

ESOTERIC

Esoteric
MEXCEL
Cable



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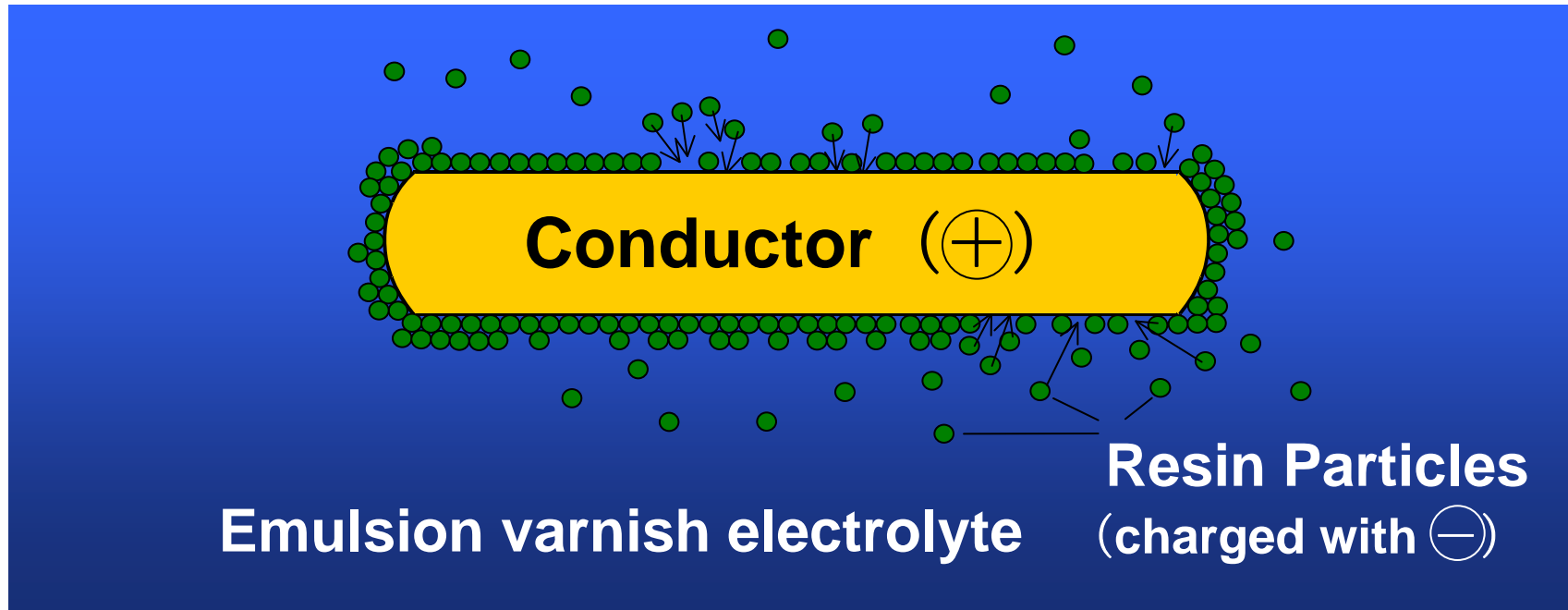
What is “MEXCEL”?

“MEXCEL” is the fine conductor technology incorporating “MEDIS” electro-coating insulation. (MEDIS: Mitsubishi Electro-Deposition Insulating System).

“MEDIS” is a electro-coating technology applying very even insulation layers to the conductor surface.

“MEDIS” electro-coating technology

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- Electro-coating process provides exceptionally even coating to the surface.
- Corner surface is coated with extra “passes” creating a thicker coating.
- **Conventional “dip-coating” process cannot provide an even coating surface, especially at the corners.**

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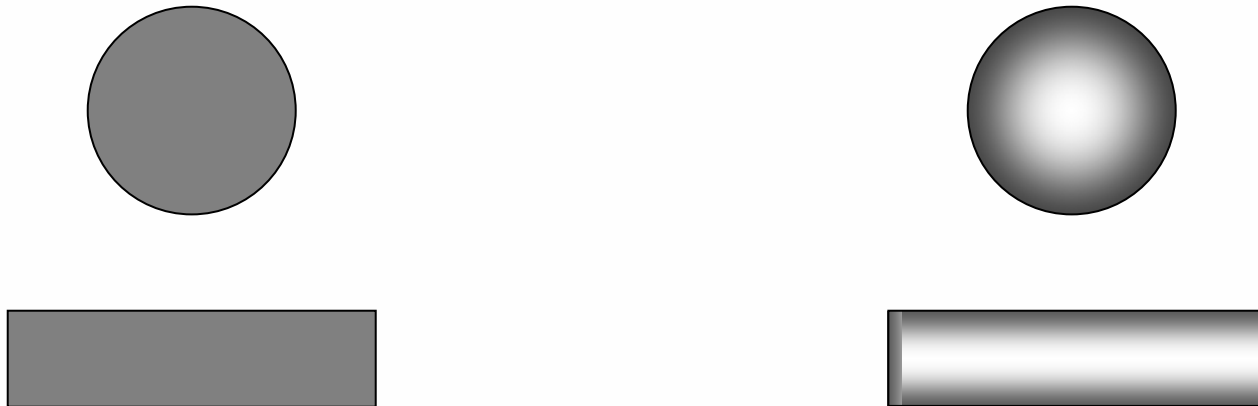
“Skin Effect”

“Higher frequency runs on the surface of the conductor.”

