The manufacturing properties of galvanised steel sheet with hexagonal and tetragonal network of circle holes

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Abstrak

Spesimen uji lembaran baja galvanis dengan tebal 0.8 mm diberi lubang lingkaran berdiamater dan antar lubang 2.5 mm dengan pola susunan tetragonal dan heksagonal. Sifat manufaktur bahan tersebut dipelajari melalui pengujian simulatif penarikan (drawing) dan rentang (stretching). Sebagai pembanding, dilakukan pengujian terhadap lembaran sejenis tanpa lubang perforasi. Dari hasil penelitian ini diketahui perbandingan sifat manufaktur lembaran perforasi dengan pola susunan lubang tetragonal dan heksagonal serta prediksi sifat intrinsik mampu tarik lembaran perforasi dengan menggunakan asumsi kontinum ekivalen.
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Galvanized steel sheet of 0.8 mm in thickness was drilled with circle holes of 2.5 mm diameter and spacing arranged in tetragonal and hexagonal pattern. The manufacturing properties of specimen were studied through drawing and stretching simulative test. It was concluded from the results that, at high ratio of punch to hole diameter (40/2.5), the drawing properties (LDR) of both square and hexagonal perforated sheet were slightly lower than that of solid sheet, while hexagonal perforated showing LDR somewhat higher than the square one. The stretching properties (LDH) of sheet, however, were much lower than that of solid sheet while the hexagonal perforated exhibiting LDH lower than the square one. Provided the effi ciency factor was well defi ned, which was not effective in the present experiment, the intrinsic drawing properties might be indirectly determined through the simulative test by assuming the perforated materials as an equivalent continuum.