



## REPORT

CUSTOMER'S REF NO.: RV1501-23-02  
ALS THAILAND REF NO.: ATT/ELP/14/3767-H  
ALS SINGAPORE REF NO.: ATS/ELT/0138/15  
DATE: 18 February 2015  
COMPANY: Boyd Technologies (Thailand) Co., Ltd.  
700/675,700/677 Moo.7,Amata Nakorn Industrial  
Estate, Don Hua Lo, Muang Chonburi,

DATE SAMPLE RECEIVED: 27 January 2015  
DATE ANALYZED: 12 February 2015  
DATE TEST COMPLETED: 17 February 2015

SAMPLE DESCRIPTION One lot of sample was received with references:  
Description: Eagle Arm Damper\_CL Part Jan 23\_MC  
no# 2  
P/N: 100748412  
Surface Area: 0.227 In2 (2 side)

### Method/Procedure:

Analysis	Procedure No	Number of pieces used for extraction	Extraction Medium	Extraction Volume
LPC (68 KHz)	20800040-001 Rev.AE	10	0.1 um Filtered Degassed DI Water	900
HPA (Filtration Method)	20800040-001 Rev.AE	10	0.1 um Filtered Degassed DI Water	900

### Results:

The Specification is based on Seagate's Doc 20800010-280 Rev.BE for Damper (Internal and external to HDA), ACA Dampers, VCM Dampers

Liquid Particle Count (68 KHz)	Specification Limit, (Counts/cm2)	Results, (Counts/cm2)
Total number of particles $\geq 0.3\mu\text{m}$		
1st Run		6948
Average	NA	6948

Liquid Particle Count (68 KHz)	Specification Limit, (Counts/cm2)	Results, (Counts/cm2)
Total number of particles $\geq 0.6\mu\text{m}$		
1st Run		1016
Average	NA	1016



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Hard Particle Analysis (LPC 68 KHz)	Specification Limit, (particles/cm2)	Results, (particles/cm2)
Hard Particles	NA	29.4
Magnetic Particles	NA	0.0
SST Particles	NA	734.4
MgSiO Particles	NA	4.9
PZT Particles	NA	0.0
Tin Particles	NA	0.0
Metal Particles	NA	161.6
Ni Particles	NA	0.0
Other Particles	NA	53.9
Totals	NA	979.3

Remark: \*\* PZT Specification only applicable to Headstacks with micro-actuators.

Classification	Type of Particles	Results, Particle/sqcm
Hard Particles	AlMgO	0.0
	AlO	0.0
	AlOTiC	0.0
	CrO	0.0
	FeSiO	9.8
	NbB	0.0
	SiC	0.0
	SiO	19.6
	TiB	0.0
	TiC	0.0
	TiO	0.0
	TiSn	0.0
	TiV	0.0
	WC	0.0
	ZrC	0.0
	ZrO	0.0
Magnetic particles	Nd based	0.0
	Sm based	0.0
	Sr based	0.0
SST Particles	SST300s (Fe/Cr/Ni)	646.3
	SST400s (Fe/Cr)	88.1
Metal Particles	Ag based	0.0
	Al based	0.0
	Au based	0.0
	Cu based	0.0
	Fe based	122.4
	MnCrS	34.3
	Ni based	0.0



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Classification	Type of Particles	Results, Particle/sqcm
	NiP	4.9
	Pt based	0.0
	Sb based	0.0
	Sn based	0.0
	SnPb	0.0
	Zn based	0.0
	AlSi(FeCrCuZnMn)	0.0
	NiFe	0.0
	ZnPFe	0.0
	CrCoNiP (disc material)	0.0
	NiPCr	0.0
	NiPCrFe	0.0
	CuZn	0.0
Other Particles	FeO	29.4
	AlFeO	0.0
	AlNiO	0.0
	AlSiO	0.0
	Cl based	0.0
	FeMgSiO	0.0
	MgCaO	0.0
	MgSiO	4.9
	S based	9.8
	F based	0.0
	Ca based	0.0
	Na based	0.0
	K based	0.0
	Anodised Al	0.0
	PZT	0.0
	Pb base	0.0
	Others	9.8



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Analysis Details	% Area Analysed (A/7.07mm <sup>2</sup> )	50.21
	Area Analysed (mm <sup>2</sup> )	3.55
	Extraction Volume (mL)	900
	Filtered Volume (mL)	50
	No of Parts Extracted	10
	Magnification	446

ALS Testing Services  
(Thailand) Co.,Ltd.

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