

REVISIONS RECORD

Version	Date	Create/Change	Revised by	Checked by	Approved by
01	2016-08-19	Initial	Mark chen	Jiaxin Zhang	Ares shi
02	2016-09-28	1. Increase 50501030202100、50501030202100 2. Change Max. Ambient Temperature from 105°C to 90°C	Mark chen	Jiaxin Zhang	Ares shi

1. Applications

FLAMEX EN 50306-4 3P or 3E dedicated to the rolling stock industry, highly recommended for installation in railway vehicles (Locomotives, trains, trolleybuses ...), which are used in the train control system. Material is strictly halogen free, these wires combine the advantages of small size, lightweight, high chemical resistance and high mechanical properties.

Current carrying capacity according to EN 50343.

Cabling rules according to EN 50355.

2. Design

1) Core

Conductor: tinned copper strand, conform to the requirement given in EN 50306-2 table 1
Insulation: FLAMEX SH20 Special halogen free material.
Color: white

2) Filler (Optional)

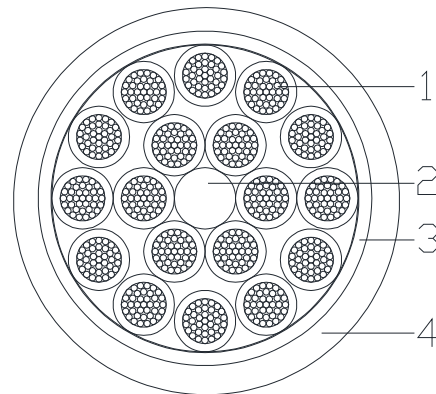
HFFR-polyolefin.

3) Screening

Tinned copper wire braiding according to EN 50306-4 5.4.3.
With separating layer Inside(Optional).

4) Sheath

Material: Special halogen free flame retardant polyolefin.
Color: Black



Standard:

EN 50306
EN45545
BS 6853
NFPA 130
UIN CEI 11170-3

Marking:

FLAMEX 448 EN 50306-4 3P (or 3E) 300V "n x <cross section>" MM S 90 "<YY MM DD>"

Note: P: protected situation, E: exposed situation, M: hazard level, S: screening, YY: year, MM: month, DD: date.



Ambient
Temperature
-40°C to 90°C



Good
Resistance
to UV & humidity



Good
chemical
resistance



Flame retardant



Low Smoke



No corrosive



Non-Toxic



Halogen free

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4. Characteristics

Electrical characteristics	Requirements
1. Rated voltage:	U ₀ /U=300/500V
2. AC- test voltage 5min:	U=2kV
3. Dielectric strength 1h (AC):	U=4kV
4. Spark test(AC 50Hz):	U=3kV
5. DC stability 240h:	V=300V
Mechanical characteristics	Requirements
6. Max. permissible continuous operating temperature on conductor in operation: in short circuit:	90°C/110°C(20000 h) 160°C
7. Min. permissible temperature at the surface Dynamic use Fixed installation	-25°C -40°C
8. Smallest permissible bending radius Fixed installation: Dynamic use	3×D (D - Outer diameter) 5×D (D - Outer diameter)
9. Smoke gas density	Transmission ≥ 70 % EN 50268-2
10. Toxicity	EN 50305, 9.2 toxicity index ITC Insulation < 6, Sheath < 3
11. Acidity (corrosivity) of fire gases	EN 50267-2-2 pH-value ≥ 4.3, Conductivity ≤ 10 μ S/mm
12. Halogen free	EN 50267-2-1, HCl ≤ 0,5 % EN 60684-2-2, fluor content ≤ 0,1 %
13. Ozone resistance of the insulation	EN 60811-2-2, 8 (250 to 300) ppm / 25 °C / 24 h
14. Mineral oil resistance	EN 60811-2-1, 10 IRM 902/100±2 °C/24 h
15. Fuel resistance	EN 60811-2-1, 10 IRM 903/(70±2) °C /168h
16. Acid and alkali resistance	EN 60811-2-1, 10 Test: No-oxalic acid or No-sodium hydroxide solution/23±2oC/168h
17. Bending test at low temperature	EN 60811-1-4, 8.2 Test: Carried out at (-40±2)°C
18. Pressure test at high temperature	EN 60811-3-1, 8.2 (125±2) °C /4h
19. Flame propagation Single	> 50mm, < 540m, EN 5265-2-1
20. Bunched	< 1.5m (D ≤ 6 mm) EN 50305, 9.1.2 < 2.5m (D > 6mm; < 12mm) EN 50305, 9.1.1 < 2.5m (D ≥ 12mm) EN 50266-2-4



