eXtended Fire Resistant, instrumentation cable BFCU-XFR(c) 150/250(300)V, steel wire braided

eXtended Fire Resistant, flame retardant halogen-free instrumentation cable. Mud resistant

BFCU-XFR(c) 150/250(300)V

MGT/EPR/EPR/GSWB/EVA

Operating temperature : 90°C
Operating Voltage : 150/250(300)V

Application

Fixed installation for instrumentation, communication, control and alarm systems in both EX- and safe areas, emergency and critical systems where requirement for fire resistance exists. Meets the mud resistant requirements in NEK TS 606:2009. Cables have extended fire resistant (XFR) properties to IEC 60331-1&2 including water spray according to EN 50200 Annex E (90 minutes).

Standards applied

IEC 60092-376 (2003-05)	- Design
IEC 60228 class 2	- Conductor
IEC 60092-360	- Insulation
IEC 60092-360	- Sheath
IEC 60332-1-2	- Flame Retardant
IEC 60332-3-22	- Flame Retardant
IEC 60331-1, -2 EN 50200:2006 Annex E	- Fire Resistant
IEC 60754-1,2	- Halogen Free
IEC 61034-1,2	- Low Smoke

Construction

	Code Letter	
Conductor		Tinned annealed stranded circular copper (STCC), IEC 60228 class 2
Insulation	**B**	Mica-tape + EP-rubber, IEC 60092-360 (EPR)
Pair / Triple / Quad twisting		Color coded cores twisted together and wrapped with polyester tape. Pairs/Triples are laid up collectively and screened by copper backed polyester tape with tinned copper drain wire.Pairs/triples are identified by numbered tape or by numbers printed directly on the insulated conductors.
Inner covering	**F**	Flame retardant and halogen-free thermoplastic compound
Tape over inner covering		PET tape + rubberized Polyamide tape
Armour/screen	**C**	Galvanized steel wire braid
Tape over armour/screen		PET tape + rubberized Polyamide tape
Outer sheath	**U**	Flame retardant, halogen-free and mud resistant thermoset compound, SHF2 (IEC 60092-360)
Marking text		Eg. "meter" "year" DRAKA 01 BFCU-XFR(C) 250V 4PAIR 1.5mm2 FLEX - FLAME IEC 60092-376 EN 50200:2006 Annex E IEC 60331-1*) or IEC 60331-2*) IEC 60332-3-22
Manufacturing unit		DRAKA 01 = Draka Norsk Kabel
Outer sheath colour		Grey or Blue

*) IEC 60331-1 for cables with an overall diameter exceeding 20 mm and IEC 60331-2 for cables with an overall diameter not exceeding 20 mm

Core identification instrumentation cables

Pair - Black - Light Blue
Triple - Black - Light Blue - Brown
Quad - Black - Light Blue - Brown - Grey

