

## Helmholtz Field Cancelling Cables for Frames



- **Helmholtz cables for use with a rectangular frame on SEM installations**
- **Supplied in sets of 3 for the X, Y and Z axes**
- **Compatible with Spicer Consulting SC22 and SC24 Magnetic Field Cancelling Systems**
- **Multi-core screened cables with D-type connectors**
- **Main loop and “tail” construction for ease of installation**

### Overview

These cables are designed for use with SC22 and SC24 magnetic field cancelling systems and a rectangular frame in SEM installations. They are supplied in sets of 3, one each for the X, Y and Z axes of the cancelling system.

Each cable has one long main loop with multiple turns that plug together with a pair of 9-pin D-type connectors. They are typically installed on a frame in such a way as to make two loops. A two-core cable called the *tail* runs from one of the connectors back to a 9-pin D-type connector that plugs into the control unit. The cables are screened to protect the outputs from RF pickup.

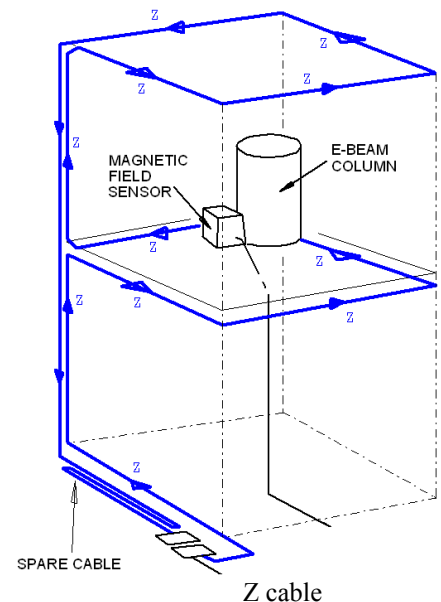
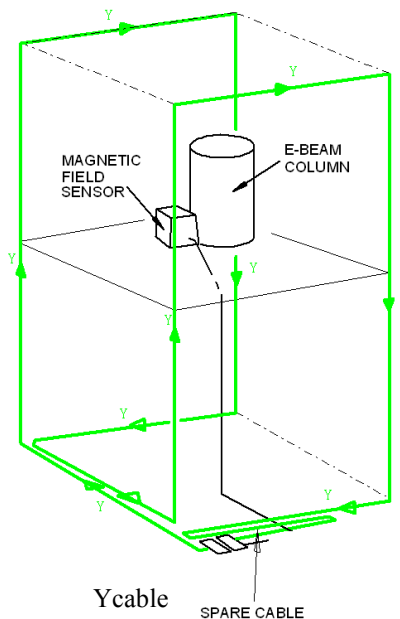
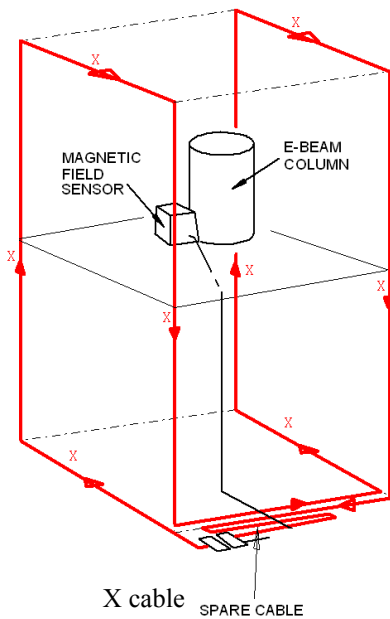
## Installation

Helmholtz cables are usually mounted on a rectangular frame that surrounds the column of an SEM. They cannot be used as room size cables, because the field generated would be too weak.

Cables are fixed to the frame using cable ties. They can be hidden beneath covers in grooves in the frame for much of their length, but need to come out where they change direction.

A typical layout for cables on a frame is shown in the drawings. The cables are labelled with colour-coded directional arrows. This helps to ensure that they are installed so that both loops go around in the same direction.

Excess cable should not be coiled, because that would make a magnetic field. It should be doubled back on itself and bundled tightly so that the field cancels out.



Aluminium frames to carry the cables are available from Spicer Consulting. The joints are insulated to ensure that there are no shorted loops in parallel with the cables. Similar precautions must be taken if the frame is obtained locally, otherwise the cancelling performance will be compromised.

Custom cable lengths are supplied at no extra cost to fit larger or smaller frames.

This layout works if the magnetic fields are small. If the fields are very large, then an octagonal frame with its built-in cables is recommended.

## Specifications

Weight:	1.7 kg (set of 3)
Loop Length:	16 m
Tail Length:	2 m
No. Loops:	1 (to make 2 loops as shown)
No. Cores	9
Type of cores	7/0.1
Outside diameter:	3.8 mm
Loop connector:	9 way D-type
Tail connector:	9 way D-type
Compatible with:	SC22 field cancelling system SC24 field cancelling system Not designed for use separately

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