
Df]Vcf`nUYbYf[]'g_Y'fUbgZ`fa Urcf`Y]b`Xi ý]_Y!'&"XY.`D`]bg_c`U]c`'bc`j nVi `Ub] fYY`nUj`hY_c]bc`dclcd`YbY'fUbgZ`fa Urcf`Y]b`Xi ý]_Y`n`fUnhYnbc`dcgcXc

Power transformer and reactor fittings -- Part 2: Gas and oil actuated relay for liquid immersed transformers and reactors with conservator

Zubehör für Transformatoren und Drosselspulen -- Teil 2: Buchholzrelais für flüssigkeitsgefüllte Transformatoren und Drosselspulen mit Ausdehnungsgefäß

Accessoires pour transformateurs de puissance et bobines d'inductance -- Partie 2: Relais de protection (dégagement gazeux, niveau d'huile) pour transformateurs et réactance immergés dans un diélectrique liquide équipés d'un conservateur

Ta slovenski standard je istoveten z: EN 50216-2:2002

ICS:

29.120.70	Releji	Relays
29.180	Transformatorji. Dušilke	Transformers. Reactors

SIST EN 50216-2:2002**en**

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EUROPEAN STANDARD

EN 50216-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2002

ICS 29.120.70; 29.180

English version

**Power transformer and reactor fittings
Part 2: Gas and oil actuated relay
for liquid immersed transformers and
reactors with conservator**

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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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, 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

Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 14, Power transformers.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50216-2 on 2001-09-25.

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 (dop) 2002-10-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2004-10-01

EN 50216-2 is to be read in conjunction with EN 50216-1.

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Contents

	Page
1 Scope	4
2 Normative references.....	4
3 Service conditions	4
3.1 Maximum inclination	4
3.2 Operating pressure.....	4
3.3 Sensitivity of the relay contacts to magnetic fields	5
3.4 Special mechanical conditions	5
4 Dimensions	5
5 Operational performance.....	7
5.1 Alarm and trip contacts.....	7
5.2 Oil loss from tank.....	8
5.3 Latching of trip element.....	8
6 Electrical characteristics of switch.....	8
6.1 Switch type.....	8
6.2 Rated currents.....	8
6.3 Breaking and making capacity.....	8
7 Mechanical requirements	9
7.1 Terminal box.....	9
7.2 Testing facility.....	9
7.3 Gas sampling	9
7.4 Draining device.....	9
7.5 Presence of gas in the relay.....	9
7.6 Mounting arrangement	9
7.7 Pressure and vacuum.....	9
8 Nameplate	10
9 Tests.....	10
9.1 Routine tests	10
9.2 Type tests.....	10

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1 Scope

EN 50216-2 covers the gas and oil actuated relay (Buchholz relay) for liquid immersed power transformers and reactors with conservator for indoor or outdoor installation.

The device is intended to detect

- gas release from the unit to be protected,
- oil surge from the tank to the conservator,
- complete loss of oil in the conservator.

This part of EN 50216 defines the

- operating limits,
- dimensions,
- operational performance,
- electrical characteristics,
- dynamic characteristics.

It applies to relays with dry contacts.

It is not applicable to flameproof relays.

Should environmental conditions and dynamic stress requirements differ from those detailed in clause 3 of EN 50216-1, EN 50216-2 may then be applied by agreement between purchaser and supplier for those parts which are not affected by such abnormal installation conditions.

NOTE EN 50216-2 may be used as far as applicable for relays with mercury switches. Restrictions on the use of mercury devices may be imposed by national regulations.

2 Normative references

SIST EN 50216-2:2002

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Addition to EN 50216-1:

EN 60947-5-1	1997	Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices (IEC 60947-5-1:1997)
+ A12	1999	
ISO 228-1	1994	Pipe threads where pressure-tight joints are not made on the threads - Part 1: Dimensions, tolerances and designation

3 Service conditions

In addition to the service conditions specified in EN 50216-1, the relay shall meet the following conditions.

3.1 Maximum inclination

The relay is intended to function in a horizontal position; a positive inclination of up to 5 ° to the horizontal axis is admissible in the arrow direction (see 7.6).

Other values may be agreed between purchaser and supplier.

