STD.NEMA C12.8-ENGL 1981 ■ 6470247 0524083 368 ■

MERICAN NATIONAL STANDARD

American National Standard

ANSI C12.8-1981 (R-1997)

American National Standard

for
Test Blocks and Cabinets for Installation of Self-Contained A-Base Watthour Meters

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
1300 NORTH 17TH STREET, SUITE 1847, ROSSLYN, VA 22209
(703) 841-3200 FAX: (703) 841-3300

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Secretariat

National Electrical Manufacturers Association

American National Standards Institute

Reaffirmed August 20, 1997

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Foreword (This foreword is not part of ANSI C12.8-1981 (R1997), American National Standard for Test Blocks and Cabinets for the Installation of Self-Contained A-Base Watthour Meters.)

This standard covers the dimensions and functions of test blocks and cabinets used with self-contained A-base watthour meters.

This standard supersedes the requirements of the former AEIC-EEI-NEMA Standard for Test Blocks and Cabinets for the Installation of Self-Contained "A" Base Watthour Meters, MSJ-8-1951, NEMA Pub No 103-1951.

Suggestions for improvement to this standard are welcome. They should be sent to the American National Standards Institute, 1430 Broadway, New York, NY 10018.

This standard was processed and approved for submittal to ANSI by American National Standards Committee on Electricity Metering, C12. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, the C12 Committee had the following members:

Nile Oldham, *Chair*
Khaled Masri, *Secretary*

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American National Standard for Test Blocks and Cabinets for Installation of Self-Contained A-Base Watthour Meters

1 Scope

This standard covers the dimensions and functions of test blocks and cabinets used with self-contained A-base watthour meters.

2 Definitions

2.1 Cabinet, test block

An enclosure to house a test block and wiring for a bottom-connected watthour meter.

2.2 Connector

A coupling device employed to connect conductors of one circuit or transmission element with those of another circuit or transmission element.

2.3 Disconnect

A conductor, bar, or nut used to open an electrical circuit for isolation purposes.

2.4 Test block

A terminal block with provisions for bypassing an electrical load to isolate a meter or other device for test purposes.

3 Standard ratings

3.1 Current

Ratings shall be 100 A and 200 A.

3.2 Voltage

Ratings shall be 300 V and 600 V.

4 General requirements

4.1 Spacings

Spacings shall be as indicated in Table 1. Grounded metal includes the enclosure and any metal in permanent electrical connection with the enclosure.

4.2 Temperature rise

The temperature rise of current-carrying parts shall not exceed 55°C above an ambient temperature of 25°C at 100% of rated current.

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4.3 Assembly bolts

Assembly bolts shall be of brass, cadmium-plated steel, or the equivalent and shall have a thread No 12-24.

NOTE—The cadmium coating shall be not less than 0.0005 inch thick in order to conform with type NS, as described in ANSI/ASTM A165-80, Specification for Electrodeposited Coatings of Cadmium on Steel.

4.4 Connectors

Connectors shall be the solderless type and accommodate the following wire sizes:

Device Rating (A)	AWG Wire Size
100	No 8 to No 1/0
200	No 1/0 to 250 kcmil

4.5 Connector nuts

Connector nuts shall be of brass, cadmium-plated steel, or other materials suitable for the purpose, and shall have a 0.500 inch short diameter across flats (see Note in 4.3).

4.6 Test clips

Means for safely attaching test clips shall be provided on both sides of the disconnecting device. Means may consist of one (1) grooved connector nuts suitable for attaching 40 A Mueller copper test clips or two (2) extra nuts for attaching lugs of jumpers.

