

ELECTRIC IGNITERS

We'll make any igniter you wish.





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Ing. Petr Maták
Owner
META-PYRO, s.r.o.

Dear Business Partners,

We'd like to draw your attention to the presentation of Czech company META-PYRO, s.r.o. and its production programme.

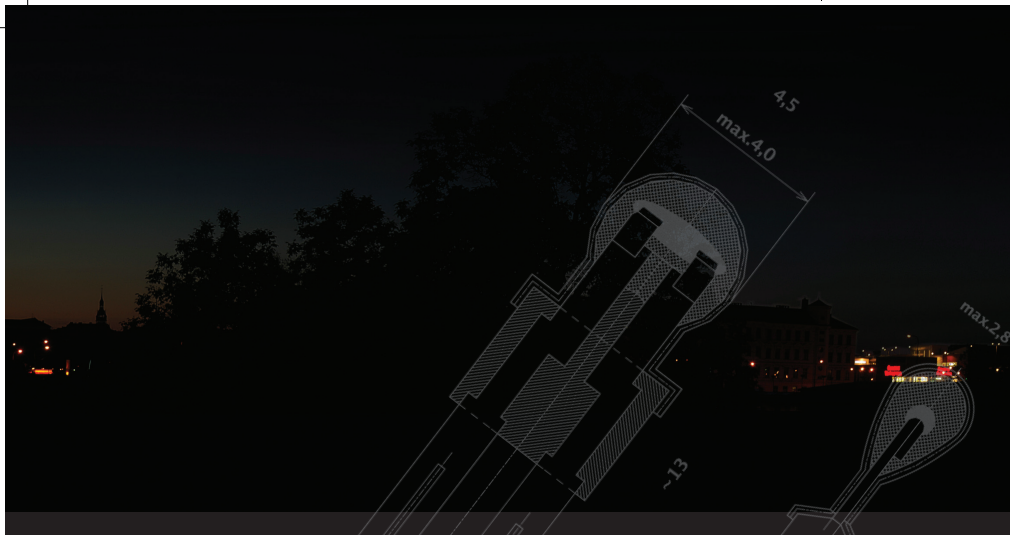
*You'll find here some basic informations, more you can find on **www.meta-pyro.cz**. META-PYRO, s.r.o. is a dynamic company with firm and steady position on European market with electric igniters for firing the fireworks. Our products are designed mainly for professional firing companies.*

The company is specialized in made-to-order production and mounting of small and medium series of electric igniters with preserving of favourable prices. Thanks to single-purpose adjustable machines is possible to react flexibly to all requirements of our clients which may differ regional dependent.

The igniters from META-PYRO, s.r.o. became much sought-after products for fireworkers, their companies verified high reliability and time stability of our igniters. They were also the first who realized that to buy the igniters from manufacturer is very favourable from economical viewpoint.

We export our igniters into 15 European countries, mostly to Germany, UK, Austria and Italy. In Poland, UK and Italy we have our biggest bussines partners who sell our igniters and help our clients with advisory services. In the immediate future META-PYRO, s.r.o. wants to expand this advisory services to other EU countries.

META-PYRO, s.r.o. resides in Moravian metropolis Brno where every spring is organized a firework festival IGNIS BRUNENSIS, which is a show of fireworks from whole Europe and as such is a beautiful opportunity for meeting of firework experts. It facilitates the possibility of an information exchange regarding pyrotechnic products and new trends, which are consequently applied in assortment of META-PYRO, s.r.o. products.



The use of igniters

Electric igniters are used for igniting fuses, black powder, pyrotechnic compositions etc. by their sparkling flame after electric initiation.

