

# LINAC MAGNETS DESCRIPTION

The APS LINAC typically provides pulsed electron beam with an energy of 325 MeV for injection into the APS storage ring, but is capable of accelerating electrons to 600 MeV. The LINAC is divided into five sectors, L1 to L5, each of which is powered by a klystron. Each sector contains various beamline components, including rf accelerating structures, diagnostic components, and magnetic elements that serve to focus and steer the beam.

L1 contains two thermionic rf guns that inject beam into the LINAC via *alpha* magnets, for use in the storage ring. A laser-driven photocathode gun that injects beam directly into the LINAC supplies beam to the LEUTL FEL. L1 also contains dipole corrector and quadrupole focusing magnets.

L2 contains corrector and quadrupole magnets.

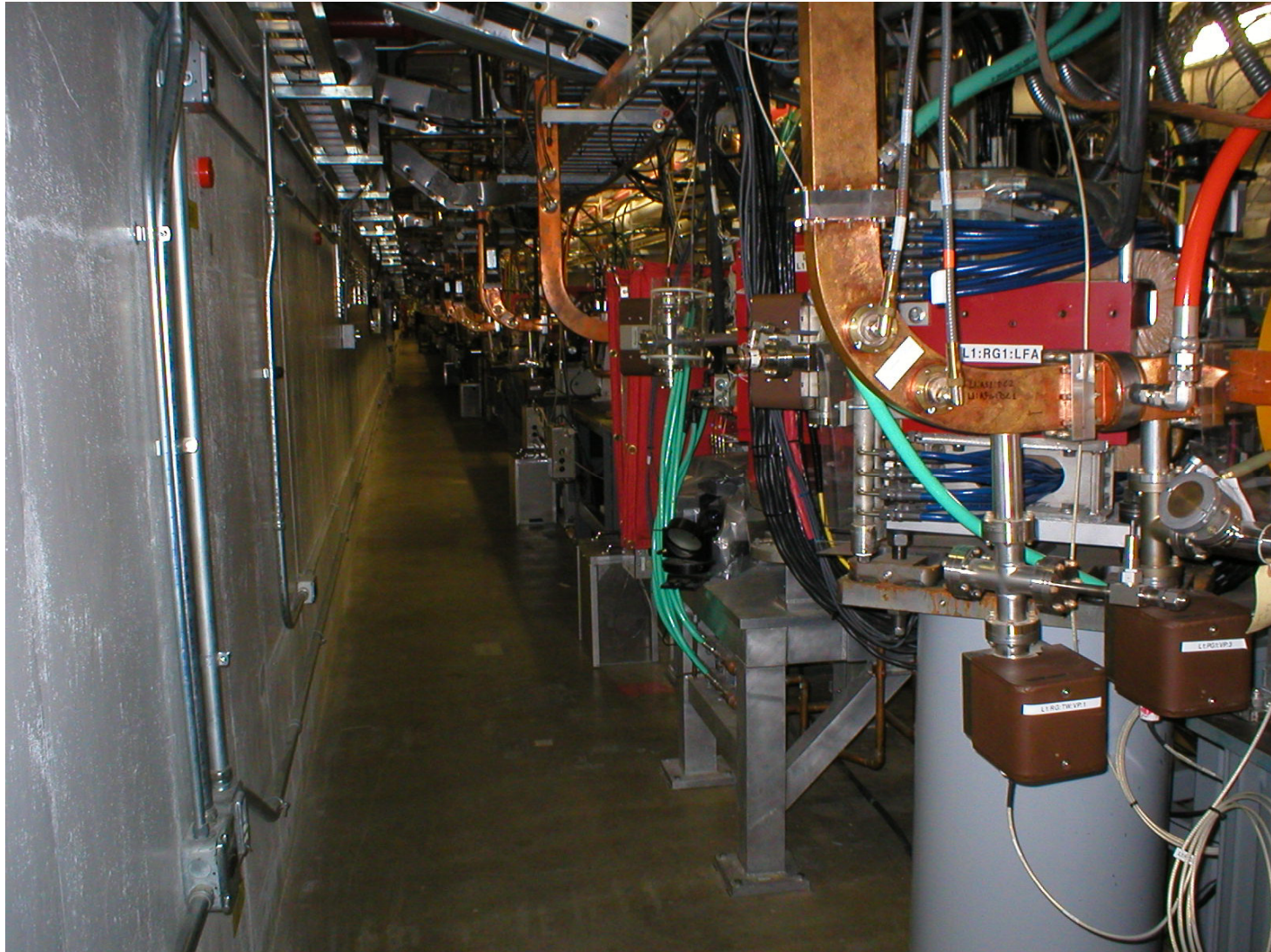
L3 contains corrector, quadrupole, and dipole magnets. The dipole magnets in this sector are called *bunch compressor* or *chicane* magnets.

