






Recommended GM Steel Reparability Matrix

Steel ID Stamping Symbols ⁵	Grade	GM Specifications	Welding Method			Cold repair	Use of Heat for repair	Temp. Range	Maximum Heat
			MIG	RSW	MIG Braze ¹				
	Mild Steel Laminate steel	GM6409M (all) GMW2M (all)	Yes NO	Yes Yes	Yes NO	Yes ² Yes ²	Yes NA	Up to 1200 °F (650 °C)	90 sec. x 2
	Bake Hardened	GM6093M (all) GMW3032M(all)	Yes	Yes	Yes	Yes ²	Yes	Up to 1200 °F (650 °C)	90 sec. x 2
	Solid Solution-Strengthened		Yes	Yes	Yes	Yes ²	Yes	Up to 1200 °F (650 °C)	90 sec. x 2
	High Strength, Low Alloy	GM6208M (all), GM6218M(all), GM3032M(HR CR grades)	Yes	Yes	Yes	Yes ²	Yes	Up to 1200F (650 °C)	90 sec. x 2
DP 	Dual Phase ≤799 MPA min. UTS	GMW3032M (HR DP and CR DP grades) GMW3399M (HR DP, CR DP and HR HE grades with TS<800MPa)	Yes	Yes	Yes	Yes ²	No	N/A	N/A
DPX  ≥800MPA	Dual Phase ≥800 MPA min. UTS ⁴	GMW3399M(all other HR DP, CR DP and HR HE Grades)	Yes ⁴	Yes	Yes ⁴	No	No	N/A	N/A
M  B 	UHSS ⁴ Martensitic ⁴ Boron (PHS/Hot-Stamped) ⁴	GM6123M (all) GMW3399M (all MS grades) GMW14400	Yes ⁴ Yes ⁴	Yes Yes	Yes ⁴ Yes ⁴	No	No	N/A	N/A
TR 	TRIP	GMW3399M (HR TR and CR TR grades)	NA	NA	NA	NA	NA	N/A	N/A

¹ Must use 8mm x16mm slotted holes ²NO STITCH WELDING. These steels may NOT be used as a backer for stitch welding. This also includes flanges. NOTE.

Deviation from this chart is ONLY allowed if there has been a crash analysis completed by the Design Engineer and a Service procedure has been written

² Cold repairs can be performed if damage excludes kinks.

³Dual phase Steels up to DP 800 may be sectioned with a sleeve or backer plate.

⁴ Mig Plug Only, NO STITCH WELDING. These steels may NOT be used as a backer for stitch welding. NOTE. Deviation from this chart is ONLY allowed if there has been a crash analysis completed by the Design Engineer and a Service procedure has been written . NOTE number values are tensile strength

⁵ ISO Symbol for repair.

UPDATED 4-07-09 Dotterer

Note: GM does not endorse repair of door impact beams

UPDATED 4-07-09 Dotterer

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Descriptions of GM Steel

Grade	Alloy Content	Heat Treatment	Typical Applications	Comments
Mild Steel, Bake Hardened, Solid Solution Strengthened	Low	Fully Annealed/Dead Soft	Body Panels (Closures, floor pan, dash panel, etc.)	
High Strength Low Alloy	Low	Fully Annealed/Dead Soft	Rails, Structural Members	Strengthened with fine particles and small grain size
Dual Phase	Medium (Manganese, Silicon, Molybdenum, Chromium)	Fully Annealed/Partially Hardened	Rails, Structural Members	15-50% of structure is "hard" martensite
Ultra High Strength Steel (Martensitic, Boron)	Low	Fully Hardened	Rocker reinforcements, door beams, bumper beams	100% of structure is "hard" martensite
TRIP (Transformation Induced Plasticity) Steel	High (Manganese, Phosphorus, Silicon, Aluminum)	Fully Annealed/Partially Hardened	TBD	Complex microstructure for high strength and ductility