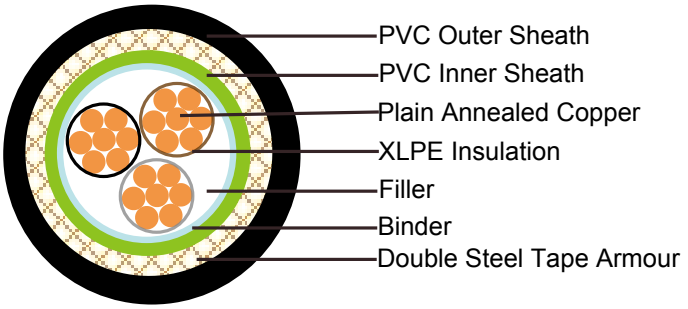
600/1000V XLPE Insulated, PVC Sheathed, Double Steel Tape Armoured Power Cables (3 Cores)

FGD400 1RVMV-R (CU/XLPE/PVC/DSTA/PVC 600/1000V Class 2)



APPLICATION

The cables are mainly used in power stations, mass transit underground passenger systems, airports, petrochemical plants, hotels, hospitals, and high-rise buildings.

STANDARDS

Basic design adapted to IEC 60502-1

FIRE PERFORMANCE

Flame Retardance (Single Vertical Wire Test)**	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*
Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)**	EN 60332-3-24 (cat. C); IEC 60332-3-24; BS EN 60332-3-24; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Plain annealed copper wire, normal stranded or compact stranded according to IEC(EN) 60228 class 2.
Insulation: Extruded cross-linked XLPE compound.
Filler, binder and inner covering: PP, PET, PVC
Armouring: Double steel tape
Outer Sheath: Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance,

anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

COLOUR CODE

Insulation Colour as per BS7671

	With Earth Conductor	Without Earth Conductor
2Cores	-	Brown, Blue
3Cores	Yellow/Green, Brown, Blue	Brown, Gray, Black
4Cores	Yellow/Green, Brown, Gray, Black	Brown, Gray, Black, Blue
5Cores	Yellow/Green, Brown, Gray, Black, Blue	Brown, Gray, Black, Blue, Black
Above 5 Cores	Yellow/Green, Black Numbered	Black Numbered

Sheath Colour: Black (other colors upon request)

PHYSICAL AND THERMAL PROPERTIES

Temperature range during operation: Max.90°C for XLPE
250°C in short-circuit for 5secs max.

Minimum bending radius: 10x Overall Diameter

CONSTRUCTION PARAMETERS

Conductor					FGD400 1RVMV-R					
No. of Core X Cross Section	Phases	Neutral	Nominal Diameter Overall Conducrtor		Nominal Insulation Thickness		Nominal Steel Tape Thickness	Nominal Sheath Thickness	Nominal Overall Diatemer	Approx. Weight
	No./ Nominal Diameter of Strands	No./ Nominal Diameter of Strands	Pha.	Neu.	Pha.	Neu.				
mm^2	No/mm	No/mm	mm	mm	mm	mm	mm	mm	mm	Kg/km
3x10+1x6	7/1.35	7/1.04	3.75	2.90	0.7	0.7	0.2	1.8	20.1	740
3x16+1x10	7/1.70	7/1.35	4.75	3.75	0.7	0.7	0.2	1.8	22.5	1,004
3x25+2x16	7/2.14	7/1.70	5.85	4.75	0.9	0.7	0.2	1.8	25.8	1,421
3x35+1x16	7/2.52	7/1.70	6.90	4.75	0.9	0.7	0.2	1.8	27.7	1,745
3x35+1x25	7/2.52	7/2.14	6.90	5.85	0.9	0.9	0.2	1.8	28.6	1,864
3x50+1x25	19/1.78	7/2.14	8.15	5.85	1.0	0.9	0.2	1.8	31.3	2,358
3x50+1x35	19/1.78	7/2.52	8.15	6.90	1.0	0.9	0.2	1.9	32.0	2.72
3x70+1x35	19/2.14	7/2.52	9.75	6.90	I.1	0.9	0.2	2.0	35.9	3166
3x70+1x50	19/2.14	19/1.78	9.75	8.15	I.1	1.0	0.2	2.0	36.8	3.341
3x95+1x50	19/2.52	19/1.78	11.4	8.15	I.1	1.0	0.5	2.1	41.4	4,611

3x120+1x70	37/2.03	19/2.14	12.8	9.75	1.2	I.1	0.5	2.3	45.6	5682
3x150+1x95	37/2.25	19/2.52	14.3	11.4	1.4	I.1	0.5	2.4	50.8	7,072
3x150+1x120	37/2.25	37/2.03	14.3	12.8	1.4	1.2	0.5	2.5	51.8	7,357
3x185+1x95	37/2.52	19/2.52	15.9	11.4	1.6	I.1	0.5	2.6	54.7	8,348
3x185+1x120	37/2.52	37/2.03	15.9	12.8	1.6	1.2	0.5	2.6	55.8	8638
3x240+1x120	61/2.25	37/2.03	18.2	12.8	1.7	1.2	0.5	2.7	61.0	10,660
3x240+1x150	61/2.25	37/2.25	18.2	14.3	1.7	1.4	0.5	2.8	62.2	11024
3x300+1x150	61/2.52	37/2.25	20.4	14.3	1.8	1.4	0.5	2.9	66.8	12,809
3x300+1x185	61/2.52	37/2.52	20.4	15.9	1.8	1.6	0.5	3.0	68.1	13,256

Notes:
1) *All conductors in accordance with IEC 60228. Compact shape (Com.) or non-compact depending on order.
2) Beside above list we can also provide others size depend on customer's requirement.

