

### VOLTAGE TEST AFTER INSTALLATION

SANS 1339: Electric cables-Cross-linked polyethylene (XLPE) insulated cables for rated voltages 3.8/6.6 kV to 19/33 kV Voltage test after laying, jointing and terminating for cables manufactured to this standard as stipulated in SANS 10198: Part 13 clause 5.5

#### Over voltage Commissioning Tests

When newly installed cables are being commissioned, they should be tested at the test voltages given in table below, appropriate to the test waveforms and test durations given in columns 1 and 2 of the table.

#### Commissioning Test Voltage (r.m.s)

1	2	3	4	5	6
Test wave	Duration [min]	Commissioning test voltage [kV]			
		Cable operating voltage [kV]			
		6.6	11	22	33
VLF (0.1 Hz)	60	11	19	38	57
Power frequency	60	8	13	25	38

#### D.C Over voltage Testing

D.C overvoltage testing is likely to cause irreversible damage to XLPE-insulated cable systems, particular if the cables have water trees. It often fails to identify potentially hazardous conditions in the cable. If d.c testing has to be carried out because no other test methods are available, the voltage and duration should be limited to the appropriate values given in the table below, which are recommended for quick identification of gross faults only. Use a d.c test set or a surge generator in d.c mode to apply the test voltage. After applying the voltage, soft-discharge the cable, using either the d.c test set or a discharge stick. Fully discharge the cable by solidly earthing it for at least 8 h but preferably for 24 h.

#### D.C Test Voltage

1	2	3	4	5
Duration [min]	Commissioning test voltage [kV]			
	Cable operating voltage [kV]			
	6.6	11	22	33
10	6	10	20	30

#### Soft discharging of cable

An XLPE-insulated cable should always be soft-discharged through a resistor of at least 200 k $\Omega$  for example by using a discharge stick. Discharging a conductor direct to earth by short circuiting it when a lead can be severely damage the cable. After initial discharge, a cable should be solidly earthed for at least 5 min. If the cable has been subjected to any form of d.c test, it should be solidly earthed for at least 8 h, but preferably for 24 h.