AMS-02 Cryogenic Magnet Suspension Straps

Fracture Analysis of Clevises and Pins

Table 2 Fracture Control Summary for Magnet Straps

Section	Temp. state	Limit Load (lbs)	Flagro model	Material	Max. stress (psi)	Fracture classification	Comments
Race track end frame clevis section F-F	Warm Cold	19102 22099	CC03	6061-T651 10 in. thick	20213 23386	FC FC	Ref. Drg. SCD0825, sht 2 sect C-C Note 1
Race track end Frame Pin F-F	Warm Cold	19102 22099	SC07	316L Hi-proof stainless steel	85767 99223	FC FC	Ref drg. SCD0825 sect C-C Note1
Clevis section G-G	Warm Cold	19102 22099	CC03	316L Hi-proof stainless steel	32403 37489	FC FC	Ref drg. SCD0678 sect G-G Note1
Clevis Pin, section G-G	Warm Cold	19102 22099	SC07	316L Hi-proof stainless steel	73863 85452	FC FC	Ref drg. SCD0678 sect G-G Note1
Clevis section H-H	Warm Cold	19102 22099	CC03	316L Hi-proof stainless steel	33558 38825	FC FC	Ref drg. SCD0678 sect H-H Note1
Clevis Pin section H-H	Warm Cold	19102 22099	SC07	316L Hi-proof stainless steel	91636 106014	FC FC	Ref drg. SCD0678 sect H-H Note1
Clevis section J-J	Warm Cold	5894 8546	CC03	316L Hi-proof stainless steel	15258 22124	FC FC	Ref drg. SCD0678 sect J-J Note1
Clevis Pin section J-J	Warm Cold	5894 8546	CC03	316L Hi-proof stainless steel	42501 61624	FC FC	Ref drg. SCD0678 sect J-J Note1
Clevis section K-K	Warm Cold	5894 8546	SC07	316L Hi-proof stainless steel	19972 28958	FC FC	Ref drg. SCD0678 sect K-K Note1
Clevis Pin section K-K	Warm Cold	5894 8546	CC03	316L Hi-proof stainless steel	35935 52104	FC FC	Ref drg. SCD0678 sect K-K Note1

Section	Temp. state	Limit Load (lbs)	Flagro model	Material	Max. stress (psi)	Fracture classification	Comments
Clevis section L-L	Warm Cold	19102 22099	CC03	316L Hi-proof stainless steel	37209 43047	FC FC	Ref drg. SCD0678 sect L-L Note 1
Clevis Pin section L-L	Warm Cold	19102 22099	SC07	316L Hi-proof stainless steel	105579 122124	FC FC	Ref drg. SCD0678 sect L-L Note 1
Clevis section M-M	Warm Cold	19102 22099	CC03	316L Hi-proof stainless steel	36039 41696	FC FC	Ref drg. SCD0678 sect M-M Note 1
Clevis Pin section M-M	Warm Cold	19102 22099	SC07	316L Hi-proof stainless steel	69287 80158	FC FC	Ref drg. SCD0678 sect M-M Note 1

1. Fracture Classification

FC = Fracture Critical Part

Notes:
1. The component is classified as fracture critical per sect. 4.2.3 and is shown acceptable by compliance with sect. 4.2.3.1.2 of NASA-STD-5003, October 1996
2. Factor of Safety is 1.4 for Ultimate and 1.20 for Yield
3. Strap loads are from AMS-02 Model 6-01
4. Non- destructive evaluation to be performed by dye penetrant inspection.