

MAXIMUM CONTINUOUS CURRENT RATINGS – in accordance with IEC 60287**Screens Solid Bonded at Both Ends**

exans Olex		800 mm ² Cu 19/33 kV XLPE CWS/PVC/ECO/HDPE						V180621				
Conductor	No. of cables	3			Core screen 1	Type Copper wire/braid						
	Material	Plain Copper				No. of wires	Diameter	Lay length				
	Form	Compacted circular				36	0.85	537				
	Area	800 mm ²			Diameter 56.00 mm							
	No. of wires	61			Core screen 2	Type None						
	Wire diameter	N/A mm										
	Rdc at 20°C	0.0221 Ohm/km										
Diameter	34.3 mm			Diameter			mm					
Conductor screen	Diameter	36.5 mm			Armour bedding	Material	PVC					
Insulation	Material	XLPE (HV)				Diameter	59.60 mm					
	Vpe	19 kV			Armour	Type None						
	Vpp	33 kV										
Diameter	52.50 mm											
Insulation screen	Diameter	54.30 mm				Diameter	mm					
					Sheath	Material	Ecoterm					
						Diameter	59.70 mm					
					Covering	Material	HDPE					
						Diameter	62.50 mm					
PERFORMANCE DATA												
		Cables, trefoil touching	Cables, flat touching	Cables, flat spaced	Ducts, trefoil touching	Ducts, flat touching	Ducts, flat spaced					
Conductor ac resistance at 90°C		0.0336			0.0315	0.0317		0.0311	Ohm/km			
Inductive reactance		0.0974	0.1175	0.1632	0.1353	0.1573	0.2030	Ohm/km				
Cable pf		0.3259	0.2747	0.1897	0.2279	0.1974	0.1513					
3p volt drop	- maximum	0.1784	0.2117	0.2879	0.2407	0.2779	0.3556	mV/A.m				
	- at load pf	0.1477	0.1686	0.2133	0.1845	0.2073	0.2540	mV/A.m				
Core screen 1	- dc resistance at 20°C	0.8868	Ohm/km	Conductor to screen capacitance				0.352	µF/km			
	- dc resistance at 90°C	1.1308	Ohm/km	Charging current				2.10	A/km/phase			
Core screen 2	- dc resistance at 20°C	0.0000	Ohm/km	Dielectric loss				159	W/km/phase			
	- dc resistance at 90°C	0.0000	Ohm/km	Zero sequence resistance at 20°C				0.9122	Ohm/km			
Armour	- dc resistance at 20°C	0.0000	Ohm/km	Zero sequence resistance at 90°C				1.1617	Ohm/km			
	- dc resistance at 90°C	0.0000	Ohm/km	Zero sequence reactance				0.0461	Ohm/km			
MATERIAL PROPERTIES					Surge impedance 14.4 Ohm							
Insulation	- thermal resistivity	3.5	K.m/W	OPERATING CONDITIONS								
	- relative permittivity	2.3										
	- loss factor	0.004										
	- solar absorption coefficient	0.4										
Armour bedding	thermal resistivity	5.0	K.m/W	Supply frequency		50	Hz					
Sheath	- thermal resistivity	3.5	K.m/W	Load power factor		0.8						
	- solar absorption coefficient	0.4		Conductor operating temperature		90	°C					
Covering	- thermal resistivity	3.5	K.m/W	Ambient air temperature		40	°C					
	- solar absorption coefficient	0.4		Solar radiation intensity		0	W/m ²					
Duct in air	- thermal resistivity	6.0	K.m/W	Ambient ground temperature		25	°C					
	- solar absorption coefficient	0.6		Depth of burial, to cable/group axis		800	mm					
Duct in ground	thermal resistivity	6.0	K.m/W	Thermal resistivity of ground		1.2	K.m/W					
				Backfill		- thermal resistivity	K.m/W					
Ducts	Type in air	PVC		- envelope minor dimension		mm						
	Type in ground	PVC		- envelope major dimension		mm						
	Nominal size	Actual OD, mm	Actual ID, mm	Non standard axial spacing between cables		mm						
In air	Single cable	100 mm	114.3	100.7	Non standard axial spacing between ducts		mm					
	Three cables	200 mm	225.3	201.6	Screen bonding		Bonded at both ends					
In ground	Single cable	100 mm	114.3	100.7								
	Three cables	200 mm	225.3	201.6								
CURRENT RATINGS												
Thermal resistances			Unenclosed in air						Enclosed in air			
- Insulation	0.2559	K.m/W										
- Bedding	0.0496	K.m/W										
- Sheath	0.0009	K.m/W										
- Covering	0.0255	K.m/W										
Continuous current rating	A		1143	1258	1146	1198	1087	1157	844			
External thermal resistance	K.m/W		0.6583	0.4262	0.6520	0.4959	0.8543	0.7186	1.6230			
Cable surface temperature	°C		75	72	75	73	77	75	82			
Screen loss factor			0.2006	0.4813	0.2007	0.4795	0.0741	0.0744	0.0732			
Armour loss factor			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
			Direct in ground			Underground ducts						
Continuous current rating	A		872	840	898	796	741	824	803			
External thermal resistance	K.m/W		1.8282	1.7266	1.8940	2.0004	1.8991	2.1603	2.4637			
Cable surface temperature	°C		81	82	80	83	83	82	83			
Screen loss factor			0.1977	0.4706	0.0733	0.4284	0.7913	0.2296	0.0730			
Armour loss factor			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			

