SLOVENSKI STANDARD

SIST EN 50216-5:2002/A2:2006

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Pribor za močnostne transformatorje in dušilke – 5. del: Kazala nivoja tekočine, tlačne naprave in kazala pretoka

(istoveten EN 50216-5:2002/A2:2005)

Power transformer and reactor fittings - Part 5: Liquid level, pressure and flow indicators, pressure relief devices and dehydrating breathers

ICS 29.180

Referenčna številka
SIST EN 50216-5:2002/A2:2006(en)

EUROPEAN STANDARD **EN 50216-5/A2**

NORME EUROPÉENNE

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ICS 29.180

English version

Power transformer and reactor fittings
Part 5: Liquid level, pressure and flow indicators, pressure relief devices and dehydrating breathers

Accessoires pour transformateurs de puissance et bobines d'inductance
Partie 5: Indicateurs de niveau de liquide isolant, manomètres et indicateurs de circulation de liquide isolant, limiteurs de pression et assécheurs d'air

Zubehör für Transformatoren und Drosselspulen
Teil 5: Flüssigkeitsstandanzeiger, Druckanzeigeeinrichtungen und Durchflussmesser, Druckentlastungsventile und Luftentfeuchter

This amendment A2 modifies the European Standard EN 50216-5:2002; it was approved by CENELEC on 2004-12-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 amendment 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, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, 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 50216-5:2002/A2:2005 E

Foreword

This amendment to the European Standard EN 50216-5:2002 was prepared by the Technical Committee CENELEC TC 14, Power transformers.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as amendment A2 to EN 50216-5:2002 on 2004-12-01.

EN 50216-5:2002 as well as this amendment are to be read in conjunction with EN 50216-1:2002.

The following dates were fixed:

– latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2005-12-01
– latest date by which the national standards conflicting with the amendment have to be withdrawn	(dow)	2007-12-01

Replace the title of the EN by:

Power transformer and reactor fittings
Part 5: Liquid level, pressure and flow indicators, pressure relief devices and dehydrating breathers

1 Scope

Replace the text by:

EN 50216-5 specifies the liquid level, pressure and flow indicators, pressure relief devices and dehydrating breathers for power transformer and reactor fittings.

Except where otherwise specified or implied herein the above fittings shall comply with the requirements of EN 50216-1.

Add the following clauses:

6 Pressure relief devices

6.1 General

Pressure relief device, for use in liquid immersed transformer and reactor tanks, in order to release the excess of internal pressure due to fault, so co-operating to the integrity of the tank.

6.2 Operating limits

The device shall be capable to be installed on the tank cover and walls, in each position or any inclination, without alteration of its operating performance.

It is possible to mount more than one device on each transformer.

6.3 Dimensions

6.3.1 Flanged connection design

The fixing flange sizes are based on ND, which is the diameter of the opening hole in the tank.

Tables 4, 5 and 6 are based on the Figures 1, 2 and 3 respectively.

Table 4 – Fixing interface dimensions according to Figure 1

Size	Dimensions flange				Holes
	D1 (max) mm	D2 mm	D3 mm	A mm	Number
A – ND 50 mm	170	125	18	14	4
B – ND 80 mm	200	160	18	16	4
C – ND 125 mm	280	210	18	16	8
D – ND 150 mm	285	240	18	16	8
E – ND 200 mm	350	295	22	18	8
F – ND 150 mm	290	235	16	13	6
G – ND 125 mm	280	235	16	13	6
NOTE The flange can also be square.					

