

**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

YD/T 723.1-2007

**Laminated Metal Plastic Strip for Communication Cable and
Optical Fibre Cable. Part 1: General**

通信电缆光缆用金属塑料复合带 第1部分：总则

(English Translation)

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1 Scope

This Part of YD/T 723-2007 specifies the types, specifications, requirements and test methods for laminated metal plastic strip/foil used for communication cable and optical fiber cable.

This Part applies to laminated metal plastic strip/foil used for communication cable and optical fiber cable.

2 Normative References

The clauses of the following documents become clauses of this Part of YD/T 723-2007 through reference in this Part. For dated references, subsequent amendments (excluding corrigenda) or revisions do not apply to this Part. However, parties to agreements based on this Part are encouraged to investigate the possibility of applying the latest editions of these documents. For undated references, the latest edition applies to this Part.

GB/T 228-2002 Metallic Materials - Tensile Testing at Ambient Temperature (eqv ISO 6892.1998)

GB/T 1408.1-1999 Methods of Test for Electric Strength of Solid Insulating Materials - Tests at Power Frequencies (eqv IEC 60243-1.1988)

GB/T 3978-1994 Standard Illuminants and Illuminating-viewing Conditions

GB/T 6672-2001 Plastic Film and Sheeting - Determination of Thickness by Mechanical Scanning (idt ISO 4593.1993)

GB/T 8808-1988 Test Method for Peel Force of Flexible Laminated Plastics

GB/T 10006-1988 Plastics - Film and Sheeting - Determination of the Coefficients of Friction (idt ISO 8295-1986)

YD/T 839-2000 Filling Compounds and Flooding Compounds for Telecommunication Cable and Optical Fiber Cable

3.1.1 Classification of laminated metal plastic strip

In accordance with metal type, it can be classified into aluminum strip, chromium-plated steel strip, stainless steel strip, copper strip.

In accordance with plastic type, it can be classified into copolymer type, polyethylene type.

In accordance with the number of laminated layers, it can be classified into single-sided lamination, double-sided lamination.

NOTE: (1) A distinction in specifications is made between laminated metal plastic strip and laminated metal plastic foil. Products with a metal layer thickness of 0.10 mm or greater are designated as laminated strip, while those with a thickness of less than

0.10 mm are designated as laminated foil; the type code does not differentiate between them.

(2) For the type classification of laminated metal plastic foil, refer to Part 5 of this Standard.

3.1.2 Type designation method

The type designation consists of three parts.

3.1.3 Provisions for type codes

The provisions for type codes are given in Table 1.

NOTE: for the type code of laminated metal plastic foil, refer to Part 5 of this Standard.

3.2.1 Classification of specifications

Classified by the nominal thickness, nominal width, and nominal length of the metal layer. For detailed specifications, refer to other parts of this Standard.

3.2.2 Specification designation method

The specification designation method is shown in Figure 1.

Figure 1 -- Specification Designation Method

4 Requirements

The requirements for laminated aluminum plastic strip, laminated steel plastic strip, laminated copper plastic strip, and laminated metal plastic foil are respectively specified in Part 2, Part 3,

Part 4, and Part 5 of this Standard.

5.1 Test Conditions

Unless otherwise specified, tests shall be conducted at room temperature. In cases of arbitration, tests shall be conducted in an environment with a temperature of $(23 \pm 2) ^\circ\text{C}$ and a humidity of no more than 75%.

5.2.1 Appearance

Appearance shall be visually inspected under normal natural light or under standard illuminant

D65 as specified in GB/T 3978-1994.

5.2.2 Thickness

Use a thickness gauge or micrometer for measurement. Cut the specimen from a location 3 to

5 m away from the end of the material; the specimen length shall be no less than 200 mm. Use a single specimen. Measurement accuracy and procedures shall comply with the requirements of GB/T 6672-2001. For single-sided laminated metal plastic strip/foil, respectively measure T2 and T3; for double-sided laminated metal plastic strip/foil, respectively measure T1, T2 and T3, as shown in Figure 2. The thickness of the single-sided or double-sided plastic layer can be respectively calculated in accordance with T1, T2 and T3, while the metal layer thickness is given by T3. Six points evenly distributed on each specimen shall be measured; if any of these six points fails to meet the requirements, the test is considered a failure.

Figure 2 -- Schematic Diagram of Thickness Measurement

5.2.3 Width

For slit laminated metal plastic strip/foil, use a vernier caliper with a minimum division value of 0.02 mm for measurement. For unslit laminated metal plastic strip/foil, use a steel ruler for measurement and record the width of the metal layer as the measurement result. The specimen length shall be no less than 1,000 mm. Use a single specimen. Six points evenly distributed on each specimen shall be measured; if any of these six points fails to meet the requirements, the test is considered a failure.

5.2.4.1 During manufacturing, use a length counter for measurement. The measurement error

for length shall be within the range of 0% to 1%.

5.2.4.2 Measurement by weighing method. for slit laminated metal plastic strip/foil, cut a

specimen with a length of $(1,000 \pm 2)$ mm and a width equal to the slit width; use a balance with a minimum division value of 0.1 g for measurement and record the weight as G_0 . Use a platform scale with a minimum division value of 100 g to weigh the net weight of a full reel of the laminated metal plastic strip/foil and record it as G . Then, calculate the length L of the laminated metal plastic strip/foil in accordance with Formula (1).

Where,

L ---the length of the laminated metal plastic strip/foil, expressed in (m);

G ---the net weight of a reel of laminated metal plastic strip/foil, expressed in (kg);

G_0 ---the weight per 1,000 mm of the laminated metal plastic strip/foil, expressed in (g/m).

For unslit laminated metal plastic strip/foil, cut a specimen with a length of (100 ± 0.5) mm and a width equal to that of the laminated metal plastic strip/foil; use a balance with a minimum division value of 0.1 g to weigh it and record the result as G_{01} ; use a platform scale with a minimum division value of 100 g to weigh the net weight of a reel of the laminated metal plastic strip/foil and record the result as G_1 ; then, calculate the length L of the laminated metal plastic strip/foil in accordance with Formula (2).

5.3 Tensile Strength, Yield Strength, and Elongation at Break

Tensile strength, yield strength, and elongation at break shall be tested in accordance with GB/T

228-2002.

The specimen width is 25.4 mm; for laminated stainless steel plastic strip specimens, the width is 12.5 mm, with a length of 150 mm and an original gauge length of 50 mm. When the actual width of the slit laminated metal plastic strip/foil is less than the specified value, specimens with the actual slit width may be used for testing. Six specimens shall be tested. The tensile rate is (50 ± 10) mm/min. Tensile strength and yield strength shall be calculated based on the cross-sectional area of the metal layer, and the upper yield strength value shall be taken as the yield strength. Elongation at break shall be calculated at the point of metal fracture. Test results shall be expressed as the average value of the six specimens.

5.4.1 Specimen

Take six specimens along the longitudinal direction of the laminated metal plastic strip/foil, each with a length of 150 mm and a width of (25.4 ± 0.2) mm. Separate the plastic layer from the metal layer. When separating, use a knife to make a scratch 20 mm away from the end of the specimen. For single-sided laminated metal plastic strip/foil, make a distinct mark