Installation conditions: 25 °C soil temperature, 800 mm burial depth, 1.2 °C.m/W ground thermal resistivity

MAXIMUM CONTINUOUS CURRENT RATINGS – in accordance with IEC 60287**Screens Single Point Bonded at One End**

exans Olex		800 mm ² Cu 19/33 kV XLPE CWS/PVC/ECO/HDPE						V180621	
Conductor	No. of cables	3			Core screen 1	Type Copper wire/braid			
	Material	Plain Copper				No. of wires	Diameter	Lay length	
	Form	Compacted circular			36	0.85	537		
	Area	800 mm ²			Diameter 56.00 mm				
	No. of wires	61			Core screen 2	Type None			
	Wire diameter	N/A mm							
	Rdc at 20°C	0.0221 Ohm/km							
Diameter	34.3 mm			Diameter mm					
Conductor screen	Diameter	36.5 mm			Armour bedding	Material PVC			
Insulation	Material	XLPE (HV)				Diameter	59.60 mm		
	Vpe	19 kV			Armour	Type None			
	Vpp	33 kV							
Insulation screen	Diameter	52.50 mm			Diameter mm				
	Diameter	54.30 mm			Sheath	Material Ecoterm			
						Diameter	59.70 mm		
					Covering	Material HDPE			
						Diameter	62.50 mm		
PERFORMANCE DATA									
		Cables, trefoil touching	Cables, flat touching	Cables, flat spaced	Ducts, trefoil touching	Ducts, flat touching	Ducts, flat spaced		
Conductor ac resistance at 90°C		0.0336		0.0315	0.0317		0.0311	Ohm/km	
Inductive reactance		0.0974	0.1175	0.1632	0.1353	0.1573	0.2030	Ohm/km	
Cable pf		0.3259	0.2747	0.1897	0.2279	0.1974	0.1513		
3p volt drop	- maximum	0.1784	0.2117	0.2879	0.2407	0.2779	0.3556	mV/A.m	
	- at load pf	0.1477	0.1686	0.2133	0.1845	0.2073	0.2540	mV/A.m	
Core screen 1	- dc resistance at 20°C	0.8868	Ohm/km	Conductor to screen capacitance				0.352	
	- dc resistance at 90°C	1.1308	Ohm/km	Charging current				2.10	
Core screen 2	- dc resistance at 20°C	0.0000	Ohm/km	Dielectric loss				159	
	- dc resistance at 90°C	0.0000	Ohm/km	Zero sequence resistance at 20°C				0.9122	
Armour	- dc resistance at 20°C	0.0000	Ohm/km	Zero sequence resistance at 90°C				1.1617	
	- dc resistance at 90°C	0.0000	Ohm/km	Zero sequence reactance				0.0461	
				Surge impedance				14.4	
								Ohm	
MATERIAL PROPERTIES									
Insulation	- thermal resistivity	3.5	K.m/W	OPERATING CONDITIONS					
	- relative permittivity	2.3							
	- loss factor	0.004							
	- solar absorption coefficient	0.4							