Negative factors of “skin effect” are;

- Reduced effective-cross-section-area of higher frequency signal path.
- The higher the frequency, the higher the resistance.
- Frequency-dependent, unstable signal impedance response.

Lower frequency (runs in the conductor equally) Higher frequency (runs on the surface)



Skin Depth

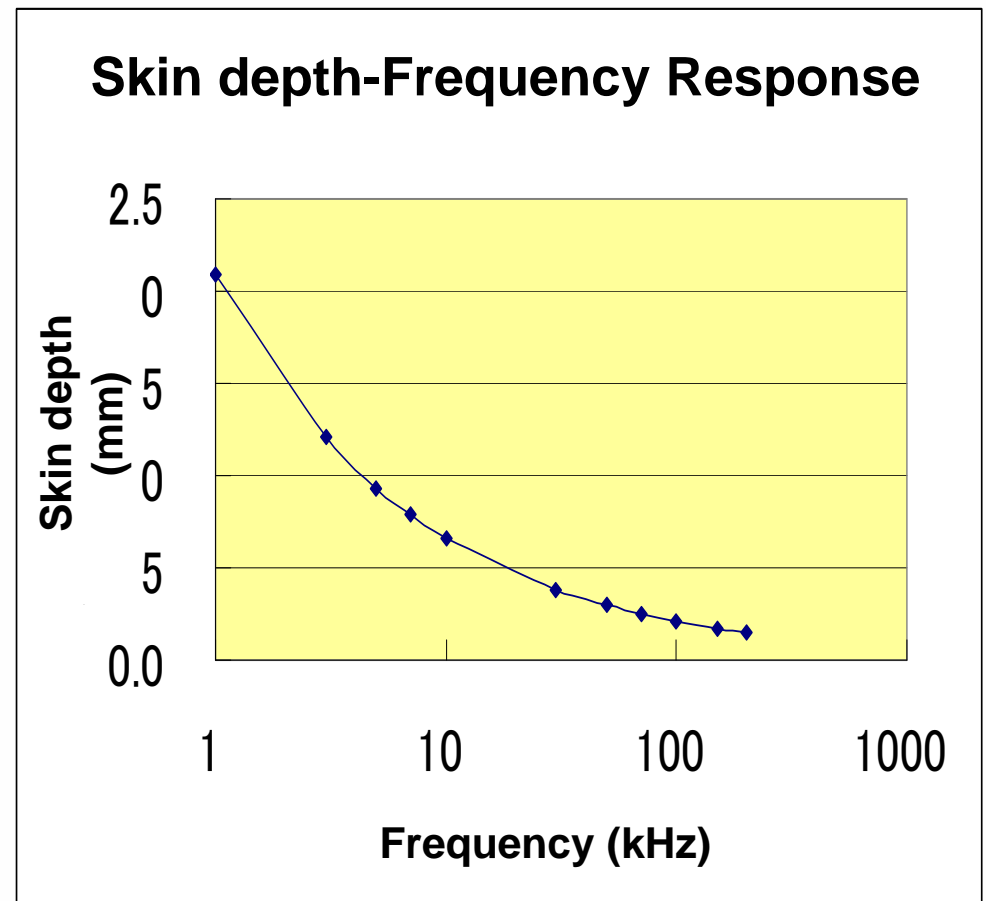
skin depth δ (m) = $\sqrt{2 / \omega \mu \sigma}$

ω : $2 \pi f$ (f: frequency)

μ : magnetic induction rate ($4 \pi \times 10^{-7}$)

σ : electro induction rate (Cu: 58×10^6)

Frequency [kHz]	Skin depth [mm]
1	2.090
3	1.206
5	0.934
7	0.790
10	0.661
30	0.381
50	0.296
70	0.250
100	0.209
150	0.171
200	0.148

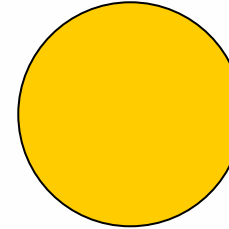


Flat Wire vs. Round Wire

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2mm width × 0.1mm thickness



0.5mm ϕ

Cross section area size

Flat wire = Round wire

Circumference size

Flat wire (4.2 mm) > Round wire (1.57 mm)

Flat wire is more than twice as large!

This means that flat wire reduces the skin effect resulting in;

- Lower resistance through the entire frequency range
- Ultra stable signal impedance response

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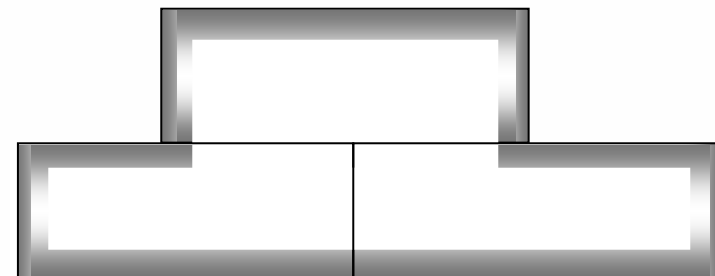
Insulation Effect

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The flat wire effectively reduces the skin effect in combination with proprietary MEDIS insulation technology.