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-40°C to 90°C



Good Resistance to UV & humidity



Good chemical resistance



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5. Product list

Cables class P

NEXANS P/N	Designation	Cross section mm ²	Insulation		Minimum thickness of sheath mm	Overall diameter		Average Weight kg/km	Fire load MJ/km	CRCC
			min. mm	max. mm		min. mm	max. mm			
50501030201100	EN 50306-4 3P 2x0.50 MM S	0.5	1.15	1.45	0.42	4.1	5.1	33	327	Yes
50501030202100	EN 50306-4 3P 2x0.50 MM S YE ^①	0.5	1.15	1.45	0.42	4.1	5.1	33	327	—
50501030301100	EN 50306-4 3P 3x0.50 MM S	0.5	1.15	1.45	0.42	4.3	5.3	42	374	Yes
50501030401100	EN 50306-4 3P 4x0.50 MM S	0.5	1.15	1.45	0.42	4.7	5.7	52	436	Yes
50501030500100	EN 50306-4 3P 5x0.50 MM S	0.5	1.15	1.45	0.42	5.0	6.0	54	497	—
50501030600300	EN 50306-4 3P 6x0.50 MM S	0.5	1.15	1.45	0.42	5.5	6.5	73	559	Yes
50501030701100	EN 50306-4 3P 7x0.50 MM S	0.5	1.15	1.45	0.42	5.5	6.5	80	616	—
50501030800200	EN 50306-4 3P 8x0.50 MM S	0.5	1.15	1.45	0.42	6.0	7.0	88	673	Yes
50501031500100	EN 50306-4 3P 15x0.50 MM S	0.5	1.15	1.45	0.56	7.9	9.0	135	790	—
50501032500100	EN 50306-4 3P 25x0.50 MM S	0.5	1.15	1.45	0.56	9.9	10.7	268	2008	—
50501033600100	EN 50306-4 3P 36x0.50 MM S	0.5	1.15	1.45	0.56	11.5	13.5	315	2450	—
50501030201200	EN 50306-4 3P 2x0.75 MM S	0.75	1.35	1.65	0.42	4.5	5.5	41	369	Yes
50501030301200	EN 50306-4 3P 3x0.75 MM S	0.75	1.35	1.65	0.42	4.7	5.7	51	431	Yes
50501030401200	EN 50306-4 3P 4x0.75 MM S	0.75	1.35	1.65	0.42	5.2	6.2	67	507	Yes
50501030600400	EN 50306-4 3P 6x0.75 MM S	0.75	1.35	1.65	0.42	6.1	7.1	94	668	Yes
50501030800500	EN 50306-4 3P 8x0.75 MM S	0.75	1.35	1.65	0.42	7.5	8.1	126	126	—
50501031000300	EN 50306-4 3P 10x0.75 MM S	0.75	1.35	1.65	0.56	8.0	8.6	138	995	—
