

FR-H, FR-XH,  
FR-XAH (ARMOURED)

**SINGLE CORE**

**FR-H  
SINGLE CORE**



**FR-XH  
SINGLE CORE**



**FR-XAH  
(ARMOURED)  
SINGLE CORE**



**FR-H  
single core**

**FR-XH  
single core**

**FR-XAH  
(ARMOURED)  
single core**

<p>Conductor : Fire Barrier : Insulation :</p> <p>Bedding : Armouring : Sheath : Colour :</p> <p>Reference Standard : Test Standard :</p> <p>Voltage U<sub>0</sub>/U : Conductor Stranding : Operating Temperature :</p> <p>Minimum Bending Radius :</p>	<p>Plain Annealed Copper Mica Tape (a) XL-LSZH Compound or (b) XLEVA Compound N.A. N.A. N.A. Insulation: Orange or Various</p> <p>BS 7211 / In-House IEC 60331 BS 6387 (C, W, Z), SS 299 (C) IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 600 / 1000V Class 2 (a) Max 90°C for XL-LSZH Compound (b) Max 110°C for XLEVA 8D for unarmoured cable</p>	<p>Plain Annealed Copper Mica Tape (a) XLPE Compound or (b) XLEVA Compound N.A. N.A. LSZH Compound Insulation: Natural Sheath - Orange IEC 60502 IEC 60331 BS 6387 (C, W, Z), SS 299 (C) IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 600 / 1000V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 8D for unarmoured cable</p>	<p>Plain Annealed Copper Mica Tape (a) XLPE Compound or (b) XLEVA Compound LSZH Compound Aluminium Wire LSZH Compound Insulation: Natural Sheath - Orange IEC 60502 / BS 7846 IEC 60331 BS 6387 (C, W, Z), SS 299 (C,W,Z) IEC 60332-3, BS 4066-3, BS EN 50266-2-2 IEC 60754-1, BS 6425-1, BS EN 50267-2-1 IEC 60754-2, BS 6425-2, BS EN 50267-2-2 IEC 61034-2, BS 7622-2, BS EN 61034-2 600 / 1000V Class 2 (a) Max 90°C for XLPE (b) Max 110°C for XLEVA 10D for armoured cable</p>
--	--	--	--

**Fire Resistant Power Cables FR-H, FR-XH, FR-XAH (ARMOURED)**

Table 1

SIZE		FR-H			FR-XH			FR-XAH			
Nominal Conductor Area (mm <sup>2</sup> )	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Insulated, Non-Sheathed		Radial Thickness of Insulation (mm)	Unarmoured		Armoured			
			Cable Overall Diameter (mm)	Approx. Weight (kg/km)		Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
1 x 1.5	7 / 0.53	0.7	4.1	30	0.7	6.4	54	-	-	-	-
1 x 2.5	7 / 0.67	0.8	4.5	41	0.7	6.8	67	-	-	-	-
1 x 4	7 / 0.85	0.8	5.0	58	0.7	7.4	86	-	-	-	-
1 x 6	7 / 1.04	0.8	5.6	79	0.7	7.9	109	-	-	-	-
1 x 10	7 / 1.35	1.0	6.9	127	0.7	8.9	155	-	-	-	-
1 x 16	7 / 1.70	1.0	8.0	187	0.7	9.9	219	-	-	-	-
1 x 25	7 / 2.14	1.2	9.6	289	0.9	11.6	324	-	-	-	-
1 x 35	7 / 2.52	1.2	10.8	387	0.9	12.8	424	-	-	-	-
1 x 50	19 / 1.78	1.4	12.7	520	1.0	14.3	554	13.6	1.25	19.7	800
1 x 70	19 / 2.14	1.4	14.4	726	1.1	16.3	770	15.6	1.25	21.7	1045
1 x 95	19 / 2.52	1.6	16.7	996	1.1	18.4	1038	17.5	1.25	23.6	1336
1 x 120	37 / 2.03	1.6	18.2	1237	1.2	20.2	1292	18.6	1.6	25.4	1618
1 x 150	37 / 2.25	1.8	20.1	1517	1.4	22.4	1582	21.3	1.6	28.1	1984
1 x 185	37 / 2.52	2.0	22.4	1896	1.6	24.7	1961	23.6	1.6	30.4	2404
1 x 240	61 / 2.25	2.2	25.4	2472	1.7	27.7	2543	26.4	1.6	33.4	3033
1 x 300	61 / 2.52	2.4	28.0	3086	1.8	30.5	3160	29.2	1.6	36.6	3732
1 x 400	61 / 2.85	2.6	31.3	3921	2.0	34.1	4011	32.6	2.0	41.0	4745
1 x 500	61 / 3.20	2.8	34.8	4915	2.2	37.8	5021	36.2	2.0	44.7	5826
1 x 630	127 / 2.52	2.8	38.6	6266	2.4	42.6	6447	41.0	2.0	49.7	7378
1 x 800	127 / 2.85	-	-	-	2.6	47.5	8179	45.7	2.5	55.8	9406
1 x 1000	127 / 3.20	-	-	-	2.8	52.6	10239	51.0	2.5	61.5	11682