With MEDIS coating



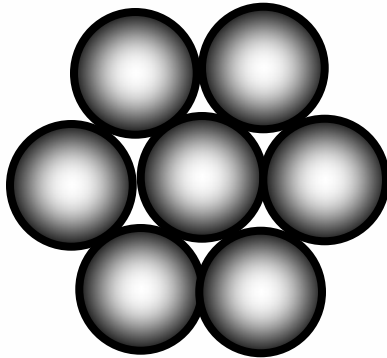
Without MEDIS, skin area is reduced

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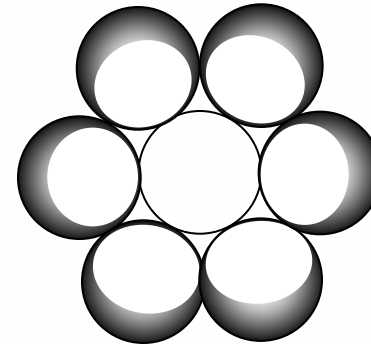
Insulation Effect

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The MEDIS insulation is also effective in round wire configuration in that it has a larger skin area.



With MEDIS coating

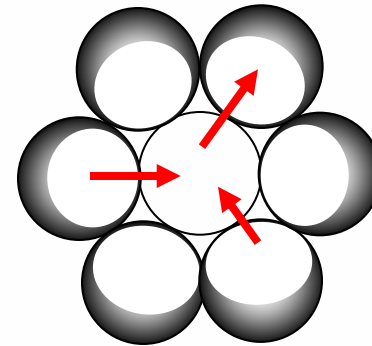
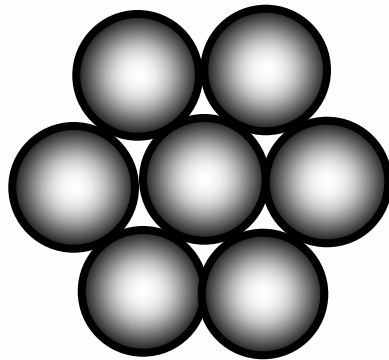
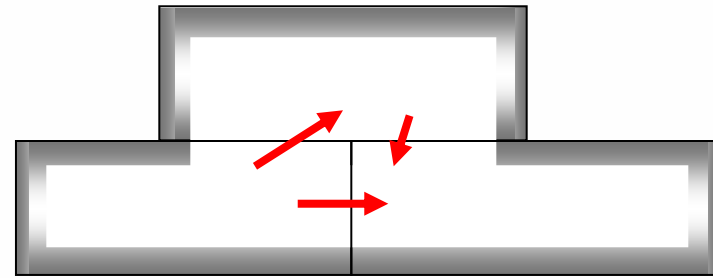
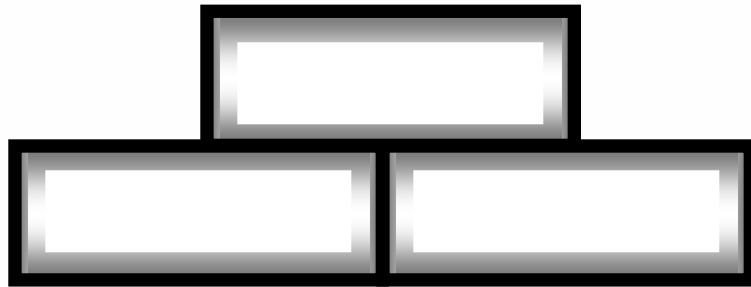


Without MEDIS, the skin area is reduced

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Insulation Effect

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**Unwanted “signal jump” between wire causes signal distortion.
With MEDIS insulation, MEXCEL is free from signal jump!**

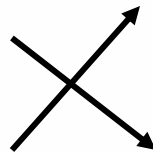
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Spiral Braiding Conductor

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Spiral braiding effectively cancels the magnetic field generated by current.

Spiral braiding



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MEDIS electro-coating insulation

- Reduced “skin effect”
Ultra low resistance even at high frequency
- Exceptionally flat impedance response
through the entire frequency range **(up to 18GHz) !!**
- Wide range signal transfer
- Low distortion due to no signal jumping
between wires

Flat wire braiding

- Further improvement for “skin effect” reduction
- Perfect shielding from RF generated noise



MEXCEL Cable

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High purity 7N Copper (Cu) conductor

- 99.99999% purity / less-than-0.01 ppm of metallic impurities
- Ultimate level quality control (“GD-MS” material analysis technology).
- “Stress free” annealing (special temperature control)

Audiophile cable design

- Low-dielectric insulation (PTFE, specially treated polyethylene, polyolefin, etc)
- UV resistant polyurethane jacket



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MEXCEL Lineup

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Digital/Analog Interconnect Cable

7N-DA6000 MEXCEL

7N-DA6100 MEXCEL

7N-A2500 MEXCEL

7N-DA5100 MEXCEL

Speaker Cable

7N-S10000 MEXCEL

7N-S9000 MEXCEL

AC Power Cable

7N-PC9100 MEXCEL



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Digital / Analog Interconnect Cable

