

Weld Defects and Causes

This chart is intended only as a check list of the possible causes of some of the more common weld defects. The data shown should be used only as guide and applies basically to two equal thicknesses of mild steel.

AREA OF CAUSE	POSSIBLE CAUSE OF WELD DEFECT	TYPE OF DEFECT							
		EXPULSION AT WELD INTERFACE	SURFACE EXPULSION ELECTRODE STICKING	ELECTRODE MUSHROOM	LOW WELD STRENGTH	EXCESSIVE WELD INDENTATION	INTERNAL CRACKS IN WELD NUGGET	CRACKS IN PARENT METAL	DISPLACE WELD NUGGET
	SQUEEZE TIME – Short	X	X						
WELDING CONDITIONS	WELD TIME	Short			X				
		Long		X	X		X	✓	
	HOLD TIME – Short		X		✓		X	✓	
WELDING CONDITIONS	WELD FORCE	Low	X	X	X		✓	X	
		High			✓	X	X		X
WELDING CONDITIONS	WELD CURRENT	Low			X				
		High	✓	X	X		X		
WELDING ELECTRODES	ELECTRODE FACE AREA	Small			X	X	✓		✓
		Large				✓		✓	
	ELECTRODES MISALIGNED		✓						X
	INSUFFICIENT COOLING			✓		✓		X	
	POOR HEAT BALANCE		✓		X				X
WELDING ELECTRODES	CONDUCTIVITY ELECTRODE MATERIAL	Low		✓	✓				
		High							✓
	DIRTY-SCALEY MATERIAL	X	X		✓		X		
	POOR FIT UP	X			✓	X			X
	INSUFFICIENT EDGE DISTANCE	X	✓		✓	✓			
	WELDS TOO CLOSE TOGETHER				X				
	METALLURGY OF MATERIAL WELDED	✓	✓		✓	✓	X	X	
	POOR HEAD FOLLOW-UP	✓	✓			✓	X		
MISCELLANEOUS	WELDER HEAD IMPACTS WORK			X		X			
	POOR VOLTAGE REGULATION	✓	✓						
	POOR AIR PRESSURE REGULATION	✓	✓						

NOTE: Causes Considered Individually

X = MORE PREVALENT

✓ = LESS PREVALENT