L4 and L5 contain corrector and quadrupole magnets.

Dipole spectrometer magnets that are located downstream of sectors L3 and L5 allow beam tuning, energy measurement, and related beam experiments to be carried out.

After acceleration in the LINAC, beam is accumulated and compressed in the PAR and then further accelerated to 7 GeV by the Booster; the beam can also bypass the PAR and go directly to the Booster.

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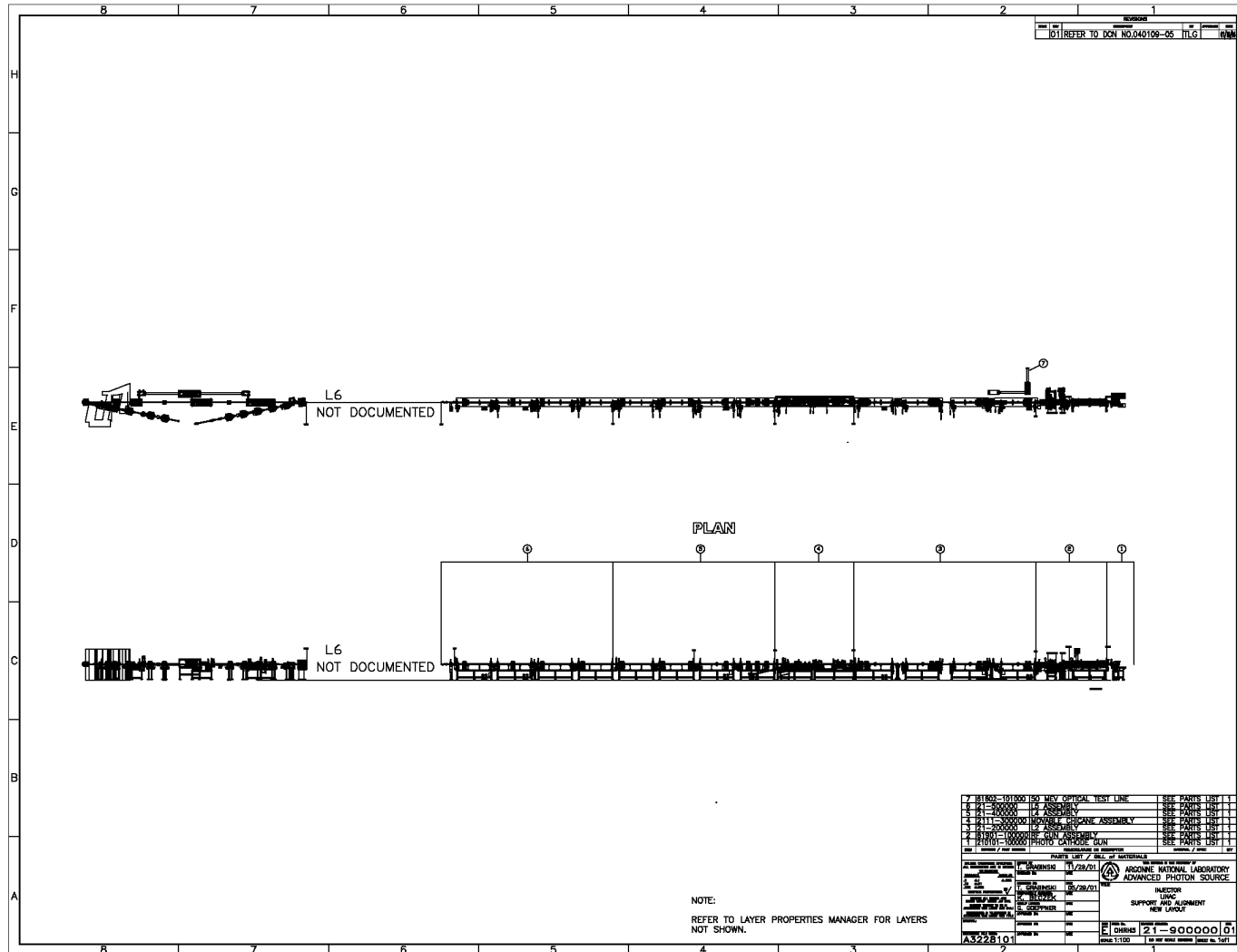
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2/10/2005

