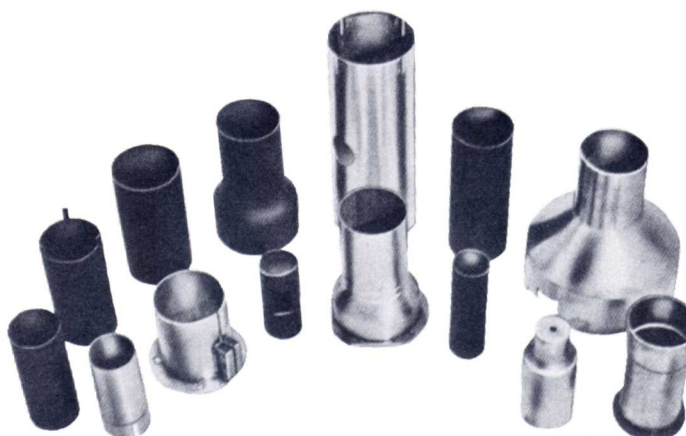


**AD-MU-80 or 78**  
**HIGH PERMEABILITY**  
**MAGNETIC SHIELDS**  
for 324 types of  
**PHOTOMULTIPLIER TUBES**

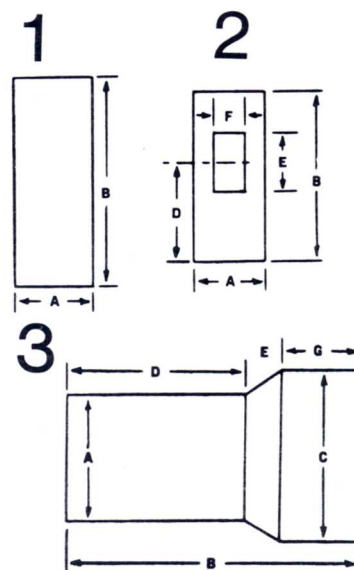
- Maximum shielding effectiveness assured by fully annealed shields.
- Shields for over 90% of currently used types are in stock for immediate delivery.
- For your special application or specific environment, our engineers can either modify a stock shield or custom design a shield to your exact requirement.



**PM SHIELD DIMENSIONS**

| PART NO.   | DRAWING | A     | B      | C      | D       | E     | F   | G     |
|------------|---------|-------|--------|--------|---------|-------|-----|-------|
| P10X40     | 1       | 1     | 4      |        |         |       |     |       |
| P12X45     | 1       | 1 1/4 | 4 1/2  |        |         |       |     |       |
| P13X32M1   | 2       | 1 3/8 | 3 1/4  |        | 1 15/16 | 1 1/8 | 5/8 |       |
| P17X30     | 1       | 1 3/4 | 3      |        |         |       |     |       |
| P17X45     | 1       | 1 3/4 | 4 1/2  |        |         |       |     |       |
| P20X50     | 1       | 2     | 5      |        |         |       |     |       |
| P22X40     | 1       | 2 1/4 | 4      |        |         |       |     |       |
| P22X50     | 1       | 2 1/4 | 5      |        |         |       |     |       |
| P22X60     | 1       | 2 1/4 | 6      |        |         |       |     |       |
| P22X70     | 1       | 2 1/4 | 7      |        |         |       |     |       |
| P23X55Y32  | 3       | 2 3/8 | 5 9/16 | 3 9/32 | 3 3/8   | 11/16 |     | 1 1/2 |
| P23X68Y57  | 3       | 2 3/8 | 6 7/8  | 5 3/4  | 3       | 1 7/8 |     | 2     |
| P25X50     | 1       | 2 1/2 | 5      |        |         |       |     |       |
| P25X60     | 1       | 2 1/2 | 6      |        |         |       |     |       |
| P25X70     | 1       | 2 1/2 | 7      |        |         |       |     |       |
| P32X80     | 1       | 3 1/4 | 8      |        |         |       |     |       |
| P32X100Y55 | 3       | 3 1/4 | 10     | 5 1/2  | 3 1/2   | 1     |     | 5 1/2 |

Dimensions—all figures are inside measurements  
Material—.040" AD-MU-78—fully hydrogen annealed after forming and welding  
Finish—black baked enamel, flat inside, texture outside



