

Messrs: _____

Spec. No. P113001

Date: May.10,2013

**SPECIFICATION
FOR**

1kV 105°C PVC-PVC Cable

Refer to IEC 60502-1,UL 1581

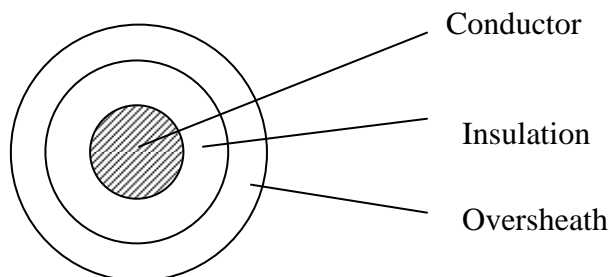
Approved by customer _____ Signed by _____

1 Construction and cable data

1kV 105°C PVC -PVC Cable

Conductor			Thickness of insulation	Thickness of overshooth	Overall diameter approx.	Max. conductor resistance (20°C)	Min. Insulation resistance (20°C)	Test voltage AC
Size and no. of core	No. and dia. of wire	Over dia. approx.						
mm ² xC	No./No./mm	mm	mm	mm	mm	Ω/km	MΩ-km	kV/5min
100x1	19/34/0.45	15.2	1.6	1.5	22.5	0.183	20	3.5
200x1	37/34/0.45	21.2	2.2	1.7	30.1	0.0939	20	3.5
300x1	37/51/0.45	26.0	2.4	2.1	36.3	0.062	20	3.5

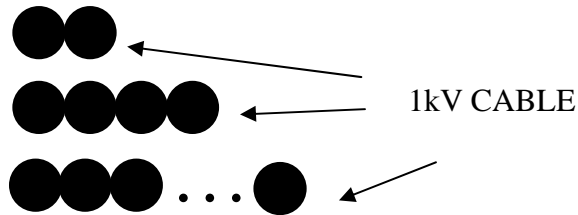
- Remark:
- (1) Refer to IEC 60502-1, but the 105°C insulation material and sheath material refer to UL 1581.
 - (2) Suitable tape(s) may be applied over the conductor.
 - (3) The highest AC system voltage for the cables is 1.2kV.
 - (4) The highest DC system voltage for the cables is 1.8kV.



2. Carrying Ampacity

2.1 Cables used in DC 1kV

2.1.1 Installation Condition (in air)



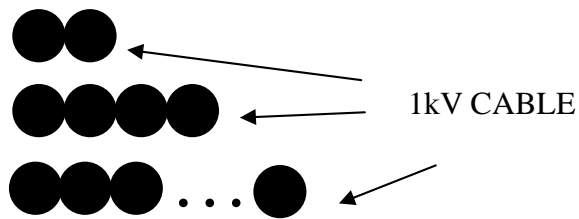
2.1.2 Carrying Ampacity for 1kV 105°C PVC-PVC Cable used in DC 1kV

Cable type			1kV 105°C PVC-PVC				1kV 105°C PVC-PVC			
Conductor cross-section		mm ²	100				200			
Cable number			1	2	4	11	1	2	4	11
Carrying ampacity	I	A	436	371	349	305	663	564	530	464
Decreasing factor due to multi cable	K ₀		1	0.85	0.8	0.7	1	0.85	0.8	0.7
Max. conductor operating temperature	T ₁	°C	105				105			
Ambient temperature	T ₂	°C	40				40			
DC resistance (at T ₁)	r	Ω/cm	0.2441 x10 ⁻⁵				0.1253 x10 ⁻⁵			
Thermal resistance of insulation	R ₁	°C · cm/W	22.8				21.31			
Thermal resistance of sheath	R ₂	°C · cm/W	14.65				12.16			
Dissipating resistance of cable surface	R ₃	°C · cm/W	102.57				84.71			
Thermal resistance per unit length between the conductor and the cable surface	R _{th}	°C · cm/W	140.02				118.18			

Cable type			1kV 105°C PVC-PVC			
Conductor cross-section		mm ²	300			
Cable number			1	2	4	11
Carrying ampacity	I	A	854	726	683	598
Decreasing factor due to multi cable	K ₀		1	0.85	0.8	0.7
Max. conductor operating temperature	T ₁	°C	105			
Ambient temperature	T ₂	°C	40			
DC resistance (at T ₁)	r	Ω/cm	0.0827 x10 ⁻⁵			
Thermal resistance of insulation	R ₁	°C · cm/W	19.64			
Thermal resistance of sheath	R ₂	°C · cm/W	12.34			
Dissipating resistance of cable surface	R ₃	°C · cm/W	75.68			
Thermal resistance per unit length between the conductor and the cable surface	R _{th}	°C · cm/W	107.66			

2.2 Cables used in AC 1kV

2.2.1 Installation Condition (in air)



2.2.2 Carrying Ampacity for 1kV 105°C PVC-PVC Cable used in AC 1kV

Cable type			1kV 105°C PVC-PVC				1kV 105°C PVC-PVC			
			mm ²		100		200			
Conductor cross-section		mm ²	100				200			
Cable number			1	2	4	11	1	2	4	11
Carrying ampacity	I	A	435	370	348	305	657	558	526	460
Decreasing factor due to multi cable	K0		1	0.85	0.8	0.7	1	0.85	0.8	0.7
Max. conductor operating temperature	T1	°C	105				105			
Ambient temperature	T2	°C	40				40			
AC resistance (at T1)	r	Ω/cm	0.2454 x10 ⁻⁵				0.1276 x10 ⁻⁵			
Thermal resistance of insulation	R1	°C · cm/W	22.8				21.31			
Thermal resistance of sheath	R2	°C · cm/W	14.65				12.16			
Dissipating resistance of cable surface	R3	°C · cm/W	102.57				84.71			
Thermal resistance per unit length between the conductor and the cable surface	Rth	°C · cm/W	140.02				118.18			

Cable type			1kV 105°C PVC-PVC			
			mm ²		300	
Conductor cross-section		mm ²	300			
Cable number			1	2	4	11
Carrying ampacity	I	A	837	711	670	586
Decreasing factor due to multi cable	K0		1	0.85	0.8	0.7
Max. conductor operating temperature	T1	°C	105			
Ambient temperature	T2	°C	40			
AC resistance (at T1)	r	Ω/cm	0.0861 x10 ⁻⁵			
Thermal resistance of insulation	R1	°C · cm/W	19.64			
Thermal resistance of sheath	R2	°C · cm/W	12.34			
Dissipating resistance of cable surface	R3	°C · cm/W	75.68			
Thermal resistance per unit length between the conductor and the cable surface	Rth	°C · cm/W	107.66			