Note: For FR-H cables, Cross-Linked LSZH Compound will be used as the insulation material.

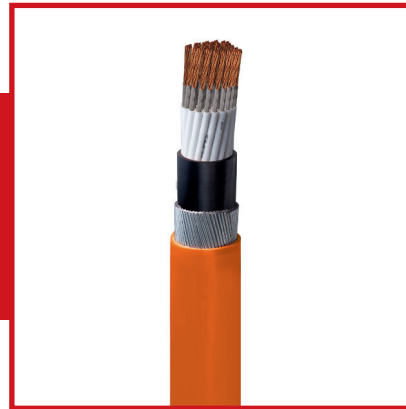
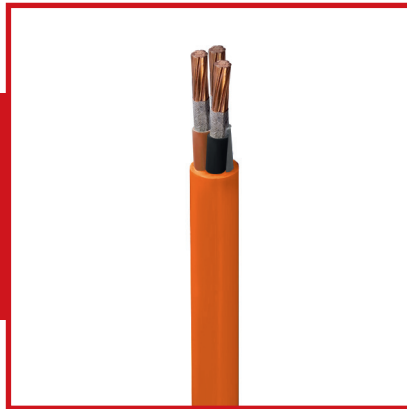
FR-XH,  
FR-XSH (ARMOURED)

Fire Resistant Power Cables

2-4 cores,  
5 cores & above

FR-XH  
2-4 cores,  
5 cores & above

FR-XSH  
(ARMOURED)  
2-4 cores,  
5 cores & above



FR-XH  
2-4 cores,  
5 cores & above

FR-XSH  
(ARMOURED)  
2-4 cores,  
5 cores & above

Conductor :  
Fire Barrier :  
Insulation :  
Bedding :  
Armouring :  
Sheath :  
Colour :

Reference Standard :  
Test Standard :

Voltage U<sub>0</sub>/U :  
Conductor Stranding :  
Operating Temperature :  
Minimum Bending Radius :

Plain Annealed Copper  
Mica Tape  
(a) XLPE Compound or  
(b) XLEVA Compound  
N.A.  
N.A.

LSZH Compound  
Insulation: 2 Cores - Red & Black or Brown & Blue  
3 Cores - Red, Yellow & Blue or Brown,  
Black & Grey  
4 Cores - Red, Yellow, Blue & Black  
or Brown, Black, Grey & Blue  
5 Cores - Red, Yellow, Blue, Black &  
Green/Yellow or Brown,  
Black, Grey, Blue &  
Green/Yellow  
Above 5 Cores - White with Black  
numberings

Sheath - Orange  
IEC 60502 / BS 7846  
IEC 60331  
BS 6387 (C, W, Z), SS 299 (C, W, Z)  
IEC 60332-3, BS 4066-3, BS EN 50266-2-2  
IEC 60754-1, BS 6425-1, BS EN 50267-2-1  
IEC 60754-2, BS 6425-2, BS EN 50267-2-2  
IEC 61034-2, BS 7622-2, BS EN 61034-2  
600 / 1000V  
Class 2  
(a) Max 90°C for XLPE  
(b) Max 110°C for XLEVA  
8D for unarmoured cable