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7N-DA6000 : diameter 9.3mm

7N-DA6100 : diameter 10.9mm



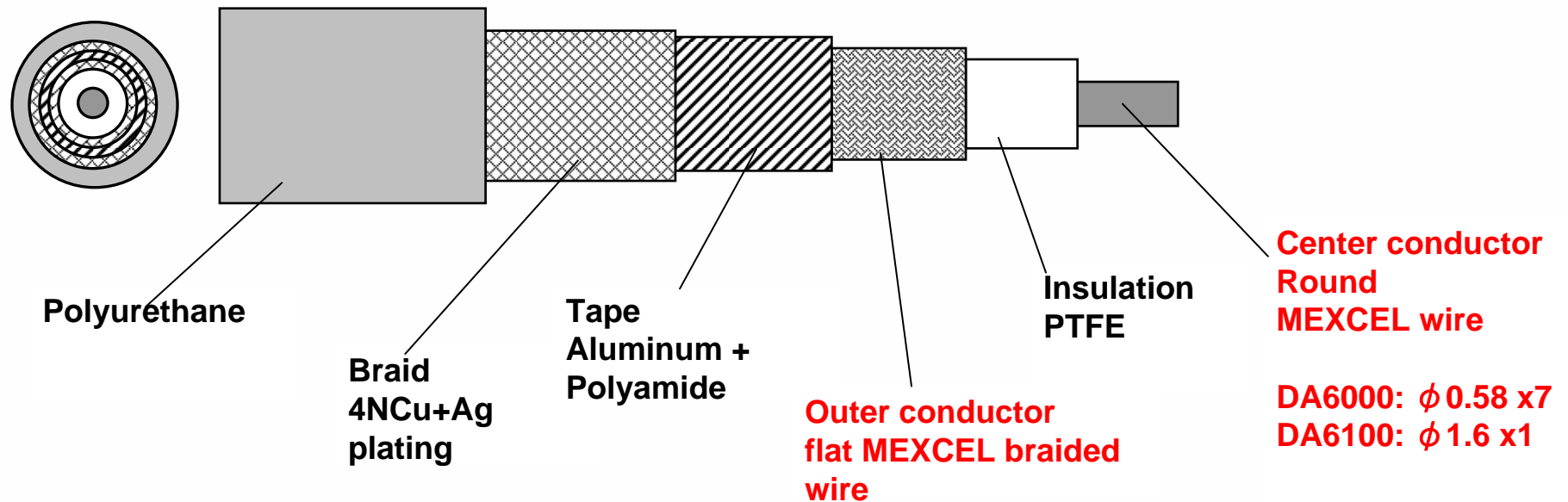
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Digital / Analog Interconnect Cable

