ELECTRON ENERGY CORPORATION

924 Links Avenue; Landisville, PA 17538 717-898-2294

CERTIFICATE OF COMPLIANCE

CUSTOMER: CALIFORNIA INSTITUTE OF TECHNOLOGY

ADDRESS: 391 SOUTH HOLLISTON AVENUE
PASADENA CA 91125
USA

DATE: 9/27/2016

PURCHASE ORDER #: 75-S292961

SALES ORDER #: 15879

SHIPPING NOTICE #: 46817

PART NUMBER: D07512510750T
DISC MAGNET

REV: A

LOT #:	QUANTITY:
15879-1	100.00

WE CERTIFY THAT THE PARTS SHIPPED ON THE ABOVE SHIPPING NOTICE WERE MANUFACTURED IN ACCORDANCE WITH THE APPLICABLE SPECIFICATIONS AND REQUIREMENTS, INCLUDING ALL DRAWING NOTES. MAGNET TEST DATA PERTAINING TO THIS ORDER ARE ON FILE AND AVAILABLE FOR INSPECTION.

Dean Tuckmer

QA Manager
QUALITY DEPARTMENT

DATE: 9/27/2016

2

ELECTRON ENERGY CORPORATION

924 LINKS AVENUE LANDISVILLE PA 17538
717-898-2294 Fax 717-898-0660
www.electronenergy.com eec@electronenergy.com

Pack Slip: 46817

Packing Slip

Ship To: STEPHEN VASS
CALIFORNIA INSTITUTE OF TECHNOLOGY
391 SOUTH HOLLISTON AVENUE
PASADENA CA 91125
USA

Phone: 818-395-6770
Fax: 818-577-5693

Sold To: GINA SALONE
CALIFORNIA INSTITUTE OF TECHNOLOGY
PURCHASING SERVICES
MAIL CODE 103-6
1200 E CALIFORNIA BLVD
PASADENA CA 91125
USA

Phone: 626-395-6770
Fax: 818-577-5693

Ship Date: 9/27/2016
Ship Via: UPS 1-DAY OE

F.O.B.: LANCASTER, PA

Sales Order:15879 **Your PO:** 75-S292961 Salesperson:Karla C. Takasumi

Line	Part Number/Description	Shipped Qty	Rev
1	D07512510750T/DISC MAGNET	**100.00** EA	A

Customer: CA Institute of Technology

Part Number	D07512510750T
Revision	A
Lot#	15879-1
Date	9/27/2016

Quantity	Flux	Acc/Rej
10	0.092	Acc
40	0.093	Acc
54	0.094	Acc
41	0.095	Acc

Data Entry Person: B.FINK

Electron Energy Corporation - Magnetic Inspection Report

8. Measure and record the strength of ALL magnets. The strength must lie within +/- 5% of 28 MGOe. Traceability of each part to the inspected value is not required. Inspection reports with SPC data for 100% of the magnets must be provided prior to shipment for approval.

9. Thermally stabilize magnets at 200 degrees C for 1.5 hours.

10. Production detail drawings must be provided for approval prior to beginning production.

3. Bill of Materials

The following bill of material covers the request from advanced LIGO for this procurement.

Material	Size		Quantity	Dimensional Tolerance (+/- in)*	Plating Thickness (in)**	Break Sharp Edges (in)
	(mm)	(in)				
SmCo 2:17	10 x 10	0.3937 x 0.3937	256	0.002	0.0002 - 0.0008	0.020 max radius
SmCo 2:17	10 x 5	0.3937 x 0.1969	112	0.002	0.0002 - 0.0008	0.020 max radius
SmCo 2:17	2 x 6	0.0787 x 0.2362	256	0.002	0.0002 - 0.0008	0.005 max radius
SmCo 2:17	1.905 x 3.175	0.075 x 0.125	376	0.002	0.0002 - 0.0008	0.005 max radius
SmCo 2:17	2 x 0.5	0.0787 x 0.01969	512	0.002	0.0002 - 0.0008	0.005 max radius

* After plating

** Mild service 13 um (0.0005") per ASTM B733-97

10 x 5 = 180 needed

9-27-2016

Ni-Plated SmCo Magnet Procurement Requirements

28th April 2011 LIGO-C1103521-v2

100 IN

1. Introduction

The following requirements are for the purchase of the Ni-Plated SmCo Magnets from EEC for Advanced LIGO in April 2011.

2. Requirements

1. Magnets will be made from Series 2:17, Grade 28, sintered Samarium Cobalt.

2. The direction of magnetization will be through the axis of the cylinder (with one pole on each circular face).

3. Autocatalytic (electroless) Nickel plating will contain 5-7% Phosphorus.

4. Plating thickness for all magnets will be 0.0002" - 0.0008" (this thickness falls under "Mild Service" per ASTM B733-97).

5. Break all sharp edges to a maximum radius of 0.02" for 10mm diameter magnets, and 0.005" for all other magnets.

6. Dimensional tolerance after plating will be +/- 0.002".

7. Dimple the center of one face of the 10mm diameter magnets. The N pole will be on the same axial surface as the dimple. Dimpling is not required for other sizes. The dimple should be just big enough to see. Only a visual inspection is required.

e 12,367 . electro energy. PA 800.824.2735