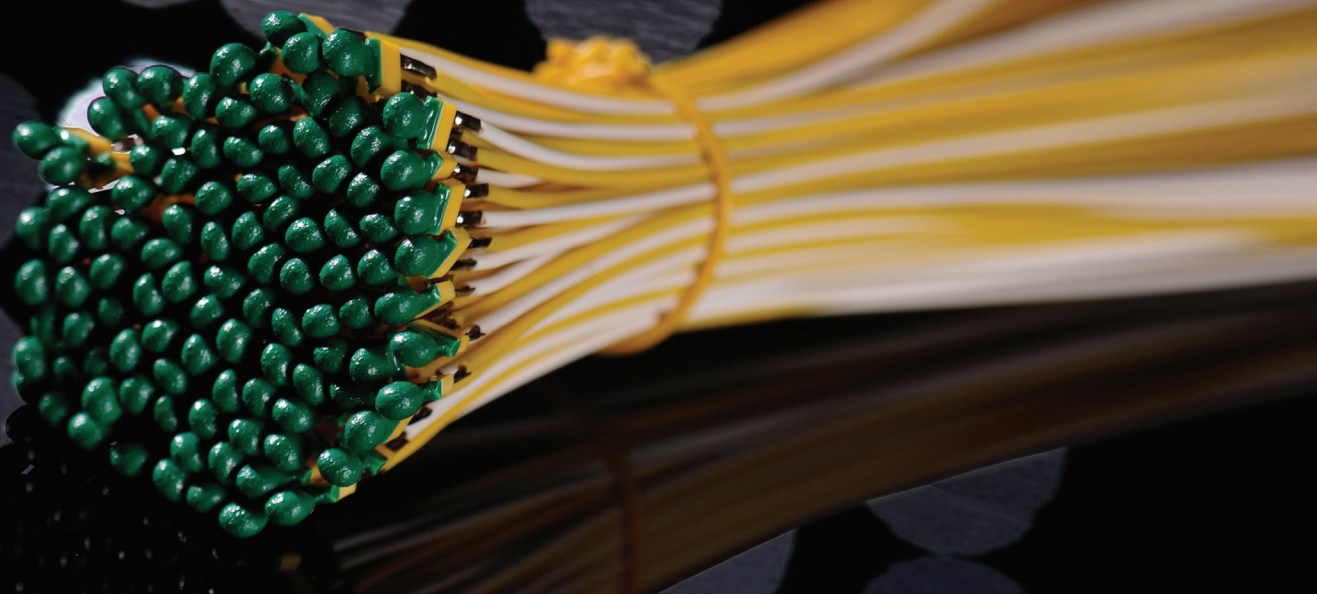
It is a safe and reliable product designed for use in professional fireworks and pyrotechnic effects both outdoors and indoors, e.g. in theatre, music shows etc.

The igniters are designed for professional fireworkers who need reliable igniters possible to be connected into an electric circuit both in series and in parallel. There is nothing special in ten or more of our igniters being connected in one circuit. Thanks to constant characteristics of chemical compounds, high quality of machine and manual work **all igniters** always reliably ignite. This excellent characteristics help to separate our igniters from cheap Asian products.

Igniters made by company Meta-Pyro s.r.o. are certified according GUIDELINE OF EUROPEAN PARLIAMENT AND COUNCIL 2007/23/EU and are labeled with CE2231 mark, which certifies their compliance with mentioned guideline 2007/23/EU, and the igniters may freely circulate within the EU.

Igniter is classified in accord with relevant regulation of guideline 2007/23/EU into category P1 „Other pyrotechnic products“. This category constitutes minor danger.





Fusehead

The basic element of each igniter is a fusehead which determines the electric characteristics and essentially determines its reliability. Electric igniters by META-PYRO are considered as the most reliable and most secure way of firing pyrotechnic fireworks of all kinds and they enable you to carry out firework displays of the highest accuracy.

Used fuseheads:

Type No. 1



Type No. 2



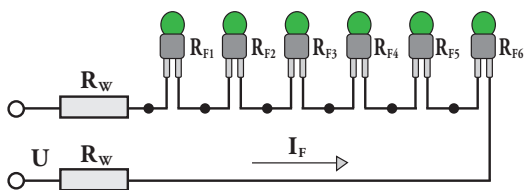
Type No. 22



fusehead type	Igniter identification	fusehead color	selection	fusehead resistance	no-fire current during 5 min.	firing current during 4 ms	temperature range
SO	EMP-SO-ANTI	red	No. 1	0,48 Ω - 0,52 Ω or 0,52 Ω - 0,56 Ω	0.45 A	2.12 A	-20°C to +40°C
	EMP-U-EPX2-SO	green	No. 2				
NO	EMP-A-EPX2-NO	green	No. 22	1,5 Ω - 1,7 Ω or 1,7 Ω - 1,9 Ω	0.18 A	1.0 A	

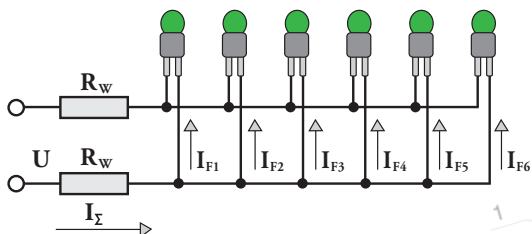
Important: only igniters with identical electric characteristics and from identical manufacturers should be connected into one electric circuit.

