SLOVENSKI STANDARD
SIST EN 50112:2001

01-september-2001

Measurement, control, regulation - Electrical temperature sensors - Metal protecting tubes for TC assemblies

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Messen, Steuern, Regeln - Elektrische Temperaturaufnehmer - Metall-Schutzrohre für Thermoelemente

Mesure, commande, régulation - Capteurs électriques de température - Tubes protecteurs métalliques pour assemblages de couples thermoélectriques

Ta slovenski standard je istoveten z: EN 50112:1994

ICS:

17.200.20	Instrumenti za merjenje temperature	Temperature-measuring instruments

SIST EN 50112:2001 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50112

September 1994

UDC 536.532:621.362-213

Descriptors: Industrial-process, temperature measurement, electrical temperature sensors, thermocouples, metal protection tubes for thermocouples

English version

Measurement, control, regulation
Electrical temperature sensors
Metal protecting tubes for TC assemblies

Mesure, commande, régulation
Capteurs électriques de température
Tubes protecteurs métalliques pour assemblages de couples thermoélectriques

Messen, Steuern, Regeln
Elektrische Temperaturaufnehmer
Metall-Schutzrohre für Thermoelemente

This European Standard was approved by CENELEC on 8 March 1994. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 50112:1994 E

Foreword

This European Standard was prepared by the CENELEC Technical Board Working Group BTWG 68-2.

The text of the draft, based on BT (DE / Notification) 160, was submitted to the formal vote in August 1993 and was approved by CENELEC as EN 50112 on 1994-03-08.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1995 - 03 - 15

- latest date of withdrawal of conflicting national standards (dow) 1995 - 03 - 15

1 Scope

This standard applies to metal protecting tubes, used for straight thermocouple (t/c) assemblies, where the components parts are exposed to internal or external pressures, (ISO 7268), and where the working conditions have to be taken into consideration for the materials used.

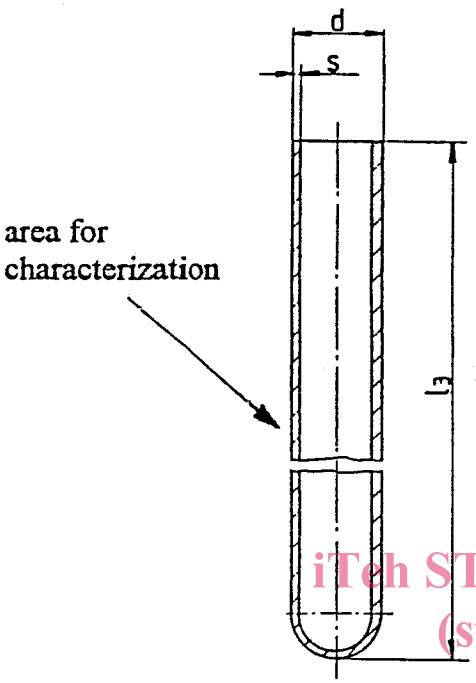
2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

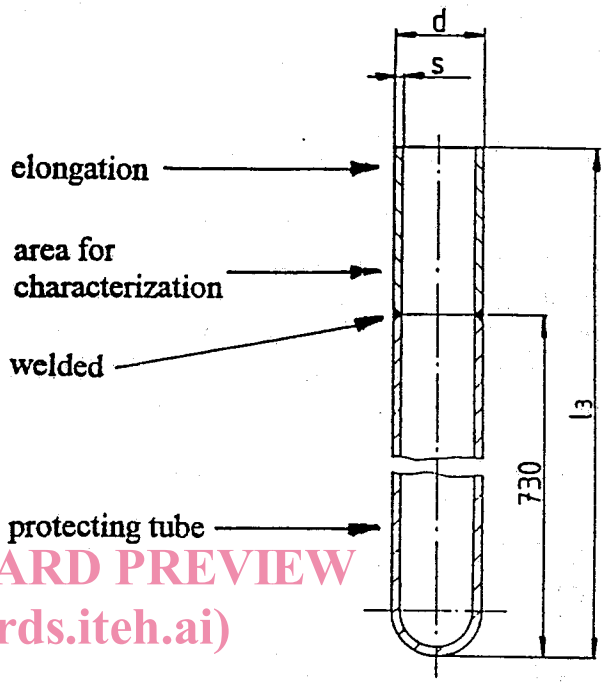
EN 10027	Series	Designation systems for steel
EN 10088-1 (under consideration)	-	Stainless steels - Part 1: List of stainless steels
EN 10216-2 (under consideration)	-	Seamless steel tubes for pressure purposes - Technical delivery conditions - Part 2: Unalloyed and alloyed steels with specified elevated temperature properties
ISO 7268	1983	Pipe connections - Definition of nominal pressure.

3 Configurations for protecting tubes dimensions and descriptions

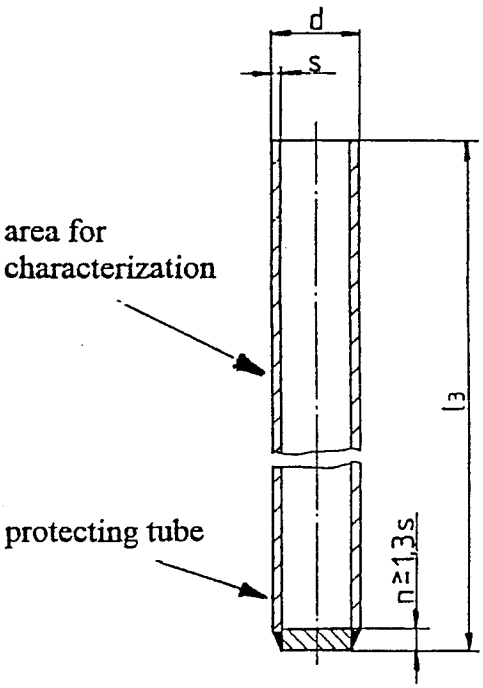
All dimensions are in Millimeters.



