FLAMEX® EN 50306-3 & -4

CONTACT

Markets and Products Information
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MULTICORES CONTROL CABLES

Strictly halogen free, FLAMEX EN 50306-3 & -4 control cables combine the advantages of small size, lightweight, high chemical resistance, high mechanical properties. They are recommended for installation in railway vehicles (locomotives, trains, trolleybusses...).

STANDARDS

Product EN 45545-2 (HL3); EN 50264-1

Test EN 50305; EN 50306

DESIGN

1. Conductor
Stranded tinned copper wires
Colour: white, numbered 1 to n

2. Insulation
Thin wall, cross-linked halogen free material acc. EN 50306-2

3. Screen(for screened versions)
Tinned copper braid with optional polyester tape

4. Outer sheath
Cross-linked halogen free material
Colour: black

Example of marking: FLAMEX 239 EN 50306-3 - 300 V - number of cores x cross-section - MM-S-90 - week/year batch number

GUIDE TO USE

- Cabling rules are given in EN 50343
- Permissible current carrying capacities: values and calculation method are given in EN 50343
- Bending radius
  - Static use: 5 x outer diameter
  - For installation and occasional movements: 10 x outer diameter

Conductor flexibility
Flexible stranded

Halogen free
EN 60754-1 & EN 60684-2

Rated Voltage Uo/U (Um)
300/500 V

Flame retardant
EN 60332-1-2

Fire retardant
EN IEC 60332-3-24 (cat C); EN IEC 60332-3-25 (EN50305)

Smoke density
EN/IEC 61034-2

Gases toxicity
EN 50305-9.2

Operating temp.
-40 ... 90 °C

CHARACTERISTICS

Construction characteristics	
Conductor material	Tin plated copper
Conductor flexibility	Flexible stranded
Outer sheath	Cross-linked compound
Halogen free	EN 60754-1 & EN 60684-2
Electrical characteristics	
Rated Voltage Uo/U (Um)	300/500 V
Usage characteristics	
Flame retardant	EN 60332-1-2
Fire retardant	EN IEC 60332-3-24 (cat C); EN IEC 60332-3-25 (EN50305)
Smoke density	EN/IEC 61034-2
Gases toxicity	EN 50305-9.2
Operating temperature, range	-40 ... 90 °C
Max. conductor temperature in service	90 °C
Overload maximum core temperature	120 °C
Chemical resistance	Excellent

FLAMEX® EN 50306-3 MMS

Reference	Country Ref.	Nb. of cores	Cross section [mm²]	Min. outer diam. [mm]	Max. outer diam. [mm]	Approx. weight [kg/km]
10122694	2PH184	1	0.5	2.3	2.9	14
10162996	2PH185	1	0.75	2.5	3.1	17
10102327	2PH186	1	1	2.7	3.3	20
10102330	2PH187	1	1.5	3.1	3.7	28
10116479	2PH188	1	2.5	3.6	4.5	43
10102326	2PG960	2	0.5	3.5	4.4	25
10128029	2PG961	2	0.75	3.9	4.8	31
10103735	2PG962	2	1	4.2	5.3	37
10102331	2PF780	2	1.5	5.1	6.2	55
10128033	2PH193	2	2.5	6.4	7.5	87
10103310	2PG963	3	0.5	3.7	4.7	33
10128030	2PG964	3	0.75	4.0	5.2	43
10102328	2PG965	3	1	4.5	5.7	52
10132982	2PH191	3	1.5	5.4	6.6	75
10163917	2PH194	3	2.5	6.8	8.0	124
10119424	2PH189	4	0.5	4.0	5.2	43
10132981	2PH190	4	0.75	4.5	5.7	56
10102329	2PG966	4	1	5.0	6.2	65
10183275	2PH192	4	1.5	6.0	7.2	100
10122695	2PH195	4	2.5	7.5	8.7	158
10128047	2PI378	6	0.5	5.5	6.5	75

Reference	Country Ref.	Nb. of cores	Cross section [mm²]	Min. outer diam. [mm]	Max. outer diam. [mm]	Approx. weight [kg/km]
10215561	2PJ942	6	0.75	6.1	7.1	92
10276650	2PM688	6	1	6.3	7.3	104
10216384	2PK766	6	1.5	7.3	8.3	154
10283179	2PI811	8	0.5	6.1	7.1	88
13117903	2PI361	8	0.75	7.3	8.3	119
13114949	2PM706	8	1	7.5	8.5	125
13109212	2PM156	8	1.5	8.5	9.5	215