Basic connection and simplified calculations



$$R_{\Sigma} = (2 \times R_W) + R_{F1} + R_{F2} + R_{F3} + R_{F4} + R_{F5} + R_{F6}$$

$$I_F \geq \frac{U}{R_{\Sigma}}$$



$$R_{\Sigma} = (2 \times R_W) + \frac{R_{F1} + R_{F2} + R_{F3} + R_{F4} + R_{F5} + R_{F6}}{R_{F1} \times R_{F2} \times R_{F3} \times R_{F4} \times R_{F5} \times R_{F6}}$$

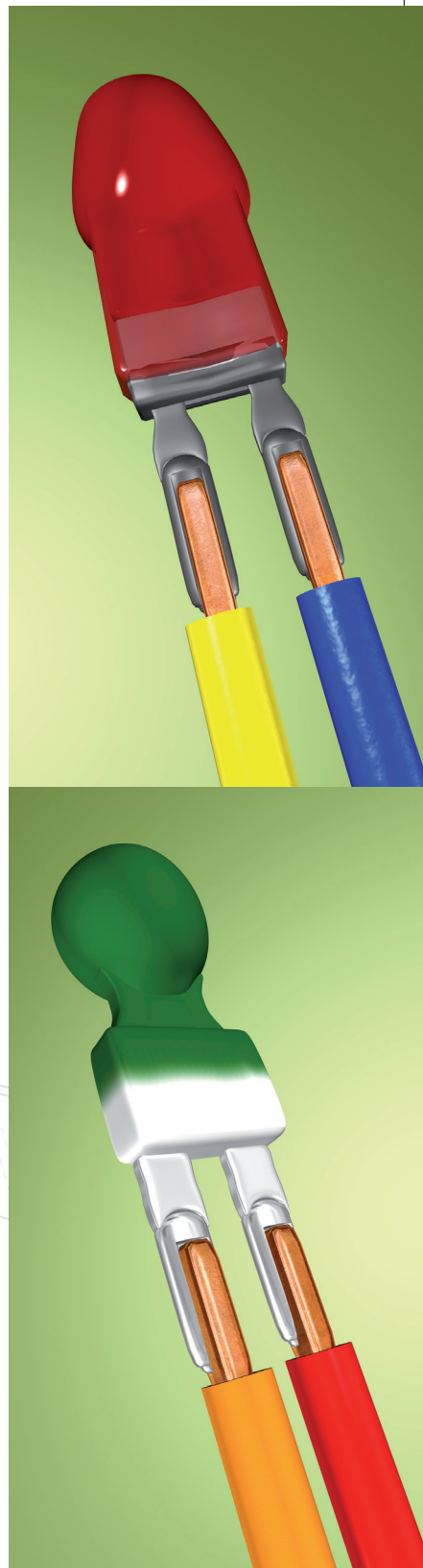
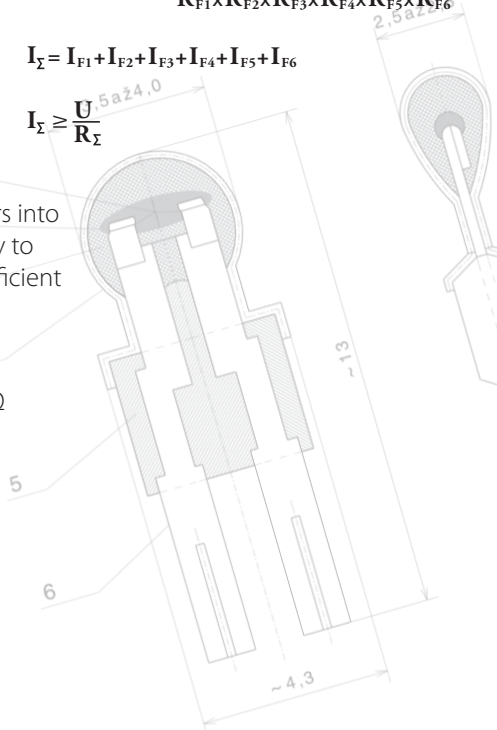
$$I_{\Sigma} = I_{F1} + I_{F2} + I_{F3} + I_{F4} + I_{F5} + I_{F6}$$