Range and dimensions

Number of elements	No of cores in element	Cross section core, mm²	Conductor Diameter, mm	Insulation Thickness, mm	Thickness Inner covering, mm	Diameter inner covering, mm	Diameter Braid Wire, mm	Mechanical cross-section of the braid, mm²	Thickness Outer Sheath, mm	Diameter outer sheath, mm	Weight of Cable Approx. (Kg/Km)	Copper content Approx. (kg/km)
2	2	0.75	1.1	1	1.1	14 ± 0.8	0.3	10.2	1.3	18 ± 0.8	440	30
2	2	0.75	1.1	1	1.1	14 ± 0.8	0.3	10.2	1.3	18 ± 0.8	440	30
4	2	0.75	1.1	1	1.1	16.5 ± 0.8	0.3	11.9	1.3	20.5 ± 1	580	56
4	2	0.75	1.1	1	1.1	16.5 ± 0.8	0.3	11.9	1.3	20.5 ± 1	580	56
8	2	0.75	1.1	1	1.1	22 ± 1	0.3	17.8	1.5	26.5 ± 1	960	107
8	2	0.75	1.1	1	1.1	22 ± 1	0.3	17.8	1.5	26.5 ± 1	960	107
12	2	0.75	1.1	1	1.4	26.5 ± 1	0.3	20.4	1.6	31 ± 1.5	1290	159
12	2	0.75	1.1	1	1.4	26.5 ± 1	0.3	20.4	1.6	31 ± 1.5	1290	159
16	2	0.75	1.1	1	1.9	29.5 ± 1	0.3	22.9	1.7	34.5 ± 1.5	1680	210
16	2	0.75	1.1	1	1.9	29.5 ± 1	0.3	22.9	1.7	34.5 ± 1.5	1680	210
24	2	0.75	1.1	1	2.3	36.5 ± 1.5	0.46	41.9	2	42.5 ± 2	2550	313
24	2	0.75	1.1	1	2.3	36.5 ± 1.5	0.46	41.9	2	42.5 ± 2	2550	313
2	3	0.75	1.1	1	1.1	16 ± 0.8	0.3	11.9	1.3	20 ± 1	530	43
2	3	0.75	1.1	1	1.1	16 ± 0.8	0.3	11.9	1.3	20 ± 1	530	43
4	3	0.75	1.1	1	1.1	18.5 ± 0.8	0.3	15.3	1.4	23 ± 1	750	82
4	3	0.75	1.1	1	1.1	18.5 ± 0.8	0.3	15.3	1.4	23 ± 1	750	82
8	3	0.75	1.1	1	1.1	25 ± 1	0.3	17.8	1.6	29.5 ± 1	1210	159
8	3	0.75	1.1	1	1.1	25 ± 1	0.3	17.8	1.6	29.5 ± 1	1210	159
12	3	0.75	1.1	1	1.4	30 ± 1.5	0.3	22.9	1.7	35 ± 1.5	1670	237
12	3	0.75	1.1	1	1.4	30 ± 1.5	0.3	22.9	1.7	35 ± 1.5	1670	237
16	3	0.75	1.1	1	2.1	34 ± 1.5	0.3	25.4	1.8	39 ± 1.5	2220	314
16	3	0.75	1.1	1	2.1	34 ± 1.5	0.3	25.4	1.8	39 ± 1.5	2220	314
24	3	0.75	1.1	1	2.5	42.5 ± 2	0.46	47.9	2.1	48.5 ± 2	3370	469
24	3	0.75	1.1	1	2.5	42.5 ± 2	0.46	47.9	2.1	48.5 ± 2	3370	469
2	2	1.5	1.6	1	1.1	15.5 ± 0.8	0.3	11.9	1.4	20 ± 1	540	62
2	2	1.5	1.6	1	1.1	15.5 ± 0.8	0.3	11.9	1.4	20 ± 1	540	62
4	2	1.5	1.6	1	1.1	18.5 ± 0.8	0.3	15.3	1.4	22.5 ± 1	750	118
4	2	1.5	1.6	1	1.1	18.5 ± 0.8	0.3	15.3	1.4	22.5 ± 1	750	118
8	2	1.5	1.6	1	1.1	25 ± 1	0.3	17.8	1.7	30 ± 1.5	1220	230
8	2	1.5	1.6	1	1.1	25 ± 1	0.3	17.8	1.7	30 ± 1.5	1220	230
12	2	1.5	1.6	1	1.4	29.5 ± 1	0.3	22.9	1.8	34.5 ± 1.5	1670	342
12	2	1.5	1.6	1	1.4	29.5 ± 1	0.3	22.9	1.8	34.5 ± 1.5	1670	342
16	2	1.5	1.6	1	1.9	33 ± 1.5	0.3	25.4	1.9	38.5 ± 1.5	2160	454
16	2	1.5	1.6	1	1.9	33 ± 1.5	0.3	25.4	1.9	38.5 ± 1.5	2160	454
24	2	1.5	1.6	1	2.3	41 ± 2	0.46	47.9	2.2	47.5 ± 2	3290	678
24	2	1.5	1.6	1	2.3	41 ± 2	0.46	47.9	2.2	47.5 ± 2	3290	678

