


# Barrier Tubing Black (Fluorine) [Model Number: E-BTF-BK]

## Precautions for Use

 Before using HAKKO EIGHTRON products, please make sure to read following instructions in order to use HAKKO EIGHTRON products safely. HAKKO is not liable for personal injury or property damages if you do not follow the cautionary instructions below. We strongly urge you to follow these instructions. For applications that require safety consideration, please check beforehand.

### ① Cautions in Use

- Do not use this product in any applications that may affect life or dysfunction. (Such as applications for implanting or injecting into the body, or applications for remaining the part into the body) We do not guarantee the adaptability and safety related to these applications.
- The inner layer of E-BTF-BK is made of Fluorine Resin. Thus, E-BTF-BK shows higher levels of chemical resistance. However, depending on the kinds of chemicals, concentration, and temperature, E-BTF-BK might swell or deteriorate. Please check the chemical resistance data listed on our product catalog and corporate website.
- The material of the adhesive layer / barrier layer / outer layer is inferior in chemical resistance to the inner layer. Do not attach chemicals as they may cause swelling or cracking of the tubing when you insert fittings and use our tube.
- E-BTF-BK is designed for positive pressure. Please do not use E-BTF for negative pressure (in vacuum conditions).
- Please comply with the use conditions mentioned in this specification such as working pressure, temperature, and minimum bend radius.
- The indicated pressure performance is based on the data of the pressure resistance test conducted by our proprietary test method (test medium is water). Depending on conditions such as the type of fluid used by the customer, operating temperature, operating pressure, etc., fluid leakage and tube missing may occur even within the stated pressure range.
- The tube may expand and contract due to the contraction or internal pressure in a high temperature environment, so please provide enough space for piping.
- When pressure is applied, operate the valve slowly in order not to develop impact pressure, which might cause the rupture of the tube.
- Tubes should not be used below the minimum bend radius. If you use the tubes below the minimum bend radius, tubes may be folded or the pressure resistance might go down.
- If it is used in a state where bending stress is continuously applied to the tube, cracks may occur in the barrier layer.
- Please do not bend extremely near the fittings. This leads to the damage of the tube.
- Please do not apply unreasonable force such as kinking and pulling to the tubes. This results in the bursting of the tube or coming off from the fittings.
- Please do not pull or drag the tubes. This damages the surface of the tube, leading to having a hole onto the tube and bursting.
- Please do not bring the tubes close to fire or heat sources.
- Please do not place heavy weight on tubes. Tubes should not be running over by vehicles.
- Please do not make scratches on the tube with cutters or knives.
- Be sure to check the chemical resistance data in the catalog before using the tube. If you have any questions or need more information, please feel free to contact us.

### ② Cautionary Instructions on How to Cut Tube/tube and Assemble with Fittings

- In cutting the tube, the cross-section of the tube must be perpendicular.
- For fittings, please use HAKKO original fittings [E-FTS: Multi-Layer Fittings] and [EIGHTNIPPLE Series] or the joint that seals on the inner surface of the tube. For more information on HAKKO original fittings, please take a look at general catalog and our corporate website.
- Do not use fittings to seal on the outer surface of the tube.
- Please use fitting nipple mountain part with R attached. Do not use fittings with scratches or rust on the surface of the fitting nipple.
- Please do not use the fittings which have scratches or rust on the surface of the nipple. Inner surfaces of the tube may be damaged and it may cause the tube to rupture or leak. Please use the flat hose clamps required for the tube specifications. Please do not use wires or do not tighten excessively with wires. It may cause the tubes to rupture or leak.
- Tighten the hose band with the specified tightening torque.
- The tube softens at high temperatures, so tighten the hose band more (tighten) and fix it firmly.
- When the nipple of the fitting is inserted into the tube, do not apply oil on the tube and nipple or do not warm them with fire. It may cause the tube to come off or change its shape.
- Insert the nipple of the fitting into the end of the tube until it seals against the thread base. If the nipple is not inserted adequately, the tube may come off.
- Please choose the hose nipples which are suitable for tube sizes.

### ③ Cautions in Maintenance and Inspection

- Tubings are greatly affected by use conditions and environments. In case tubes are used outdoor, the surface of the tubes will be damaged and the quality will deteriorate quickly, compared with ones used indoor. The conditions of the tubes and fittings should be inspected regularly. If something unusual things listed below occur, stop using the tubes immediately and replace them with new ones:
  - Appearance Abnormality... Tear, Scratches, Swelling, Crack, Curve, Deformation.
  - The Bursting of Inner or/and Outer Layers of the Tubes, Hardening, Dramatic Change in Color, Leaking Fluids.

### ④ Cautions in Storing

- Please do not directly contact with rubber products such as rubber hose and rubber board. This causes the tube to change in color, transfer the components, and swell the tubes.
- In case the tubes are stored, get rid of remaining fluids inside the tubes, clean up any dusts on the surface of the tube and avoid twisting/holding the tubes.
- Please do not store the tube under the extremely bended conditions.
- Please store the tube on the flat, smooth surfaces; otherwise, tubes may change its shape.
- Please store at room temperature with low humidity indoors to avoid exposure to direct sunlight, wind or rain. If the product is left outdoors or stored in a high-temperature environment, it may cause discoloration, deterioration or changes in length and inside/outside diameter.
- Please store the tube without having foreign matters and dusts inside the tube.
- Please do not pile up the tubes in large quantity.

### ⑤ About the Numerical Value of Working Pressure

- The working pressures listed in the catalog and our website are the values with E-FTS [Fittings for Multi-Layer Tubing].
- ※ For tube sizes without a dedicated joint, the value is based on the joint (hose nipple) that seals on the inner surface of the tube.
- ※ The hose clamp tightening torque is the maximum torque recommended by the hose clamp manufacturer.
- Depending on the specifications of the fittings, working pressure might go down.

### ⑥ In case of Disposing

- In case of disposing, follow the local governmental regulations.

### For Your Inquiries and/or Questions

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