SP 358

Filotex®

Type : 1872 - 872

SPACE CABLES POLYIMIDE INSULATED LIGHT WEIGHT

These cables are intended for space use and could be manufactured with different control levels :

-AQ, AQR or AQS for Space use or
-P for standard use, out of space field

Electrical Characteristics

- Voltage Rating : 600 V. RMS.
- Voltage Test : 100 % Impulse test
  Immersion test on sample
- Insulation resistance (500 V = 1 mn)
  > 750 MΩ x Km. at 20°C
- Insulation resistance (25 mm between Electrodes)
  > 125 MΩ x mm
- Spiral shield with OFHC SPC-Coverage Factor : > 92%

LINE OF PRODUCTS

1872 / 872
1871 / 871

CONSTRUCTION

Cores :

① Stranded conductors OFHC Silver Plated Copper or Copper Alloy (28 to 24 AWG) Silver thickness ≥ 2 µm.

② Wrapped polyimide insulation

③ Mechanical polyimide coating protection.

Above cores could be :

④ Twisted with an overall polyimide jacket.

Shielded and jacketed with one or more cores :

⑤ Spiral shield.

Overall jacket :

Single conductors :

⑥ FEP coated polyimide tape.

⑦ FEP colored topcoat.

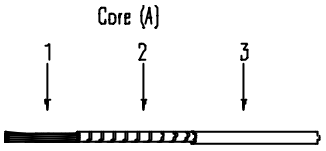
Multiconductors :

⑧ FEP coated polyimide tape.

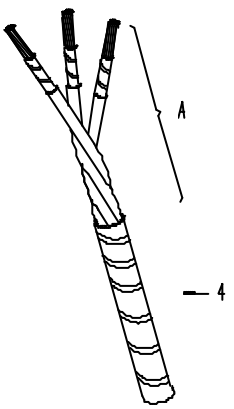
⑨ Sintered PTFE tape.

(See details on next page)

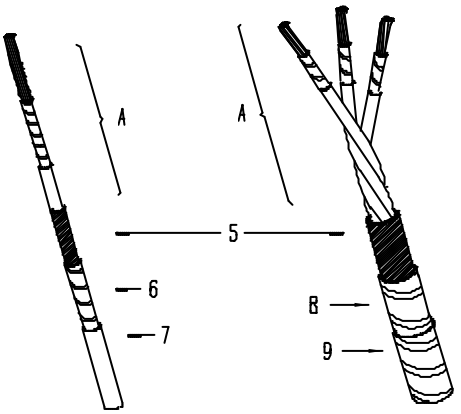
Type : 1872 / 872



Multicore Jacketed



Single and Multicore Shielded and Jacketed



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Details of Construction

Cores :

① *Stranded conductors OFHC Silver Plated Copper or Copper Alloy (28 to 24 AWG) Silver thickness ≥ 2 µm.*

② *Wrapped polyimide insulation : FEP coated polyimide tape (2.5 µm FEP / 25 µm polyimide / 2.5 µm FEP)*

Overlap > 67%

③ *Mechanical polyimide coating protection,nominal wall thickness 25 µm.*

Above cores could be :

④ *Twisted with an overall polyimide jacket :*

FEP coated polyimide tape, (2.5 µm FEP / 25 µm polyimide / 2.5 µm FEP) with 15% min. overlap

Shielded and jacketed with one or more cores :

⑤ *Spiral shield with OFHC SPC Silver thickness ≥ 2 µm. Coverage ≥ 92 %*

Overall jacket :

Single conductors :

⑥ *FEP coated polyimide tape (2.5 µm FEP / 25 µm polyimide / 2.5 µm FEP) Overlap > 50%*

⑦ *FEP Colored topcoat*

Multiconductors :

⑧ *FEP coated polyimide tape (2.5 µm FEP / 25 µm polyimide / 2.5 µm FEP)*

⑨ *Sintered PTFE Tapes.*
(The two tapes are wrapped in reverse direction with a 20% minimun overlap)

* *The shield could also be braided (See SP 458.)*

Thermal Characteristics

▪ Temperature rating	: -100°C at + 200°C (Peak at + 260°C)
▪ Shrinkage	: After 6 Hour at 230°C, Shrinkage < 2 mm.
▪ Blocking	: After 6 Hour at 200°C, No blocking.
▪ Smoke test (1 Hour at 230°C)	: No smoke.
▪ Cold bend	: 4 Hour at - 80°C (On 10 times O.D.)
▪ Heat ageing	: 120 Hour at 230°C.