Number of elements	No of cores in element	Cross section core, mm²	Conductor Diameter, mm	Insulation Thickness, mm	Thickness Inner covering, mm	Diameter inner covering, mm	Diameter Braid Wire, mm	Mechanical cross-section of the braid, mm²	Thickness Outer Sheath, mm	Diameter outer sheath, mm	Weight of Cable Approx. (Kg/Km)	Copper content Approx. (kg/km)
2	3	1.5	1.6	1	1.1	17.5 ± 0.8	0.3	13.6	1.4	22 ± 1	660	91
2	3	1.5	1.6	1	1.1	17.5 ± 0.8	0.3	13.6	1.4	22 ± 1	660	91
4	3	1.5	1.6	1	1.1	21 ± 1	0.3	15.3	1.5	25.5 ± 1	930	175
4	3	1.5	1.6	1	1.1	21 ± 1	0.3	15.3	1.5	25.5 ± 1	930	175
8	3	1.5	1.6	1	1.1	28 ± 1	0.3	20.4	1.8	33 ± 1.5	1580	344
8	3	1.5	1.6	1	1.1	28 ± 1	0.3	20.4	1.8	33 ± 1.5	1580	344
12	3	1.5	1.6	1	1.4	34 ± 1.5	0.3	25.4	1.9	39 ± 1.5	2190	512
12	3	1.5	1.6	1	1.4	34 ± 1.5	0.3	25.4	1.9	39 ± 1.5	2190	512
16	3	1.5	1.6	1	2.3	38.5 ± 1.5	0.46	41.9	2.1	44.5 ± 2	3130	681
16	3	1.5	1.6	1	2.3	38.5 ± 1.5	0.46	41.9	2.1	44.5 ± 2	3130	681
24	3	1.5	1.6	1	2.7	47.5 ± 2	0.46	53.8	2.4	54.5 ± 2.5	4500	1018
24	3	1.5	1.6	1	2.7	47.5 ± 2	0.46	53.8	2.4	54.5 ± 2.5	4500	1018
2	2	2.5	2	1	1.1	17 ± 0.8	0.3	13.6	1.4	21 ± 1	620	101
2	2	2.5	2	1	1.1	17 ± 0.8	0.3	13.6	1.4	21 ± 1	620	101
4	2	2.5	2	1	1.1	19.5 ± 0.8	0.3	15.3	1.5	24 ± 1	880	193
4	2	2.5	2	1	1.1	19.5 ± 0.8	0.3	15.3	1.5	24 ± 1	880	193
8	2	2.5	2	1	1.1	27 ± 1	0.3	20.4	1.8	32 ± 1.5	1480	378
8	2	2.5	2	1	1.1	27 ± 1	0.3	20.4	1.8	32 ± 1.5	1480	378
12	2	2.5	2	1	2.1	33.5 ± 1.5	0.3	25.4	1.9	38.5 ± 1.5	2220	562
12	2	2.5	2	1	2.1	33.5 ± 1.5	0.3	25.4	1.9	38.5 ± 1.5	2220	562
16	2	2.5	2	1	2.3	36.5 ± 1.5	0.46	41.9	2.1	42.5 ± 2	2920	746
16	2	2.5	2	1	2.3	36.5 ± 1.5	0.46	41.9	2.1	42.5 ± 2	2920	746
24	2	2.5	2	1	2.7	45 ± 2	0.46	53.8	2.4	52 ± 2.5	4190	1114
24	2	2.5	2	1	2.7	45 ± 2	0.46	53.8	2.4	52 ± 2.5	4190	1114
2	3	2.5	2	1	1.1	19 ± 0.8	0.3	15.3	1.5	23.5 ± 1	780	148
2	3	2.5	2	1	1.1	19 ± 0.8	0.3	15.3	1.5	23.5 ± 1	780	148
4	3	2.5	2	1	1.1	22.5 ± 1	0.3	17.8	1.6	27 ± 1	1160	286
4	3	2.5	2	1	1.1	22.5 ± 1	0.3	17.8	1.6	27 ± 1	1160	286
8	3	2.5	2	1	1.1	30 ± 1.5	0.3	22.9	1.9	35.5 ± 1.5	1940	564
8	3	2.5	2	1	1.1	30 ± 1.5	0.3	22.9	1.9	35.5 ± 1.5	1940	564
12	3	2.5	2	1	2.6	39 ± 1.5	0.46	47.9	2.1	45.5 ± 2	3280	842
12	3	2.5	2	1	2.6	39 ± 1.5	0.46	47.9	2.1	45.5 ± 2	3280	842
16	3	2.5	2	1	2.6	42.5 ± 2	0.46	47.9	2.3	49 ± 2	3980	1119
16	3	2.5	2	1	2.6	42.5 ± 2	0.46	47.9	2.3	49 ± 2	3980	1119

