Recommended GM Steel Repairability Matrix

Grade	GM Specifications	Welding Method			Cold repair	Use of Heat for repair	Temp. Range	Maximum Heat
		MIG	RSW	MIG Braze[1]				
Mild Steel	GM6409M (all) GMW2M (all)	Yes	Yes	Yes	Yes[2]	Yes	Up to 1200 °F (650 °C)	90 sec. x 2
Laminate steel		NO	Yes	NO	Yes[2]	NO		
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
Dual Phase ≤779 MPA min. UTS	GMW3032M (HR DP and CR DP grades) GMW3399M (HR DP, CR DP and HR HE grades with TS≤779MPa)	Yes	Yes	Yes	Yes[2]	No	N/A	N/A
Dual Phase ≥780 MPA min. UTS[3]	GMW3399M(all other HR DP, CR DP and HR HE Grades)	Yes[3]	Yes	Yes[3]	No	No	N/A	N/A
UHSS[3] Martensitic[3] Boron (PHS/Hot-Stamped) [3]	GM6123M (all) GMW3399M (all MS & MP grades) GMW14400	Yes[3]	Yes	Yes[3]	No	No	N/A	N/A

[1] Must use 8mm x16mm slotted holes

[2] Cold repairs can be performed if damage excludes kinks.

[3] 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

Note: GM does not endorse repair of door impact beams.

Dual phase Steels up to DP 780 may be sectioned with an approved service procedure.

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