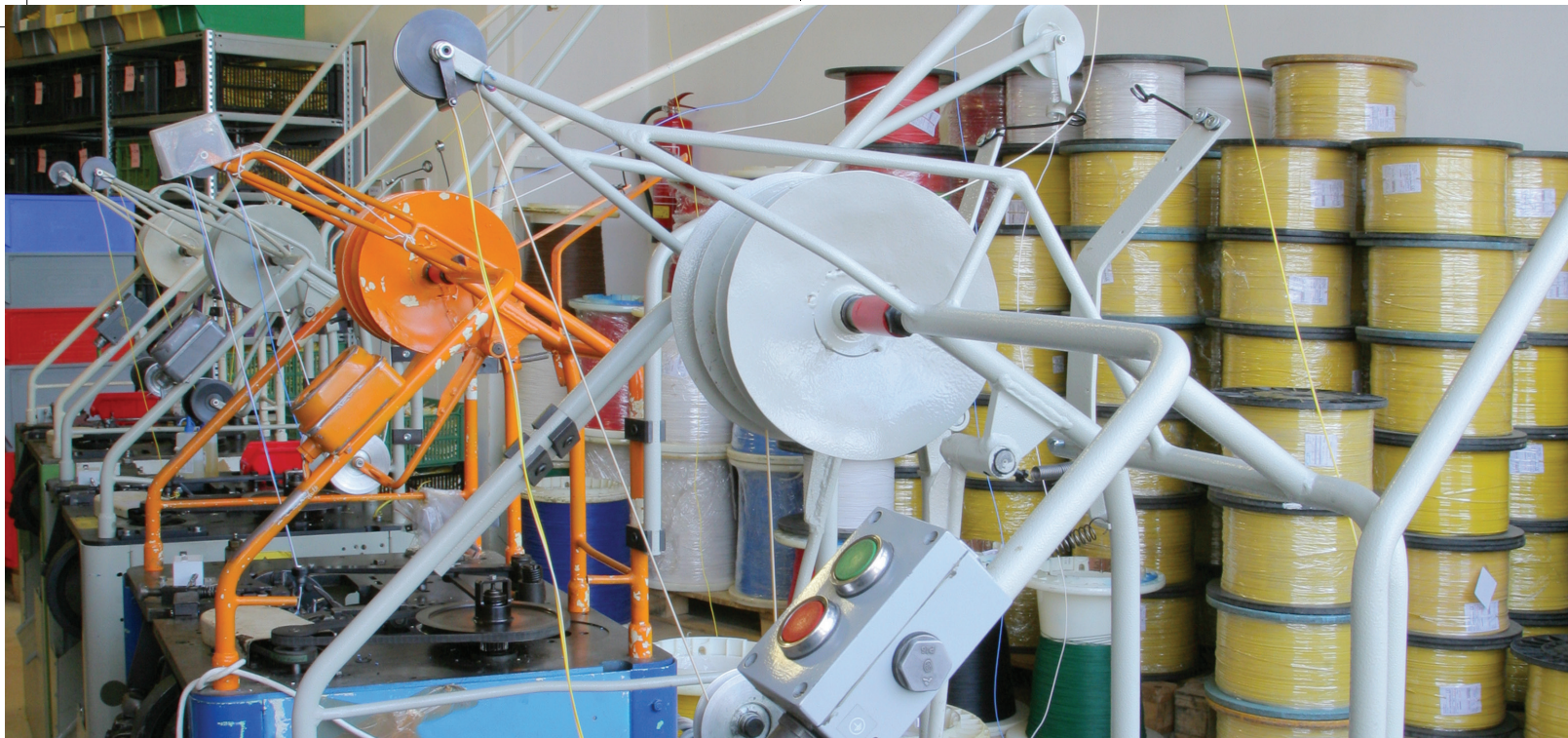
$$I_{\Sigma} \geq \frac{U \cdot 5a \pm 4,0}{R_{\Sigma}}$$

It is possible to connect an arbitrary number of igniters into a pyrotechnic chain - electric circuit, but it is necessary to dimension correctly a source, which has to supply sufficient electric energy within a fixed interval.