Table 1 – Minimum Spacings

Voltage Between Parts Involved (V)	Minimum Spacings from Live Parts to Parts of Opposite Polarity[a]		Minimum Spacings from Live Parts to Grounded Metal[b]	
	Over Surface (in)	Through Air (in)	Over Surface (in)	Through Air (in)
0-300[c]	0.750	0.375	0.500	0.375
301-600	1.250	0.750	1.000	0.500

a) Through-air and over-surface spacings of 0.375 inch, to be acceptable at other than wiring terminals, to cast-metal enclosure or to grounded metal where indentation or deformation of the overall enclosure will not affect spacings, shall withstand a dielectric strength test at 6000 V, 60 Hz, for 1 min.

b) Through-air and over-surface spacings of 0.3475 inch between parts of opposite polarity, to be acceptable at other than wiring terminals, shall withstand a dielectric strength test at 6000 V, 60 Hz, for 1 min.

c) 300 V spacings shall apply in a 600 V test block if the phase-to-neutral potential does not exceed 300 V for spacings (1) from neutral to phase-potential parts and (2) from neutral to grounded metal.

4.7 Barriers

Barriers may be an integral part of the base or a separate part fastened to the base.

4.8 Disconnect device

The disconnect device may consist of links, raising nuts, or some other device of a satisfactory design.

4.9 Material of base

The material of the base shall be suitable for the sole support of uninsulated current-carrying parts.

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4.10 Mounting holes

Mounting holes shall be centered between the top and bottom of the test block. Clearance shall be provided for mounting screws No 10-32.

5 Test-block dimensions and configurations

5.1 Dimensions

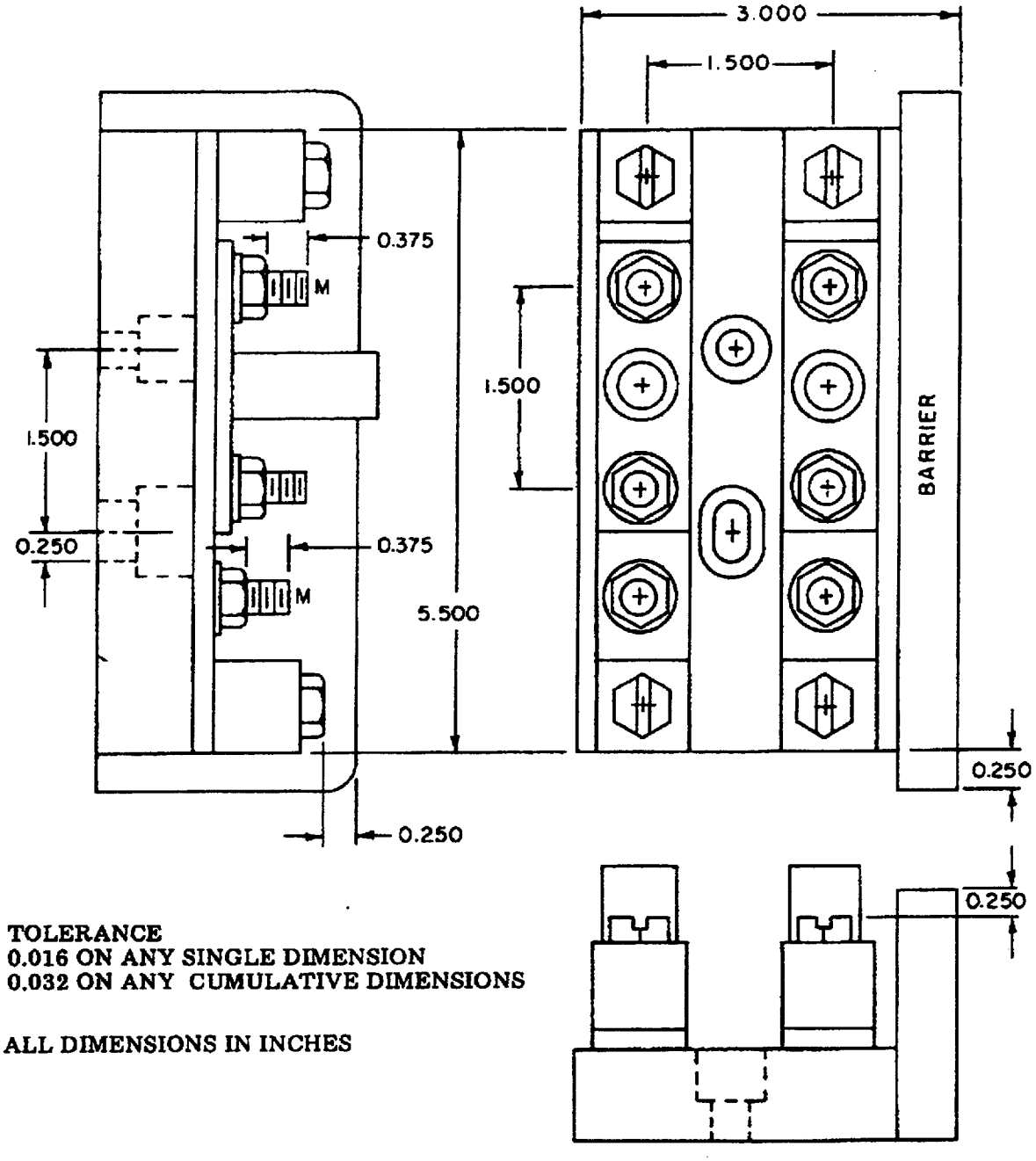
All drawings are dimensioned in inches. To convert to the metric system in millimeters, multiply the dimensions in inches by 25.4. The resulting metric dimensions shall be rounded to the nearest 0.02 mm.