Physical and Chemical characteristics

▪ Wall thickness of insulation	: 0.11 mm
▪ Concentricity	: Good with a wrapped construction.
▪ Cut-through resistance	: > 12 daN for AWG 26, > 31 daN for AWG 18
▪ Radiation resistance	: No crack, no breakdown under 2 kV after a 1 Mrad radiation dosage.
▪ Vacuum mass loss	: At 200°C on core, Loss < 0.2%.
▪ Fluids resistance	: Solvants, Oils, Hydrocarbons, Skydrol Propellant, Dimethylhydrazine (UDMH)

▪ Non Flammable

These cables are Specially designed to be stripped with thermal device in order to avoid any damage on conductor.

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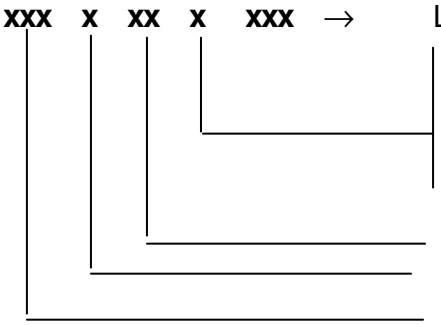
Identification Code :



Level of Control : AQS - AQR - AQ or P
Nothing = Single core.
G = Multiconductor jacketed.
H = Spiral shield and jacket.
Bl l = Braid shield and jacket.

AWG
Number of Conductors
Type Reference : 1872 = Single core
872 = Shielded and jacketed cables.

Exemple : 872 - 1 - 22 - H AQS : Single core 22 AWG Shielded and jacketed with an AQS level of control.

Color Coding

According to ESCC Specification

Wire size (AWG)	Core Color	Jacket Color		Color of Stripes on Jacket
		Single	Shielded	
28	Brown	Amber	White	Brown
26	Black	Amber	White	Black
24	Beige	Amber	Light Blue	White
22	Red	Amber	White	Red
20	Green	Amber	White	Green
18	Yellow	Amber	White	Yellow
16	Brown	Amber	White	Brown
14	Beige	Amber	Light Blue	White
12	Beige	Amber	Light Blue	White

Color and number of colored stripes are linked to the cross section and the number of cores.
For other Color coding, contact our sales departement.
See Page 1 for the ESCC corresponding control level.

Packaging : (For AQS, AQR and AQ Only)

- Minimum length : 30 m
- Cable cleaned, wound on reels with spool hub at least 70 times the maximum external diameter for single wire and 30 times for multiconductor cable.
- The wires spools are heat-sealed into polyethylene bags with a humidity indicator inside Ends are sealed with caps and accesible over a length of 10 cm.

