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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 271

TEXTILES
IMPLEMENTATION OF THE TEX SYSTEM
FOR DESIGNATING THE SIZE OF TEXTILE FIBRES,
YARNS AND SIMILAR STRUCTURES

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BRIEF HISTORY

The ISO Recommendation R 271, *Implementation of the Tex System for Designating the Size of Textile Fibres, Yarns and Similar Structures*, was drawn up by Technical Committee ISO/TC 38, *Textiles*, the Secretariat of which is held by the British Standards Institution (B.S.I.).

Work on this question by the Technical Committee began in 1948 and led, in 1957, to the adoption of a Draft ISO Recommendation.

In August 1958, this Draft ISO Recommendation (No. 391) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

Australia	India	Portugal
Austria	Iran	Republic of South Africa
Belgium	Ireland	Romania
Canada	Israel	Spain
Chile	Italy	Sweden
Czechoslovakia	Japan	Turkey
Denmark	Netherlands	U.S.A.
France	New Zealand	U.S.S.R.
Germany	Norway	
Greece	Poland	

One Member Body opposed the approval of the Draft : United Kingdom.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in September 1962, to accept it as an ISO RECOMMENDATION.

FOREWORD

It has long been customary to designate the size (coarseness or fineness) of textile yarns by numbering or counting systems. Many branches of the textile industry employ systems of their own for this purpose, and those in current use may be classified in two groups:

- (a) *Direct systems*, in which the size of the yarn is expressed in terms of the mass of yarn per unit length (*linear density*, often called *yarn number*);
- (b) *Indirect systems*, in which the size of the yarn is expressed in terms of the length of yarn per unit mass (usually called *yarn count*).

With the growing use of yarns containing more than one kind of fibre, and of fabrics containing these yarns, it has become increasingly evident that the general adoption of a single system of numbering or counting would avoid confusion and save time.

In 1956, after detailed studies, Technical Committee ISO/TC 38, *Textiles*, agreed unanimously to recommend the Tex System for international adoption in place of the various traditional methods of numbering or counting. That system is direct and based on metric units. This decision has since been embodied in ISO Recommendation R 138, *Universal Yarn Count System*.

TEXTILES

IMPLEMENTATION OF THE TEX SYSTEM
FOR DESIGNATING THE SIZE OF TEXTILE FIBRES,
YARNS AND SIMILAR STRUCTURES

1. SCOPE

This ISO Recommendation reaffirms the principles, given in ISO Recommendation R 138, *Universal Yarn Count System*, of the Tex System of numbering textile fibres, intermediate products (e.g. tops, rovings, etc.), yarns and similar structures. It provides for the conversion of counts or numbers expressed in other systems into tex values, both exact and rounded, and includes guidance on the gradual implementation of the Tex System in trade and industry.

2. UNIVERSAL YARN COUNT SYSTEM OR TEX SYSTEM

2.1 Definition and units

The recommended system for designating the count or number of textile fibres, yarns, intermediate and similar products is a direct, metric system in which the basic unit is the tex.

The linear density (*number*) of a yarn in tex expresses the mass in grammes of yarn having a length of one thousand metres. Thus a yarn designated 1 tex has a mass of one gramme per thousand metres of its length.

The multiple and sub-multiple of the tex unit recommended for use in preference to other possible combinations are the following:

- kilogramme per thousand metres, designated **kilotex**;
- milligramme per thousand metres, designated **millitex**;

The unit tex is recommended for application to single and plied yarns and to monofilaments.

TABLE 1. — Tex units

Name of unit	Abbreviation	Size of unit (1)	Equivalent value
millitex	mtex	mg/1000 m	µg/m
tex	tex	g/1000 m	mg/m
kilotex	ktex	kg/1000 m	g/m

(1) The unit of length has been written as 1000 m instead of as 1 km, to avoid all confusion with kilotex (ktex).

2.2 Notation *

The linear density (number) in the Tex System is indicated by the appropriate numerical value followed by the name of the unit used.

- Examples :
- Fibres 170 mtex
 - Tops and similar products 20 ktex
 - Rovings 500 tex
 - Single yarns 30 tex

If a symbol is needed to represent a linear density in the Tex System (e.g. in formulae), the abbreviation **Tt** is used.**

* Proposals for the notation of plied and cabled yarns are being developed by Technical Committee ISO/TC 38, *Textiles*.
** The abbreviation **Tt** is not used immediately before or after the value of linear density, as it does not indicate a unit, but the concept of linear density itself, as expressed in the Tex System.