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(JCMA)

600V Polyethylene insulated cables

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee, as the result of proposal for revision of Japanese Industrial Standard submitted by the Japanese Electric Wire and Cable Maker's Association (JCMA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law. Consequently **JIS C 3605 : 2000** is replaced with this Standard.

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In the event of any doubts arising as to the contents,
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600V Polyethylene insulated cables

1 Scope This Japanese Industrial Standard specifies polyethylene insulated cables (hereafter referred to as “cables”), to be used in circuits for the power-supply of 600 V or under, which are insulated with polyethylene or cross-linked polyethylene, and are sheathed with a compound mainly composed of polyvinyl chloride resins (hereafter referred to as “vinyl”), polyethylene, or a flame retardant compound mainly composed of polyethylene resins (hereafter referred to as “flame retardant polyethylene”).

2 Normative references The following standards contains provisions which, through reference in this Standard, constitute the provisions of this Standard. The most recent edition (including amendments) of the standards indicated below shall be applied.

JIS C 0081 *Environmental testing—Electrotechnical products—Fire hazard testing—Smoke obscuration—Small-scale static test method—Materials*

Remarks : **IEC 60695-6-31** : 1999 *Fire hazard testing—Part 6-31 : Smoke obscuration—Small-scale static test—Materials* is identical with the said standard.

JIS C 3005 *Test methods for rubber or plastic insulated wires and cables*

JIS C 3102 *Annealed copper wires for electrical purposes*

JIS C 3666-2 *Test on gases evolved during combustion of electric cables—Part 2 : Determination of degree of acidity of gases evolved during the combustion of materials taken from electric cables by measuring pH and conductivity*

Remarks : **IEC 60754-2** : 1991 *Test on gases evolved during combustion of electric cables—Part 2 : Determination of degree of acidity of gases evolved during the combustion of materials taken from electric cables by measuring pH and conductivity*, Amendment 1 (1997) is identical with the said standard.

3 Classification and symbols Classification and symbols of cables shall be as given in Table 1.

Table 1 Classification and symbols

Classification	Symbol ⁽¹⁾
600 V polyethylene insulated vinyl sheathed cable	600 V EV
600 V polyethylene insulated polyethylene sheathed cable	600 V EE
600 V cross-linked polyethylene insulated vinyl sheathed cable	600 V CV
600 V cross-linked polyethylene insulated polyethylene sheathed cable	600 V CE
600 V polyethylene insulated flame retardant polyethylene sheathed cable	600 V EE/F ⁽²⁾
600 V cross-linked polyethylene insulated flame retardant polyethylene sheathed cable	600 V CE/F ⁽³⁾
600 V polyethylene insulated flame retardant polyethylene sheathed cable, flat-type	600 V EEF/F ⁽⁴⁾
600 V cross-linked polyethylene insulated flame retardant polyethylene sheathed cable, flat-type	600 V CEF/F ⁽⁵⁾

Notes (1) Symbols denote the following:

E : polyethylene

C : cross-linked polyethylene

V : vinyl, F : flat-type

/F: flame retardant (limited to those not containing halogen elements and of low smoke-evolution)

(2) The popular name is EM-EE

(3) The popular name is EM-CE

(4) The popular name is EM-EEF

(5) The popular name is EM-CEF

4 Characteristics When tested in accordance with clause 6, characteristics of cables shall be as shown in Table 2.

Table 2 Characteristics

Item				Characteristics	Applicable sub-clause
Conductor resistance				Not more than the value specified in Attached Tables 1 to 6	6.3
Voltage		In water		Withstanding for 1 min under the test voltage specified in Attached Tables 1 to 6	6.4
		In air		Withstanding for 1 min under twice the test voltage specified in Attached Tables 2 to 6	
		Spark		Withstanding under 5 times the test voltage specified in Attached Table 1.	
Insulation resistance				Not less than the value of Attached Tables 1 to 6	6.5
Mechanical properties of insulating and sheathing compounds	Insulation	Polyethylene	Tensile strength	Not less than 10 MPa	6.6
			Elongation	Not less than 350 %	
		Cross-linked polyethylene	Tensile strength	Not less than 10 MPa	
			Elongation	Not less than 200 %	
	Sheath	Vinyl	Tensile strength	Not less than 10 MPa	
			Elongation	Not less than 120 %	
		Polyethylene and flame retardant polyethylene	Tensile strength	Not less than 10 MPa	
			Elongation	Not less than 350 %	
Thermal aging	Insulation	Polyethylene	Tensile strength	Not less than 80 % of the value before aging	6.7
			Elongation	Not less than 65 % of the value before aging	
		Cross-linked polyethylene	Tensile strength	Not less than 80 % of the value before aging	
			Elongation		
	Sheath	Vinyl	Tensile strength	Not less than 85 % of the value before aging	
			Elongation	Not less than 80 % of the value before aging	
		Polyethylene and flame retardant polyethylene	Tensile strength	Not less than 80 % of the value before aging	
			Elongation	Not less than 65 % of the value before aging	
Mineral oil immersion		Vinyl sheath	Tensile strength	Not less than 80 % of the value before immersion	6.8
		Elongation	Not less than 60 % of the value before immersion		