Configuration type A:
swaged end



Configuration type B:
elongated protecting tube, swaged end



Configuration type C:
bottom plugged and welded in

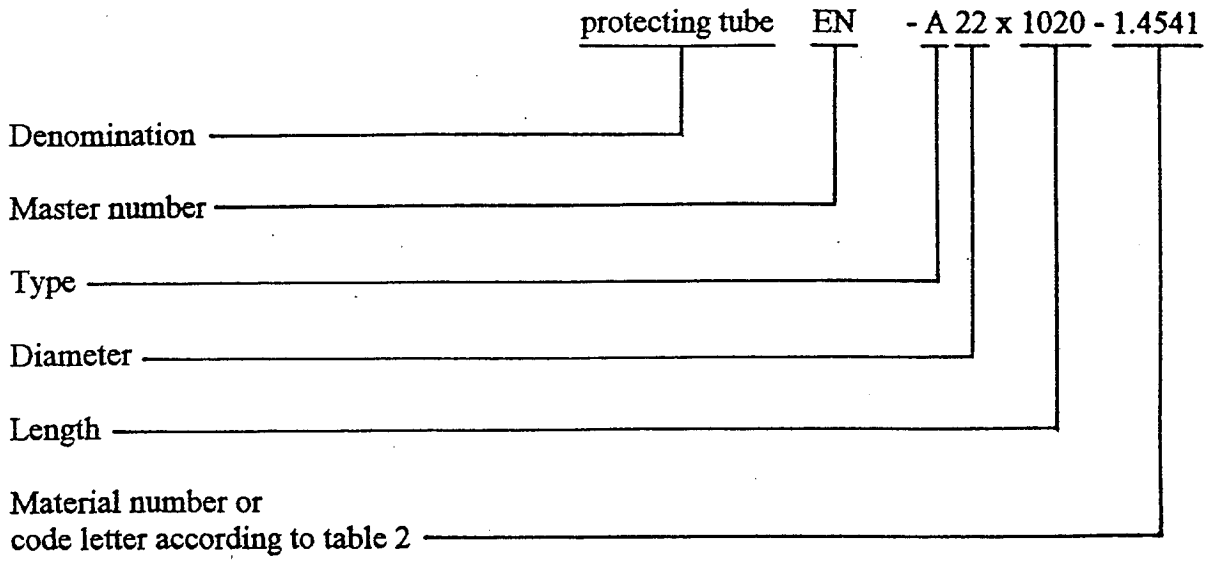


Table 1: Dimensions and tolerances

Dimensions are in millimetres

Type	d	s	For straight t/c assemblies without interchangeable measuring probe having a nominal length l [1]							
	+ 0,2 - 0,1	± 0,5	180	250	355	500	710	1000	1400	2000
			Length of protecting tube l3 tolerances for type A ± 1,5 , for type B ± 3 , for type C $^{+3}_{-1}$							
A	15	2	195	265	370	520	-	-	-	-
	22	2	-	-	-	520	730	1020	1420	2020
	24	3	-	-	-	520	730	1020	1420	2020
B	22	2	-	-	-	-	-	1020	1420	2020
C	15	2	195	265	370	520	-	-	-	-
	22	2	-	-	-	520	730	1020	1420	2020
	24	3	-	-	-	520	730	1020	1420	2020

1) Nominal length l: Dimension from tip of protecting tube to lower edge of connection head with a straight t/c assembly.

4 Material

Table 2: Definition of code letters for materials for metal protective tube

	Code letters 1)	Material abbreviation EN 10027	Material number	Technical supply conditions
Iron (technically pure)	A		1.0340	SEL 2)
Unalloyed steel	H		1.XXXX	3) EN 10216-2
Alloyed steel	C	X10CrAl18	1.4742	4)
	D	X10CrAl24	1.4762	4)
	F	X18CrN28	1.4749	4)
	K	X6CrNiMoTi17-12-2	1.4571	5) EN 10088-1
	N	X6CrNiTi18-10	1.4541	5) EN 10088-1
	P	X10NiCr32-20	1.4861	SEL 2)
	Q	X15CrNiSi25-20	1.4841	4)
Ni-alloy	J	NiCr60-15	2.4867	6)

1) With configuration type B the code letter is according to the protecting tube material. The elongation is fabricated from unalloyed steel or according to manufacturer.
2) Chemical composition according to iron-steel-list.
3) Seamless tubes from heatstable steel;
4) Heat resistant steels for rolling and forging.
5) Stainless steel;
6) Ductile nickel alloys with chrome.

5 Protection tubes shall be manufactured from:

a) seamless unalloyed (carbon) steel;
b) seamless or welded alloyed steel;
c) seamless or welded special materials.

The welding shall not result in beads protruding into the bore of the tube.

NOTE: Welding may affect the corrosion and / or mechanical properties of the tube.

6 Testing

The tubes shall be leak free when tested at a positive pressure of 2 bar at room temperature.

7 Marking

The material code reference shall be permanently marked on the outside wall of the tube, a minimum of 40 mm from the open end.