



INSTITUTE OF POWER ENGINEERING

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IEn CERTIFICATE

No. 024/2012

(EVIDENCE)

**Name and addresses
owner of certificate:**

**ORW-ELS Sp. z o.o.
ul. Leśna 2
37-310 Nowa Sarzyna, Poland**

Name of the product:

Early streamer emission lightning conductor

Type:

GROMOSTAR / PiX3

Manufacturer:

**ORW-ELS Sp. z o.o.
ul. Leśna 2
37-310 Nowa Sarzyna, Poland**

**Parameters and
application of product:**

**According to appendix
Lightning conductor assigned for lightning protection systems of
objects.**

**The product meets
requirements of the:**

NF C 17-102:2011 and PN-EN 50164-1:2010

**According to the test
report made by:**

Institute of Power Engineering

Number of the test report:

DZC/77/E/2012

Period of validity:

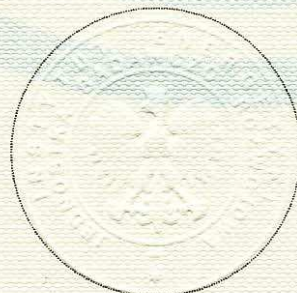
from November 2012 until November 2017

Absolute right to use certificate on his validity date apply to only copies/batch, who meets above-mentioned requirements and the characteristics/parameters of the product are identical like models/samples products presented for the tests.

The appendix to certificate of conformity including the list of evidenced parameters.

The model of certification includes:

- tests and quality assessment of project,
- assessment of supplier quality system.



**DIRECTOR OF INSTITUTE
OF POWER ENGINEERING**

dr hab. inż. Jacek Wańkiewicz

Warsaw, 2012.11.28



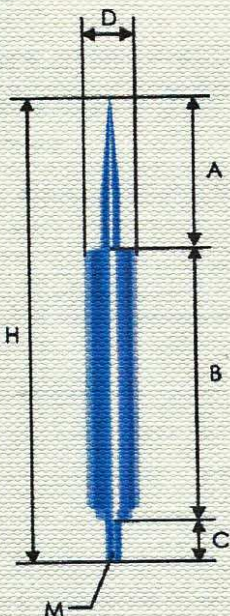
APPENDIX TO IEN CERTIFICATE

No. 024/2012

LIST OF EVIDENCED PARAMETERS

Material	GROMOSTAR / PiX3	
	Stainless steel lightning rot (Ni)	Copper lightning rot (Cu)
Dimensions ¹⁾ [mm]	H - 474; D - 50,8; A - 148; B - 286; C - 40	H - 474; D - 63; A - 148; B - 286; C - 40
Environmental testing in ^{2), 3)} . - Salt mist atmosphere - Moist sulfur atmosphere (667 ppm ± 25 ppm)	positive result	
Current impulse withstand test ³⁾ (impulse current 100 kA; wave 50/350 µs; charge quantity 2,5 MJ/Ω)	positive result	
Advance of time test ⁴⁾	ΔT=60 µs for reference wave with rise time 650 µs	

NOTICES:



- ¹⁾ - dimensions according to the drawing
- ²⁾ - Tests carried out acc. to PN-EN ISO 9227:2007 (salt mist) and PN-EN ISO 6988:2000 (moist sulfur atmosphere).
- ³⁾ - The scope of tests meets the requirements of the following standards: PN-EN 50164:2010 (class H) and NF C 17-102:2011.
- ⁴⁾ - The scope of tests meets the requirements of the NF C 17-102:2011.
- Requirements for the design and creation of the lightning protection system with early streamer emission lightning conductor shall comply the requirements of NF C 17-102:2011.
- Tests confirmed in this certificate applies also to early streamer emission lightning conductor in the varieties presented under the trade names: GROMOSTAR T / PiX3a, JONOSTAR, JONOSTAR T.