Plain Annealed Copper  
Mica Tape  
(a) XLPE Compound or  
(b) XLEVA Compound  
LSZH Compound  
Galvanized Steel Wire  
LSZH Compound

Insulation: 2 Cores - Red & Black or Brown & Blue  
3 Cores - Red, Yellow & Blue or Brown,  
Black & Grey  
4 Cores - Red, Yellow, Blue & Black  
or Brown, Black, Grey & Blue  
5 Cores - Red, Yellow, Blue, Black &  
Green/Yellow or Brown,  
Black, Grey, Blue &  
Green/Yellow  
Above 5 Cores - White with Black  
numberings

Sheath - Orange  
IEC 60502 / BS 7846  
IEC 60331  
BS 6387 (C, W, Z), SS 299 (C, W, Z)  
IEC 60332-3, BS 4066-3, BS EN 50266-2-2  
IEC 60754-1, BS 6425-1, BS EN 50267-2-1  
IEC 60754-2, BS 6425-2, BS EN 50267-2-2  
IEC 61034-2, BS 7622-2, BS EN 61034-2  
600 / 1000V  
Class 2  
(a) Max 90°C for XLPE  
(b) Max 110°C for XLEVA  
10D for armoured cable

# Fire Resistant Power Cables

## 2-3 Cores

# FR-XH, FR-XSH (ARMOURED)

**Fire Resistant Power Cables FR-XH, FR-XSH (ARMOURED)**

Table 2

SIZE		Radial Thickness of Insulation (mm)	FR-XH		FR-XSH					
Nominal Conductor Area (mm <sup>2</sup> )	No. and Diameter of Wires (no./mm)		Unarmoured		Armoured					
			Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)		
2 X 1.5	7 / 0.53	0.7	11.8	150	9.3	0.9	14.7	398	2 Cores	
2 X 2.5	7 / 0.67	0.7	12.2	184	10.2	0.9	15.6	451		
2 X 4	7 / 0.85	0.7	13.0	234	11.2	0.9	16.6	522		
2 X 6	7 / 1.04	0.7	13.8	295	12.4	0.9	17.8	610		
2 X 10	7 / 1.35	0.7	15.6	414	14.2	1.25	20.3	880		
2 X 16	7 / 1.70	0.7	17.7	575	16.3	1.25	22.4	1102		
2 X 25	7 / 2.14	0.9	21.2	849	19.1	1.6	25.9	1483		
2 X 35	7 / 2.52	0.9	23.5	1100	22.1	1.6	28.9	1971		
3 X 1.5	7 / 0.53	0.7	12.5	172	9.9	0.9	15.3	434		3 Cores
3 X 2.5	7 / 0.67	0.7	13.2	215	10.8	0.9	16.2	502		
3 X 4	7 / 0.85	0.7	13.9	280	12.0	0.9	17.4	588		
3 X 6	7 / 1.04	0.7	15.6	359	13.2	1.25	19.3	802		
3 X 10	7 / 1.35	0.7	16.6	515	15.2	1.25	21.3	1018		
3 X 16	7 / 1.70	0.7	18.9	729	17.5	1.25	23.6	1293		
3 X 25	7 / 2.14	0.9	22.6	1090	21.2	1.6	28.0	1926		
3 X 35	7 / 2.52	0.9	25.0	1427	23.8	1.6	30.6	2371		
3 X 50 (S)	19 / 1.78	1.0	27.2	1638	24.8	1.6	33.0	2756		
3 X 70 (S)	19 / 2.14	1.1	30.9	2286	28.6	2.0	37.9	3817		
3 X 95 (S)	19 / 2.52	1.1	34.3	3078	31.7	2.0	41.5	4865		
3 X 120 (S)	37 / 2.03	1.2	37.6	3836	34.7	2.0	44.8	5849		
3 X 150 (S)	37 / 2.25	1.4	41.7	4677	38.8	2.5	50.3	7311		
3 X 185 (S)	37 / 2.52	1.6	46.1	6172	42.8	2.5	54.8	9104		
3 X 240 (S)	61 / 2.25	1.7	51.4	7567	47.5	2.5	59.8	10922		
3 X 300 (S)	61 / 2.52	1.8	55.3	9383	51.5	2.5	64.4	13151		
3 X 400 (S)	61 / 2.85	2.0	70.6	13744	68.0	2.5	79.5	17810		
3 X 500 (S)	61 / 3.20	2.2	78.5	17194	75.9	3.15	89.3	22822		

Note: (S) - Sectoral Stranded Conductors.