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Advanced  
Photon  
Source  
ARGONNE National Laboratory



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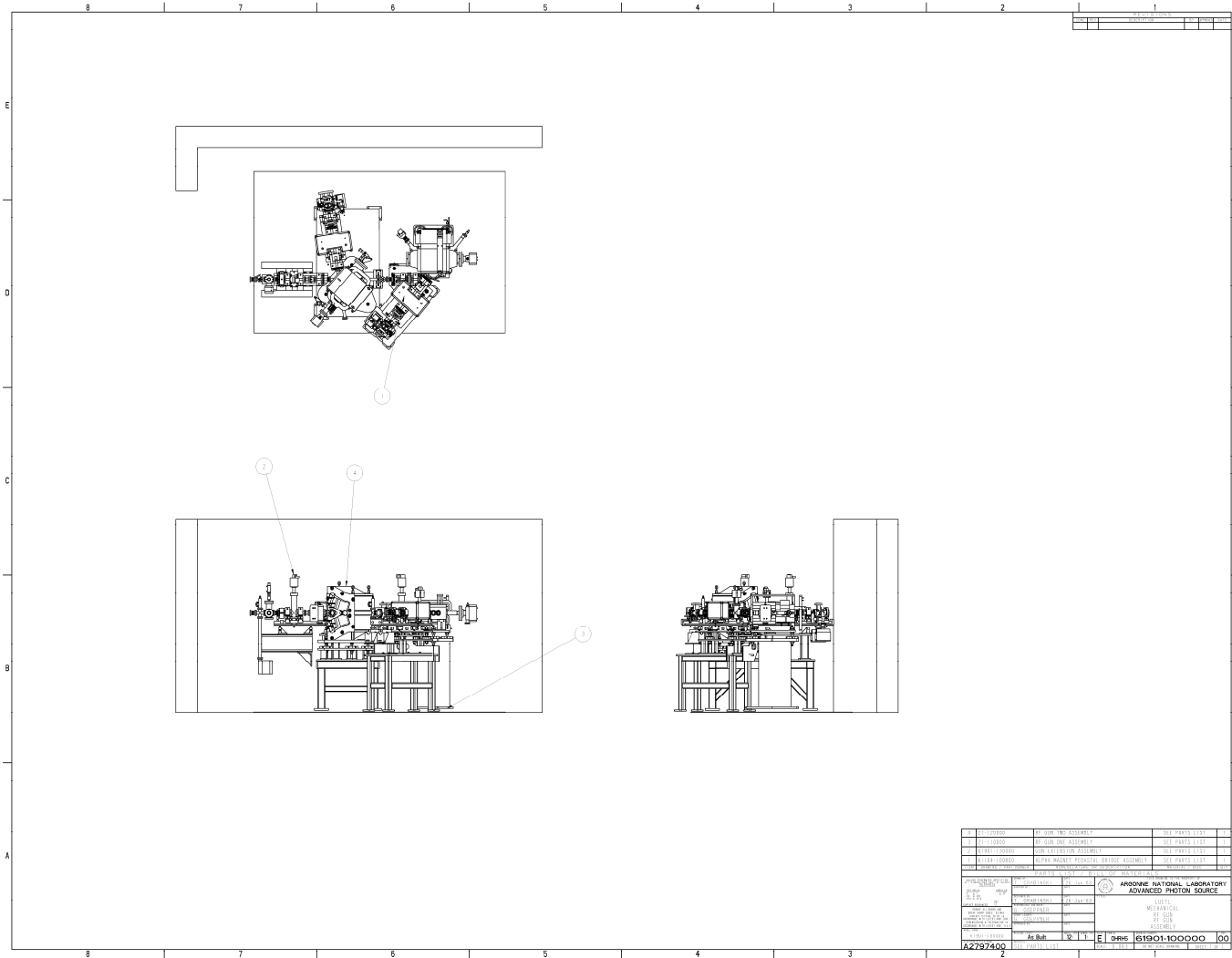