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7N-DA6000: diameter 9.3mm

7N-DA6100: diameter 10.9mm

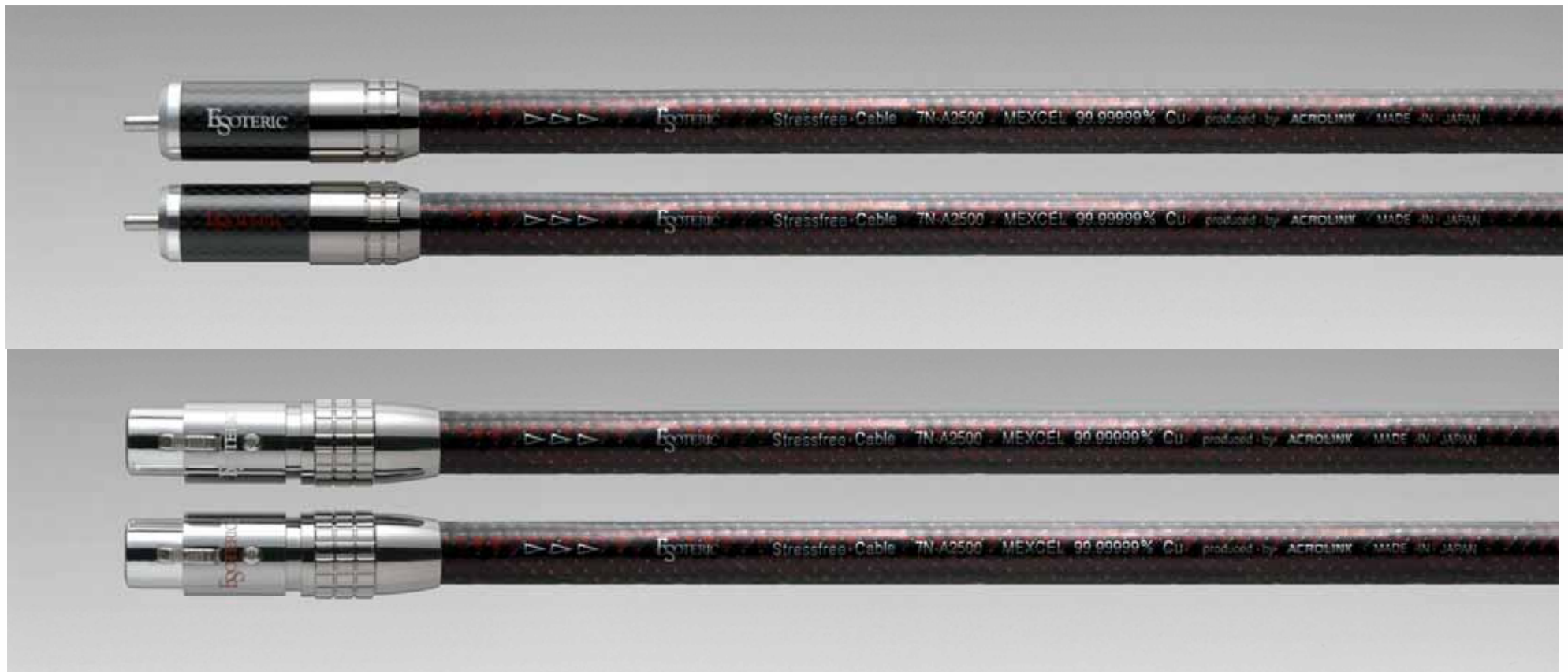


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7N-A2500 : diameter 11.0 mm

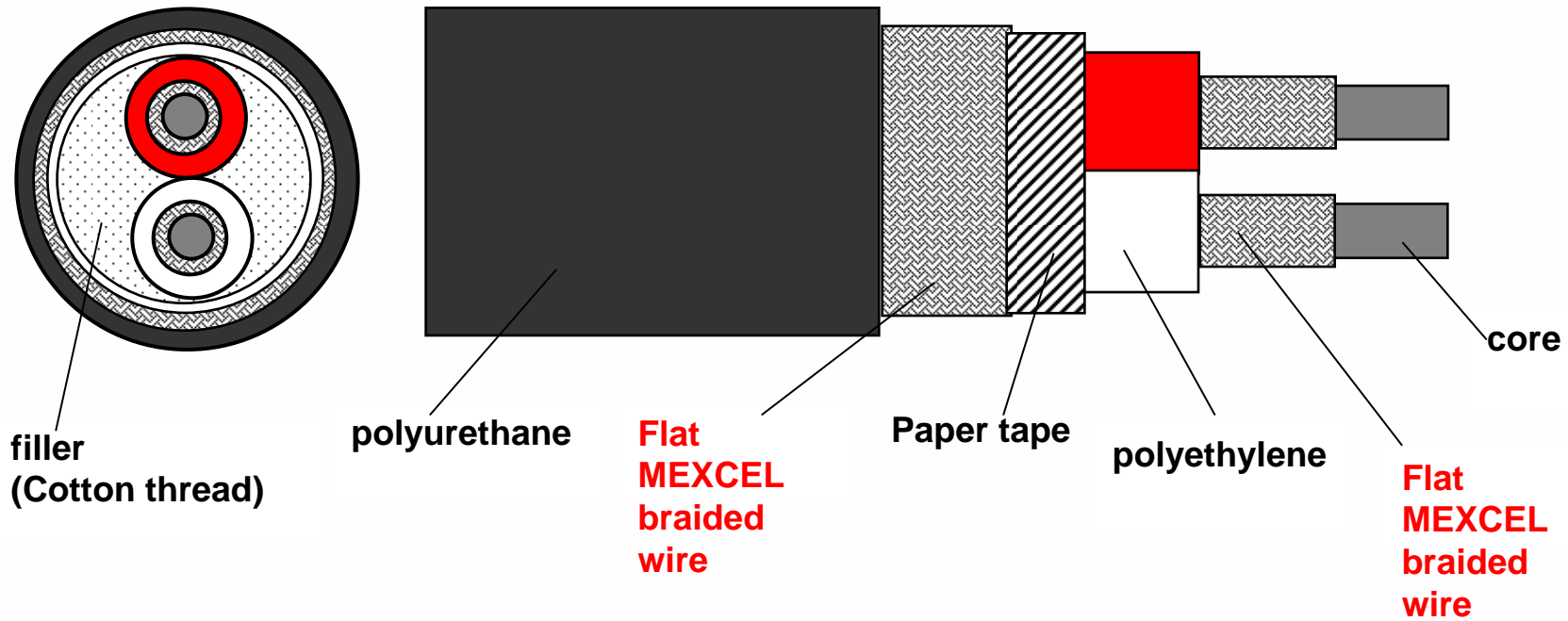


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7N-A2500: diameter 11.0 mm

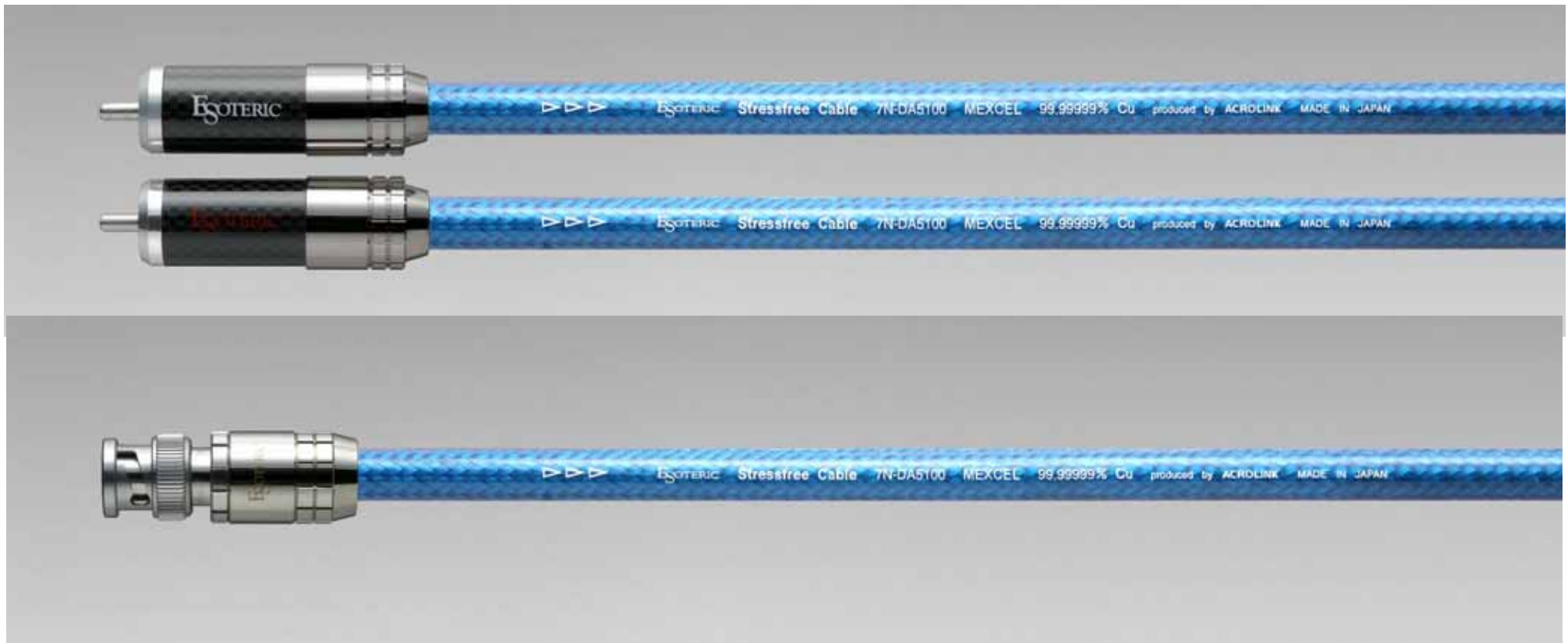


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Digital / Analog Interconnect Cable