# FR-XH, FR-XSH (ARMOURED)

## Fire Resistant Power Cables

**4 CORES,  
5 CORES & ABOVE**

**Fire Resistant Power Cables FR-XH, FR-XSH (ARMOURED)**

Table 3

SIZE			FR-XH		FR-XSH			
Nominal Conductor Area (mm <sup>2</sup> )	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Unarmoured		Armoured			
			Cable Overall Diameter (mm)	Approx. Weight (kg/km)	Diameter Under Armour (mm)	Armour Wire Diameter (mm)	Cable Overall Diameter (mm)	Approx. Weight (kg/km)
4 x 1.5	7 / 0.53	0.7	13.4	202	10.8	0.9	16.2	490
4 x 2.5	7 / 0.67	0.7	14.4	255	11.8	0.9	17.2	571
4 x 4	7 / 0.85	0.7	15.7	336	13.8	0.9	19.2	780
4 x 6	7 / 1.04	0.7	17.1	437	14.5	1.25	20.6	930
4 x 10	7 / 1.35	0.7	18.1	635	16.7	1.25	22.8	1193
4 x 16	7 / 1.70	0.7	20.7	908	19.3	1.6	26.1	1693
4 x 25	7 / 2.14	0.9	24.9	1365	23.5	1.6	30.3	2332
4 x 35	7 / 2.52	0.9	27.6	1797	26.2	1.6	33.2	2885
4 x 50 (S)	19 / 1.78	1.0	31.0	2173	28.2	1.6	36.7	3427
4 x 70 (S)	19 / 2.14	1.1	34.8	3032	32.2	2.0	42.0	4788
4 x 95 (S)	19 / 2.52	1.1	38.9	4105	35.8	2.0	45.9	6117
4 x 120 (S)	37 / 2.03	1.2	42.4	5110	39.4	2.5	51.1	7784
4 x 150 (S)	37 / 2.25	1.4	47.2	6209	43.8	2.5	55.8	9262
4 x 185 (S)	37 / 2.52	1.6	52.1	8223	48.2	2.5	60.8	11522
4 x 240 (S)	61 / 2.25	1.7	58.0	10076	53.9	2.5	67.1	14018
4 x 300 (S)	61 / 2.52	1.8	63.2	12522	58.8	2.5	72.3	16865
4 x 400 (S)	61 / 2.85	2.0	79.0	17680	76.3	3.15	90.0	23368
4 x 500 (S)	61 / 3.20	2.2	87.8	22119	84.7	3.15	99.0	28436
5 x 1.5	7 / 0.53	0.7	14.9	267	12.2	0.9	17.0	476
5 x 2.5	7 / 0.67	0.7	16.0	336	14.1	0.9	18.8	589
5 x 4	7 / 0.85	0.7	17.4	441	15.5	0.9	20.4	720
5 x 6	7 / 1.04	0.7	19.0	571	17.1	1.25	22.7	986
5 x 10	7 / 1.35	0.7	21.5	826	19.5	1.25	25.3	1305
5 x 16	7 / 1.7	0.7	24.3	1176	22.6	1.60	29.3	1904
5 x 25	7 / 2.14	0.9	29.0	1762	27.5	1.60	34.4	2619
5 x 35	7 / 2.52	0.9	32.1	2316	30.5	1.60	37.6	3260
5 x 50	19 / 1.78	1.0	36.6	3096	34.9	2.0	43.0	4420
5 x 70	19 / 2.14	1.1	42.4	4344	40.3	2.0	48.8	5835
7 x 1.5	7 / 0.53	0.7	16.3	346	13.4	0.9	18.2	669
10 x 1.5	7 / 0.53	0.7	20.4	492	11.3	1.25	23.0	885
12 x 1.5	7 / 0.53	0.7	21.1	552	17.9	1.25	23.6	958
19 x 1.5	7 / 0.53	0.7	24.6	790	21.2	1.25	27.1	1252
27 x 1.5	7 / 0.53	0.7	29.3	1090	26.1	1.6	32.9	1839
37 x 1.5	7 / 0.53	0.7	32.8	1417	29.4	1.6	36.2	2214
48 x 1.5	7 / 0.53	0.7	37.6	1811	33.9	1.6	40.9	2696
7 x 2.5	7 / 0.67	0.7	17.6	441	15.5	0.9	21.0	717
10 x 2.5	7 / 0.67	0.7	22.1	629	20.1	1.25	26.0	1113
12 x 2.5	7 / 0.67	0.7	22.8	712	20.8	1.25	26.7	1211
19 x 2.5	7 / 0.67	0.7	26.7	1035	25.1	1.6	31.9	1825
27 x 2.5	7 / 0.67	0.7	31.9	1437	30.4	1.6	37.4	2353
37 x 2.5	7 / 0.67	0.7	35.8	1883	34.3	1.6	41.3	2884
48 x 2.5	7 / 0.67	0.7	41.2	2435	40.0	2.0	48.2	3913
7 x 4	7 / 0.85	0.7	19.2	584	17.0	1.25	22.7	994
10 x 4	7 / 0.85	0.7	24.3	838	22.5	1.25	29.1	1542
12 x 4	7 / 0.85	0.7	25.1	957	23.3	1.6	29.9	1670
19 x 4	7 / 0.85	0.7	29.4	1410	27.6	1.6	34.4	2244
27 x 4	7 / 0.85	0.7	35.2	1968	33.5	1.6	40.7	2946
37 x 4	7 / 0.85	0.7	39.7	2619	38.2	2.0	46.4	4047
48 x 4	7 / 0.85	0.7	46.0	3410	44.1	2.0	52.5	4950