3.2 Operating pressure

The relay is subjected to a continuous internal gauge pressure of 50 kPa but shall be capable of withstanding an overpressure of 250 kPa for 2 min.

3.3 Sensitivity of the relay contacts to magnetic fields

The relay shall be able to withstand a d.c. magnetic field up to 25 mT, in any direction and any polarity, without inadvertent operations.

NOTE During operation or in event of faults, the surroundings of the transformers or reactors are subjected to magnetic fields which could produce inadvertent operation of the relay equipped with magnetic contacts (reed type).

3.4 Special mechanical conditions

The mechanical stresses according to the classification of EN 60721-3-4, which shall not produce inadvertent operation of the relay, are

- for stationary sinusoidal vibration: class 4M4 or, by agreement between purchaser and supplier, class 4M6,
- for non stationary vibration: a vertical shock of 100 m/s², with type 1 spectrum, shall apply for both classes.

4 Dimensions

Tables 1 and 2 are to be read with Figures 1 and 2.

Table 1 – Preferred dimensions of relay in mm

Nominal diameter D_n	A max.	B max.	C max.	D ^a min.	L		E ^b
					Short type	Long type	
25 ^c	205	75	275	300	200	240	190
50	205	90	275	300	195	240	220
80	220	100	275	400	195	240	220
100	220	110	275	400	220		

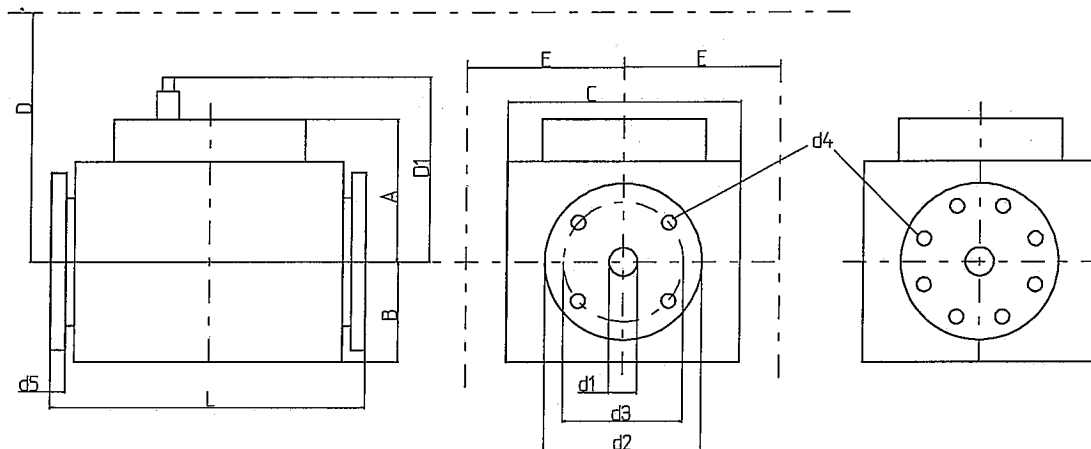
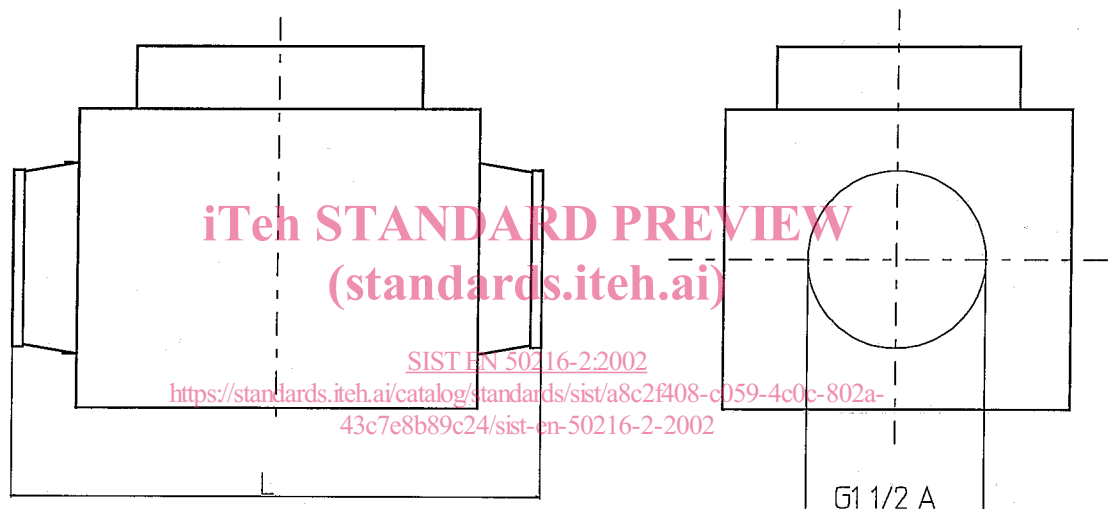
^a Minimum clearance to remove the mechanism from the body of the relay.