Electrical values instrumentation cables

Type	Capacitance, approx. (nF/km)	Inductance, approx, (mH/km)	Resistance at 20°C, max. (Ohm/km)	L/R ratio, (microH/Ohm)
Unshielded pair 0,75 mm²	55	0,94	26,3	17,9
Unshielded triple 0,75 mm²	55	0,94	26,3	17,9
Unshielded pair 1,5 mm²	65	0,89	12,9	32,6
Unshielded triple 1,5 mm²	65	0,89	12,9	32,6
Unshielded pair 2,5 mm²	75	0,77	8,02	48
Unshielded triple 2,5 mm²	75	0,77	8,02	48

Ordering information

New Part number	Old Part number	Description	Sheath Colour	Stock item	EAN No. DNK	EL No.
	821606	BFCU-XFR(C) 2PAIR 0.75mm²	GREY	-	7021528216066	-
	821607	BFCU-XFR(C) 2PAIR 0.75mm²	BLUE	-	7021528216073	-
	821618	BFCU-XFR(C) 4PAIR 0.75mm²	GREY	-	7021528216189	-
	821619	BFCU-XFR(C) 4PAIR 0.75mm²	BLUE	-	7021528216196	-
	821630	BFCU-XFR(C) 8PAIR 0.75mm²	GREY	-	7021528216301	-
	821631	BFCU-XFR(C) 8PAIR 0.75mm²	BLUE	-	7021528216318	-
	821636	BFCU-XFR(C) 12PAIR 0.75mm²	GREY	-	7021528216363	-
	821637	BFCU-XFR(C) 12PAIR 0.75mm²	BLUE	-	7021528216370	-
	821642	BFCU-XFR(C) 16PAIR 0.75mm²	GREY	-	7021528216424	-
	821643	BFCU-XFR(C) 16PAIR 0.75mm²	BLUE	-	7021528216431	-
	821648	BFCU-XFR(C) 24PAIR 0.75mm²	GREY	-	7021528216486	-
	821649	BFCU-XFR(C) 24PAIR 0.75mm²	BLUE	-	7021528216493	-
	821666	BFCU-XFR(C) 2TRIP 0.75mm²	GREY	-	7021528216660	-
	821667	BFCU-XFR(C) 2TRIP 0.75mm²	BLUE	-	7021528216677	-
	821678	BFCU-XFR(C) 4TRIP 0.75mm²	GREY	-	7021528216783	-
	821679	BFCU-XFR(C) 4TRIP 0.75mm²	BLUE	-	7021528216790	-
	821690	BFCU-XFR(C) 8TRIP 0.75mm²	GREY	-	7021528216905	-
	821691	BFCU-XFR(C) 8TRIP 0.75mm²	BLUE	-	7021528216912	-
	821696	BFCU-XFR(C) 12TRIP 0.75mm²	GREY	-	7021528216967	-
	821697	BFCU-XFR(C) 12TRIP 0.75mm²	BLUE	-	7021528216974	-
	821702	BFCU-XFR(C) 16TRIP 0.75mm²	GREY	-	7021528217025	-
	821703	BFCU-XFR(C) 16TRIP 0.75mm²	BLUE	-	7021528217032	-
	821708	BFCU-XFR(C) 24TRIP 0.75mm²	GREY	-	7021528217087	-
	821709	BFCU-XFR(C) 24TRIP 0.75mm²	BLUE	-	7021528217094	-
	822006	BFCU-XFR(C) 2PAIR 1.5mm²	GREY	-	7021528220063	-
	822007	BFCU-XFR(C) 2PAIR 1.5mm²	BLUE	-	7021528220070	-
	822018	BFCU-XFR(C) 4PAIR 1.5mm²	GREY	-	7021528220186	-
	822019	BFCU-XFR(C) 4PAIR 1.5mm²	BLUE	-	7021528220193	-
	822030	BFCU-XFR(C) 8PAIR 1.5mm²	GREY	-	7021528220308	-
	822031	BFCU-XFR(C) 8PAIR 1.5mm²	BLUE	-	7021528220315	-
	822036	BFCU-XFR(C) 12PAIR 1.5mm²	GREY	-	7021528220360	-
	822037	BFCU-XFR(C) 12PAIR 1.5mm²	BLUE	-	7021528220377	-
	822042	BFCU-XFR(C) 16PAIR 1.5mm²	GREY	-	7021528220421	-
	822043	BFCU-XFR(C) 16PAIR 1.5mm²	BLUE	-	7021528220438	-
	822048	BFCU-XFR(C) 24PAIR 1.5mm²	GREY	-	7021528220483	-
	822049	BFCU-XFR(C) 24PAIR 1.5mm²	BLUE	-	7021528220490	-
	822066	BFCU-XFR(C) 2TRIP 1.5mm²	GREY	-	7021528220667	-
	822067	BFCU-XFR(C) 2TRIP 1.5mm²	BLUE	-	7021528220674	-
	822078	BFCU-XFR(C) 4TRIP 1.5mm²	GREY	-	7021528220780	-
	822079	BFCU-XFR(C) 4TRIP 1.5mm²	BLUE	-	7021528220797	-
	822090	BFCU-XFR(C) 8TRIP 1.5mm²	GREY	-	7021528220902	-
	822091	BFCU-XFR(C) 8TRIP 1.5mm²	BLUE	-	7021528220919	-
	822096	BFCU-XFR(C) 12TRIP 1.5mm²	GREY	-	7021528220964	-
	822097	BFCU-XFR(C) 12TRIP 1.5mm²	BLUE	-	7021528220971	-