5.2 Test-block figures

Current Rating (A)	Connection Sequence	Figure
100	Line-Load	1
100	Line-Line-Line-Load-Load-Load	2
200	Line-Load	3
200	Line-Load, alternate construction	4
	Neutral block	5

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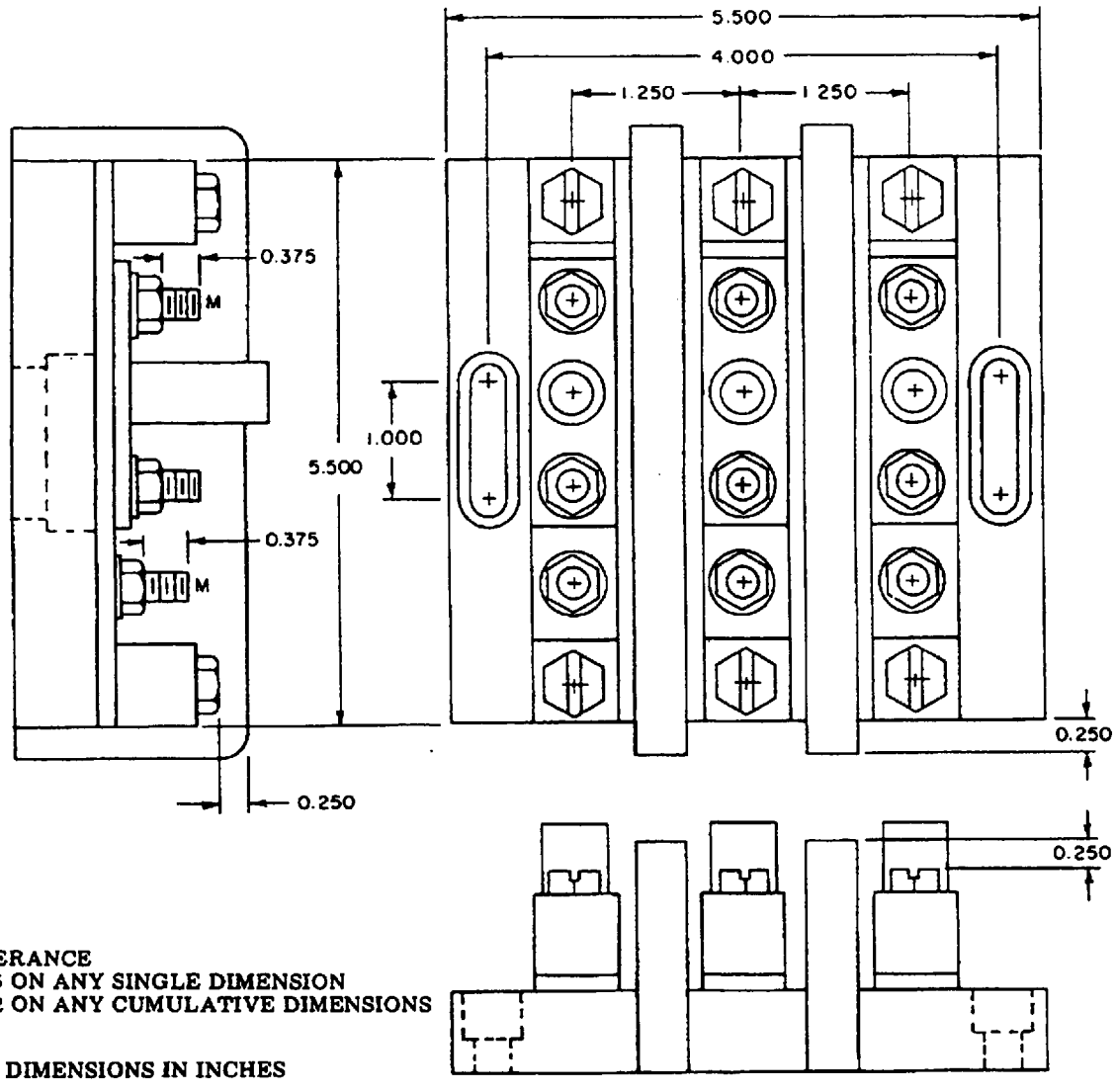
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M — Terminals for rigid bypass jumpers. These can be a part of line-terminal connectors.