^b Minimum clearance for mounting and access to the relay.

^c For nominal diameter 25 mm thread connections G1 ½ A (ISO 228-1) are allowed with L = 185 mm (see Figure 2).

Table 2 – Flange dimensions of relay in mm

Nominal diameter D_n	d1	d2	d3	d4	N° of bolt holes		d5 max.
					Short type	Long type	
25	25	115	85	14	4	4	16
50	50	165	125	18	4	4	18
80	80	200	160	18	8	4	18
100	100	220	180	18	8		18

Figure 1 – D_n 25 to 100 with round flangesFigure 2 – D_n 25 with threaded connections

Alternative dimensions following Tables 3 and 4 may be agreed between purchaser and supplier.

Table 3 – Other dimensions of relay in mm

Nominal diameter D_n	A max.	B max.	C max.	$D1^a$ min.	L	E^b
25	180	140	320	200	127	315
50	170	150	320	200	184	315
80	170	150	320	200	184	315

^a Minimum clearance for access of petcocks.
^b Minimum clearance for mounting and access to the relay.

Table 4 – Alternative flange dimensions of the relay in mm

Nominal diameter D_n	d1	d2	d3	d4	N° of bolt holes	d5 max.
25	25,4	76-sq	72	M10	4	N/A
50	50,8	139	110	11,1	6	14
80	76,2	160	130	11,1	6	14

Dimensions for rectangular flanges are given in Figure 3.

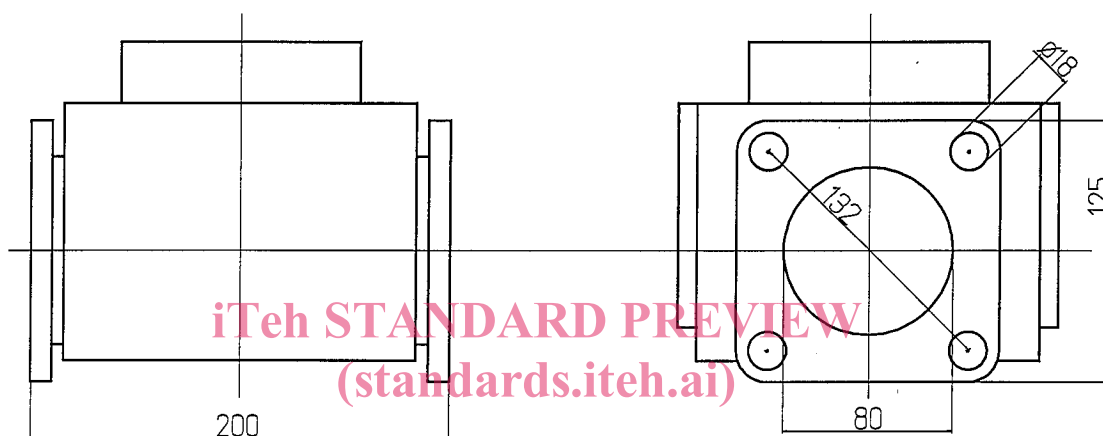


Figure 3 – Gas and oil operated relay with rectangular flanges for nominal diameter of 80 mm

5 Operational performance

5.1 Alarm and trip contacts

This device shall be provided with two electrical contacts.

The alarm contact shall operate due to a gas displacement (volume of gas collected between 100 cm³ and 300 cm³ or 400 cm³).

Gas shall not freely pass from the relay body and escape into the pipework before the contact has operated.

The trip contact shall operate at a steady oil flow as indicated in Table 5.

This operation shall not be adversely affected when the alarm contact has already closed and gas is escaping freely.