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

GB/T 9573-2013

**Rubber and plastics hoses and hose assemblies -- Methods of
measurement of the dimensions of hoses and the lengths of
hose assemblies**

(English Translation)

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Foreword

This Standard is drafted according to the rules given in the GB/T 1.1-2009.

This Standard replaces GB/T 9573-2003 "Rubber or plastics hoses and hose assemblies - Methods of measurement of the dimensions of hoses and the lengths of hose assemblies". Compared with GB/T 9573-2003, the main changes of this Standard are as follows:

- ADD test piece conditioning and measurement temperature (see Chapter 3);
- ADD method of using tapered gauges to measure inner-diameter (see 4.2);
- ADD measuring method of inner-diameter (see 4.8);
- ADD measuring method of outer-diameter (see 5.6);
- ADD the readings parts of measuring methods for different wall thicknesses (see 7.1);
- ADD the readings parts of measuring methods for concentricity (see 8.1);

- ADD three methods of measuring concentricity (see 8.4, 8.5, 8.6);
- REVISE the measuring methods for the thickness of the lining and cover (see 9.2; Chapter 8 in 2003 edition);
- REVISE verification of through-bore of hose assemblies (see Chapter 11; Chapter 10 in 2003 edition).

This Standard uses translation method and equivalently adopts ISO 4671:2007 "Rubber or plastics hoses and hose assemblies - Methods of measurement of the dimensions of hoses and the lengths of hose assemblies" (English edition).

The editorial amendments in this Standard are as follows:

- ISO 3611 "Micrometer callipers for observation and measurement" in the Chapter 2 normative references of ISO 4671:2007 is deleted because it is not cited in main text.

This Standard was proposed by China Petroleum and Chemical Industry Federation.

This Standard shall be under the jurisdiction of National Technical Committee on Rubber and Products of Standardization Administration of China (SAC/TC 35/SC 1).

Drafting organizations of this Standard: Shandong Mei Chen Technology Co., Ltd., Shenyang Rubber Research & Design Institute, and Shenyang Institute of Product GB/T 9573-2013

Rubber or plastics hoses and hose assemblies -
Methods of measurement of the dimensions of hoses
and the lengths of hose assemblies

1 Scope

This Standard specifies methods of measuring the inner-diameter, outer-diameter (including diameter over reinforcement of hydraulic hoses), wall thickness, concentricity and lining and cover thickness of hoses, methods of measurement and identification of the lengths of hoses and hose assemblies, and a method of verifying the through-bore of hydraulic hose assemblies.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this document.

ISO 463 Geometrical Product Specifications (GPS) - Dimensional measuring equipment design and metrological characteristics of mechanical dial gauges
ISO 3599 Vernier calipers reading to 0.1 and 0.05 mm

3 Test piece conditioning and measurement

temperature

3.1 Conditioning of test pieces

Unless otherwise specified, test pieces shall be taken at least 16 h after manufacture of the hose and conditioned at 173-23 °C for at least 3 h before measurement. This 3 h can be included in the 16 h.

3.2 Measurement temperature

Unless otherwise specified, the measurement temperature shall be 173-23 °C.

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4.4 Method 3

For all inner-diameters up to and including 100 mm, the internal jaws of vernier slide callipers complying with the requirements of ISO 3599 may be used. Make two measurements at right angles to each other and take their average as the inner-diameter. Take care not to distort the hose when making the measurements. Callipers of suitable size may be used for nominal bores above 100 when greater accuracy than is obtainable by Method 5 (see 4.6) is required.

4.5 Method 4

For all inner-diameters, an internal calliper dial gauge (see ISO 463) with rounded feet designed for use in bores made of elastomeric material may be used, a calliper size being chosen which is suitable for the inner-diameter to be measured. Make two measurements at right angles to each other and take their average as the inner-diameter.

4.6 Method 5

For inner-diameters above 100 mm, a sufficient degree of accuracy for normal purposes is obtained by the use of a graduated steel rule. Alternatively, digital callipers or a digital micrometer may be used. Make two measurements at right angles to each other and take their average as the inner-diameter.

4.7 Method 6

For suitable diameters, and where the hose cross-section has not been distorted by the cutting operation, an optical magnifier with a scale graduated in 0.1 mm divisions may be used. Make two measurements at right angles to each other and take their average as the inner-diameter.

4.8 Method 7

For inner-diameters above 300 mm, a sufficient degree of accuracy for normal purposes is obtained by measuring the inner circumference of the hose with a measuring tape. The inner-diameter is obtained by dividing the measured value by π (pi). A measuring tape graduated in centimetres may be used.

5.1 General

Measurements made by methods 1 to 5 may be made either on a full length of hose or on a test piece (minimum length 150 mm) cut from a full length. Measurements shall be made at a minimum distance of 25 mm from the ends of the hose
[Translator's reminder: In ISO 4671:2007/Amd.1:2011(E), this sentence was modified as "Measurements shall be made at a minimum distance of 25 mm from the ends of the