Figure 1 – 100 ampere test-block line-load sequence of connections

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ALL DIMENSIONS IN INCHES

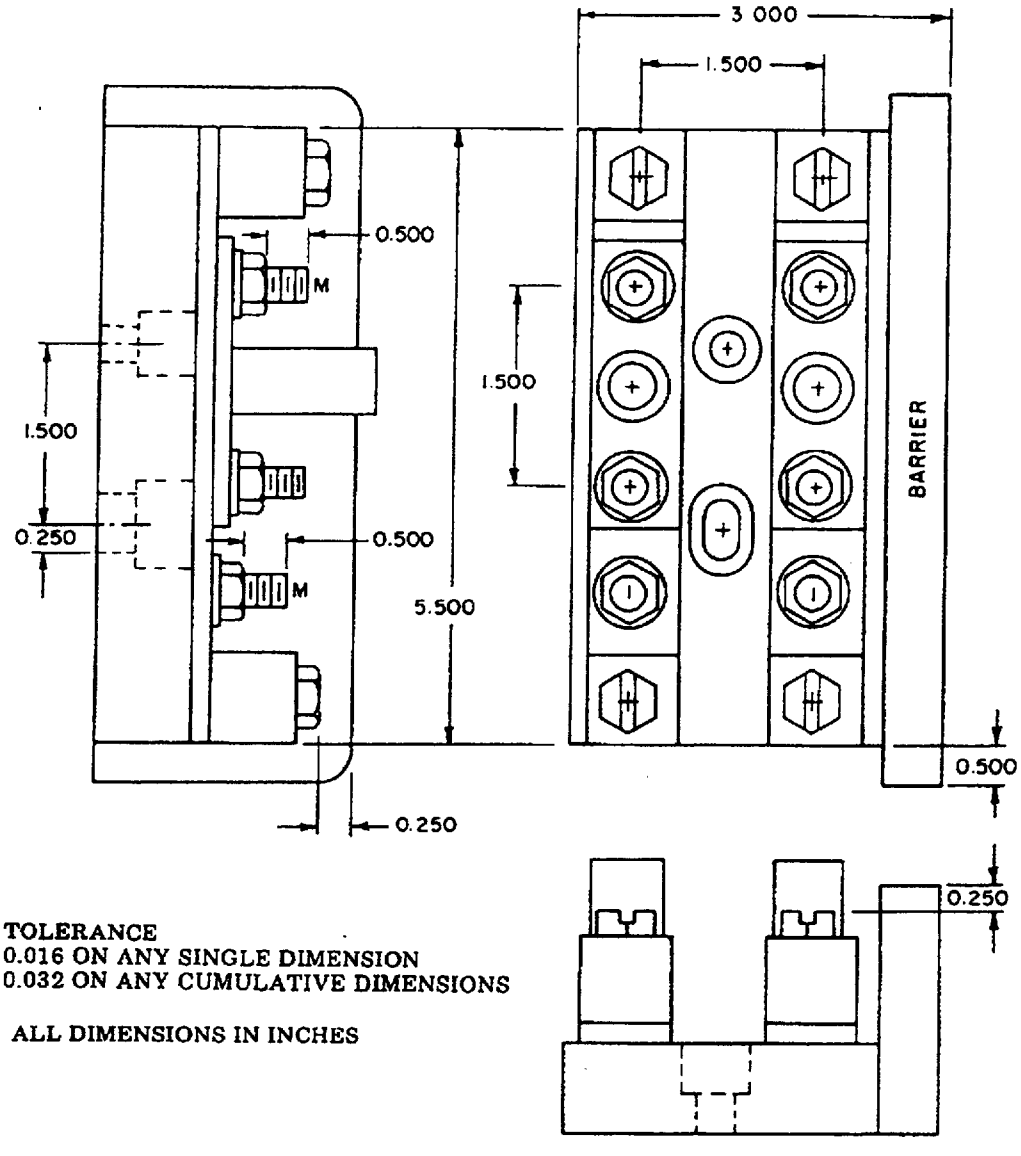
M — Terminals for rigid bypass jumpers. These can be a part of line-terminal connectors.

