauge has a thickness in the range of 0.3 to 4.5 mm.