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Title: Non-vacuum electron-beam carburizing and surface hardening of mild steel

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# ACCEPTED MANUSCRIPT

### Highlights

- 1. Steel specimens were carburized by non-vacuum electron-beam cladding.
  - 2. The depth of the clad layers reached 2.6 mm.
  - 3. The cladding rate was  $1.8 \text{ m}^2/\text{h}$ , the quenching rate  $12.6 \text{ m}^2/\text{h}$ .
  - 4. The microhardness of the quenched and tempered layers reached 8 GPa.

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