**RECOMMENDED SHIELDS FOR SPECIFIC PM TUBES**

| TYPE NO.   | MFR.  | SHIELD NO. | TYPE NO. | MFR. | SHIELD NO. | TYPE NO. | MFR. | SHIELD NO. |
|------------|-------|------------|----------|------|------------|----------|------|------------|
| 1P21       | R     | P13X32M1   | 541A-08  | ER   | *          | XP1011   | A    | P17X45     |
| 1P22       | R     | P13X32M1   | 541B-03  | ER   | *          | CL1015   | C    | P23X68Y57  |
| 1P28A      | R     | P13X32M1   | 541D-01  | ER   | *          | XP1020   | A    | P22X70     |
| 1P28A/V1   | R     | P13X32M1   | 541D-05M | ER   | *          | XP1030   | A    | P23X55Y32  |
| 1P28V1     | R     | P13X32M1   | 541F-05  | ER   | *          | XP1031   | A    | P23X55Y32  |
| PM50       | To    | P25X50     | 541F-05M | ER   | *          | XP1032   | A    | P23X55Y32  |
| 50-VP      | A M   | P17X45     | 541F-08  | ER   | *          | XP1040   | A    | *          |
| 51-VP      | A M   | P17X45     | 541G-08  | ER   | *          | XP1060   | Te   | P17X45     |
| 52-VP      | A M P | P12X45     | 541H-08  | ER   | *          | XP1070   | Te   | P23X55Y32  |
| 53-VP      | A M P | P25X50     | 542A-01  | ER   | P20X50     | XP1080   | Te   | *          |
| 54-VP      | A M P | P23X68Y57  | 542A-05  | ER   | P20X50     | CL1090   | C    | P22X50     |
| 55-VP      | M     | P25X60     | 542D-01  | ER   | P20X50     | XP1090   | Te   | P25X50     |
| 56-VP      | A M P | P22X70     | 542F-05  | ER   | P20X50     | XP1110   | A    | P10X40     |
| 57-VP      | A M P | *          | 542F-08  | ER   | P22X50     | XP1111   | A    | P10X40     |
| 58-VP      | A M P | *          | 542G-08  | ER   | P22X50     | XP1112   | A    | P10X40     |
| 60-VP      | A     | *          | 542H-08  | ER   | P22X50     | XP1113   | A    | P10X40     |
| FW118      | I     | *          | 543A-01  | ER   | P22X70     | XP1115   | A    | P10X40     |
| FW129      | I     | *          | 543A-05  | ER   | P22X70     | CL1191   | C    | *          |
| FW130      | I     | *          | 543D-01  | ER   | P22X70     | K1209    | D    | *          |
| FW136      | I     | *          | 543F-05  | ER   | P22X70     | K1213    | D    | *          |
| FW142      | I     | *          | 543F-08  | ER   | P22X70     | K1292    | D    | P25X50     |
| FW143      | I     | *          | 544A-01  | ER   | P32X80     | K1295    | D    | P25X60     |
| 150-VP     | A M P | P17X45     | 931A     | R    | P13X32M1   | K1303    | D    | *          |
| 152-VP     | A P   | P10X40     | XP1000   | A    | P25X50     | K1305    | D    | P25X50     |
| 153-VP     | A M P | P25X50     | XP1001   | A    | P25X50     | K1306    | D    | P25X50     |
| D224-      | El    | P22X60     | CL1002   | C    | P25X50     | K1328    | D    | *          |
| 510D-01-03 | ER    | P10X40     | XP1002   | A    | P25X50     | K1361    | D    | P17X45     |
| 541A-01    | ER    | *          | CL1003   | C    | P23X55Y32  | K1384    | D    | *          |
| 541A-05    | ER    | *          | XP1004   | A    | P25X50     | K1386    | D    | *          |
| 541A-05M   | ER    | *          | XP1010   | A    | P17X45     | K1390    | D    | *          |

