INTERNATIONAL STANDARD

ISO 8066-2

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Rubber and plastics hoses and hose assemblies for automotive air conditioning — Specification —

Part 2: Refrigerant 134a

Tuyaux et flexibles en caoutchouc et en plastique pour climatisation des automobiles — Spécifications —

Partie 2: Réfrigérant 134a

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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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 8066 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 8066-2 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 1, *Hoses (rubber and plastics)*.

ISO 8066 consists of the following parts, under the general title *Rubber and plastics hoses and hose assemblies for automotive air conditioning — Specification*:

— *Part 1: Refrigerant 12*

— *Part 2: Refrigerant 134a*

Annexes A, B, C, D and E form a normative part of this part of ISO 8066. Annex F is for information only.

Rubber and plastics hoses and hose assemblies for automotive air conditioning — Specification —

Part 2:
Refrigerant 134a

WARNING — Persons using this part of ISO 8066 should be familiar with normal laboratory practice. This part of ISO 8066 does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate health and safety practices and to ensure compliance with any national regulatory conditions.

1 Scope

This part of ISO 8066 specifies the requirements for rubber or thermoplastic hoses and hose assemblies used for circulating liquid and gaseous R134a (tetrafluoroethane) in the air-conditioning systems of automobiles. The hoses and hose assemblies are designed in such a way as to restrict losses of refrigerant and contamination of the system. The operational temperature range is – 40 °C to + 125 °C.

Due to the critical relationship between the hose and coupling for this application, a requirement that the coupling to be used in service be used for testing is laid down.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 8066. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 8066 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 471:1995, *Rubber — Temperatures, humidities and times for conditioning and testing*

ISO 1402:1994, *Rubber and plastics hoses and hose assemblies — Hydrostatic testing*

ISO 1817:1999, *Rubber, vulcanized — Determination of the effect of liquids*

ISO 3448:1992, *Industrial liquid lubricants — ISO viscosity classification*

ISO 4671:1999, *Rubber and plastics hoses and hose assemblies — Methods of measurement of dimensions*

ISO 6803:1994, *Rubber or plastics hoses and hose assemblies — Hydraulic-pressure impulse test without flexing*

ISO 7326:1991, *Rubber and plastics hoses — Assessment of ozone resistance under static conditions*

ISO 8330:2001, *Rubber and plastics hoses and hose assemblies — Vocabulary*

SAE J51:1998, *Refrigerant 12 Automotive Air-Conditioning Hose*

SAE J2064:1999, *R134a Refrigerant Automotive Air-Conditioning Hose*

3 Terms and definitions

For the purposes of this part of ISO 8066, the terms and definitions given in ISO 8330 apply.

4 Classification

4.1 Grades

4.1.1 Grades A1 and A2 — Rubber, textile-reinforced

Hoses having a seamless, rubber lining, a reinforcement consisting of textile yarn, cord or fabric bonded to the lining and cover, and an outer cover of heat- and ozone-resistant rubber.

NOTE Commercial products normally offered for grade A1 hoses have a one-braid reinforcement of textile yarn and an outside diameter smaller than that of grade A2 hoses. Grade A2 hoses are a two-braid hose. Hose fittings for grade A1 and A2 hoses are not normally interchangeable.

4.1.2 Grade B — Rubber, wire-reinforced

Hoses having a seamless, rubber lining, a reinforcement consisting of wire, and a cover consisting of a heat-resistant textile yarn impregnated with a rubber cement.

4.1.3 Grade C — Thermoplastic-barrier, textile-reinforced, rubber-covered

Hoses having a lining comprising a thermoplastic barrier with a layer of rubber on each side, a reinforcement consisting of textile yarns, and a cover of heat- and ozone-resistant rubber.

4.1.4 Grade D — Thermoplastic-veneer, textile-reinforced, rubber-covered

Hoses having a rubber lining with a thin thermoplastic veneer on the inside (fluid side), a reinforcement consisting of textile yarn, cord or fabric bonded to the lining and cover, and a cover of heat- and ozone-resistant rubber.

4.1.5 Grade E — Thermoplastic, textile-reinforced, thermoplastic-covered

Hoses having a seamless thermoplastic inner lining, a reinforcement consisting of textile yarn, cord or fabric bonded to the lining and cover, and a cover of heat- and ozone-resistant thermoplastic.

4.2 Groups

4.2.1 Group 1 — Discharge/liquid, moisture-resistant

Hoses for use in discharge/liquid applications that have moisture resistance as defined in 6.15.

4.2.2 Group 2 — Discharge/liquid, medium moisture-resistant

Hoses for use in discharge/liquid applications that have medium moisture resistance as defined in 6.15.

4.2.3 Group 3 — Suction, moisture-resistant

Hoses for use in suction applications that have moisture resistance as defined in 6.15.

4.2.4 Group 4 — Suction, medium moisture-resistant

Hoses for use in suction applications that have medium moisture resistance as defined in 6.15.

5 Dimensions

5.1 Hose inside and outside diameters

When measured in accordance with method 2 of ISO 4671:1999, the hose inside diameter shall conform to the requirements given in Table 1. When measured in accordance with method 1 of ISO 4671:1999, the hose outside diameter shall conform to the requirements given in Table 2.

Table 1 — Inside diameter

Dimensions in millimetres

Nominal bore	Inside diameter											
	Grade A1		Grade A2		Grade B		Grade C		Grade D		Grade E	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
4,8					4,8	5,4					4,6	5,1
6,4	6,2	7,0									6,1	6,7
8	7,8	8,6	7,8	8,6	8,0	8,7	7,8	8,6	8,0	8,7	7,6	8,3
9,5											9,1	9,9
10	10,2	11,1	10,2	11,1	10,3	11,1	10,2	11,1	10,3	11,1	9,9	10,7
13	12,4	13,6	12,4	13,6	12,7	13,7	12,4	13,6	12,7	13,7	12,2	13,2
16	15,6	16,8	15,6	16,8	15,9	16,9	15,6	16,8	15,9	16,9	15,2	16,5
22					22,2	23,3			22,2	23,3		
29					28,6	29,8			28,6	29,8		

Table 2 — Outside diameter

Dimensions in millimetres

Nominal bore	Outside diameter											
	Grade A1		Grade A2		Grade B		Grade C		Grade D		Grade E	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
4,8					12,7	13,7						8,3
6,4	13,5	15,1										11,4
8	17,5	19,1	18,3	19,8	16,7	17,6	18,3	19,8	16,7	17,6		13,5
9,5												15,2
10	21,4	23,0	22,2	23,8	18,9	20,0	22,2	23,8	18,9	20,0		16,1
13	23,8	25,4	24,6	26,2	22,8	24,0	24,6	26,2	22,8	24,0		18,8
16	27,8	28,5	27,8	29,4	26,8	28,0	27,8	29,4	26,8	28,0		23,4
22					30,6	32,2			30,6	32,2		
29					37,3	38,9			37,3	38,9		