New Part number	Old Part number	Description	Sheath Colour	Stock item	EAN No. DNK	EL No.
	822102	BFCU-XFR(C) 16TRIP 1.5mm²	GREY	-	7021528221022	-
	822103	BFCU-XFR(C) 16TRIP 1.5mm²	BLUE	-	7021528221039	-
	822108	BFCU-XFR(C) 24TRIP 1.5mm²	GREY	-	7021528221084	-
	822109	BFCU-XFR(C) 24TRIP 1.5mm²	BLUE	-	7021528221091	-
	829106	BFCU-XFR(C) 2PAIR 2.5mm²	GREY	-	7021528291063	-
	829107	BFCU-XFR(C) 2PAIR 2.5mm²	BLUE	-	7021528291070	-
	829118	BFCU-XFR(C) 4PAIR 2.5mm²	GREY	-	7021528291186	-
	829119	BFCU-XFR(C) 4PAIR 2.5mm²	BLUE	-	7021528291193	-
	829130	BFCU-XFR(C) 8PAIR 2.5mm²	GREY	-	7021528291308	-
	829131	BFCU-XFR(C) 8PAIR 2.5mm²	BLUE	-	7021528291315	-
	829136	BFCU-XFR(C) 12PAIR 2.5mm²	GREY	-	7021528291360	-
	829137	BFCU-XFR(C) 12PAIR 2.5mm²	BLUE	-	7021528291377	-
	829142	BFCU-XFR(C) 16PAIR 2.5mm²	GREY	-	7021528291421	-
	829143	BFCU-XFR(C) 16PAIR 2.5mm²	BLUE	-	7021528291438	-
	829148	BFCU-XFR(C) 24PAIR 2.5mm²	GREY	-	7021528291483	-
	829149	BFCU-XFR(C) 24PAIR 2.5mm²	BLUE	-	7021528291490	-
	829166	BFCU-XFR(C) 2TRIP 2.5mm²	GREY	-	7021528291667	-
	829167	BFCU-XFR(C) 2TRIP 2.5mm²	BLUE	-	7021528291674	-
	829178	BFCU-XFR(C) 4TRIP 2.5mm²	GREY	-	7021528291780	-
	829179	BFCU-XFR(C) 4TRIP 2.5mm²	BLUE	-	7021528291797	-
	829190	BFCU-XFR(C) 8TRIP 2.5mm²	GREY	-	7021528291902	-
	829191	BFCU-XFR(C) 8TRIP 2.5mm²	BLUE	-	7021528291919	-
	829196	BFCU-XFR(C) 12TRIP 2.5mm²	GREY	-	7021528291964	-
	829197	BFCU-XFR(C) 12TRIP 2.5mm²	BLUE	-	7021528291971	-
	829202	BFCU-XFR(C) 16TRIP 2.5mm²	GREY	-	7021528292022	-
	829203	BFCU-XFR(C) 16TRIP 2.5mm²	BLUE	-	7021528292039	-

Installation recommendations

Minimum Bending Radius during Installation	Minimum Bending Radius Fixed Installed	Maximum Tensile Load During Installation	Minimum Installation Temperature
8 x D	6 x D	50 N /mm²	-20°C