# RECOMMENDED SHIELDS FOR SPECIFIC PM TUBES

| TYPE NO. | MFR. | SHIELD NO. | TYPE NO.   | MFR. | SHIELD NO. | TYPE NO.  | MFR. | SHIELD NO. |
|----------|------|------------|------------|------|------------|-----------|------|------------|
| K1391    | D    | P23X68Y57  | 4523       | R    | P25X50     | 9618-     | EI   | *          |
| K1404    | D    | *          | 4524       | R    | P23X55Y32  | 9623-     | EI   | *          |
| K1428    | D    | P25X50     | 4525       | R    | P23X68Y57  | 9634-     | EI   | P22X50     |
| K1451    | D    | *          | 4526       | R    | *          | 9635-     | EI   | P22X60     |
| K1485    | D    | P23X55Y32  | WX4582     | W    | P10X40     | 9637-     | EI   | P22X40     |
| K1527    | D    | P17X45     | WX4383     | W    | P10X40     | 9637K     | EI   | P25X40     |
| K1528    | D    | P10X40     | 5819       | R    | P25X50     | 9638-     | EI   | P22X60     |
| K1566    | D    | P10X40     | 6094-      | EI   | P22X40     | 9643-     | EI   | P22X50     |
| K1688    | D    | P25X50     | 6097-      | EI   | P22X40     | 9644-     | EI   | P22X50     |
| K1927    | D    | P25X50     | 6199       | R    | P17X45     | 9647-     | EI   | P22X50     |
| K1961    | D    | P25X50     | 6217       | R    | P25X50     | 9656-     | EI   | P22X40     |
| 2020     | R    | P25X50     | 6255-      | EI   | P22X50     | 9656K     | EI   | P25X50     |
| 2060     | R    | P17X45     | 6256-      | EI   | P22X40     | 9658-     | EI   | P20X50     |
| 2061     | R    | P25X50     | 6291       | D    | P17X45     | 9659-     | EI   | P20X50     |
| 2062     | R    | P25X50     | 6292       | D    | P25X50     | 9664-     | EI   | P13X32M1   |
| 2063     | R    | P25X50     | 6328       | R    | *          | 9670-     | EI   | P13X32M1   |
| 2064B    | R    | P23X55Y32  | 6342A      | R    | P25X50     | 9584      | EI   | P22X60     |
| 2065     | R    | P23X68Y57  | 6343       | D    | P23X68Y57  | 9698-     | EI   | P12X45     |
| 2067     | R    | *          | 6362       | D    | P10X40     | 9700-     | EI   | P12X45     |
| K2142    | D    | *          | 6363       | D    | P23X55Y32  | 9708-     | EI   | P23X55Y32  |
| K2167    | D    | P23X55Y32  | 6364       | D    | P23X68Y57  | 9708K     | EI   | P23X55Y32  |
| K2173    | D    | P23X68Y57  | 6365       | D    | *          | 9709-     | EI   | P23X68Y57  |
| K2190    | D    | P17X45     | 6467       | D    | P17X45     | 9709K     | EI   | P23X68Y57  |
| K2199    | D    | P25X50     | 6472       | R    | *          | 9711-     | EI   | *          |
| K2227    | D    | P25X50     | 6655A      | D R  | P25X50     | 9712-     | EI   | P23X68Y57  |
| K2242    | D    | P23X55Y32  | 6810A      | R    | *          | 9726-     | EI   | P22X40     |
| K2244    | D    | P22X70     | 6810B/A    | D    | *          | 9726K     | EI   | P25X40     |
| K2253    | D    | P23X55Y32  | 6903       | R    | P25X50     | 9727-     | EI   | P22X60     |
| K2276    | D    | P17X45     | 6911       | D    | P25X50     | 9732-     | EI   | *          |
| K2284    | D    | P22X60     | 6935       | D    | P10X40     | 9734-     | EI   | *          |
| KM2290   | D    | P22X50     | 7064       | D    | P25X50     | 9750-     | EI   | P22X50     |
| KM2294   | D    | P22X50     | 7065       | D    | P17X45     | 9750K     | EI   | P25X50     |
| KM2328   | D    | P10X40     | C7075J     | R    | P13X32M1   | 9758-     | EI   | P23X55Y32  |
| KM2334   | D    | P22X60     | 7102       | R    | P17X45     | 9781-     | EI   | P13X32M1   |
| KM2356   | D    | P22X40     | 7117       | R    | *          | 9783-     | EI   | P13X32M1   |
| KM2357   | D    | P22X50     | C7151N/Q/U | R    | P17X45     | 9790-     | EI   | P23X68Y57  |
| KM2368   | D    | *          | C7164R     | R    | P25X50     | 9791-     | EI   | P23X68Y57  |
| KM2433   | D    | P22X50     | 7200       | R    | *          | WL22671   | W    | P10X40     |
| KM2485   | D    | P17X45     | 7264       | R    | *          | WL22779   | W    | P10X40     |
| KM2487   | D    | P10X40     | 7265       | R    | P22X60     | WL30067   | W    | P12X45     |
| KM2498   | D    | P23X68Y57  | C7268      | R    | *          | C31000-   | R    | P22X50     |
| F4002    | I    | *          | 7326       | R    | *          | C31000K   | R    | P22X40     |
| F4003    | I    | P12X45     | 7664       | D    | P25X50     | C31004A   | R    | P13X32M1   |
| F4004    | I    | *          | 7680       | D    | P10X40     | C31005/B  | R    | P10X40     |
| F4008    | I    | P22X50     | 7696       | To   | P25X50     | C31016A/B | R    | *          |
| F4013    | I    | *          | 7746       | R    | P25X50     | C31022    | R    | *          |
| F4027    | I    | *          | 7764       | R    | *          | C31024    | R    | P22X40     |
| F4028    | I    | *          | 7767       | R    | P10X40     | C31025-   | R    | P13X32M1   |