There shall be 0.025 inch minimum spacing over live parts with largest conductor in terminal.

Figure 2 – 100 ampere test-block
line-line-line-load-load-load sequence of connections

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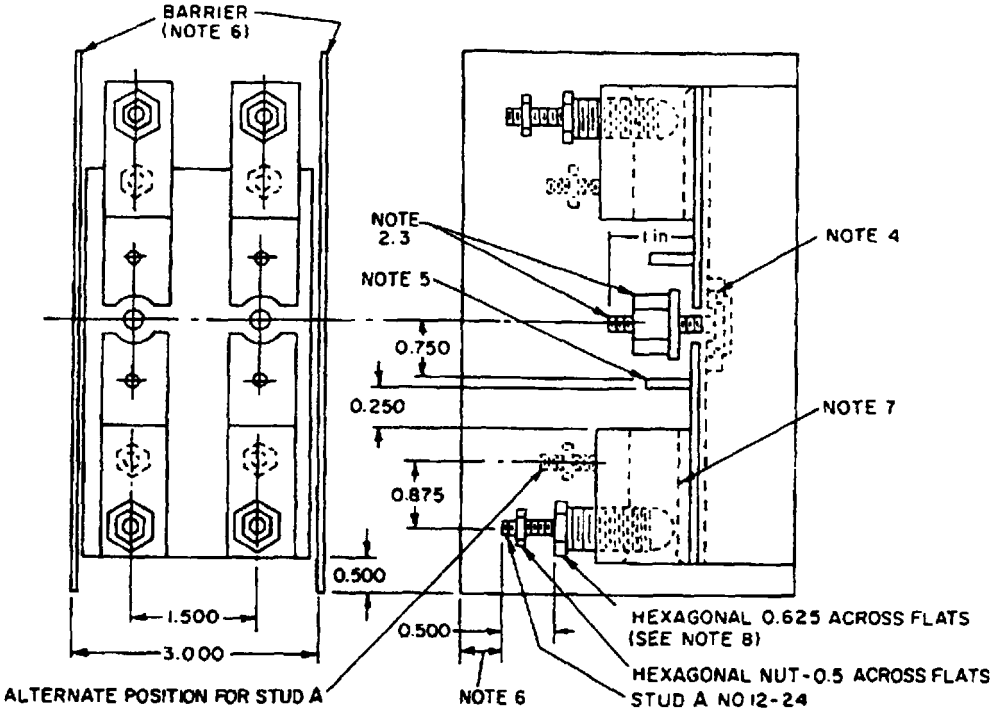


M — Terminals for rigid bypass jumpers. These can be a part of line-terminal connectors.

