



FABRYKA TRANSFORMATORÓW w Żychlinie

Spółka z ograniczoną odpowiedzialnością

ISO 9001:2008

ISO 14001:2004

PN-N-18001:2004

Certificate of compliance issued by the PCA-accredited body

Certificate of usability in Polish power industry

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DRY-TYPE TRANSFORMERS FOR MINING INDUSTRY TYPE TZEG AND TZ3EG 160-2,600 kVA



Applications

The mining transformers are designed for operation in solid, flame-proof enclosures. The enclosures for these transformers have to meet mining industry requirements concerning flame-proof properties and overall dimensions, therefore the transformers designed for such enclosures are of relatively small height.

Design

The mining transformers are three-phase ones with natural cooling type AN and with copper windings. Their insulation systems are made of slow-burning and self-extinguishing materials, with insulation class H (180°C). At the same time, the materials used for manufacture of cast-resin transformers emit no toxic gases in high temperatures.

The transformers type TZEG have the windings with epoxy resin insulation of class H (180°C).

The voltage is regulated in de-energised state by re-connecting the taps of upper winding coils, normally within the range of $\pm 5\%$. Leads of winding taps can be located on the panel under removable cover. On Customer request it is possible to change the regulation of transformer ratio, depending on the requirements.

The transformers are equipped with lifting lugs used during transportation. For earthing of the transformer the earthing bolts are provided. Maximum temperature of cooling air is $+45^{\circ}\text{C}$.

The transformer are so designed that they can withstand temporary overloads. The overload period depends on transformer power and size of enclosure.

International standards and requirements

The transformers of TZEG series are manufactured in compliance with requirements of the following regulations and standards:

- Ordinance of the Minister of Economy dated June 28, 2002 concerning occupational safety, operations and special fire protections in underground mining facilities (Journal of Laws No. 139, item 1169) with the changes introduced by virtue of the Ordinances of the Minister of Economy dated June 9, 2006 (Journal of laws No. 124, item 863) and dated June 25, 2010 (Journal of Laws No. 126).
- Ordinance of the Cabinet dated April 30, 2004 concerning approval of products for use in mining facilities (Journal of Laws No. 99, item 1003), as amended.
- Technical requirements for products for which the use in mining facilities require an approval due to the need to ensure operating safety in the conditions of risks occurring during operation of mining facilities. Attachments No. 1 and No. 2 to the Ordinance of the Cabinet dated April 30, 2004 (Journal of Laws No. 99, item 1003) with amendments introduced by virtue of the Ordinance of the Cabinet dated April 26, 2005 (Journal of Laws No. 80, item 695).
- PN-EN 60076-1:2011 Power transformers. General requirements.

- PN-EN 60076-11: 2006 Power transformers. Dry-type transformers.
- PN-G-50003:2003 Protection of work in the mining industry. Electric devices for use in mines. Requirements and tests.
- PN-G-42021:1997 Electric power equipment of mines. Transformer stations. Requirements and tests.
- PN-EN 60529:2003 Degrees of protection provided by enclosures.

On Customer's request, the transformers may be built according to other standards or other requirements.

The manufacturer reserves the right to change specifications presented in the catalogue and resulting from product modernisation. Other versions can be agreed with the factory. The Factory is providing in-warranty and post-warranty service, inspections and repairs of its products.

Exemplary specifications and dimensions:

Type	Number of legs kol.	Power	Ratio	Vector group	Short-circuit voltage	Losses		Dimensions			Mass
						No-load	load (115°C)	Length	Width	Height	
						W	W	mm	mm	mm	
TZEG 160/3	3	160	3300/525	Dyn11	2	500	2250	610	415	718	680
TZEG 160/3	3	160	3300/1050	Dyn11	2	500	2250	610	415	718	680
TZEG 630/6	3	630	6000/525	Dyn5	3,5	1800	4200	1450	880	915	2400
TZEG 630/6	3	630	6000/1200	Dyn5	3,5	2200	4200	1450	880	915	2400
TZEG 630/6	5	630	6000/525	Dyn5	3,5	1800	4200	1690	880	710	2400
TZEG 700/6	5	700	6000/525	Dyn5	4,5	1800	5200	1780	880	710	2450
TZEG 700/6	5	700	6000/525	Yyn0	4,5	1800	5200	1820	880	710	2350
TZEG 700/6	5	700	6000/1050/ 525 3000/1050/525	Dyn5	4,5	1900	5150	1820	880	863	2500
TZ3EG 900/6	3	900/600/30 0	6000/1050/ 525	Dyn5/yn5	6/4	3200	5800	1760	880	1000	3200
TZ3EG 900/6	5	900/600/30 0	6000/1050/ 525	Dyn5/yn5	6/4	2900	6200	1780	880	710	2900
TZ3EG 900/6	3	900/600/30 0	6600/1150/575	Dyn5/yn5	6/4	2900	5800	1760	880	1000	3200
TZ3EG 900/6	5	900/600/30 0	6000/1050/525	Yyn0/yn0	6/4	2900	6200	1780	880	710	2900
TZ3EG 900/6	3	900/600/30 0	6600/1200/690	Dyn5/yn5	6/4	3600	5000	1800	880	997	3650
TZEG 1000/6	5	1000	6000/1050	Dyn5	4	2800	5600	1690	800	710	3000
TZEG 1000/6	5	1000	6000/1050	Yyn0	4	2800	5600	1780	880	710	3000
TZEG 1000/6	5	1000	6000/1050/ 525 3000/1050/ 525	Dyn5	4,5	2850	5700	1840	880	872	3250

TZ3EG 1200/6	5	1200/720/4 80	6000/1050/ 525	Dyn5/yn5	3,7/4	3600	5000	2100	800	900	4100
TZ3EG 1200/6	5	1200/720/4 80	6000/1200/690	Dyn5/yn5	4/4	3600	5000	2100	800	900	4150
TZEG 1250/6	5	1250	6000/1200	Dyn5	4,5	2900	8000	1930	880	865	4100
TZEG 1250/6	5	1250	6000/1050	Dyn5	4,5	2900	8000	2020	880	865	4100
TZEG 1250/6	5	1250	6600/1150	Dyn5	4/4,5	2900/2500	8000/8400	1930	880	865	4100
TZ3EG 1250/6	5	1250	6000/1200/1050	Dyn5/yn5	4,5/4,5	2900	8000	1930	880	900	3600
TZEG 1400/6	5	1400	6000/1050	Dyn5	4	3200	7200	2100	880	890	4400
TZEG 1400/6	5	1400	6000/1200	Dyn5	4	3200	7200	2000	880	890	4400
TZEG 1400/6	5	1400	6000/1050	Yyn0	4	3200	7200	2100	880	890	4400
TZEG 1500/6	5	1500	6000/3300	Dyn5	4	3200	8200	2100	880	925	4300
TZ3EG 1500/6	5	1500	6000/1200- 1035/690	Dyn5/yn5	6/6/4	3000	7810/7350/5910	2200	880	1185	5200
TZEG 1750/6	5	1750	6000/1200	Dyn5	4	3500	8800	2060	820	1195	5100
TZEG 1750/6	5	1750	6000/1050	Dyn5	4	3500	8800	2060	820	1195	5100
TZEG 1750/6	5	1750	6000/3300	Dyn5	4	3500	8800	2060	820	1195	5035
TZ3EG 1750/6	5	1750/1150/ 600	6000/1200/690	Dyn5/yn5	4/4	3500	8800	2200	880	1195	5550
TZEG 2100/6	5	2100	6000/3300	Dyn5	4	3200	11500	2120	880	1310	6500
TZEG 2100/6	5	2100	6000/1050	Dyn5	4	3200	11500	2020	880	1310	6400
TZEG 2100/6	5	2100	6000/1200	Dyn5	4	3200	11500	2120	880	1310	6230
TZEG 2100/6	5	2100	6600/1150	Dyn5	4/4,5	3500/3000	11500/12100	2120	880	1310	5700
TZEG 2100/6	5	2100	6000/1200	Dyn5	4	3200	11500	2020	880	1310	6400
TZEG 2600/6	5	2600	6000/3300	Dyn5	4,5	3500	11500	2120	880	1310	7700