50501031200400	EN 50306-4 3P 12x0.75 MM S	0.75	1.35	1.65	0.56	8.4	9.6	172	1184	—
50501030201300	EN 50306-4 3P 2x1.00 MM S	1.0	1.45	1.8	0.42	4.7	5.7	46	384	Yes
50501030301300	EN 50306-4 3P 3x1.00 MM S	1.0	1.45	1.8	0.42	5.1	6.0	61	455	Yes
50501030401300	EN 50306-4 3P 4x1.00 MM S	1.0	1.45	1.8	0.42	5.5	6.5	76	526	Yes
50501030500600	EN 50306-4 3P 5x1.00 MM S	1.0	1.45	1.8	0.42	6.0	6.9	86	610	—
50501030600500	EN 50306-4 3P 6x1.00 MM S	1.0	1.45	1.8	0.42	6.6	7.6	116	706	Yes
50501030701200	EN 50306-4 3P 7x1.00 MM S	1.0	1.45	1.8	0.56	6.8	7.8	121	1047	—
50501030800600	EN 50306-4 3P 8x1.00 MM S	1.0	1.45	1.8	0.56	7.7	8.7	145	1146	Yes
50501031600300	EN 50306-4 3P 16x1.00 MM S	1.0	1.45	1.8	0.56	9.7	10.9	212	1033	—
50501032500200	EN 50306-4 3P 25x1.00 MM S	1.0	1.45	1.8	0.56	12.3	13.6	386	1523	—
50501033100100	EN 50306-4 3P 31x1.00 MM S	1.0	1.45	1.8	0.56	13.2	14.6	400	1721	—
50501030201400	EN 50306-4 3P 2x1.50 MM S	1.5	1.95	2.3	0.42	5.7	6.7	67	516	Yes
50501030202200	EN 50306-4 3P 2x1.50 MM S YE ^①	1.5	1.95	2.3	0.42	5.7	6.7	67	516	—
50501030301400	EN 50306-4 3P 3x1.50 MM S	1.5	1.95	2.3	0.42	6.0	7.0	88	621	Yes
50501030401400	EN 50306-4 3P 4x1.50 MM S	1.5	1.95	2.3	0.42	6.6	7.6	113	744	Yes
50501030500200	EN 50306-4 3P 5x1.50 MM S	1.5	1.95	2.3	0.56	7.5	8.1	136	971	—
50501030600600	EN 50306-4 3P 6x1.50 MM S	1.5	1.95	2.3	0.56	8.3	9.3	174	1099	Yes
50501030800700	EN 50306-4 3P 8x1.50 MM S	1.5	1.95	2.3	0.56	8.9	10.1	208	1331	Yes
50501031200500	EN 50306-4 3P 12x1.50 MM S	1.5	1.95	2.3	0.56	10.6	11.6	292	1819	—
50501030201500	EN 50306-4 3P 2x2.50 MM S	2.5	2.5	2.85	0.56	7.3	8.3	109	834	Yes
50501030301500	EN 50306-4 3P 3x2.50 MM S	2.5	2.5	2.85	0.56	7.7	8.7	146	990	Yes
50501030401500	EN 50306-4 3P 4x2.50 MM S	2.5	2.5	2.85	0.56	8.4	9.6	188	1175	Yes
50501030500300	EN 50306-4 3P 5G1.50 MM S*	1.5	1.95	2.3	0.56	7.5	8.1	136	971	—