4 Cores

5 Cores & above

Note: Other conductor sizes & core configurations are available upon request.  
: Braided Armoured Cables are available upon request.  
: (S) - Sectoral Stranded Conductors.

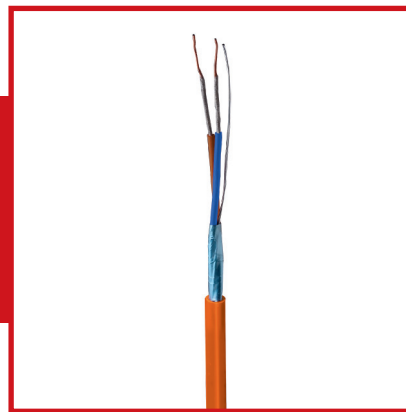
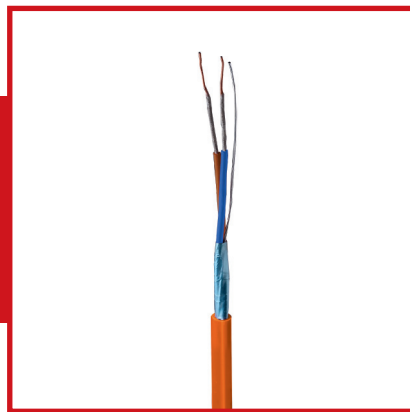
**Fire Resistant Cables**