Tolerance of fusehead resistance
type No: 0,2 Ω
type So: 0,04 Ω

Average weight of explosive (NEC): 0,0062g/igniter



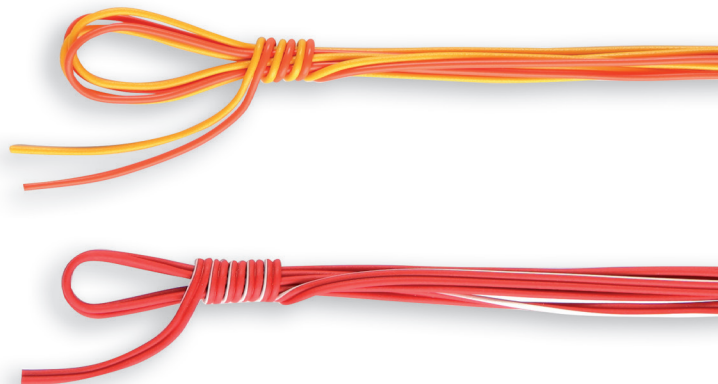


Input wires

The igniters have high quality Cu-wire with a core diameter of 0,5 mm, but the wire can have also another diameter when requested, e.g. 0,45 mm or 0,6 mm. Most igniters are made with classical wire, but igniters with DOUBLE WIRE are often demanded.

An input wire of igniter can have any length. Most demanded are those with 30 and 50 cm of wire, but also with wire length of 1 m, 1,5 m, 2 m, 2,5 m, 3 m, 4 m, and can also be longer.

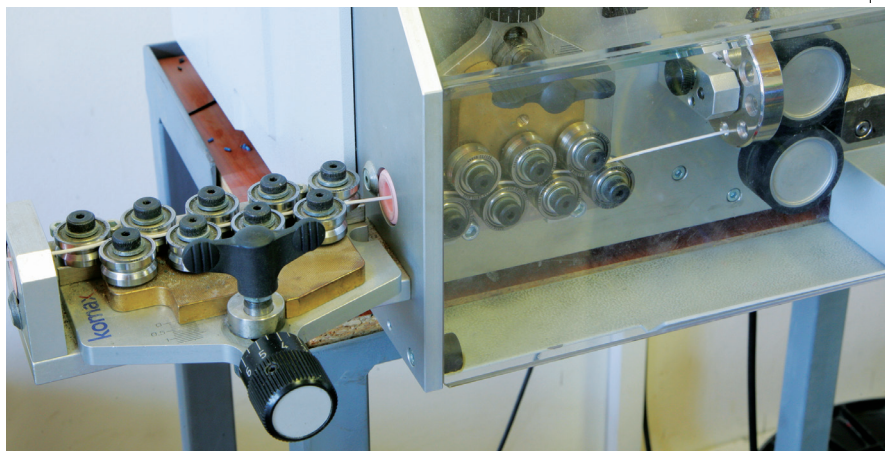
Wire isolation cables may have any colour. Most demanded colours of CLASSIC wire are white, red, blue, green, yellow and black. Double wire is offered in yellow and blue colour, one of the wires bears a white identification strip. For indoor use in theatre etc. we offer black double wire.



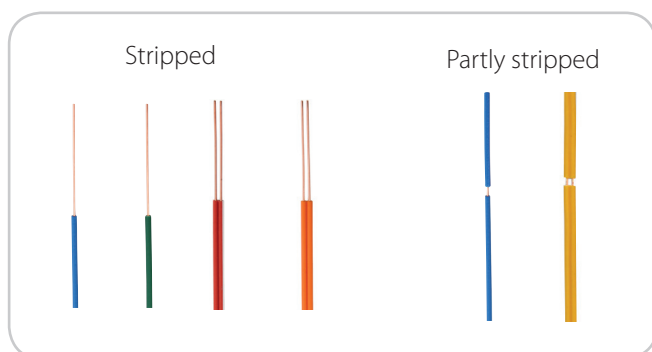
Wire type	wire material	core diameter	diameter including insulation	maximum resistance of 1 m wire
one solid wire	Cu (copper)	0,50 mm	1,3 mm	0,092 Ω
double core wire	Cu (copper)	0,50 mm (2x)	1,33 mm x 2,9 mm	0,092 Ω