| F4030    | I    | *          | 7817       | C    | P10X40     | C70007A   | R    | P22X60     |
| F4034    | I    | *          | 7818       | C    | P23X55Y32  | C70042-   | R    | P10X40     |
| F4035    | I    | P25X50     | 7819       | C    | P23X68Y57  | C70045-   | R    | *          |
| F4038    | I    | P23X55Y32  | 7850       | R    | P22X60     | C70102-   | R    | P10X40     |
| F4039    | I    | P23X68Y57  | 7860       | D    | P10X40     | C70109E   | R    | *          |
| F4045    | I    | *          | WL7908     | W    | P10X40     | C70114-   | R    | P17X30     |
| F4046    | I    | *          | WL7909     | W    | P10X40     | C70128    | R    | P10X40     |
| F4047    | I    | *          | 8053       | R    | P25X50     | C70129-   | R    | *          |
| P&Q4231  | B    | P22X40     | 8054       | R    | P23X55Y32  | C70132-   | R    | P17X30     |
| P&Q4232  | B    | P22X40     | 8055       | R    | P23X68Y57  | C70133B   | R    | P32X100Y55 |
| P&Q4239  | B    | P22X40     | 8062       | D    | P17X45     |           |      |            |
| P&Q4241  | B    | P22X50     | 8571       | R    | *          |           |      |            |
| P&Q4242  | B    | P22X50     | 8575       | R    | P22X50     |           |      |            |
| P&Q4249  | B    | P22X40     | 8644       | R    | P10X40     |           |      |            |
| P&Q4272  | B    | P22X50     | 8645       | R    | #          |           |      |            |
| P&Q4282  | B    | P22X60     | 8664       | R    | P22X40     |           |      |            |
| P&Q4283  | B    | P22X60     | 8664/V1    | R    | P25X70     |           |      |            |
| WX4288   | W    | P10X40     | 8850       | R    | P22X50     |           |      |            |
| P&Q4292  | B    | P22X60     | 8851       | R    | P22X50     |           |      |            |
| P&Q4297  | B    | P22X50     | 9502-      | EI   | P22X40     |           |      |            |
| WX4288   | W    | P10X40     | 9514-      | EI   | P22X50     |           |      |            |
| 4438     | R    | P17X30     | 9524-      | EI   | P12X45     |           |      |            |
| 4439     | R    | P17X30     | 9526-      | EI   | P12X45     |           |      |            |
| 4440     | R    | P17X30     | 9529-      | EI   | P12X45     |           |      |            |
| 4441/A   | R    | P17X30     | 9530-      | EI   | P23X68Y57  |           |      |            |
| 4459     | R    | P22X60     | 9531-      | EI   | *          |           |      |            |
| 4460     | R    | P10X40     | 9545-      | EI   | *          |           |      |            |
| 4461     | R    | P17X30     | 9558-      | EI   | P22X60     |           |      |            |
| 4463     | R    | P25X50     | 9592-      | EI   | P12X45     |           |      |            |
| 4464     | R    | *          | 9594-      | EI   | P25X70     |           |      |            |
| 4465     | R    | *          | 9594U-     | EI   | P22X60     |           |      |            |
| 4471     | R    | P13X32M1   | 9595-      | EI   | P25X70     |           |      |            |
| 4472     | R    | P13X32M1   | 9595U-     | EI   | P22X60     |           |      |            |
| 4473     | R    | P13X32M1   | 9595-      | EI   | P25X70     |           |      |            |
| 4507     | R    | P22X50     | 9596U-     | EI   | P22X60     |           |      |            |
| 4516     | R    | P10X40     | 9597-      | EI   | P25X70     |           |      |            |
| 4517     | R    | P17X45     | 9597U-     | EI   | P22X60     |           |      |            |
| 4518     | R    | P25X50     | 9500-      | EI   | P12X45     |           |      |            |
| 4521     | R    | *          | 9601-      | EI   | P12X45     |           |      |            |
| 4522     | R    | P32X100Y55 | 9603-      | EI   | P22X50     |           |      |            |

## NOTES

\* Consult AD-VANCE about a special design for this type.

# This type is encapsulated in a magnetic shield by RCA. If additional shielding is desired, P10X40 is recommended.

## KEY TO TUBE MANUFACTURE CODE

### CODE MANUFACTURER

- A AMPEREX ELECTRONIC CORPORATION
- B BAILEY INSTRUMENTS CO., INC.
- C CBS LABORATORIES, INC.
- D FAIRCHILD DU MONT LABORATORIES, INC.
- EI GENCOM DIVISION/EMITRONICS INC.
- ER EMR PHOTOELECTRIC
- I ITT ELECTRON TUBE DIVISION
- M MULLARD LTD.
- P PHILIPS' GLOEIAMPENFABRIEKEN, N. V.
- R RCA/ELECTRONIC COMPONENTS
- Te TELEFUNKEN GMBH
- To TOKYO SHIBaura ELECTRIC CO., LTD.
- W WESTINGHOUSE ELECTRIC CORP.

The preceding listing has been made as complete as possible, using all information made available to us by the above named tube manufacturers.

We would very much appreciate having any additions, deletions, or corrections brought to our attention for inclusion in future listings.