

Electrical Conduit

In the world of martial arts, 'Iron Monkey'(鐵猴子 [鐵馬騮]) is known for its toughness and versatility. In the electrical world, conduit is also strong as well as flexible enough to protect the blood vessel of electricity - electrical cables. This conduit for electrical application is normally known as 燈喉 in Chinese (喉 in same phonetic with 猴).

In Hong Kong, electrical conduits, usually complied with BS EN 61386-1:2004, consist of two main types: the Galvanized Iron Conduit and the Plastic (PVC) Conduit. They come in either rigid or flexible form. Depending on the installation method, either surface Conduit or concealed Conduit would be used. The cross section of Conduit is of circular shape with 20mm, 25mm or 32mm diameter being the most common types . As the Galvanized Iron Conduit is a good electrical conductor when connected properly, it can serve as an earth return and hence additional installation of an earth wire is not required. The intrinsic property of hardness of iron could protect cables inside from damage against puncture hence could provide some protection to people carrying out drilling work over the area it was concealed. For plastic conduit, the well-recognized advantage of fast and easy installation and non-rusting property made them very popular in concealed conduit work for large-scale projects of residential development.

The purpose of using conduit for cabling is not only for the protection of the electrical cables but would also facilitate future addition or replacement of cables. Normally, the "unit system" is adopted to calculate the maximum number of cables that can be installed in each conduit (conduit factor). As a 'rule of thumb' and for smooth drawing of the cables, the space factor occupied by the cables should be less than 40% of the cross section area and the bending radius of conduit should be at least 2.5 times of the diameter of the conduit. Since the 60's electrical conduit system found its way nearly in every building. Such "Iron Monkey" is now well developed for the safe and reliable electricity supply in our modern living.

The Electrical Blog is contributed by Electrical Division. If you would like to know more about this topic please contact the Division Hon. Secretary Ir Gary Ko, cwko@kumshing.com.hk (Electrical Blog 06)