Note: ① YE meaning yellow core

* meaning include a green-yellow core



Ambient Temperature
-40°C to 90°C



Good Resistance to UV & humidity



Good chemical resistance



Flame retardant



Low Smoke



No corrosive



Non-Toxic



Halogen free

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Cables class E

NEXANS P/N	Designation	Cross section mm ²	Insulation		Minimum thickness of sheath mm	Overall diameter		Average Weight kg/km	Fire load MJ/km	CRCC certification on Product
			min. mm	max. mm		min. mm	max. mm			
50501030201600	EN 50306-4 3E 2x0.50 MM S	0.5	1.15	1.45	1.0	5.5	6.5	52	729	Yes
50501030301600	EN 50306-4 3E 3x0.50 MM S	0.5	1.15	1.45	1.0	5.7	6.7	61	801	Yes
50501030401600	EN 50306-4 3E 4x0.50 MM S	0.5	1.15	1.45	1.0	6.1	7.1	73	891	Yes
50501030600700	EN 50306-4 3E 6x0.50 MM S	0.5	1.15	1.45	1.0	6.9	7.9	98	1071	Yes
50501030800800	EN 50306-4 3E 8x0.50 MM S	0.5	1.15	1.45	1.0	7.5	8.5	115	1284	Yes
50501032500300	EN 50306-4 3E 25x0.50 MM S	0.5	1.15	1.45	1.0	11.0	12.0	257	2672	—
50501030201700	EN 50306-4 3E 2x0.75 MM S	0.75	1.35	1.65	1.0	5.9	6.9	61	810	Yes
50501030301700	EN 50306-4 3E 3x0.75 MM S	0.75	1.35	1.65	1.0	6.2	7.2	73	891	Yes
50501030401700	EN 50306-4 3E 4x0.75 MM S	0.75	1.35	1.65	1.0	6.5	7.5	90	999	Yes
50501030600800	EN 50306-4 3E 6x0.75 MM S	0.75	1.35	1.65	1.0	7.5	8.5	120	1232	Yes
50501030800900	EN 50306-4 3E 8x0.75 MM S	0.75	1.35	1.65	1.0	8.2	9.2	149	1478	Yes
50501031200600	EN 50306-4 3E 12x0.75 MM S	0.75	1.35	1.65	1.0	9.0	10.0	188	1667	—
50501030201800	EN 50306-4 3E 2x1.00 MM S	1.0	1.45	1.8	1.0	6.2	7.2	68	767	Yes
50501030301800	EN 50306-4 3E 3x1.00 MM S	1.0	1.45	1.8	1.0	6.5	7.5	84	976	Yes
50501030401800	EN 50306-4 3E 4x1.00 MM S	1.0	1.45	1.8	1.0	6.9	7.9	99	1108	Yes
50501030600900	EN 50306-4 3E 6x1.00 MM S	1.0	1.45	1.8	1.0	8.0	9.0	127	1364	Yes
50501030701300	EN 50306-4 3E 7x1.00 MM S	1.0	1.45	1.8	1.0	8.0	9.0	145	1487	—
50501030801000	EN 50306-4 3E 8x1.00 MM S	1.0	1.45	1.8	1.0	8.6	9.8	172	1634	Yes
50501030201900	EN 50306-4 3E 2x1.50 MM S	1.5	1.95	2.3	1.0	7.1	8.1	90	1052	Yes
50501030301900	EN 50306-4 3E 3x1.50 MM S	1.5	1.95	2.3	1.0	7.4	8.4	111	1175	Yes
50501030401900	EN 50306-4 3E 4x1.50 MM S	1.5	1.95	2.3	1.0	8.0	9.0	141	1393	Yes
50501030601000	EN 50306-4 3E 6x1.50 MM S	1.5	1.95	2.3	1.0	9.2	10.4	198	1719	Yes
50501030801100	EN 50306-4 3E 8x1.50 MM S	1.5	1.95	2.3	1.0	10.2	11.4	235	2084	Yes
50501030202000	EN 50306-4 3E 2x2.50 MM S	2.5	2.5	2.85	1.0	8.3	9.3	129	1288	Yes
50501030302000	EN 50306-4 3E 3x2.50 MM S	2.5	2.5	2.85	1.0	8.6	9.8	163	1483	Yes
50501030402000	EN 50306-4 3E 4x2.50 MM S	2.5	2.5	2.85	1.0	9.4	10.8	206	1691	Yes

Nexans (Suzhou) Cable Solutions Co., Ltd. 耐克森 (苏州) 电缆系统有限公司. Crossing between Wusong road one and Zongson Road, Wu Songjiang development zone, Wu Zhong District, Suzhou, Jiangsu, China. 苏州市吴中区吴中经济开发区吴淞江科技产业园吴淞一路 215124 Copyright © Nexans Tel: + 86-512-88171200 Fax: + 86-512-88171200



Ambient Temperature
-40°C to 90°C



Good Resistance
to UV & humidity



Good chemical
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