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# LINAC MAGNETS DESCRIPTION L1

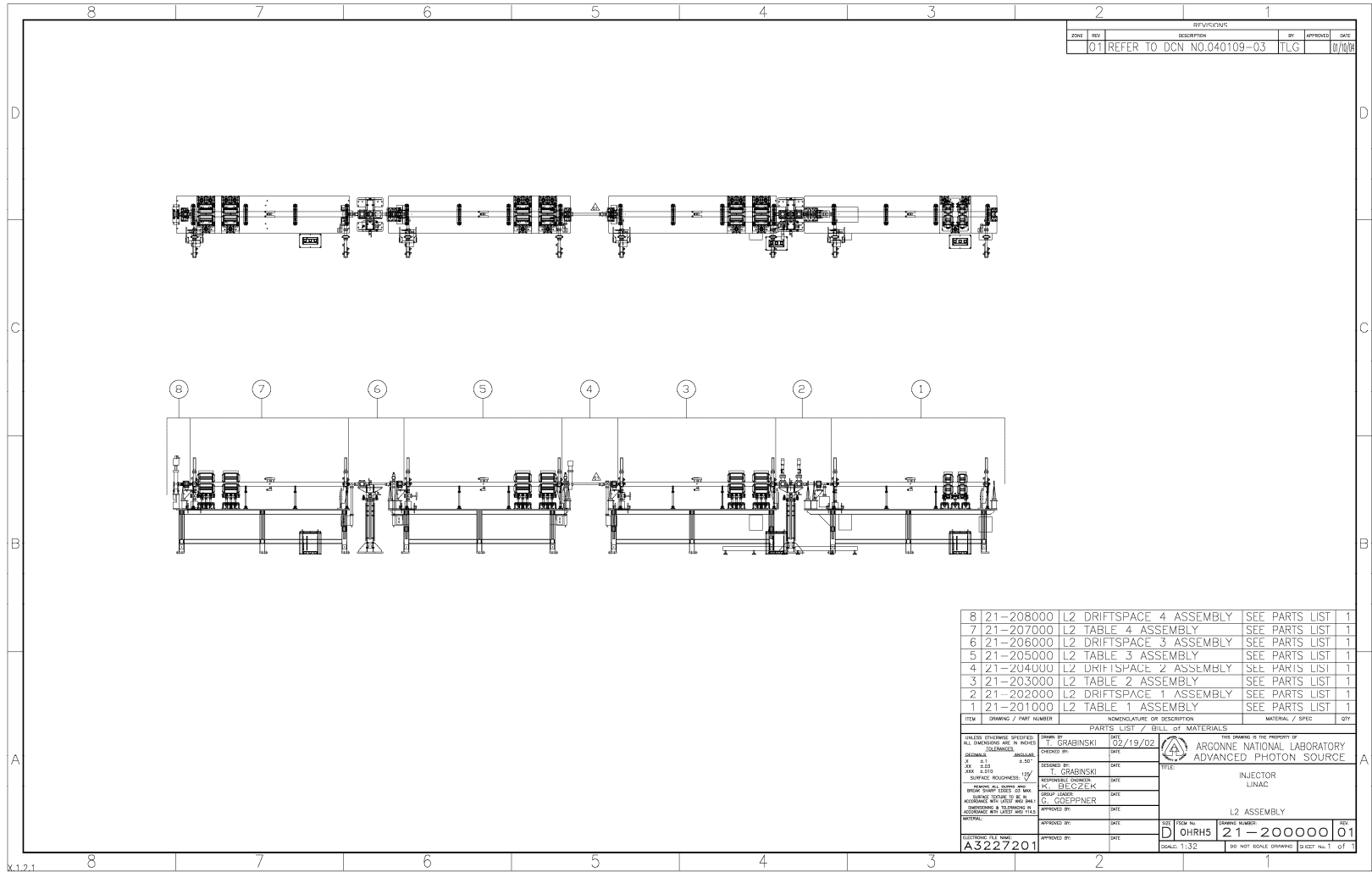


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# LINAC MAGNETS DESCRIPTION L2



