203: Electrical installations technology  
**Handout 15: Steel wire armoured cable (SWA)**

**Learning outcome**

The learner will:

1. know wiring systems of electrical installations.

**Assessment criteria**

The learner can:

3.2 identify **wiring systems** for different **environments.**

**Range**

**Wiring systems**: Cable tray, cable trunking, cable conduit, ladder racking, thermoplastic multi-core, flat profile, SWA, MICC, FP200, thermoplastic single-core, support methods and requirements, component parts.

**Environments**: Domestic, commercial, hazardous, industrial installation, agricultural.

**Steel wire armoured (SWA) cable**

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| SWA cables are used extensively for main and sub-main cables, and for wiring circuits in industrial installations. They can also be buried directly in the ground and are therefore useful for connecting between buildings in domestic installations. The cable consists of single or multi-core PVC insulated conductors made of copper or aluminium with steel wire armour and PVC over sheath.  Typical sizes range from 50mm2–1,000mm2 for single core types and anything from 1.5mm2 up to 400mm2 for two, three and four core types.  The cable can be fixed directly on to walls, using cable cleats, or laid directly in the ground or in cable ducts. If several cables are to follow the same route, they may be best supported on cable tray, ladder or racks. | | 01 SWA.png | |
| 03 Gland.png | 02 SWA.png | | |
| The steel wire armouring can be used as the circuit protective conductor (cpc) but it must be ascertained from manufacturers’ information that it has at least the equivalent cross‑sectional area as the corresponding copper cpc. | | | 04 Cleat.png |