There shall be 0.025 inch mimimum spacing over live parts with largest conductor in terminal.

Figure 3 – 200 ampere test-block line-load sequence of connections

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NOTES: (1) The strike distance between upper and lower bus sections shall not be less than 0.25 inch when the shorting nut is backed off.

(2) The circuit-closing nut shall be a hexagonal nut 0.625 inch across flats with a plate copper washer attached and shall have threads counterbored at the bottom to facilitate reinstallation. The bolt head shall be keyed to prevent turning.

(3) *The circuit-closing nut and bolt assembly shall maintain the applied contact pressure between the plated copper washer and the bus members of the test-bypass block.*

(4) The insulating washer shall be made from dimensionally stable nontracking material and shall provide a minimum of 0.125 inch creep distance between bolt and bus sections. The bus sections shall be plated.

(5) The wire stops shall extend to the center of the terminal opening or beyond.

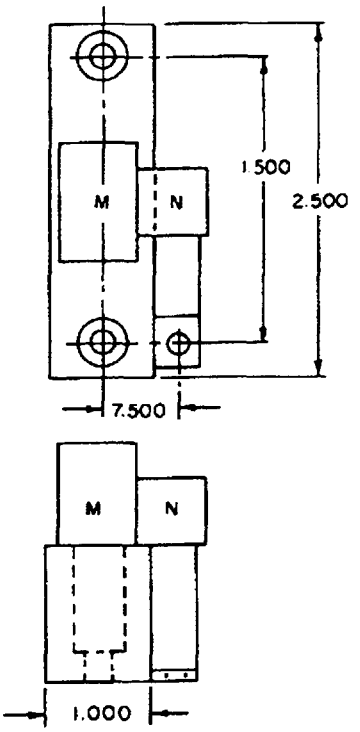
(6) *Rigid* insulating barriers shall project at least 0.250 inch beyond any energized parts when the maximum wire size is installed.

(7) The terminals shall be aluminum bodied. The opening shall extend through the terminal body and, if the wire hole is round, shall be chamfered as necessary to facilitate installation of the largest size wire.

(8) The terminal screws may be of the Allen type: 0.187 inch across flats for 100 A, 0.312 inch across flats for 200 A.

Figure 4 – 200 ampere test-block line-load, alternate construction sequence of connections

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M — Neutral connectors. Connector M shall be of the solderless type and shall accommodate as a minimum a range of AWG No 6 to 250 kcmil cable.

N — Grounding connector. Connector N shall be of the solderless type and shall accommodate as a minimum a range of AWG No 14 to No 2 cable. The connector shall be equipped with a removable strap to permit grounding the neutral in the test cabinets.

Figure 5 – Neutral block

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6 Test-block cabinets

6.1 Dimensions for indoor test-block cabinets

Size (inches)			
Height	Width	Depth	Figures
14.0	13.5	4.5	6
10.5	12.5	4.5	7

6.2 Cabinet cover

The cabinet cover shall be equipped so that it can be sealed and shall be hinged on the left side.

