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Rubber and/or plastics hose assemblies for airless paint spraying — Specification

*Tuyaux en caoutchouc et/ou en plastique pour pulvérisation «AIRLESS» des peintures —
Spécifications*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8028 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Rubber and/or plastics hose assemblies for airless paint spraying — Specification

1 Scope and field of application

This International Standard specifies the requirements for four types of hose assemblies for use in airless paint spraying.

The four types of hose assemblies specified are

Type A : Assemblies designed for a maximum working pressure of 20 MPa intended for spraying paints containing solvents at temperatures up to 50 °C.

Type B : Assemblies designed for a maximum working pressure of 36 MPa intended for spraying paints containing solvents at temperatures up to 50 °C.

Type C : Assemblies designed for a maximum working pressure of 20 MPa intended for spraying paints containing solvents at temperatures up to 80 °C.

Type D : Assemblies designed for a maximum working pressure of 36 MPa intended for spraying paints containing solvents at temperatures up to 80 °C.

Examples of solvents, diluents, plasticizers and other chemicals used for paints for the various classes of assemblies are given in the annex.

2 References

ISO 471, *Rubber — Standard temperatures, humidities and times for the conditioning and testing of test pieces.*

ISO 1402, *Rubber and plastics hoses and hose assemblies — Hydrostatic testing.*

ISO 1817, *Rubber, vulcanized — Determination of the effects of liquids.*

ISO 6803, *Rubber or plastics hoses and hose assemblies — Hydraulic pressure impulse test without flexing.*

ISO 7751, *Rubber and plastics hoses and hose assemblies — Ratios of proof and burst pressure to design working pressure.*

ISO 8031, *Rubber and plastics hoses and hose assemblies — Determination of electrical resistance.*¹⁾

ISO 8580, *Rubber and plastics hoses — Determination of ultra-violet resistance under static conditions.*¹⁾

3 Construction

A hose for use in assemblies complying with this International Standard shall consist of a seamless lining with a smooth surface, a reinforcement of steel, or of textile with a metallic conductive element, and a cover. The hose shall be uniform and free from visible cracks, porosity, foreign inclusions or other defects causing the hose to be unserviceable.

The hose shall have permanent couplings or reusable couplings which shall be removable only by using a tool. The couplings shall be electrically conducting and connected to the wire reinforcement or metallic conductive element constructed in the hose.

4 Dimensions and tolerances

The bore of the hoses shall be in accordance with the nominal bores and tolerances given in table 1.

Table 1 — Nominal bores and tolerances

Values in millimetres

Nominal bore	Tolerance	Minimum bend radius
3,2	± 0,5	90
4		100
5		125
6,3	± 0,75	175
8		200
9,5		240
12,5		305

1) At present at the stage of draft.

5 Physical tests on finished assemblies

5.1 Hydrostatic test

When tested at a standard laboratory temperature as specified in ISO 471 by the method specified in ISO 1402, the assemblies shall withstand the appropriate proof and minimum burst pressures specified in table 2.

The ratios of proof pressure and minimum burst pressure to working pressure are in accordance with No. 3 of ISO 7751.

Table 2 — Proof and minimum burst pressures

Values in megapascals

Hose type	Maximum working pressure	Proof pressure	Minimum burst pressure
A	20	40	80
B	36	72	144
C	30	40	80
D	36	72	144

5.2 Proof pressure

When testing the assemblies at proof or minimum burst pressure in accordance with 5.1, the appropriate pressure shall be maintained for 1 min and no leakage shall occur.

5.3 Impulse test

Four assemblies shall be tested in accordance with ISO 6803 and the nominal test pressure of the impulse shall be 125 % of the maximum working pressure. The impulse temperature shall be 50 °C for types A and B and 80 °C for types C and D. Each sample assembly shall withstand 150 000 impulses without leaking, cracking, abrupt distortion or other signs of failure.

5.4 Electrical continuity test

Every hose assembly shall be tested for electrical continuity in accordance with ISO 8031. The maximum resistance shall be $3 \times 10^4 \Omega/m$.

5.5 Ultra-violet light test

The test shall be carried out in accordance with ISO 8580. The requirement will be included in this International Standard at a later date.

6 Physical properties of lining

A sample of the lining compound of the hose shall be tested for volume change as specified in sub-clause 8.3 of ISO 1817.

When immersed in the liquids specified in table 3 for 70 h at a standard laboratory temperature as specified in ISO 471, the sample shall show no decrease in volume and the increase in volume shall not exceed the values given in table 3.

Table 3 — Increase in volume of test sample

Test liquid	Percentage increase in volume	
	Types A and B	Types C and D
Toluene	10	5
Acetone	10	5
Ethanol	15	15
White spirit, commercial grade		5
Trichloroethane		5
Diocetylphthalate		5

7 Marking

Each hose assembly shall be marked indelibly with the following information :

- the manufacturer's name or trade mark;
- the number of this International Standard;
- the maximum working pressure/maximum temperature;
- the hose nominal bore;
- the year of manufacture (last two digits).

Annex

Examples of paints (solvents, plasticizers, etc.) for hose types A and B, and types C and D (A/B and C/D)

(This annex does not form an integral part of the standard.)

A.1 Types A and B are used for spraying paints which may contain the following solvents, some of which may be toxic :

- | | |
|---------------------------|-----------------------|
| a) Alcohols | : Butanol |
| b) Aliphatic hydrocarbons | : Dipentane |
| c) Aromatic hydrocarbons | : Toluene, xylene |
| d) Esters | : Butyl acetate |
| e) Ketones | : Methyl ethyl ketone |
| f) Glycols | : Ethyl glycol |

A.2 Types C and D are used for spraying paints which may contain the following agents, some of which may be toxic :

- | | |
|---------------------------------------|--|
| a) Plasticizers | : Dibutyl phthalate |
| b) Solvents, chlorinated hydrocarbons | : Carbon tetrachloride, tetrachloroethane, trichloroethane, trichlorethylene |
| c) Acids | : Phosphoric acid |
| d) Alkalis | : Triethylamine |

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