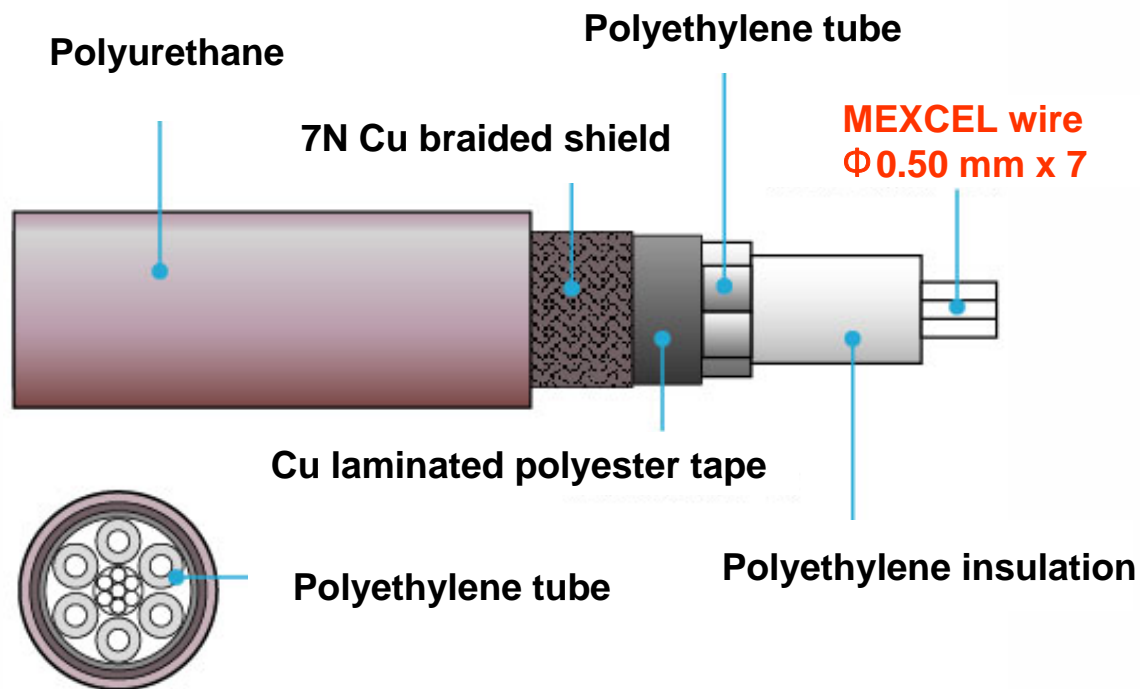
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7N-DA5100 : diameter 10.4 mm



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7N-DA5100: diameter 10.4mm



The “air” is the ultimate insulation material for its lowest dielectric properties.

With “air” tubes, 7N-DA5100 MEXCEL features high flexibility and extremely low dielectric and capacitance.