Armour bedding	thermal resistivity	5.0	K.m/W	Supply frequency		50	Hz		
Sheath	- thermal resistivity	3.5	K.m/W	Load power factor		0.8			
	- solar absorption coefficient	0.4		Conductor operating temperature		90	°C		
Covering	- thermal resistivity	3.5	K.m/W	Ambient air temperature		40	°C		
	- solar absorption coefficient	0.4		Solar radiation intensity		0	W/m ²		
Duct in air	- thermal resistivity	6.0	K.m/W	Ambient ground temperature		25	°C		
	- solar absorption coefficient	0.6		Depth of burial, to cable/group axis		800	mm		
Duct in ground	thermal resistivity	6.0	K.m/W	Thermal resistivity of ground		1.2	K.m/W		
				Backfill		- thermal resistivity	K.m/W		
Ducts	Type in air	PVC		- envelope minor dimension			mm		
	Type in ground	PVC		- envelope major dimension			mm		
	Nominal size	Actual OD, mm	Actual ID, mm	Non standard axial spacing between cables			mm		
In air	Single cable	100 mm	114.3	Non standard axial spacing between ducts			mm		
	Three cables	200 mm	225.3	Screen bonding		Single point bonded			
In ground	Single cable	100 mm	114.3						
	Three cables	200 mm	225.3						
CURRENT RATINGS									
Thermal resistances			Unenclosed in air						Enclosed in air
- Insulation	0.2559	K.m/W							
- Bedding	0.0496	K.m/W							
- Sheath	0.0009	K.m/W							
- Covering	0.0255	K.m/W							
Continuous current rating	A		1208	1430	1211	1369	1110	1180	
External thermal resistance	K.m/W		0.6639	0.4373	0.6576	0.5078	0.8566	0.7208	
Cable surface temperature	°C		74	69	73	70	76	74	
Screen loss factor			0.0307	0.0083	0.0307	0.0082	0.0165	0.0166	
Armour loss factor			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
			Direct in ground			Underground ducts			
Continuous current rating	A		932	995	920	931	964	903	
External thermal resistance	K.m/W		1.8282	1.7266	1.8940	2.0037	1.9043	2.1622	
Cable surface temperature	°C		80	80	80	81	80	81	
Screen loss factor			0.0302	0.0081	0.0163	0.0096	0.0024	0.0049	
Armour loss factor			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Installation conditions: 25 °C soil temperature, 800 mm burial depth, 1.2 °C.m/W ground thermal resistivity

MAXIMUM CONTINUOUS CURRENT RATINGS – in accordance with IEC 60287**Screens Cross Bonded**

