



FESHM 5045: HIGH VOLTAGE COAXIAL CONNECTORS

Revision History

Author	Description of Change	Revision No. & Date
Michael J. Utes	Checked all connectors in document for correct part numbers and obsolescence and made changes where appropriate. Kings brand part numbers were unchanged; Amp connectors have been replaced with Tyco connectors and otherwise have the same names. The 10kV cable connector was changed from Reynolds 167-4535 to 167-3554. The 10kV bulkhead adapter was changed from Reynolds 167-3705 to Kings 1069-1. Also the Fermilab Stock catalog numbers were updated, meaning they all had 00 added to the end of the old numbers.	Revision 1 December 2010



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INTRODUCTION

This chapter identifies certain requirements and prohibitions relative to the use of high voltage coaxial connectors. Recommendations are made for standard connectors to be used for several voltage ranges.

REQUIREMENTS

1. In general, connectors for high voltage use are to be chosen such that they are incompatible with connectors for signal cables.
2. Connector components properly rated for the intended application shall be used. Systems requiring voltages above 20kVDC shall utilize connectors specified for the maximum design voltage.
3. In particular, because of the well-known physical compatibility with BNC connectors, which have a lower voltage rating, the use of MHV connectors is prohibited.
4. Where possible, red-jacketed cable should be used for high voltage applications.
5. The chassis connector shell shall be solidly grounded to the panel on which it is mounted.
6. A "D" hole shall be used for mounting all panel connectors except flange mount type connectors.

RECOMMENDATIONS

1. Standard Connectors For a System up to 5kVDC



- a. The standard coaxial cable connector shall be the Kings Electronics 1705-2, TYCO 51426-1 (old #-AMP 51426-1) (for use with RG 58C/ U), or equivalent (STK#1435-211000).
 - b. The standard coaxial panel connector for flange mount type should be either Kings Electronics 1707-1 or TYCO 51421-2 (old #-AMP 51421), or equivalent (STK#1435-212000).
 - c. The standard coaxial panel connector for "D" hole mount type should be either Kings Electronics 1704-1, TYCO 51494-2 (old #-AMP 51494), or equivalent (STK#1435-211500).
 - d. The standard bulkhead adapter for coaxial applications shall be Kings Electronics 1709-1, TYCO 225064-2 (old #-AMP 225064-2), or equivalent (STK#1435-210000).
2. Standard Connectors For a System up to 10kVDC (20 amps rms)
- a. The standard coaxial cable connector shall be the Teledyne/ Reynolds Inc P/ N167-3554, the Kings Electronics 1065-2 (cable group 40) for use with type C cable, or equivalent (STK#1435-170000).
 - b. The standard coaxial panel connector shall be the Teledyne/ Reynolds Inc P/ N167-3555, the Kings Electronics 1064-1, or equivalent (STK#1435-480000).
 - c. The standard coaxial panel feed-through shall be the Kings 1069-1 or equivalent (not a stockroom item).
3. Standard Connectors For a System up to 20kVDC (20 amps rms)
- a. The standard coaxial cable connector shall be the Teledyne/ Reynolds Inc P/ N167-3516 (for use with RG 213/ U) or equivalent (STK#1435-175000).
 - b. The standard coaxial panel connector shall be the Teledyne/ Reynolds Inc P/ N167-3517 or equivalent (STK#1435-490000).