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AWG	Number of Cond.	CHARACTERISTICS OF CONDUCTORS					SINGLE CORES				JACKETED CABLES				SHIELDED AND JACKETED CABLES				
		Cross Section (mm²)	Construction n x mm	Nom. Dia. (mm)	Max. Dia. (mm)	Ohmic Résist. at 20°C (Ω/Km)	Nexans Reference *	Nom. Dia. (mm)	Max. Dia. (mm)	Max. Weight (g/m)	Nexans Reference *	Nom. Dia. (mm)	Max. Dia. (mm)	Max. Weight (g/m)	Nexans Reference *	Screen strands Dia. (mm)	Nom. Dia. (mm)	Max. Dia. (mm)	Max. Weight (g/m)
28	1	0.10	19 X 0.08 S.P.All	0.40	0.43	242	1872-1-28	0.63	0.68	1.23					872-1-28 H	0.08	0.97	1.07	3.05
28	2	0.10	"	"	"	254					1872-2-28 G	1.34	1.43	2.70	872-2-28 H	0.08	1.70	1.80	5.70
28	3	0.10	"	"	"	"					1872-3-28 G	1.43	1.53	3.95	872-3-28 H	0.10	1.82	1.92	8.10
28	4	0.10	"	"	"	"									872-4-28 H	0.10	2.00	2.15	10.15
28	5	0.10	"	"	"	"									872-5-28 H	0.10	2.17	2.27	12.10
26	1	0.15	19 X 0.10 S.P.All	0.50	0.53	148	1872-1-26	0.73	0.78	1.93					872-1-26 H	0.08	1.03	1.13	3.85
26	2	0.15	"	"	"	155					1872-2-26 G	1.54	1.64	4.42	872-2-26 H	0.08	1.89	2.01	8.00
26	3	0.15	"	"	"	"					1872-3-26 G	1.66	1.76	6.45	872-3-26 H	0.10	2.08	2.15	11.20
26	4	0.15	"	"	"	"					1872-4-26 G	1.84	1.94	8.31	872-4-26 H	0.10	2.30	2.40	13.30
26	5	0.15	"	"	"	"					1872-5-26 G	2.04	2.14	10.60	872-5-26 H	0.10	2.50	2.56	17.00
24	1	0.21	19 X 0.12 S.P.All	0.60	0.64	105	1872-1-24	0.83	0.88	2.64					872-1-24 H	0.08	1.13	1.23	4.75
24	2	0.21	"	"	"	110					1872-2-24 G	1.74	1.84	5.91	872-2-24 H	0.10	2.12	2.24	10.50
24	3	0.21	"	"	"	"					1872-3-24 G	1.87	1.97	8.81	872-3-24 H	0.10	2.30	2.36	14.00
24	4	0.21	"	"	"	"					1872-4-24 G	2.08	2.20	11.50	872-4-24 H	0.10	2.59	2.65	16.50
24	5	0.21	"	"	"	"					1872-5-24 G	2.31	2.44	15.20					
22	1	0.38	19 X 0.16 S.P.C.	0.80	0.85	50.9	1872-1-22	1.03	1.08	4.25					872-1-22 H	0.08	1.33	1.43	6.86
22	2	0.38	"	"	"	53.5					1872-2-22 G	2.14	2.24	9.41	872-2-22 H	0.10	2.53	2.65	14.80
22	3	0.38	"	"	"	"					1872-3-22 G	2.30	2.40	14.30	872-3-22 H	0.10	2.73	2.82	20.20
22	4	0.38	"	"	"	"									872-4-22 H	0.12	3.10	3.17	26.40
20	1	0.60	19 x 0.20 S.P.C.	1.00	1.04	32.2	1872-1-20	1.23	1.28	6.49					872-1-20 H	0.08	1.53	1.63	9.43
20	2	0.60	"	"	"	33.8					1872-2-20 G	2.54	2.64	14.20	872-2-20 H	0.10	2.91	3.03	20.20
20	3	0.60	"	"	"	"					1872-3-20 G	2..74	2.84	21.10	872-3-20 H	0.12	3.20	3.26	29.40
20	4	0.60	"	"	"	"									872-4-20 H	0.15	3.60	3.70	38.80
18	1	0.93	19 x 0.25 S.P.C.	1.25	1.29	20.6	1872-1-18	1.48	1.53	9.79					872-1-18 H	0.10	1.82	1.92	13.80
18	2	0.93	"	"	"	21.6					1872-2-18 G	3.05	3.15	21.30	872-2-18 H	0.12	3.46	3.58	29.60
18	3	0.93	"	"	"	"					1872-3-18 G	3.27	3.40	31.60	872-3-18 H	0.15	3.79	3.86	44.10
16	1	1.3	19 x 0.30 S.P.C.	1.50	1.53	14.3	1872-1-16	1.73	1.80	13.80					872-1-16 H	0.10	2.06	2.21	18.40
16	2	1.3	"	"	"	15					1872-2-16 G	3.55	3.70	30.30	872-2-16 H	0.15	4.03	4.20	39.90
16	3	1.3	"	"	"	"					1872-3-16 G	3.81	3.96	45.50	872-3-16 H	0.15	4.33	4.50	57.60
14	1	1.9	27 x 0.30 S.P.C.	1.77	1.87	10.1	1872-1-14	2.00	2.10	19.4					872-1-14 H	0.12	2.37	2.55	26.50
14	2	1.9	"	"	"	10.6					1872-2-14 G	4.09	4.24	42.90	872-2-14 H	0.15	4.55	4.75	55.20
14	3	1.9	"	"	"	"					1872-3-14 G	4.39	4.54	64.00	872-3-14 H	0.15	4.91	5.10	82.70
12	1	3.2	45 x 0.30 S.P.C.	2.30	2.40	6.03	1872-1-12	2.53	2.70	31.80					872-1-12 H	0.15	2.96	3.16	43.00
12	2	3.2	"	"	"	6.33					1872-2-12 G	5.15	5.50	70.00	872-2-12 H	0.20	5.71	5.95	90.00
12	3	3.2	"	"	"	"					1872-3-12 G	5.53	5.90	105.00	872-3-12 H	0.20	6.15	6.40	126.40

S.P.All. = Silver Plated Copper Alloy -- S.P.C. = Silver Plated Copper

Final Production Control : According to ESCC. 3901/002*

* Add the control level symbol (AQS - AQR - AQ or P).

