# Cable Calculation Report

**Project Number 160718**
Created by: SuperUser Account
Created on: 18/07/2016

**Project: Test Schedule - new cables & methods**

myCableEngineering

## Cable Selection

**=N-W1:** Unconfigured cable (do not configure) for testing
Cable parameters have not been been selected. Please use the configuration and sizing dialogues to select an appropriate cable.

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## Cable Selection

**Designation: =N-W2**
User defined low voltage cable
From: Hello
To: Goodbye

Voltage: 400 V  Frequency: 50 Hz
1x3c 95 mm2 Al/XLPE/SWA  Length: 20 m  Soil resistivity: 100 Ω.m

BS 5467 1997+A3:2008 thermosetting, armoured 600/1000V cable. Three-core solid aluminium conductor

## Current Capacity

Sizing Method: UDF

Design current: 350 A, power factor 0.95

Base Capacity: 375 A
**Derateted Capcacity: 375 A**

## Impedance and Voltage Drop

$Z_1$ = 0.00800 + j0.00155 Ω
$Z_0$ = 0.01096 + j0.04322 Ω

Max.Specified Voltage Drop: 5 %

Actual Voltage Drop: 2.853 V,
**Percentage Voltage Drop: 1.24 %**

## Fault Rating

| | | | |
|---|---|---|---|
| Three phase fault | source end: 10/10 kA, 0.95pf, [0.02 s] 0.96pf | load end: 7.5/6.78 kA, | Cable 1s rating = 9.12 kA |
| Earth fault | source end: 10/10 kA, 0.95pf, [0.02 s] 0.56pf | load end: 3.97/3.59 kA, | Max.duration: three phase = 0.83 s, earth fault = 0.83 s |

*calculated in accordance with IEC 60909

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## Cable Selection

**Designation: =N-W3**
BS 7671 Low Voltage - fully sized
From: Home
To: Work

Voltage: 400 V  Frequency: 50 Hz
2x1c 95 mm2 Cu/XLPE/AWA  Length: 65 m  Soil resistivity: 100 Ω.m

BS 5467 1997+A3:2008 thermosetting, armoured 600/1000V cable. Single-core copper stranded conductor

## Current Capacity

Sizing Method: BS 7671, table 4E3A

Design current: 300 A, power factor 0.95

Base Capacity: 850 A
**Derateted Capcacity: 431 A**

**Calculation Details:**

Single core cable, flat spaced 2 diameter apart, three phase.
Free air on ladder, trays, etc. - single core cables
Single core cables on ladder

| | | |
|---|---|---|
| Ca | Ambient temperature °C = 30, Derating factor = 1. | BS 7671 table 4B1 |
| Cc | Derating factor = 1. | |
| Cd | Derating factor = 1. | |
| Cf | Derating factor = 0.725. | |
| Cg | number of circuits or multicore cables = 3, Derating factor = 0.7. | BS 7671 table 4C1 |
| Ci | Derating factor = 1. | |
| Cs | Derating factor = 1. | |

## Impedance and Voltage Drop

$Z_1$ = 0.00779 + j0.00563 Ω
$Z_0$ = 0.02622 + j0.00840 Ω

Max.Specified Voltage Drop: 1 %

Actual Voltage Drop: 2.498 V,
**Percentage Voltage Drop: 1.08 %**

## Fault Rating

| | | | |
|---|---|---|---|
| Three phase fault | source end: 10/10 kA, 0.95pf, [0.02 s] 0.92pf | load end: 7.23/6.54 kA, | Cable 1s rating = 13.78 kA |
| Earth fault | source end: 6.8/6.8 kA, 0.95pf, [0.02 s] 0.95pf | load end: 3.84/3.47 kA, | Max.duration: three phase = 1.9 s, earth fault = 4.1 s |

*calculated in accordance with IEC 60909

Comments:
This cable is a fully defined low voltage cable. Other cables in the project depict different types and to different completion levels. This aim is to have a good selection for testing reports.