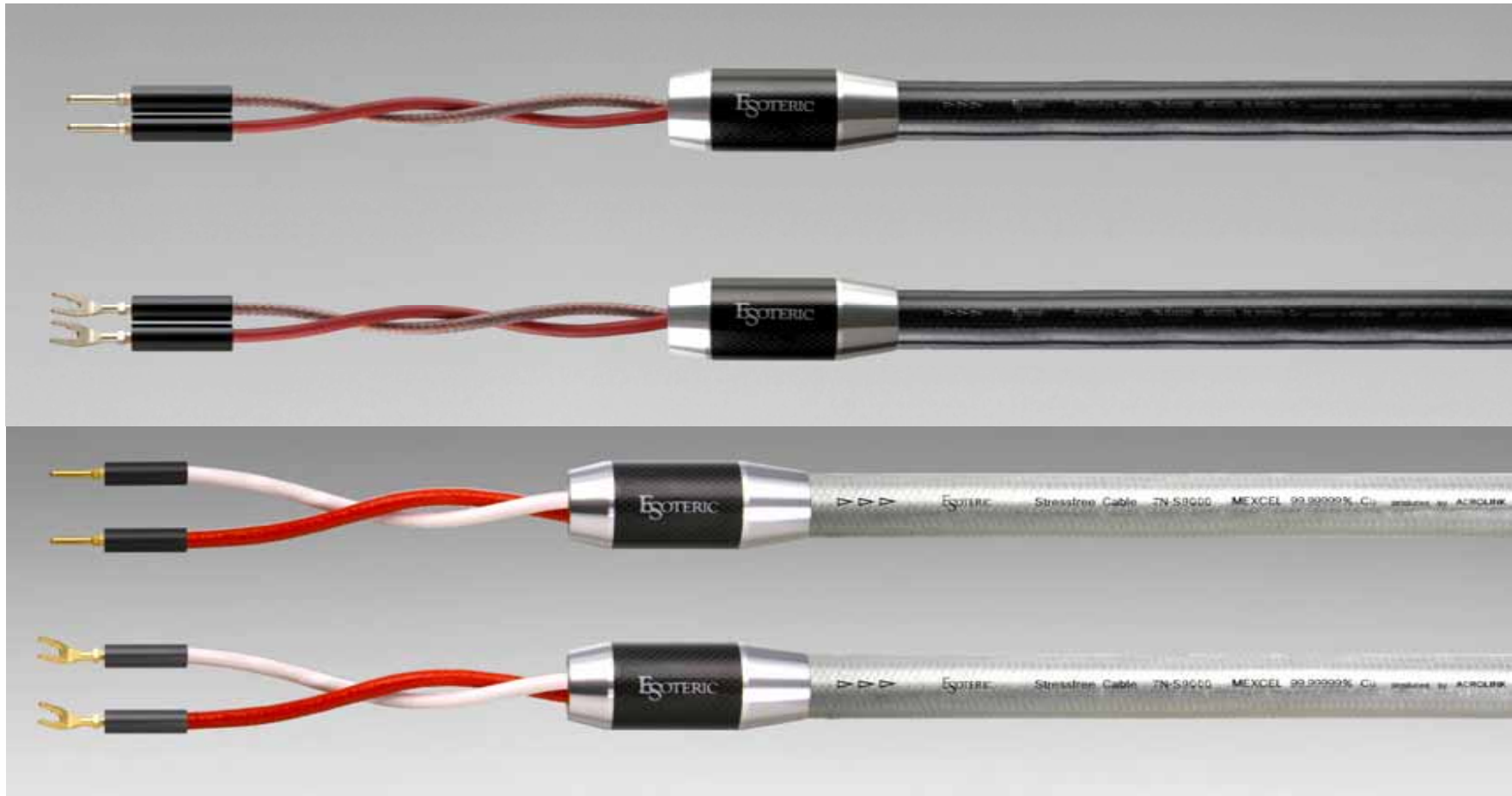
The core conductor is round MEXCEL wire.

Speaker Cable

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7N-S10000 : diameter 20.0 mm

7N-S9000 : diameter 21.0 mm

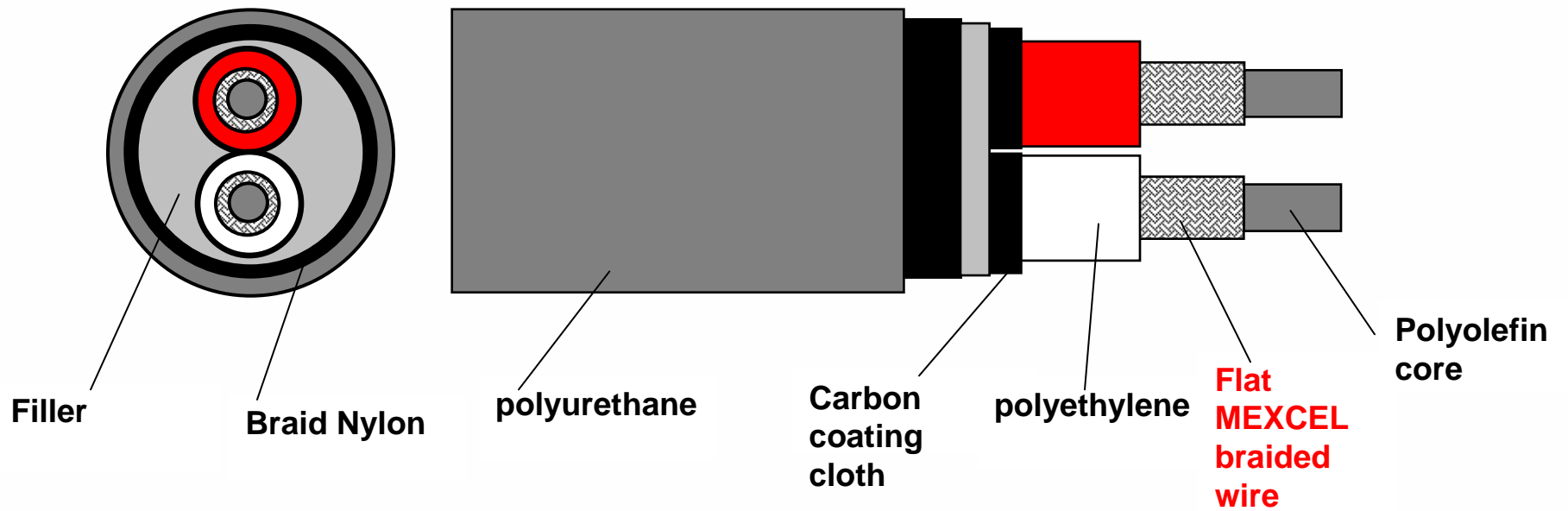


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Speaker Cable

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7N-S10000 : diameter 20.0 mm



