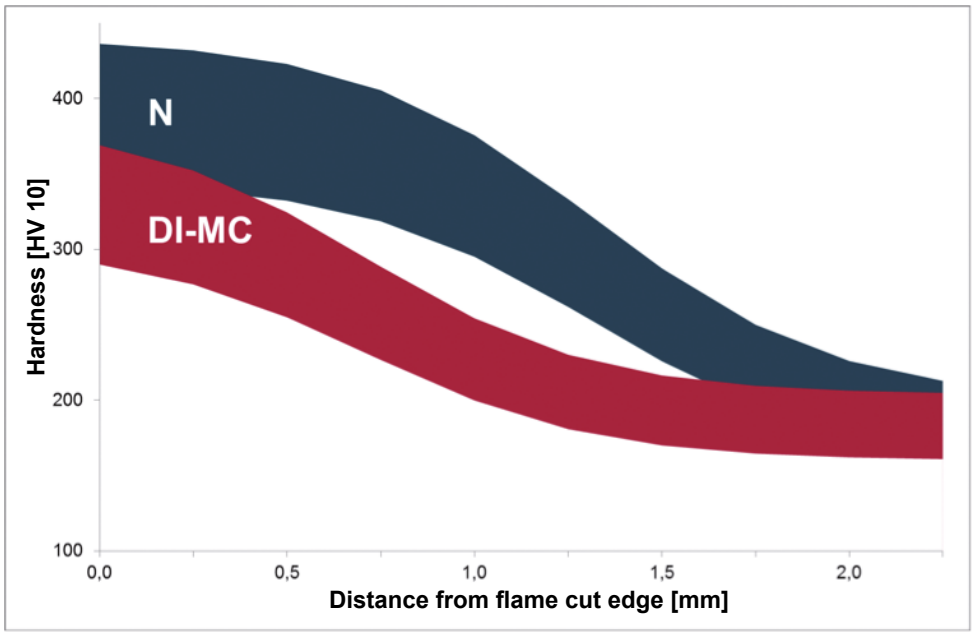
Processing instructions

Flame cutting

DI-MC

Thermal cutting

DI-MC steels possess a very significant cost cutting potential for the various thermal cutting processes (oxyfuel, plasma and laser cutting). The low carbon and alloying element contents of these steels significantly reduce the risk of overhardening at the cut edges, with the result that cost intensive treatments – such as preheating, heat treatment, or even retrospective machining of the cut edges – can be eliminated.



Hardening of DI-MC 355 at the cut edge under oxyacetylene cutting, compared to normalized S355N

This graphic demonstrates impressively that, even without any special preheating, DI-MC steels fulfil the requirements of EN 1090, Part 2 (Table 10 in EN 1090, Part 2: 2008-12) for maximum hardness at flame cut edges (380 HV 10) after oxyfuel flame cutting. Hardness values may, in general, be higher after plasma and laser cutting than after oxyacetylene flame cutting, due to the slightly higher rates of cooling in these processes. Recommendations on the temperature management for flame cutting can be found in the Dillinger E-Service (see below).

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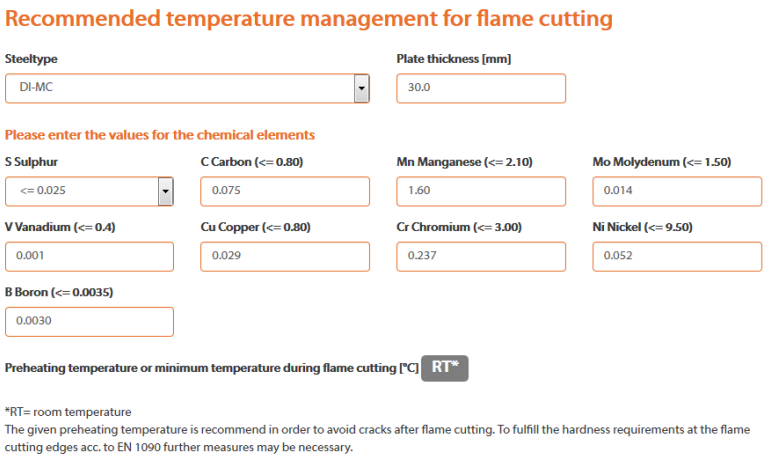
Online Tools



Dillinger tests - confirmed by user´s experience - have demonstrated that distortion in DI-MC steels is extremely low, even at points of high heat input, such as sharp angles and at cut edges located very close to each other. In cutting of long narrow flame cut components (so-called lamellas), it is state-of-the-art practice to make certain process adjustments in order to avoid distortion. These include, on the one hand, the assurance of symmetrical heat flux by means, for example, of parallel cutting of the lamellas from both sides simultaneously and, on the other hand, the allowance of adequate edge scrap, e.g. a double plate thickness (never less than 50 mm). Anyway, in case of high cut quality requirements, tight tolerance specifications and/or larger wall thicknesses, it is also worthwhile informing Dillinger in advance concerning these fabrication operations, in order that the material production can be adjusted to minimum post cutting distortion by means of appropriate provisions, such as special heat treatment.

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02/2020

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