**2-4 CORES**

**FRA-XOL, FRA-XOL(E)**

**FRA-XOL  
(STANDARD)  
2-4 CORES**

**FRA-XOL(E)  
(ENHANCED)  
2-4 CORES**



**FRA-XOL  
(STANDARD)  
2-4 cores**

**FRA-XOL(E)  
(ENHANCED)  
2-4 cores**

<p>Conductor : Fire Barrier : Insulation :</p> <p>Overall Screen :</p> <p>Sheath : Colour :</p> <p>Reference Standard : Circuit Integrity :</p> <p>Flame Propagation : Acid Gas Emission : Smoke Emission : Voltage Uo/U : Conductor Stranding : Operating Temperature :</p> <p>Minimum Bending Radius :</p>	<p>Plain Annealed Copper Mica Tape (a) EI5 Compound or (b) XLEVA Compound Aluminium / Polyester Tape with full size tinned annealed copper circuit protective conductor LSZH Compound Insulation: 2 Cores - Red &amp; Black or Brown &amp; Blue 3 Cores - Red, Yellow &amp; Blue or Brown, Black &amp; Grey 4 Cores - Red, Yellow, Blue &amp; Black or Brown, Black, Grey &amp; Blue</p> <p>Sheath - Red or White BS7629-1 / In-house BS EN 50200:2006 PH 30 BS EN 50200:2006 Annex E 30min BS 5839-1:2002+A2:2008 Clause 26.2d BS 6387 Cat C.W.Z. BS EN 60332-1-2, BS EN 60332-3C BS EN 50267-2-1, IEC 60754-1 BS EN 61034-2, IEC 61034-2 300 / 500V Class 1 or Class 2 (a) Max 90°C for EI5 (b) Max 110°C for XLEVA 6D</p>	<p>Plain Annealed Copper Mica Tape EI5 Compound Aluminium / Polyester Tape with full size tinned annealed copper circuit protective conductor LSZH Compound Insulation: 2 Cores - Red &amp; Black or Brown &amp; Blue 3 Cores - Red, Yellow &amp; Blue or Brown, Black &amp; Grey 4 Cores - Red, Yellow, Blue &amp; Black or Brown, Black, Grey &amp; Blue</p> <p>Sheath - Red or White BS7629-1 BS EN 50200:2006 PH 120 BS EN 50200:2006 Annex E 120min BS 5839-1:2002+A2:2008 Clause 26.2E BS 8434-2 120 min BS 6387 Cat C.W.Z. BS EN 60332-1-2, BS EN 60332-3C BS EN 50267-2-1, IEC 60754-1 BS EN 61034-2, IEC 61034-2 300 / 500V Class 1 or Class 2 Max 90°C for EI5 6D</p>
--	--	---

# FRA-XOL, FRA-XOL(E)

## Fire Resistant Cables

### 2-4 CORES

**Fire Resistant Cables FRA-XOL, FRA-XOL(E)**

Table 4

SIZE		FRA-XOL				FRA-XOL(E)			
Nominal Conductor Area (mm <sup>2</sup> )	No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Standard		No. and Diameter of Wires (no./mm)	Radial Thickness of Insulation (mm)	Enhanced		
			Cable Overall Diameter (mm)	Approx. Weight (kg/km)			Cable Overall Diameter (mm)	Approx. Weight (kg/km)	
2 x 1.0	7 / 0.43	0.6	9.0	99	1 / 1.13	0.6	8.7	102	2 Cores
2 x 1.5	7 / 0.53	0.7	10.0	122	1 / 1.38	0.7	9.5	124	
2 x 2.5	7 / 0.67	0.8	11.5	163	1 / 1.78	0.8	10.9	167	
2 x 4	7 / 0.85	0.8	12.6	209	7 / 0.85	0.8	12.7	222	
3 x 1.0	7 / 0.43	0.6	9.6	127	1 / 1.13	0.6	9.2	130	3 Cores
3 x 1.5	7 / 0.53	0.7	10.7	160	1 / 1.38	0.7	10.2	161	
3 x 2.5	7 / 0.67	0.8	12.2	215	1 / 1.78	0.8	11.6	219	
3 x 4	7 / 0.85	0.8	13.4	280	7 / 0.85	0.8	13.5	294	
4 x 1.0	7 / 0.43	0.6	10.7	163	1 / 1.13	0.6	10.3	165	4 Cores
4 x 1.5	7 / 0.53	0.7	11.9	206	1 / 1.38	0.7	11.3	206	
4 x 2.5	7 / 0.67	0.8	13.6	278	1 / 1.78	0.8	13.0	280	
4 x 4	7 / 0.85	0.8	15.0	362	7 / 0.85	0.8	15.1	378	

Note: Other conductor sizes & core configurations are available upon request.