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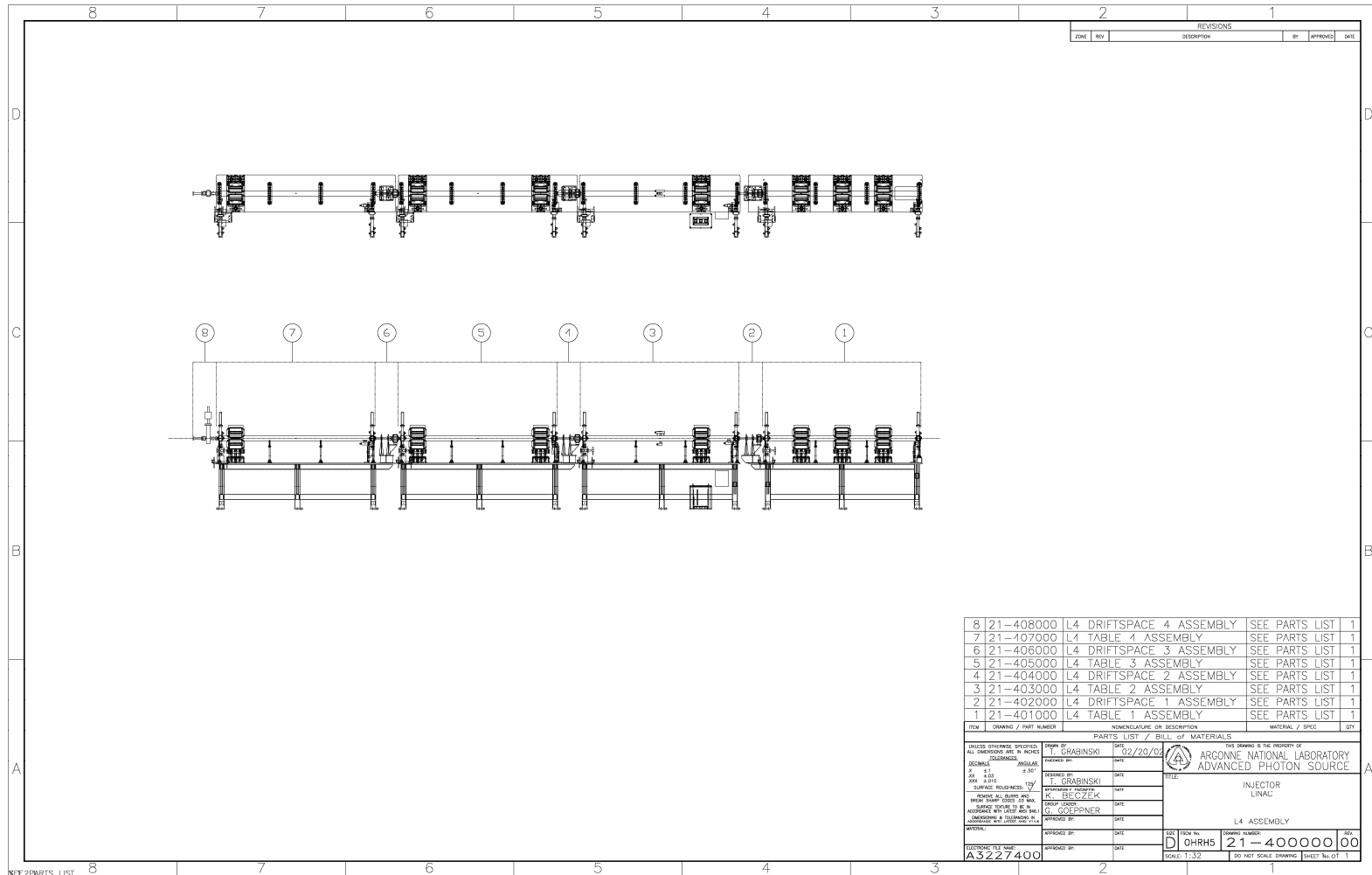
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# LINAC MAGNETS DESCRIPTION L4