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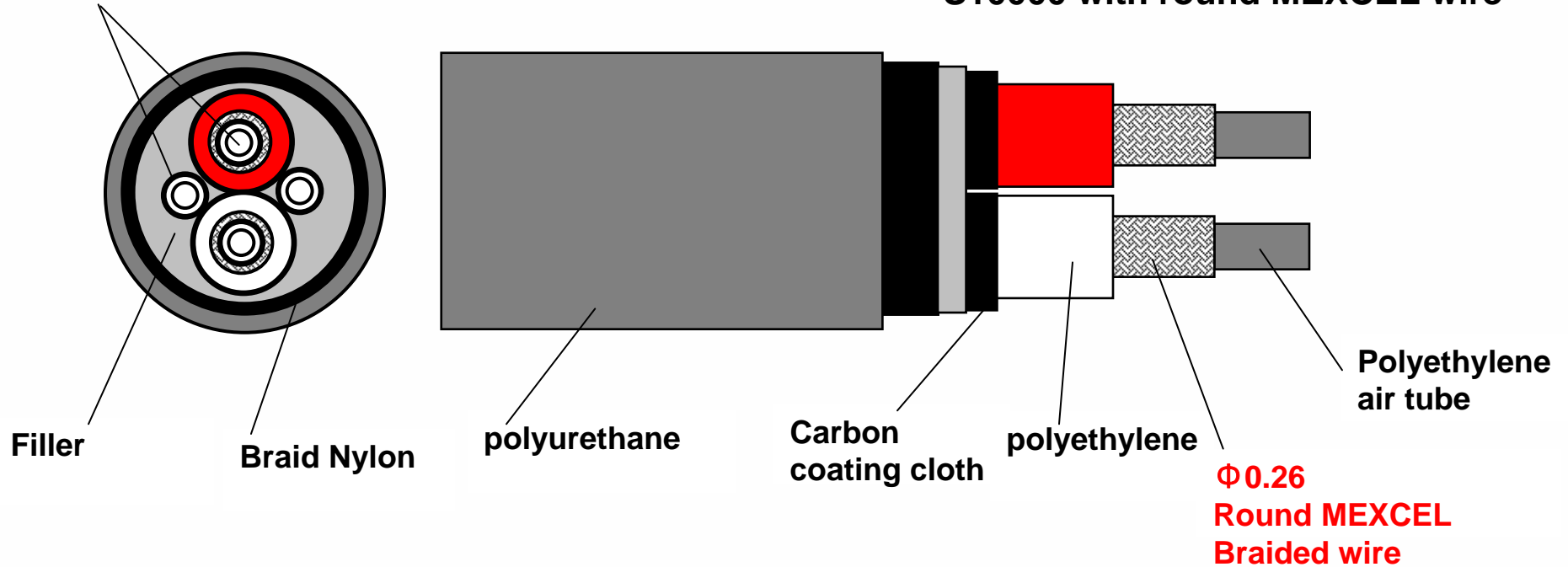
Speaker Cable

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7N-S9000 : diameter 21.0 mm

Polyethylene
air tube

The "air" insulation version of the 7N-
S10000 with round MEXCEL



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AC Power Cable

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7N-PC9100 : diameter 15.5 mm



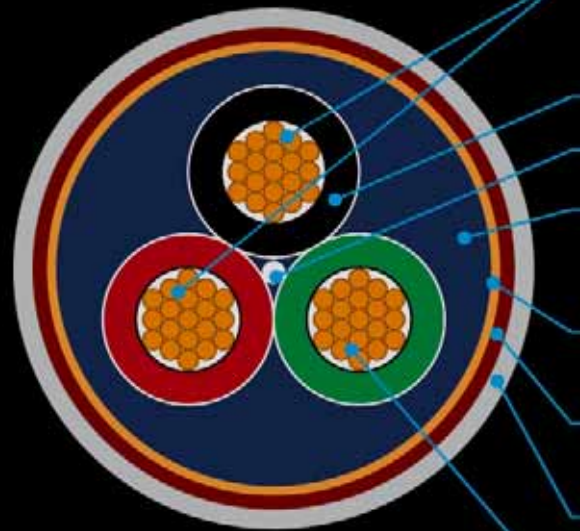
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AC Power Cable

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7N-PC9100 : diameter 15.5 mm

7N-PC9100構造図



Stress free 7N Cu MEXCEL
 $\Phi 0.32 \text{ mm} \times 50$

Polyolefin Insulation
Electromagnetic absorption thread

Filler (Polyolefin + tungsten powder
+ amorphous powder + carbon powder)

Copper tape shielding

Braided Urethane Enameled Copper

UV resistant polyurethane

Stress free 4.5N Cu ground wire
 $\Phi 3.2 \text{ mm} \times 50$

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