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NEXANS and ESCC CROSS REFERENCES

NEXANS P/N	ESCC COMPONENT/NUMBER
1872 - 1 - 28 *	3901 . 002 . 61 *
1872 - 1 - 26 *	3901 . 002 . 56 *
1872 - 1 - 24 *	3901 . 002 . 57 *
1872 - 1 - 22 *	3901 . 002 . 58 *
1872 - 1 - 20 *	3901 . 002 . 59 *
1872 - 1 - 18 *	3901 . 002 . 60 *
1872 - 1 - 16 *	
1872 - 1 - 14 *	
1872 - 1 - 12 *	

NEXANS P/N	ESCC COMPONENT/NUMBER
872 - 1 - 28 H *	3901 . 002 . 64 *
872 - 1 - 26 H *	3901 . 002 . 41 *
872 - 1 - 24 H *	3901 . 002 . 42 *
872 - 1 - 22 H *	3901 . 002 . 43 *
872 - 1 - 20 H *	3901 . 002 . 44 *
872 - 1 - 18 H *	3901 . 002 . 45 *
872 - 1 - 16 H *	
872 - 1 - 14 H *	
872 - 1 - 12 H *	

1872 - 2 - 28 G *	3901 . 002 . 62 *
1872 - 2 - 26 G *	3901 . 002 . 31 *
1872 - 2 - 24 G *	3901 . 002 . 32 *
1872 - 2 - 22 G *	3901 . 002 . 33 *
1872 - 2 - 20 G *	3901 . 002 . 34 *
1872 - 2 - 18 G *	3901 . 002 . 35 *
1872 - 2 - 16 G *	
1872 - 2 - 14 G *	
1872 - 2 - 12 G *	

872 - 2 - 28 H *	3901 . 002 . 65 *
872 - 2 - 26 H *	3901 . 002 . 46 *
872 - 2 - 24 H *	3901 . 002 . 47 *
872 - 2 - 22 H *	3901 . 002 . 48 *
872 - 2 - 20 H *	3901 . 002 . 49 *
872 - 2 - 18 H *	3901 . 002 . 50 *
872 - 2 - 16 H *	
872 - 2 - 14 H *	
872 - 2 - 12 H *	

1872 - 3 - 28 G *	3901 . 002 . 63 *
1872 - 3 - 26 G *	3901 . 002 . 36 *
1872 - 3 - 24 G *	3901 . 002 . 37 *
1872 - 3 - 22 G *	3901 . 002 . 38 *
1872 - 3 - 20 G *	3901 . 002 . 39 *
1872 - 3 - 18 G *	3901 . 002 . 40 *
1872 - 3 - 16 G *	
1872 - 3 - 14 G *	
1872 - 3 - 12 G *	

872 - 3 - 28 H *	3901 . 002 . 66 *
872 - 3 - 26 H *	3901 . 002 . 51 *
872 - 3 - 24 H *	3901 . 002 . 52 *
872 - 3 - 22 H *	3901 . 002 . 53 *
872 - 3 - 20 H *	3901 . 002 . 54 *
872 - 3 - 18 H *	3901 . 002 . 55 *
872 - 3 - 16 H *	
872 - 3 - 14 H *	
872 - 3 - 12 H *	

1872 - 4 - 26 G *	
1872 - 4 - 24 G *	
1872 - 4 - 20 G *	

872 - 4 - 28 H *	3901 . 002 . 67 *
872 - 4 - 26 H *	3901 . 002 . 68 *
872 - 4 - 24 H *	3901 . 002 . 69 *
872 - 4 - 22 H *	3901 . 002 . 70 *
872 - 4 - 20 H *	3901 . 002 . 71 *

1872 - 5 - 26 G *	
1872 - 5 - 24 G *	

872 - 5 - 28 H *	3901 . 002 . 72 *
872 - 5 - 26 H *	3901 . 002 . 73 *

* = The reference shall be completed with a letter or a group of letters indicating the control level

NEXANS	ESCC
AQS	B1
AQR	B2
AQ	B3
P	For orders without any reference to ESCC specification .

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ISSUE	DATE	PAGE	CHANGE
Origin	March/75		
A	June/78	1-2-4 3 5	Gathering of single,multiconductors and shielded jacketed Performances added ESA/SCC references added
B	August/78	1 2 2 3	Braided shield possibility added Packaging for AQS and AQ added Brown 16 AWG instead of Orange Change in temperature rating -100 to + 200°C instead of -80 to + 200°C
C	June/79	2-4-5	AQR level added
D	July/79	3	Nitrogen tetroxide cancelled
E	July/86	1 4-5	Silver thickness 2µm instead of 1.5µm Variants 26 to 43 added
F	March/89	1 2 4 5	Change nature of polyimide tape on jackets AWG 28 color added AWG 28 nominal diameter changed (0.63 instead of 0.40) Variants number 31 to 73 instead of 01 to 43
G	Jan./98	ALL	New presentation - English version.
H	Jan./00	2 to 5	Typing correction 4 new Variants added.
I	Sep/03	3 to 5	Transfer of the ESA/SCC System to the ESCC System Ref : QCS/AJG/030508 dated 2003-05-12

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