exans Olex		800 mm ² Cu 19/33 kV XLPE CWS/PVC/ECO/HDPE						V180621	
Conductor	No. of cables	3			Core screen 1	Type Copper wire/braid			
	Material	Plain Copper				No. of wires	Diameter	Lay length	
	Form	Compacted circular				36	0.85	537	
	Area	800 mm ²			Diameter 56.00 mm				
	No. of wires	61			Core screen 2	Type None			
	Wire diameter	N/A mm							
	Rdc at 20°C	0.0221 Ohm/km							
Diameter	34.3 mm			Diameter mm					
Conductor screen		Diameter	36.5 mm			Armour bedding	Material	PVC	
Insulation	Material	XLPE (HV)			Diameter		59.60 mm		
	Vpe	19 kV			Armour	Type None			
	Vpp	33 kV							
		Diameter	52.50 mm			Diameter mm			
Insulation screen		Diameter	54.30 mm			Sheath	Material	Ecoterm	
					Diameter		59.70 mm		
					Covering	Material	HDPE		
						Diameter	62.50 mm		
PERFORMANCE DATA									
		Cables, trefoil touching	Cables, flat touching	Cables, flat spaced	Ducts, trefoil touching	Ducts, flat touching	Ducts, flat spaced		
Conductor ac resistance at 90°C		0.0336		0.0315	0.0317		0.0311	Ohm/km	
Inductive reactance		0.0974	0.1175	0.1632	0.1353	0.1573	0.2030	Ohm/km	
Cable pf		0.3259	0.2747	0.1897	0.2279	0.1974	0.1513		
3p volt drop	- maximum	0.1784	0.2117	0.2879	0.2407	0.2779	0.3556	mV/A.m	
	- at load pf	0.1477	0.1686	0.2133	0.1845	0.2073	0.2540	mV/A.m	
Core screen 1 - dc resistance at 20°C		0.8868	Ohm/km	Conductor to screen capacitance			0.352	µF/km	
- dc resistance at 90°C		1.1308	Ohm/km	Charging current			2.10	A/km/phase	
Core screen 2 - dc resistance at 20°C		0.0000	Ohm/km	Dielectric loss			159	W/km/phase	
- dc resistance at 90°C		0.0000	Ohm/km	Zero sequence resistance at 20°C			0.9122	Ohm/km	
Armour	- dc resistance at 20°C	0.0000	Ohm/km	Zero sequence resistance at 90°C			1.1617	Ohm/km	
	- dc resistance at 90°C	0.0000	Ohm/km	Zero sequence reactance			0.0461	Ohm/km	
				Surge impedance			14.4	Ohm	
MATERIAL PROPERTIES									
Insulation	- thermal resistivity	3.5	K.m/W	OPERATING CONDITIONS					
	- relative permittivity	2.3							
	- loss factor	0.004							
	- solar absorption coefficient	0.4							
Armour bedding thermal resistivity		5.0	K.m/W	Supply frequency		50	Hz		
Sheath	- thermal resistivity	3.5	K.m/W	Load power factor		0.8			
	- solar absorption coefficient	0.4		Conductor operating temperature		90	°C		
Covering	- thermal resistivity	3.5	K.m/W	Ambient air temperature		40	°C		
	- solar absorption coefficient	0.4		Solar radiation intensity		0	W/m ²		
Duct in air	- thermal resistivity	6.0	K.m/W	Ambient ground temperature		25	°C		
	- solar absorption coefficient	0.6		Depth of burial, to cable/group axis		800	mm		
Duct in ground thermal resistivity		6.0	K.m/W	Thermal resistivity of ground		1.2	K.m/W		
Ducts	Type in air	PVC		Backfill	- thermal resistivity		K.m/W		
	Type in ground	PVC			- envelope minor dimension		mm		
	Nominal size	Actual OD, mm	Actual ID, mm		- envelope major dimension		mm		
In air	Single cable	100 mm	114.3	100.7	Non standard axial spacing between cables		mm		
	Three cables	200 mm	225.3	201.6	Non standard axial spacing between ducts		mm		
In ground	Single cable	100 mm	114.3	100.7	Screen bonding	Cross bonded			
	Three cables	200 mm	225.3	201.6					
CURRENT RATINGS									
Thermal resistances			Unenclosed in air						Enclosed in air
- Insulation	0.2559	K.m/W							
- Bedding	0.0496	K.m/W							
- Sheath	0.0009	K.m/W							
- Covering	0.0255	K.m/W							
Continuous current rating	A		1207	1429	1211	1368	1110	1180	864
External thermal resistance	K.m/W		0.6639	0.4373	0.6576	0.5077	0.8566	0.7208	1.6250
Cable surface temperature	°C		74	69	73	70	76	74	82
Screen loss factor			0.0315	0.0102	0.0315	0.0102	0.0168	0.0169	0.0166
Armour loss factor			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
			Direct in ground			Underground ducts			
Continuous current rating	A		932	994	920	930	962	902	823
External thermal resistance	K.m/W		1.8282	1.7266	1.8940	2.0037	1.9043	2.1622	2.4645
Cable surface temperature	°C		80	80	80	81	80	81	82
Screen loss factor			0.0310	0.0100	0.0166	0.0113	0.0056	0.0058	0.0166
Armour loss factor			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Installation conditions: 25 °C soil temperature, 800 mm burial depth, 1.2 °C.m/W ground thermal resistivity