



ArcelorMittal

# Low Carbon Vanadium (LCV) Grooved Rails for Kaohsiung LRT, Taiwan

ArcelorMittal just completed delivery in 2016 of the last lot of Grooved Rails for the Kaohsiung LRT I in Taiwan. With over 2.000 tons, this is by far one of the biggest tramway projects in South East Asia. Once again, customer relied on ArcelorMittal Grooved Rails and most especially on Low Carbon Vanadium (LCV) Grade R260V. As the world largest steel maker, ArcelorMittal leading Global R&D Rail dedicated centers is well positioned to be the preferred supplier in the second Phase of Kaohsiung LRT.

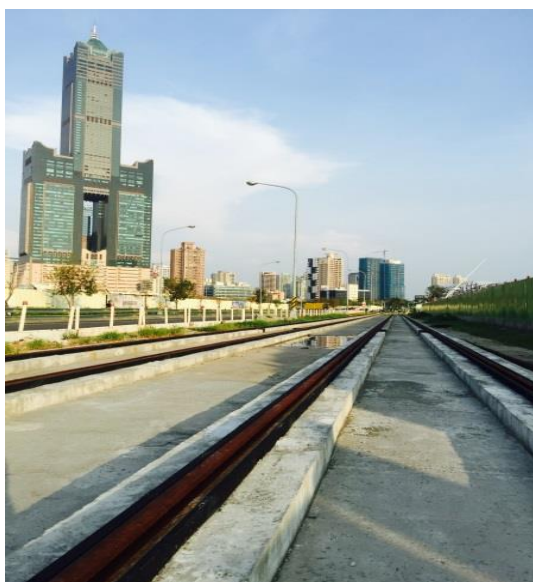
The use of Low Carbon Vanadium (LCV) rails with the addition of very small amounts (less than 0.20%) of Vanadium, actually provides an increased grain refinement throughout the entire rail, not just the outer surface as in the case of as-rolled Head Hardened rails.

The result, increasing hardness and elongation compared to rail grade R200, but with even lower Carbon content. Also, thanks to the higher strain and grain refinement, after only six months of service, track hardness readings increases up to 30-45 HBW due to wheel/rail interaction of cold forging.



In addition, since rolling stock wheels are associated with lower speed and low axle weight, the actual wheels do a smooth grinding on softer steel rails, effectively helping to self-maintain embedded tracks. This is by far the best method to avoid any Rail Contact Fatigue (RCF) or head checks commonly associated with as-rolled Hardened rails.

In fact, experience has shown Low Carbon (softer steel) rails are most suitable for City Transit embedded tracks due to their Low Carbon content allowing for best welding and deposit welding techniques. Thus, extending the life of the rail, and avoiding the high cost of replacing embedded grooved rail and street disruption.



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