Wire end manufacture

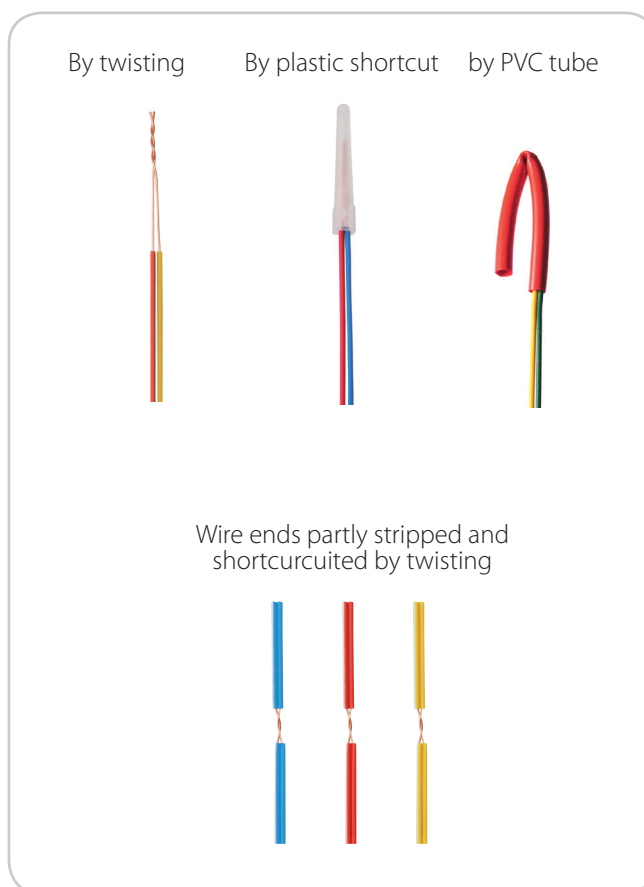
To facilitate the fireworker's task outdoors we adjust the wire ends according to their needs. Wire ends of both classical and double wire can be manufactured in following ways:



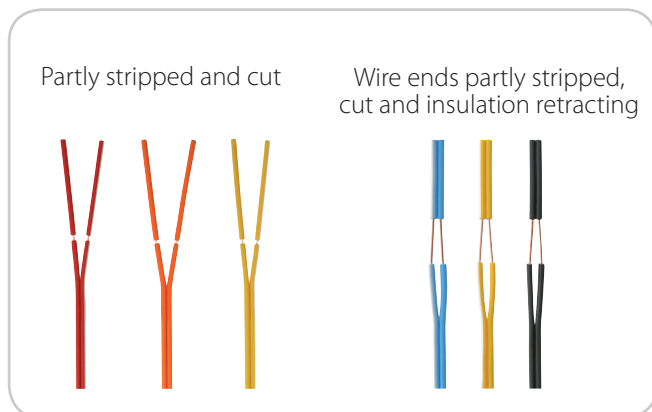
Wire ends can be adjusted in following way:



Shortcircuited wire ends:



Special adjustment of wire ends in double-wire:





Illustrations of igniter mounting

Electric igniters META-PYRO are considered as the most reliable and most secure way of firing pyrotechnic fireworks of all kind and they enable carry out fireworks of highest accuracy.

Quality control on all stages of production, strengthened by the strict quality system (EN ISO 9001:2001) enable us to guarantee an extraordinary reliability, which is crucial for the success of even the biggest pyrotechnic shows.

The igniters might be made:



Without cap



With the cap for
fusehead terminals
to avoid electric
short-circuit



With one-piece
cap



With two-piece
cap

Mounting of two-piece cap





Igniters are made

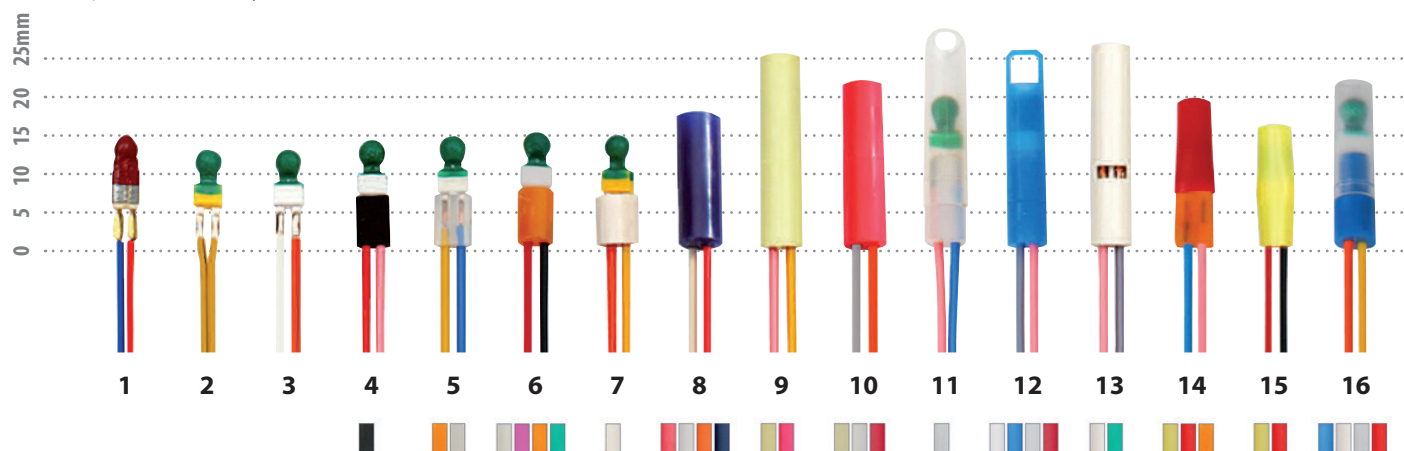
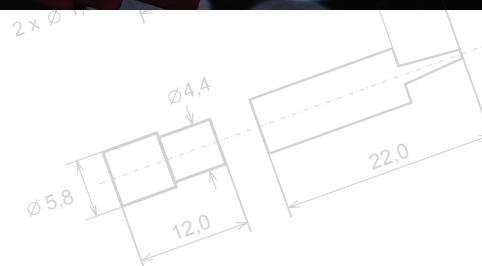
Without cap - type No. 1, 2 or 3

With cap for fusehead terminals - type 4, 5, 6 and 7

With one-piece cap - type No. 8, 9, 10, 13 and 15

With two-piece cap - type No. 11, 12, 13, 14 and 16

Caps can be of any colour



Further informations in 3D you may find on www.meta-pyro.cz



Packaging and transportation of igniters

The packaging of igniters is flexible depending on the quantity and client's requirements. Packaging doesn't limit clients in their choice of assortment and ordered quantity. Priority for us is the transport at the lowest figure - securing of optimum transport time and safety of the transport.

The igniters are delivered directly to the client via freighter. Igniters in bundles or in selling boxes are transported to the client in certified transport cartons.

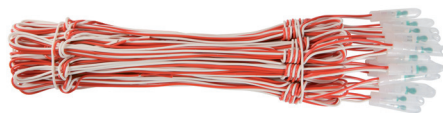
Electric igniters for the purpose of railway, road, sea and air transport are classified according RID, ADR, ADN, IMDG - CODE and IATA-DGR: UN number 0454, class 1.4, tolerance group S.



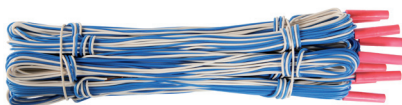
Illustration of packaging igniters without caps into a bundle



Bundle of 25 pcs igniters with 1 m wire length in carton is 2000pcs, 17 Kg



Bundle of 10 pcs igniters with 5 m wire length in carton is 500pcs, 18 Kg



Bundle of 100 pcs igniters with 0,3 m wire length in box, number of boxes in carton is 35 pcs and total number of boxes in 1 carton is 3500pcs, 12 Kg



Ideal packaging for retailer: 50 pcs of igniters of 2 m wire length in small box, quantity of boxes in 1 carton is 200 pcs and total number of igniters in carton is 1000 pcs, 15,5 kg



25 pcs of igniters with 2 m wire length in a box, quantity of boxes in 1 carton is 35 pcs and total number of igniters in 1 carton is 875 pcs, 13,5 kg



Illustration of packaging

250 pcs of igniters with 2 m wire length in a box, quantity of boxes in 1 carton is 4 pcs and total number of igniters in carton is 1000 pcs, 15,5 kg



Transport carton, size 390 x 290 x 310 mm





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