6.3 Cabinet material

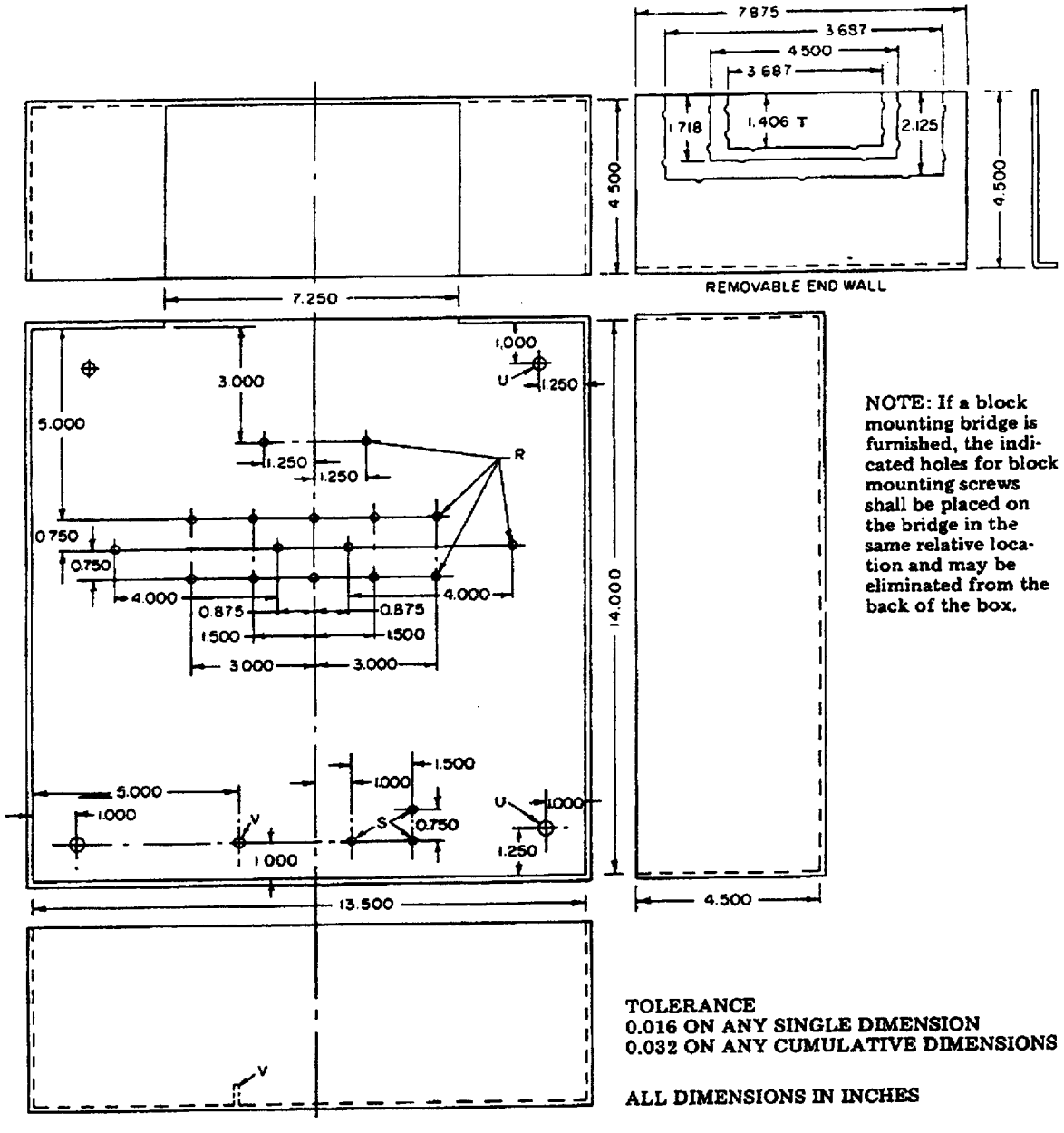
The test-block cabinet shall be formed of 0.056 inch steel or 0.075 inch aluminum.

6.4 Cabinet construction

Cabinet construction shall be NEMA Type 1, in accordance with NEMA 250-1980, Enclosures for Electrical Equipment (1000 V Maximum).

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NOTE: If a block mounting bridge is furnished, the indicated holes for block mounting screws shall be placed on the bridge in the same relative location and may be eliminated from the back of the box.