FLAMEX® EN 50306-4 1P MM

Reference	Country Ref.	Nb. of cores	Cross section [mm²]	Min. outer diam. [mm]	Max. outer diam. [mm]	Approx. weight [kg/km]
10122742	2PH304	2	0.5	3.5	4.5	24
10122955	2PG694	2	0.75	4.0	5.0	30
10098365	2PG697	2	1	4.3	5.3	35
10102324	2PG703	2	1.5	5.0	6.0	49
10122928	2PG710	2	2.5	6.7	7.9	86
10181977	2PH305	3	0.5	3.8	4.8	30
10122956	2PG695	3	0.75	4.2	5.2	40
10189566	2PG698	3	1	4.6	5.6	46
10122958	2PG704	3	1.5	5.3	6.3	67
10140697	2PG711	3	2.5	7.1	8.3	125
10122696	2PG693	4	0.5	4.1	5.3	37
10122957	2PG696	4	0.75	4.6	5.8	50
10190806	2PG699	4	1	4.9	6.1	58
10102325	2PG705	4	1.5	6.0	7.2	85
10275124	2PG712	4	2.5	7.9	9.1	150
10206315	2PH306	7	0.5	4.9	6.1	59
10141411	2PH310	7	0.75	5.5	6.6	79
10140695	2PG700	7	1	6.0	7.2	93
10235009	2PG706	7	1.5	7.7	8.9	149
	2PG713	7	2.5	8.6	9.9	230
10230969	2PH307	13	0.5	7.3	8.5	113
10174874	2PH311	13	0.75	8.2	9.4	152
10205984	2PG701	13	1	8.7	10.1	175
	2PG707	13	1.5	10.7	12.1	270
10238395	2PG714	13	2.5	12.9	14.0	435
	2PH308	19	0.5	8.1	9.3	151
	2PH312	19	0.75	9.0	10.4	205
10122697	2PG702	19	1	9.8	11.2	244
10284651	2PG708	19	1.5	12.0	13.4	378
10230981	2PH309	37	0.5	10.8	12.2	273
	2PH313	37	0.75	12.2	13.6	376

Reference	Country Ref.	Nb. of cores	Cross section [mm²]	Min. outer diam. [mm]	Max. outer diam. [mm]	Approx. weight [kg/km]
	2PH315	37	1	13.3	14.7	441
10230882	2PG709	37	1.5	16.2	18.0	715
	2PH314	48	0.75	13.9	15.7	480

FLAMEX® EN 50306-4 1E MM

Reference	Country Ref.	Nb. of cores	Cross section [mm²]	Min. outer diam. [mm]	Max. outer diam. [mm]	Approx. weight [kg/km]
10262522	2PH316	2	0.5	4.9	5.9	40
10133066	2PH323	2	0.75	5.3	6.3	48
10174879	2PH331	2	1	5.6	6.6	53
10242493	2PH334	2	1.5	6.3	7.3	70
10275799	2PH336	2	2.5	7.7	8.7	105
10282478	2PH317	3	0.5	5.1	6.1	48
10273652	2PH324	3	0.75	5.5	6.5	58
10147700	2PH332	3	1	5.9	6.9	65
10223439	2PH335	3	1.5	6.6	7.6	89
10283555	2PH337	3	2.5	8.1	9.1	136
10137780	2PH318	4	0.5	5.5	6.5	56
10214826	2PH325	4	0.75	6.0	7.0	69
10145456	2PG967	4	1	6.3	7.3	79
10197106	2PG972	4	1.5	7.4	8.4	110
10282479	2PG974	4	2.5	8.8	10.0	170
10223454	2PH319	7	0.5	6.3	7.3	80
10147701	2PH326	7	0.75	6.9	7.9	102
10147814	2PG968	7	1	7.3	8.3	118
10197107	2PG428	7	1.5	8.6	9.8	170
10214886	2PH338	7	2.5	9.7	10.9	257
13117705	2PH320	13	0.5	8.3	9.3	132
	2PH327	13	0.75	9.1	10.3	173
10196679	2PG969	13	1	9.7	10.9	200
10179943	2PG973	13	1.5	11.7	12.9	297
10284566	2PH339	13	2.5	13.3	14.5	454
10243693	2PH321	19	0.5	9.0	10.2	172
	2PH328	19	0.75	10.0	11.2	229
10225486	2PG970	19	1	10.7	11.9	263
10209627	2PG429	19	1.5	13.0	14.2	405
	2PH322	37	0.5	12.3	13.5	311
	2PH329	37	0.75	13.2	14.4	409
10184734	2PH333	37	1	14.0	15.6	473
10122698	2PG971	37	1.5	17.2	18.8	734
	2PH330	48	0.75	14.8	16.4	518