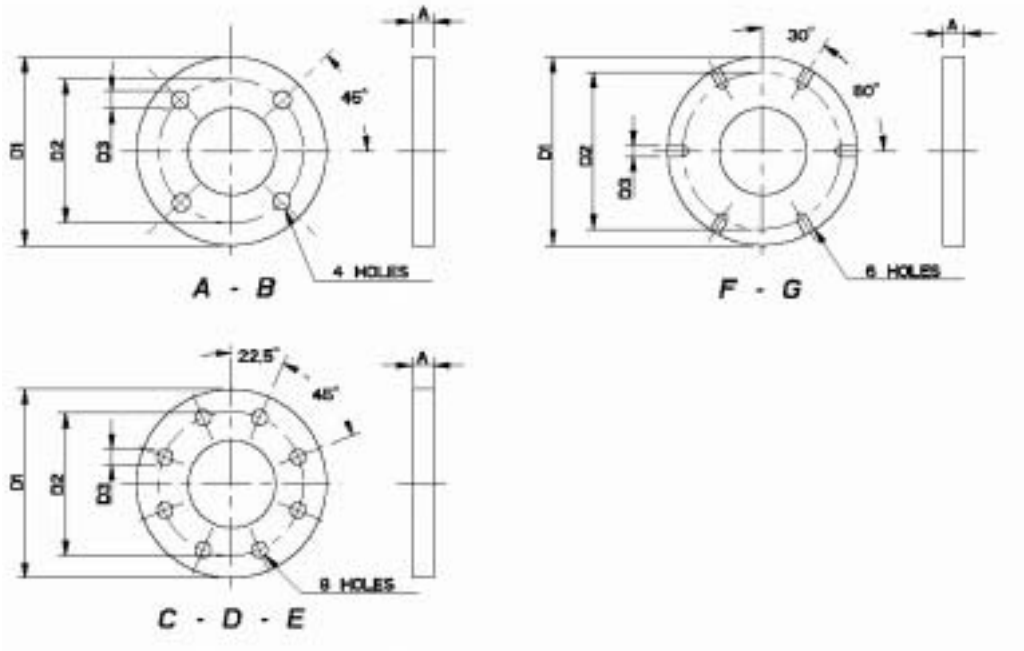

Figure 1 – Flange interface

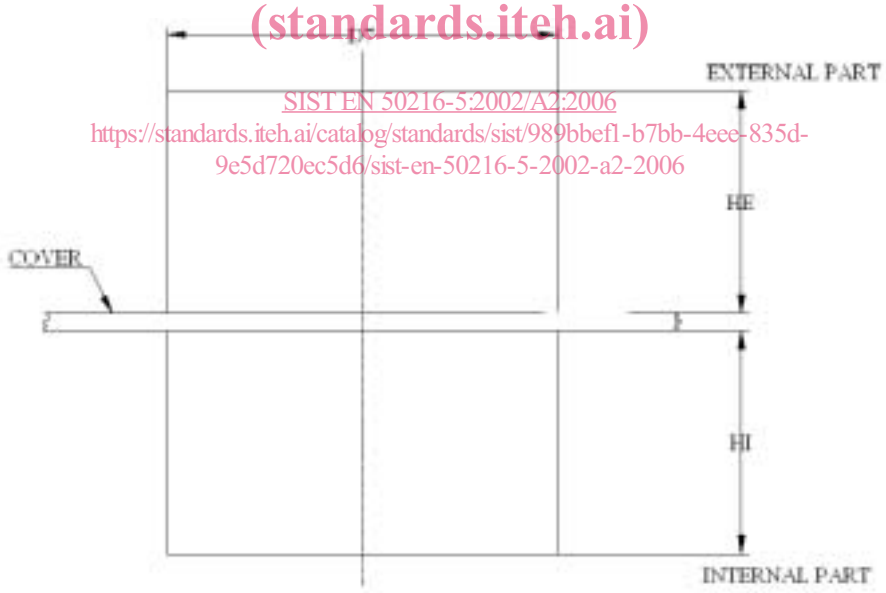

Figure 2 – Maximum overall dimensions

Table 5 – Overall dimensions according to Figure 2

Size	Max dimensions without oil spray protection and accessories mm		
	D7 (max) mm	HE (max) mm	HI (max) mm
A – ND 50 mm	200	150	80
B – ND 80 mm	250	200	150
C – ND 125 mm	300	300	180
D – ND 150 mm	360	300	180
E – ND 200 mm	400	400	250
F – ND 150 mm	300	300	180
G – ND 125 mm	300	300	180

6.3.2 Threaded connection design

Table 6 – Fixing interface and overall dimensions according to Figure 3

Size	Max overall dimensions			Threaded connection
	D1 mm	HE mm	HI mm	D2 mm ISO 228
1	60	40	40	1”
2	80	40	40	2”