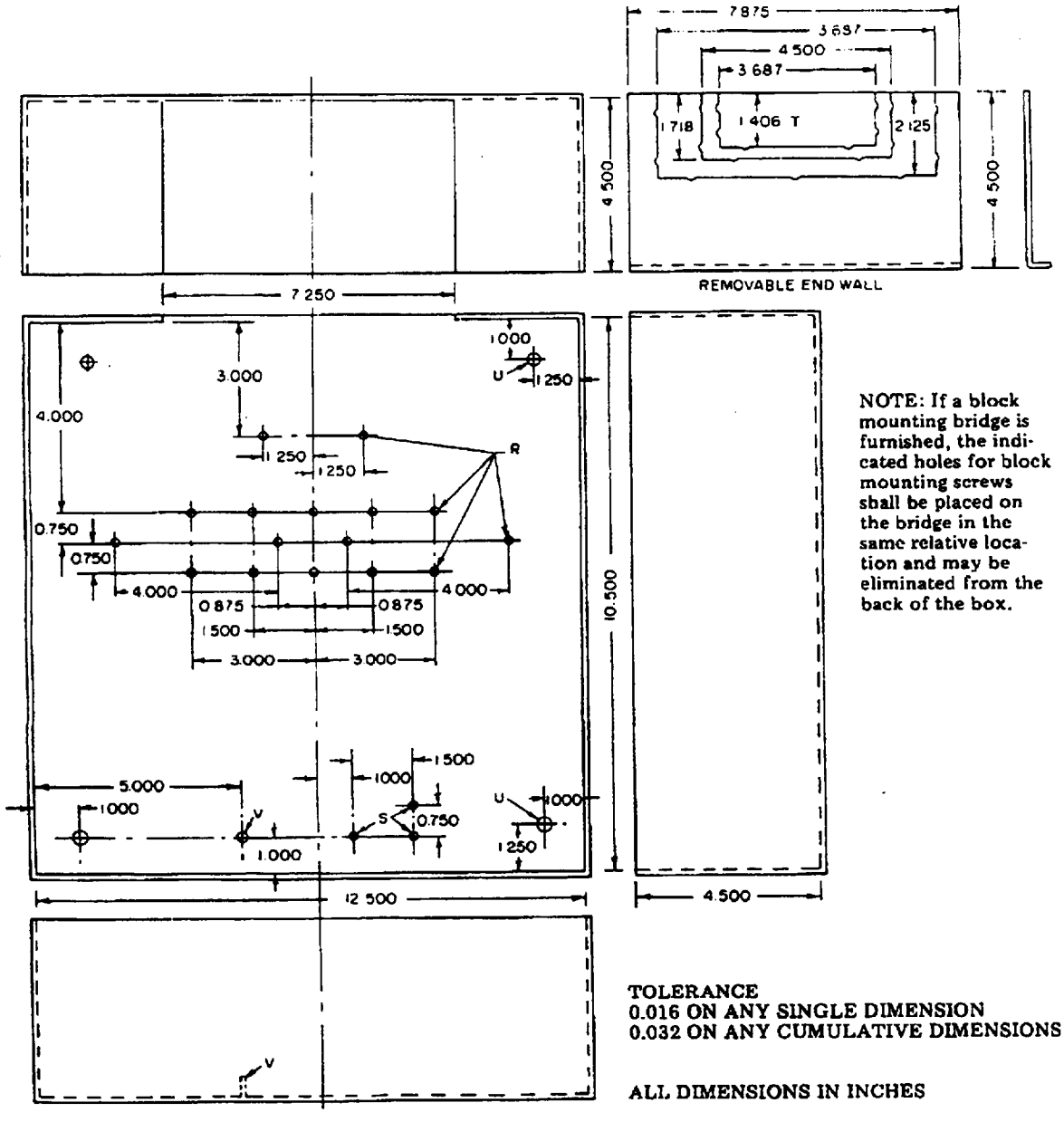
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R — Test-block mounting holes drilled and tapped for mounting screws No 10-32
S — Neutral-block mounting holes drilled and tapped for mounting screws No 10-32
T — Standard meter twistout
U — 0.25 inch diameter cabinet mounting holes
V — No 12-24 thread ground stud

Figure 6 – Indoor test-block cabinet for two- and three-pole test-blocks (for alternate dimensions, see Fig. 7)

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R — Test-block mounting holes drilled and tapped for mounting screws No 10-32
S — Neutral-block mounting holes drilled and tapped for mounting screws No 10-32
T — Standard meter twistout
U — 0.25 inch diameter cabinet mounting holes
V — No 12-24 thread ground stud

Figure 7– Indoor test-block cabinet for two- and three-pole test-blocks

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