FLAMEX® EN 50306-4 3P MMS

Reference	Country Ref.	Nb. of cores	Cross section [mm²]	Min. outer diam. [mm]	Max. outer diam. [mm]	Approx. weight [kg/km]
10100553	2PG715	2	0.5	4.1	5.3	32
10100703	2PG719	2	0.75	4.5	5.7	39
10097829	2PG414	2	1	4.7	5.9	44
10101868	2PG727	2	1.5	5.7	6.9	64
10140270	2PG732	2	2.5	7.3	8.5	105
10097828	2PG716	3	0.5	4.3	5.5	40
10118167	2PG720	3	0.75	4.7	5.9	49
10097830	2PG415	3	1	5.1	6.2	59
10147567	2PG728	3	1.5	6.0	7.2	84
10101870	2PG733	3	2.5	7.7	8.9	140
10107387	2PG413	4	0.5	4.7	5.9	50
10127311	2PG721	4	0.75	5.2	6.4	64
10097831	2PG724	4	1	5.5	6.7	73
10100640	2PG729	4	1.5	6.6	7.8	108
10125910	2PG734	4	2.5	8.4	9.8	180
10101866	2PG717	6	0.5	5.5	6.8	70
10101867	2PG722	6	0.75	6.1	7.4	90
10122699	2PG725	6	1	6.6	7.9	111
10184926	2PG730	6	1.5	8.3	9.6	167
10178560	2PG718	8	0.5	6.0	7.3	84
10100638	2PG723	8	0.75	6.6	7.9	112
10126216	2PG726	8	1	7.7	9.0	139
10100639	2PH024	12	0.75	8.5	9.5	165
10101869	2PH180	12	1.5	10.6	11.6	280

FLAMEX® EN 50306-4 3E MMS

Reference	Country Ref.	Nb. of cores	Cross section [mm²]	Min. outer diam. [mm]	Max. outer diam. [mm]	Approx. weight [kg/km]
10124282	2PG843	2	0.5	5.5	6.5	50
10136915	2PG848	2	0.75	5.9	6.9	59
10136329	2PG426	2	1	6.2	7.2	65
10136919	2PG855	2	1.5	7.1	8.1	86
10133833	2PG859	2	2.5	8.3	9.3	124
10145847	2PG844	3	0.5	5.7	6.7	59
10174880	2PG849	3	0.75	6.2	7.2	70
10145457	2PG852	3	1	6.5	7.5	81
10140269	2PG856	3	1.5	7.4	8.4	107
10272596	2PH342	3	2.5	8.6	10.2	156
10136914	2PG845	4	0.5	6.1	7.1	70
10136916	2PG850	4	0.75	6.5	7.5	86

Reference	Country Ref.	Nb. of cores	Cross section [mm²]	Min. outer diam. [mm]	Max. outer diam. [mm]	Approx. weight [kg/km]
10136917	2PG427	4	1	6.9	7.9	95
10136920	2PG857	4	1.5	8.0	9.0	135
10140694	2PG860	4	2.5	9.4	10.6	198
10219884	2PG846	6	0.5	6.9	7.9	94
10252450	2PH340	6	0.75	7.5	8.5	115
10193794	2PG853	6	1	8.0	9.0	140
10211904	2PG858	6	1.5	9.2	10.4	190
10145848	2PG847	8	0.5	7.5	8.5	110
10209999	2PG851	8	0.75	8.2	9.2	143
13117337	2PG854	8	1	8.6	9.8	165
10122700	2PH341	8	1.5	10.2	11.4	226

FLAMEX® EN 50306-4 5P MMMS

Reference	Country Ref.	Nb. of cores	Cross section [mm²]	Min. outer diam. [mm]	Max. outer diam. [mm]	Approx. weight [kg/km]
10122701	2PH478	2	0.5	9.0	10.2	110
	2PH482	2	0.75	9.8	11.0	132
10224480	2PH486	2	1	10.2	11.6	142
10114550	2PH490	2	1.5	12.2	13.4	208
	2PH479	3	0.5	9.6	10.8	137
10265119	2PH483	3	0.75	10.5	11.7	169
	2PH487	3	1	10.9	12.3	183
10224531	2PH491	3	1.5	13.1	14.3	268
10143433	2PH480	4	0.5	10.7	12.0	159
	2PH484	4	0.75	11.6	12.8	192
10224525	2PH488	4	1	12.1	13.3	211
10284650	2PH492	4	1.5	14.3	15.9	305
	2PH481	7	0.5	13.0	14.2	251
	2PH485	7	0.75	14.0	15.6	303
	2PH489	7	1	14.6	16.3	353
10265734	2PH493	7	1.5	17.6	19.2	514