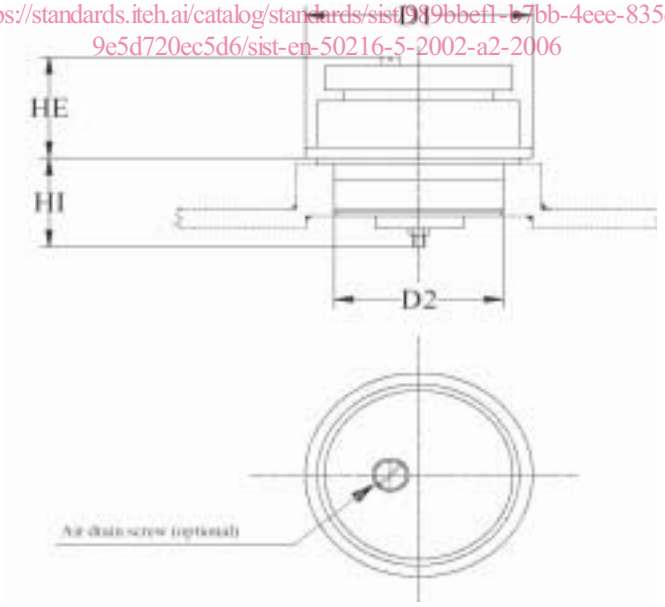

Figure 3 – Mounting interface and general overall dimensions

6.4 Operating performance

Nominal operating pressure: the pre-fixed overpressure value shall be agreed between supplier and purchaser within the standard range from 20 kPa up to 90 kPa, with 10 kPa steps, with a tolerance of – 5 kPa to + 7 kPa.

Nominal operating pressure above the standard range (> 90 kPa) shall be agreed between supplier and purchaser.

The device shall be capable to reclose when the overpressure is terminated.

The maximum pressure without any oil leakage is equal to the nominal operating pressure less 10 kPa.

6.5 Manufacturing features

6.5.1 Devices according to Figure 1 and Figure 2

Flanged design, typically used on power transformers and reactors.

6.5.1.1 Description

The device is composed of a flanged body and a spring loaded shutter; design can be “spring out of tank" or “spring inside tank”.

It can be fit, upon request, with

- oil spray protection,
- visual indicator of operation with manual reset,
- one or more electric contacts.

The characteristics of the electric contacts shall be according to Table 7.

Table 7 – Electric contact characteristics

Rated voltage	Current	Breaking capacity	
24-220 V d.c.	2 A	250 W	L/R < 40 ms
230 V a.c.	2 A	400 VA	cos φ > 0,5

Other values may be agreed between purchaser and supplier.

The minimum contact life shall be 1 000 operations.

The switch shall be able to make on a low current down to 10 mA for any value of voltage in Table 7 even after 1 year of non operation.

6.5.1.2 Vent screw

The device shall be fitted with a vent screw for bleeding air or gas bubbles which may alter the correct functioning

6.5.1.3 Nameplate

The nameplate shall contain the following information:

- manufacturer name;
- type/size;
- operating pressure value;
- serial number.

6.5.1.4 Other manufacturing requirements

All the screws exposed to the atmosphere shall be of stainless steel.

All the surfaces exposed to the atmosphere shall withstand either because of their own properties or because of an adequate treatment to the environmental conditions according to EN 50216-1.

6.5.2 Devices according to Figure 3

Threaded design, spring inside tank, typically used on distribution transformers.

6.5.2.1 Description

The device is composed of a threaded body and a spring loaded shutter (internal spring design).

It can be fitted, upon request, with

- a protective cap,
- a vent screw for bleeding air or gas bubbles which may alter the correct functioning.

6.6 Routine tests

It is necessary to carry out operational tests, with compressed air

- to check the correct functioning of the device at the operating pressure value,
- to check the functioning of the optic signal and of the electric contacts (only for devices under Figure 1 and Figure 2).

7 Dehydrating breathers

7.1 General

Dehydrating breather: facility to absorb the humidity of the air, breathed inside liquid immersed transformers and reactors, due to the thermal contraction of the liquid.

This subclause defines the general overall dimensions and pipe connections to guarantee the interchangeability of breathers having the same air dehydrating characteristics.