Straight thermocouple assembly with metal or ceramic protection tube and accessories

Straight thermocouple assembly with metal or ceramic protection tube and accessories



EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN
50446:2006 sisaldab Euroopa standardi
EN 50446:2006 ingliskeelset teksti.

Käesolev dokument on jõustatud 27.11.2006 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 50446:2006 consists of the English text of the European standard EN 50446:2006.

This document is endorsed on 27.11.2006 with the notification being published in the official publication of the Estonian national standardisation organisation.

The standard is available from Estonian standardisation organisation.

Käsitlusala:

This standard applies to straight thermocouples for the nominal pressure level PN 1, which are made of standardized components (connection head, protection tube and thermocouple(s)). Details regarding the operational areas of the thermocouples and the use of protection tubes are part of this standard. Connection heads as well as stop flanges and threaded bushings for the mounting of the thermocouples are also part of this standard. Special designs are to be agreed upon between manufacturer and user.

Scope:

This standard applies to straight thermocouples for the nominal pressure level PN 1, which are made of standardized components (connection head, protection tube and thermocouple(s)). Details regarding the operational areas of the thermocouples and the use of protection tubes are part of this standard. Connection heads as well as stop flanges and threaded bushings for the mounting of the thermocouples are also part of this standard. Special designs are to be agreed upon between manufacturer and user.

ICS 17.200.20

Võtmesõnad: control equipment, measurement, pipes: tubes, protective tubes, safety measures, shape, temperature measurement, temperature- measuring i, temperature sensors, temperature-measuring instruments, testing, thermocouples, tolerances, tolerances (measurement), use

EUROPEAN STANDARD

EN 50446

NORME EUROPÉENNE EUROPÄISCHE NORM

October 2006

ICS 17.200.20

Supersedes EN 50112:1994 and EN 50113:1994

English version

Straight thermocouple assembly with metal or ceramic protection tube and accessories

Thermomètres à thermocouple droits avec tube de protection métallique ou en céramique, et accessoires Gerade Thermoelemente mit Metall- oder Keramik-Schutzrohr und Zubehör

This European Standard was approved by CENELEC on 2006-09-01. 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, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the 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

Foreword

This European Standard was prepared by the CENELEC BTWG 109-2, Straight thermocouple thermometers.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50446 on 2006-09-01.

This European Standard supersedes EN 50112:1994 and EN 50113:1994.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement

2007-09-01 (dop)

confliction of the confliction o latest date by which the national standards conflicting with the EN have to be withdrawn

(dow) 2009-09-01

Contents

		Page
1	Scope	4
2	Normative references	4
3	Thermocouples, dimensions and description	4
4	Straight thermocouples with metal protection tube	5
5	Straight thermocouples with ceramic protection tube	6
6	Metal protection tubes, dimensions and description	8
7	Ceramic protection tubes, dimensions and description	9
8	Lock rings	
9	Connection heads	11
10	Stop flanges and counter flanges	
11	Threaded bushings	
	ex A (informative) Remarks on the selection and operation of protection tubes	
	re 1 – Metal protection tubes form A and C	
•	re 2 – Ceramic protection tube	
_	re 3 – Lock ring	
_	re 4 – Illustration of connection heads	
_	re 5 – Illustration of stop flanges and counter flanges	
-	re 6 – Illustration of a threaded bushing	
_	re A.1 – Illustration of a counter flange	
_	re A.2 – Mounting of the stop flange on a weld-on thread plate. Thermocouples forms AM / AMK / BM / BMK. Preferred type of mounting for metal surfaces	
Figur	re A.3 – Mounting of the stop flange on a weld-on thread plate. Thermocouple forms AK / AKK / BK / BKK. Preferred type of mounting for meta surfaces	17
Figur	re A.4 – Mounting of the stop flange on a thread plate welded to the process pipe. Preferred type of mounting for non-metal surfaces. Suitable for all thermocouple forms	17
Figur	re A.5 – Mounting of the stop flange on a counter flange welded to the process pipe. Preferred type of mounting for non-metal surfaces, gas-tight mounting is possible. Suitable for all thermocouple forms	17
Table	e 1 – Types and dimensions, metal protection tube	5
	e 2 – Types and dimensions, ceramic protection tube	
Table	e 3 – Ident letters for metal protection tubes	7
Table	e 4 – Ident letters for ceramic protection tubes	7
Table	e 5 – Ident letters for thermocouples	7
Table	e 6 – Dimensions and permitted deviations for metal protection tubes	8
Table	e 7 – Dimensions and additional data for ceramic protection tubes	9
Table	e 8 – Dimensions of lock rings	10
Table	e 9 – Dimensions of connection heads	11
Table	e 10 – Dimensions of stop flanges and counter flanges	12
Table	e 11 – Data of threaded bushings	13
Table	e A.1 – Resistance of metal protection tubes when in contact with gases	14
Table	e A.2 – Materials for operation in gases	14
Table	e A.3 – Materials for operation in melting plants	15
Table	e A.4 – Operating conditions and materials	15
Table	e A.5 – Materials for special applications	16

1 Scope

This standard applies to straight thermocouples for the nominal pressure level PN 1, which are made of standardized components (connection head, protection tube and thermocouple(s)).

Details regarding the operational areas of the thermocouples and the use of protection tubes are part of this standard.

Connection heads as well as stop flanges and threaded bushings for the mounting of the thermocouples are also part of this standard. Special designs are to be agreed upon between manufacturer and user.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50113	Measurement, control, regulation - Electrical temperature sensors – Isolating tubes for thermocouples
EN 60529	Degrees of protection provided by enclosures (IP code) (IEC 60529)
EN 60584-1	Thermocouples - Part 1: Reference tables (IEC 60584-1)
EN 60672-1	Ceramic and glass insulating materials - Part 1: Definitions and classification (IEC 60672-1)
EN 22768-1	General tolerances - Part 1: Tolerances for linear and angular dimensions without individual tolerance indications (ISO 2768-1)
ISO 2944	Fluid power systems and components - Nominal pressures

3 Thermocouples, dimensions and description

All dimensions in this standard are given in mm. If not stated differently the general tolerances according to EN 22768-1 apply. The thermocouples do not have to conform to the illustration, only the indicated dimensions must be adhered to.

	<u>Thermocouple</u>	EN 50446 -	<u>AKK 24</u>	<u>t y - 1</u>	<u>S</u> 1	- <u>050</u> - <u>1000</u>
Description ————————————————————————————————————		9				
EN main number						
Type —						
Diameter F of the outer protection tube ———						
Ident letter for the outer protection tube material			-0),			
Ident letter for the inner protection tube material						
No. of thermocouples —						
Ident letter for the thermocouple material						
Permitted deviation of the thermo-EMF (class) -						
Diameter of the thermocouple					4	
Nominal length NL of the thermocouple						