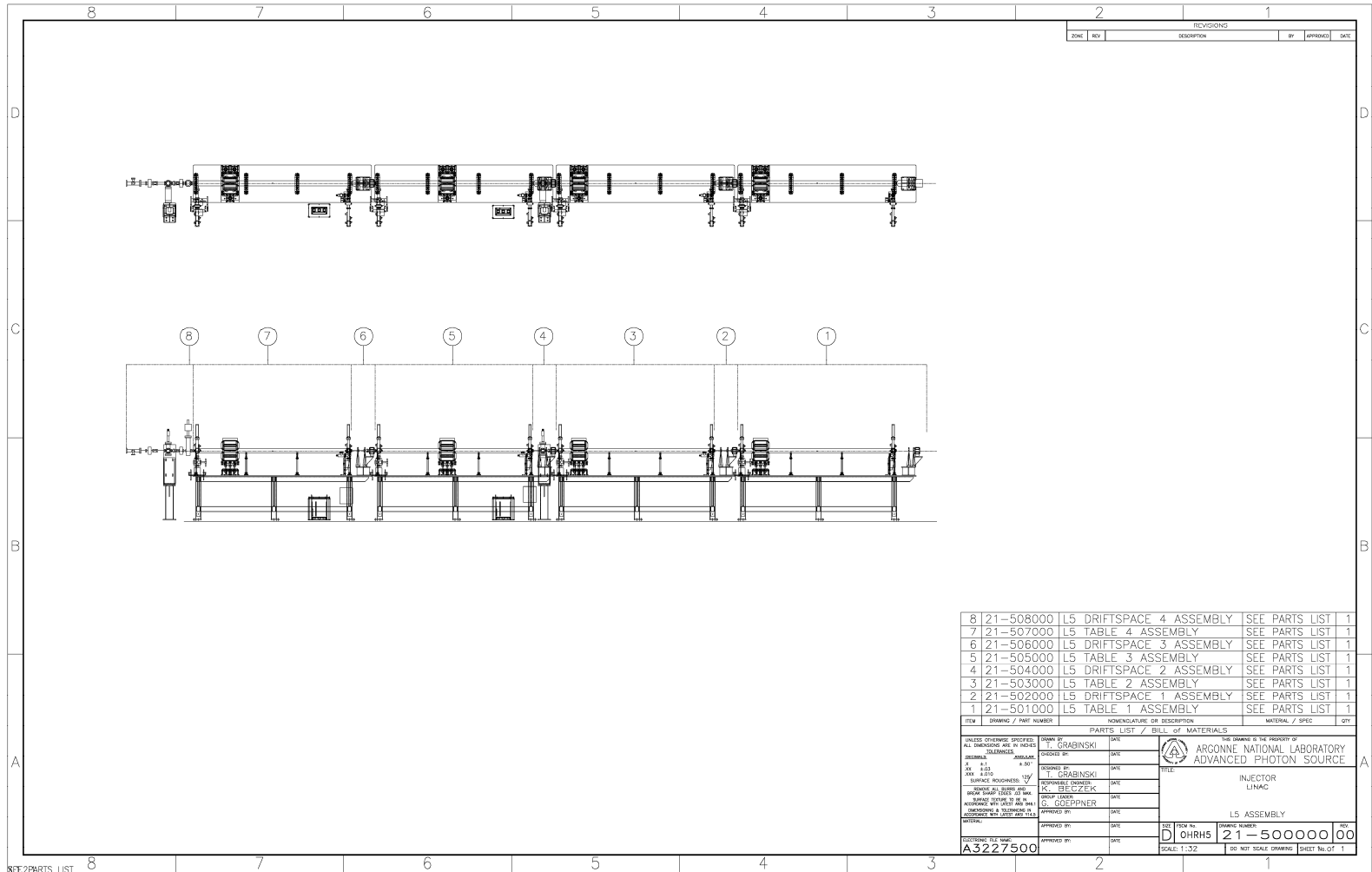


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# LINAC MAGNETS DESCRIPTION L5



ITEM	DRAWING / PART NUMBER	NOVENDICATURE OR DESCRIPTION	MATERIAL / SPEC	QTY
8	21-508000	L5 DRIFTSPACE 4 ASSEMBLY	SEE PARTS LIST	1
7	21-507000	L5 TABLE 4 ASSEMBLY	SEE PARTS LIST	1
6	21-506000	L5 DRIFTSPACE 3 ASSEMBLY	SEE PARTS LIST	1
5	21-505000	L5 TABLE 3 ASSEMBLY	SEE PARTS LIST	1
4	21-504000	L5 DRIFTSPACE 2 ASSEMBLY	SEE PARTS LIST	1
3	21-503000	L5 TABLE 2 ASSEMBLY	SEE PARTS LIST	1
2	21-502000	L5 DRIFTSPACE 1 ASSEMBLY	SEE PARTS LIST	1
1	21-501000	L5 TABLE 1 ASSEMBLY	SEE PARTS LIST	1

PARTS LIST / BILL OF MATERIALS		REVISIONS	
ITEM	DRAWING / PART NUMBER	NOVENDICATURE OR DESCRIPTION	MATERIAL / SPEC
<small>UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.</small> <small>DESIGNED BY: T. GRABINSKI</small> <small>DATE: 4/1/05</small> <small>APPROVED BY: T. GRABINSKI</small> <small>DATE: 4/1/05</small> <small>DESIGNED BY: T. GRABINSKI</small> <small>DATE: 