ELECTRICAL PROPERTIES

No. of Core X Cross Section	Conductor				Max.DC resistance of conductor @20°C	
	Phases	Neutral	Dia.Overall Conducrtor			
	No./Nominal Diameter of Strands	No./Nominal Diameter of Strands	Pha.	Neu.	Pha.	Neu.
mm^2	No/mm	No/mm	mm	mm	Ω/km	Ω/km
3x10+1x6	7/1.35	7/1.04	3.75	2.90	1.83	3.08
3x16+1x10	7/1.70	7/1.35	4.75	3.75	1.15	1.83
3x25+2x16	7/2.14	7/1.70	5.85	4.75	0.727	1.15
3x35+1x16	7/2.52	7/1.70	6.90	4.75	0.524	1.15
3x35+1x25	7/2.52	7/2.14	6.90	5.85	0.524	0.727
3x50+1x25	19/1.78	7/2.14	8.15	5.85	0.387	0.727
3x50+1x35	19/1.78	7/2.52	8.15	6.90	0.387	0.524
3x70+1x35	19/2.14	7/2.52	9.75	6.90	0268	0.524
3x70+1x50	19/2.14	19/1.78	9.75	8.15	0268	0.387
3x95+1x50	19/2.52	19/1.78	11.4	8.15	0.193	0.387
3x120+1x70	37/2.03	19/2.14	12.8	9.75	0.153	0.268
3x150+1x95	37/2.25	19/2.52	14.3	11.4	0.124	0.193
3x150+1x120	37/2.25	37/2.03	14.3	12.8	0.124	0.153
3x185+1x95	37/2.52	19/2.52	15.9	11.4	0.0991	0.193
3x185+1x120	37/2.52	37/2.03	15.9	12.8	0.0991	0.153
3x240+1x120	61/2.25	37/2.03	18.2	12.8	0.0754	0.153
3x240+1x150	61/2.25	37/2.25	18.2	14.3	0.0754	0.124
3x300+1x150	61/2.52	37/2.25	20.4	14.3	0.0601	0.124
3x300+1x185	61/2.52	37/2.52	20.4	15.9	0.0601	0.0991

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 90°C
Ambient Temperature : 30°C
Current-Carrying Capacities (Amp)

Conductor cross-sectional area	Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated horizontal cable trayor Reference Method 13 [free air])		In single-way ducts		Laid direct in ground	
	one 2-core cable single phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.	one 2-core cable single phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.	one 2-core cable single phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.	one 2-core cable single phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.
1	2	3	4	5	6	7	8	9
mm^2	A	A	A	A	A	A	A	A
10	85	73	90	78	-	65	-	80
16	110	94	115	99	115	94	140	115
25	146	124	152	131	145	125	180	150
35	180	154	188	162	175	150	215	180
50	219	187	228	197	210	175	255	215
70	279	238	291	251	260	215	315	265
95	338	289	354	304	310	260	380	315
120	392	335	410	353	355	300	430	360
150	451	386	472	406	400	335	480	405
185	515	441	539	463	455	380	540	460
240	607	520	636	546	520	440	630	530
300	698	599	732	628	590	495	700	590

Voltage Drop (Per Amp Per Meter)

Conductor cross-sectional area	2-core cable d.c.	2 cables, single-phase a.c.			3 or 4 cables, 3-phase a.c.			2 cables, single-phase a.c.	3 or 4 cables, 3-phase a.c.
								In ducts or in ground	In ducts or in ground
1	2	3			4			5	6
mm^2	mV/A/m	mV/A/m			mV/A/m			mV/A/m	mV/A/m
6	7.9	7.9			6.8			7.9	6.5
10	4.7	4.7			4.0			4.7	3.9
16	2.9	2.9			2.5			2.9	2.6
		r	x	z	r	x	z		
25	1.850	1.350	0.160	1.900	1.600	0.140	1.650	1.900	1.600
35	1.350	1.350	0.155	1.350	1.150	0.135	1.150	1.350	1.200
50	0.980	0.990	0.155	1.000	0.860	0.135	0.870	1.000	0.870
70	0.670	0.670	0.150	0.690	0.590	0.130	0.600	0.690	0.610
95	0.490	0.500	0.150	0.520	0.430	0.130	0.450	0.520	0.450
120	0.390	0.400	0.145	0.420	0.340	0.130	0.370	0.420	0.360
150	0.310	0.320	0.145	0.350	0.280	0.125	0.300	0.350	0.300
185	0.250	0.260	0.145	0.290	0.220	0.125	0.260	0.290	0.250
240	0.195	0.200	0.140	0.240	0.175	0.125	0.210	0.240	0.210
300	0.155	0.160	0.140	0.210	0.140	0.120	0.185	0.210	0.190
400	0.120	0.130	0.140	0.190	0.115	0.120	0.165	0.190	0.180

Note :
r = conductor resistance at operating temperature
x = reactance
z = impedance

Rated Voltage

Standard


Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1


Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-24/EN50266-2-4

TYPE CODES FOR FLAME RETARDANT POWER & CONTROL CABLES

FGD A-B-C-D-E-F

F Conductor
U: Solid to IEC 60228 class 1
R: Stranded to IEC 60228 class 2
F: Stranded to IEC 60228 class 5

E Sheath
V: Thermoplastic PVC

D Screen
O: Overall aluminium tape screen
C: Overall copper tape screen

C Insulation
V: Thermoplastic PVC

B Voltage
05: 300/500V
07: 450/750V
1: 600/1000V

A Type
100: Single core unsheathed
200: 300/500V & 450/750V multicore
300: Single core sheathed
400: 600/1000V multicore