FLAMEX® EN 50306-4 5E MMMS

Reference	Country Ref.	Nb. of cores	Cross section [mm²]	Min. outer diam. [mm]	Max. outer diam. [mm]	Approx. weight [kg/km]
10219623	2PH343	2	0.5	10.1	11.3	138
10211639	2PH347	2	0.75	10.9	12.1	162
	2PH351	2	1	11.3	12.5	174
10114565	2PH355	2	1.5	13.3	14.5	246
10191108	2PH344	3	0.5	10.8	12.0	170
10211640	2PH348	3	0.75	11.6	13.0	201

Reference	Country Ref.	Nb. of cores	Cross section [mm²]	Min. outer diam. [mm]	Max. outer diam. [mm]	Approx. weight [kg/km]
10196678	2PH352	3	1	12.0	13.5	215
10136921	2PF781	3	1.5	14.0	15.6	300
10136320	2PH345	4	0.5	11.8	13.0	192
10227465	2PH349	4	0.75	12.8	14.3	231
10225599	2PH353	4	1	13.2	14.7	245
10205948	2PH356	4	1.5	15.5	17.1	349
10227732	2PH346	7	0.5	13.9	15.5	284
10243638	2PH350	7	0.75	15.1	16.9	346
10184735	2PH354	7	1	15.7	17.3	374
10122702	2PG975	7	1.5	18.7	20.5	550

FLAMEX® EN 50306-4 7P MMS

Reference	Country Ref.	Nb. of cores	Cross section [mm²]	Min. outer diam. [mm]	Max. outer diam. [mm]	Approx. weight [kg/km]
10101948	2PG735	2	0.5	6.6	7.9	66
10122929	2PG739	2	0.75	7.1	9.0	86
10105271	2PG743	2	1	7.8	9.5	99
10181979	2PG747	2	1.5	9.8	11.2	133
10119418	2PG736	3	0.5	7.0	8.1	79
10206626	2PG740	3	0.75	7.7	9.2	105
10222378	2PG744	3	1	8.3	9.7	130
10226002	2PG748	3	1.5	10.4	11.4	170
10101947	2PG737	4	0.5	7.7	8.7	103
10206627	2PG741	4	0.75	9.0	10.0	130
10101946	2PG745	4	1	9.1	10.3	150
	2PG749	4	1.5	11.6	12.6	218
10230881	2PG738	7	0.5	9.0	10.6	152
	2PG742	7	0.75	10.8	11.8	202
10216546	2PG746	7	1	11.0	12.4	237
	2PG750	7	1.5	14.0	15.3	365

FLAMEX® EN 50306-4 7E MMS

Reference	Country Ref.	Nb. of cores	Cross section [mm²]	Min. outer diam. [mm]	Max. outer diam. [mm]	Approx. weight [kg/km]
10257965	2PG861	2	0.5	7.1	8.9	85
10276114	2PG864	2	0.75	7.6	10.0	110
10281443	2PG865	2	1	8.3	10.5	125
10136922	2PH363	2	1.5	10.3	12.2	159
10272751	2PG862	3	0.5	7.5	9.1	100
10284096	2PH358	3	0.75	8.2	10.2	128
10224917	2PG866	3	1	8.8	10.7	150

Reference	Country Ref.	Nb. of cores	Cross section [mm²]	Min. outer diam. [mm]	Max. outer diam. [mm]	Approx. weight [kg/km]
	2PH364	3	1.5	11.0	12.4	196
10224287	2PG863	4	0.5	8.3	9.7	125
10284097	2PH359	4	0.75	9.5	10.8	155
10263459	2PH361	4	1	9.6	11.3	176
	2PH365	4	1.5	12.1	13.1	242
	2PH357	7	0.5	9.6	11.6	177
	2PH360	7	0.75	11.4	12.8	226
10181978	2PH362	7	1	11.6	13.4	260
10271943	2PH366	7	1.5	14.5	16.3	382