4/1/05</small> <small>APPROVED BY: T. GRABINSKI</small> <small>DATE: 4/1/05</small> <small>DESIGNED BY: K. BIELECZEK</small> <small>DATE: 4/1/05</small> <small>APPROVED BY: G. GOEPPNER</small> <small>DATE: 4/1/05</small> <small>DESIGNED BY: G. GOEPPNER</small> <small>DATE: 4/1/05</small> <small>APPROVED BY: G. GOEPPNER</small> <small>DATE: 4/1/05</small> <small>DESIGNED BY: G. GOEPPNER</small> <small>DATE: 4/1/05</small> <small>APPROVED BY: G. GOEPPNER</small> <small>DATE: 4/1/05</small>		<small>THIS DRAWING IS THE PROPERTY OF ARGONNE NATIONAL LABORATORY</small> <small>ADVANCED PHOTON SOURCE</small> <small>TITLE: INJECTOR LINAC</small> <small>SCALE: 1:32</small> <small>DATE: 4/1/05</small> <small>BY: G. GOEPPNER</small> <small>CHK: G. GOEPPNER</small> <small>APP: G. GOEPPNER</small> <small>DATE: 4/1/05</small> <small>SCALE: 1:32</small> <small>DO NOT SCALE DRAWING</small> <small>SHEET No. 01</small> <small>OF 1</small>	

James Humbert  
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