

#1323: OptiStruct – Multiple Mean Stress SN curve Definition

Product: OptiStruct

Product Version: OptiStruct 2017.2.2 or above

Topic Objective

Multiple mean stress SN curve definition support in OptiStruct.

Topic Detail

Multiple SN data can be defined for different mean stress through the FATMCRV entry which can be referenced on the SNCM continuation line of the MATFAT entry. The input on FATMCRV would be the mean stress and TABLEXN IDs. TABLEXN defines stress vs life. Alternatively, TABLEXN can directly be referenced in MATFAT and in that case, there is single SN curve in analysis.

- Stress type - A(Amplitude,) R(Range), or MAX (Maximum stress) is supported.
- Available analysis type is static, transient, and random response analysis. No support for seam weld / spot weld.
- The intermediate curves are interpolated for the damage evaluation.
- Mean stress correction is redundant when Multiple mean stress SN curves are defined.

Multiple Mean Stress SN curve Definition: Bulk Cards

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
MATFAT	MID	UNIT								
	STATIC	YS	UTS							
	SN	SR1	B1	NC1	B2	FL	SE			
		FINDLEY	TFP	FKMMSS				A/R		
	SNCM	A/R/MAX	MCRV_ID	NC	SESTS					SNCM Flag indicating that this MATFAT entry uses multi-mean SN curve for SN fatigue analysis (see comments 12 and 13).
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
FATMCRV	TID	QTYPE	TYPE							FATMCRV Specifies the corresponding quantities (Ti) vs SN curve table ID's via TABLEXN entries (TIDI).
	T1	TID1	T2	TID2	T3	-etc.-				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
TABLEXN	TID	TYPE								TABLEXN Defines a tabular function for Stress (X) - Life (Y) pairs to define an SN curve
	x1	y1	x2	y2	x3	y3	x4	y4		
	x5	y5	etc.	etc.						