



DEVELOPMENT STANDARD

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MAGNETIC HEAD FOR USE WITH
QIC-4GB-DC RECORDING FORMAT

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INTRODUCTION

This document defines those parameters standardized on the magnetic tape head utilized in the QIC-4GB DC cartridge tape drives.

This head is a two channel, dual gap, read-while-write elements in serpentine mode, with a full width erase gap. It is designed for use with DC9400, 900 Oe or equivalent cartridge and has a packing density of 62,000 FRPI and track density of 46.

MECHANICAL REQUIREMENTS

- 1.1 The magnetic head is of a read-while-write bi-directional configuration.
- 1.2 Physical dimensions and track layout are detailed in Figure 1.

ELECTRICAL AND MECHANICAL KEY SPECIFICATIONS

	Parameter	Units	QIC-4GB DC
2.1	Tape	---	DC9400
2.2	Tape Speed	IPS	77.4
2.3	Head Construction	---	Read-While-Write
2.4	Recording Density	FRPI	62,000
2.5	Erasure	%	<3
2.6	Erase Frequency	MHz	4.8 minimum
2.7	Peak Shift	%	± 28
2.8	Resolution	%	55 minimum
2.9	1F Output	mV p-p	0.5 minimum
2.10	Read Resonant Frequency	MHz	>4.0
2.11	Crossfeed	%	4 maximum
2.12	Crosstalk	%	500 maximum
2.13	Read ETW (A)	inch	0.0025 ± 0.00015
2.14	Write ETW (B)	inch	0.007 ± 0.00015
2.15	Track Pitch (C), Write channels	inch	0.1207 ± 0.0006
2.16	Track Centerline Tolerance (D)	inch	0.0005 maximum
2.17	Centerline offset Write Read channel pair (E)	inch	0.0009 ± 0.0005

DEFINITIONS

- 3.1 Both heads employ read-while-write data verification, so that the data recorded is read and verified on the same pass as it was recorded.
- 3.2 The recording format for is NRZI
- 3.3 No overwrite is required from either head. An AC erase head is to be provided as a separate full tape width erase gap. The erase specification is a measure of the residual 1F signal after AC erasure.
- 3.4 The peak shift specification is defined as:
The instantaneous spacings between flux transitions shall satisfy the following conditions: In a sequence of flux transitions defined by the encoded pattern 0101001011 (hex 29 data pattern), the maximum displacement of flux transitions shall not exceed the specification from the nominal bit cell averaged over the six transitions cells between the reference flux transitions.
- 3.5 AC Bias (optional). A high frequency AC bias write current with the write signal current superimposed may be used as a recording method. No current values as bias frequency will be set at this time.
- 3.6 Resolution. With the recording method used, a 3:1 ratio in transition densities may occur. The resolution value is determined as the ration indicated below:
- $$\text{Resolution} = \frac{E_o @ 1F}{E_o @ 1/3F}$$
- 3.7 The head shall have a built in preamp. The read resonant frequency is defined with a 5 pf load.
- 3.8 The write saturation current (I_{sat}) is defined as the write current value required to produce the first 95% of the maximum read output (without AC bias) at 1F.
- 3.9 The write current (I_w) used in the two heads is defined as 115% of I_{sat} , (without AC bias).
- 3.10 Crossfeed is defined as the ratio of the signal through the read coil with the write coil under test energized at 1F and at I_w , to the "read-while-write" output signal at 1F. The measurement is facilitated using a spectrum analyzer set 100KHz to 3.0MHz.
- 3.11 Crosstalk is defined as the ratio of the signal through the adjacent read coil on the same gap with the write coil under test energized at I_w at 1 F to the "read-while-write" output signal at 1F. The measurement is facilitated using a spectrum analyzer set 100KHz to 3.0MHz.

READ ETW "A" ± .00015
 WRITE ETW "B" ± .00015

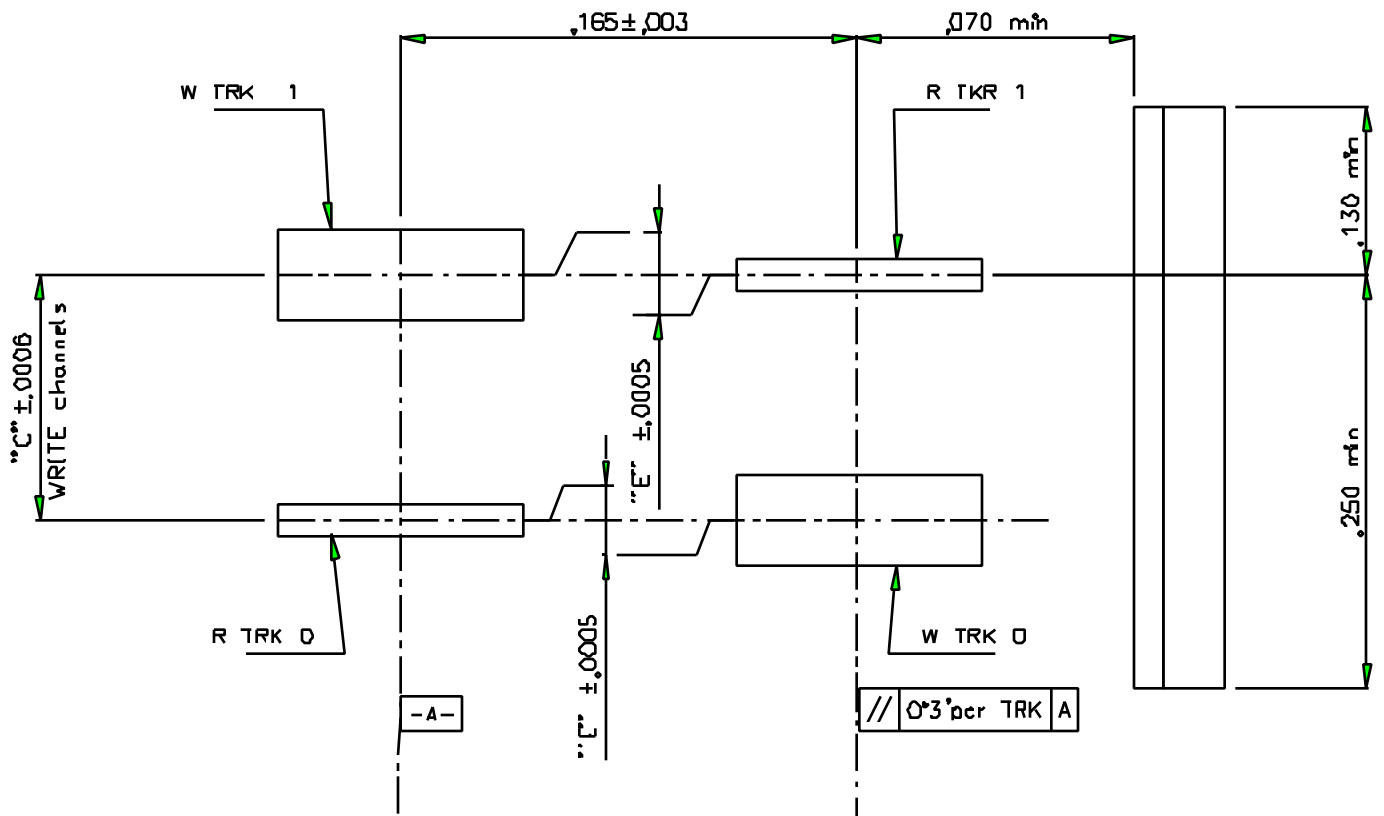


Figure 1