



Potential Failure Mode and Effects Analysis

Component Name Component Function	Potential Failure Mode	Potential Effect(s) of Failure	Severity	Potential Cause(s) of Failure	Occurrence	Design Controls		Detection	RPN SxOxD
						Prevent	Detect		
Gates Synchronous Belts									
Transmits power via torque from drive sprocket to one or more driven sprockets in a specific configuration installed at recommended tensions.									
	Belt tensile break	Drive fails to function	8	High dynamic peak drive loads greater than design input value and belt width capability	2	Drive design software and PTPA Support Line	Drive design review	4	64
				Racheting, accelerated tensile fatigue, and dynamic crimping due to low installation tensions	3	Tension recommendations from drive design software and PTPA Support Line	PM program; inspection	4	96
				Belt tensile damage due to adverse handling at installation	3	Review proper belt handling procedures; PM manual	Inspection; Check for straight across tensile break	4	96
	Excessive belt edge wear	Drive fails to function	7	Excessive belt tracking due to static or dynamic misalignment	3	Proper installation procedure and tools	Visual inspection by end user	4	84
	Tooth shear of one or more teeth in belt	Application failure	7	Application torque loads exceed tooth strength	2	Update of design software tools based on verification validation and field results	Drive design review and modeling	4	56
	Tooth hook wear	Eventual tooth shear	7	Excessive belt wear from rusted sprockets in wet environment	2	Nickel plated sprocket recommendations for high moisture environments	PM program; inspection	4	56