



ISO 9001
OBAC/002/SZJ/20

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INDEX CARD

**Universal flameproof box type
USO 2-**** for connecting power cables and
wires for the voltage of 0.6 / 1 kV and 3.6 / 6
kV**

Flameproof junction boxes type USO 2 - **** are suitable for safe use in underground mines in workings classified as "a", "b" or "c" of methane explosion hazard and "A" or "B" class of dust explosion hazard carbon.

Universal flameproof boxes type USO 2 - **** are intended for connecting thermoplastic-based mining power cables and mining sheathing cables with electromagnetic insulation, sheath and tire with rated voltages not exceeding 3.6 / 6 kV in all excavations non-methane and methane mining plants.

Rated data:

Box type	USO 2-6352, USO 2-6353	USO 2-1402, USO 2-1403, USO 2-1404
Rated voltage U_N	max 6000 V	max 1100 V
Rated current I_N	350 A	400 A
Rated voltage of auxiliary and control lines	25 V AC; 60 V DC	25 V AC; 60 V DC
Short circuit current I_z	10 kA	10 kA
Short circuit time t_z	0.1 s	0.1 s
Dimensions:		
Ø	~325 mm	~325 mm
H	~215 mm	~215 mm
Number of inlets	USO 2-6352 – 2 inlets USO 2-6353 – 3 inlets	USO 2-1402 - 2 inlets USO 2-1403 - 3 inlets USO 2-1404 - 4 inlets
Type of inlets, type of inlets' plug	WKp-1, WKp-2, WKp-3, WKp-4, Z-WK KDB 05ATEX148U I M2 Ex d I Mb I 2G Ex d IIC	
Inlets' reduction type	R-WMg OBAC 09ATEX012U I M2 Ex d I Mb	
Possible combinations:		
- power wires	max 3 wires/ phase, 150 mm ²	max 2 wires/ phase, 185 mm ² for 6-wire cables 120mm ²
- control wires	max 6 wires, max 4 mm ²	max 12 wires, max 4 mm ²
- grounding wires	max 70 mm ²	max 95 mm ²
- force wires' screens	into the housing	into the housing
- general screens	into the housing	into the housing
Working temperature	from -10° C to +40° C	
Work location	any	
Total weight	about 70 kg	
Sight glasses		Flameproof sight glasses type WZ FTZU 07ATEX0246U I M2 Ex d I



Remarks:

- Weight shown without cable inlets.
- Each inlet's socket can be plugged with an approved Z-WKp gully plug or R-WMg reducer
- For boxes type USO 2-1402, USO 2-1403, USO 2-1404 it is possible to use three types of covers: cover without sight glasses or cover with four sight glasses WZA-70 or three sight glasses type WZA-90.

Universal flameproof boxes type USO 2 - ****:

USO 2-6352 – box with an insulation level of 6000 V, with current terminals 350 A, straight through, 2 cable inlet sockets,

USO 2-6353 – box with an insulation level of 6000 V, with current terminals 350 A, straight-through or branching, 3 cable inlet sockets,

USO 2-1402 – box with insulation level max. 1100 V, with current terminals 400 A, straight through, 2 cable inlet sockets,

USO 2-1403 – box with insulation level max. 1100 V, with current terminals 400 A, straight-through or branching, 3 cable inlet sockets,

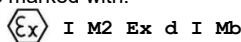
USO 2-1404 – box with insulation level max. 1100 V, with current terminals 400 A, straight-through or junction, 4 cable inlet sockets.

For boxes type USO 2-1402, USO 2-1403, USO 2-1404 it is possible to use three types of covers: cover without sight windows or cover with four sight windows WZA-70 or three sight windows type WZA-90. For USO 2-6352 boxes, USO 2-6353 the cover is without sight glasses.

Certificate:

The universal flameproof boxes type USO 2 - **** have the EU examination certificate: **OBAC09ATEX266X** from **20.10.2009r.** which is supplemented by **Appendix No. 1** from **30.07.2012.** issued by the Center for Testing, Attestation and Certification OBAC Sp. z o. o. in Gliwice. The basic requirements of safety and health protection were implemented by meeting the requirements of the following standards: PN-EN 60079-0:2013 i PN-EN 60079-1:2014.

The universal flameproof boxes type USO 2 - **** are marked with:





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Universal flameproof box type **USO 2-**** for connecting power cables and wires for the voltage of 0.6 / 1 kV and 3.6 / 6 kV**

Admission:

By the decision of the President of WUG, the universal flameproof boxes type USO 2-6352 and USO 2-6353 are approved for use in underground mining plants.

Device	WUG approval mark	Document
USO 2 - ****	GX - 91/12	L.Dz. 4416/10/2012/KR GEM.4740.63.2012

1. Purpose of the series of types of modern USO 2 - ** boxes**

- The series of types of universal USO 2 - **** boxes is intended for connecting power cables of mining conductors. Various combinations of connected elements are allowed, i.e. cable-to-cable, cable-to-wire, wire-to-wire for voltage from 1kV to 3.6 / 6kV.
- The series of types of these boxes allows, in the case of 3.6 / 6 kV boxes, to connect 3 cables with each other, and in the case of 1 kV cables and wires, to connect 4 cables or wires.

2. Description of the construction of universal boxes type USO 2 - ****

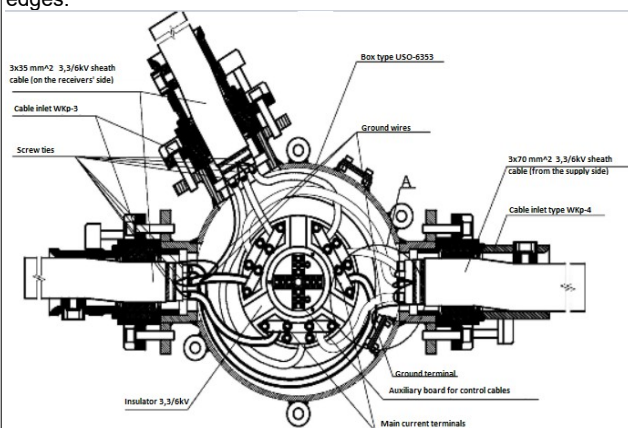
- Universal flameproof boxes type USO 2 - **** are made in the form of a cylinder made of steel pipe, the bottom of the casing is welded to the casing with a tight weld. The upper reinforcing ring is welded to the upper surface of the cylinder by a tight weld, which forms a flameproof cylindrical joint with the box cover (when folded). It is possible to use 3 types of covers: with 4 sight glasses, with 3 sight glasses or without sight glasses. Depending on the casing type, 2, 3 or 4 cable inlet sockets are welded in the cylinder. Inside the box, four support sleeves are welded to the bottom to which the base of insulators is attached.
- There are 6000V or 1100V insulators screwed to the base of the insulators. Outside, the box has 4 sleeves welded on to attach or suspend the box.

3. Characteristics of USO 2 - ** boxes**

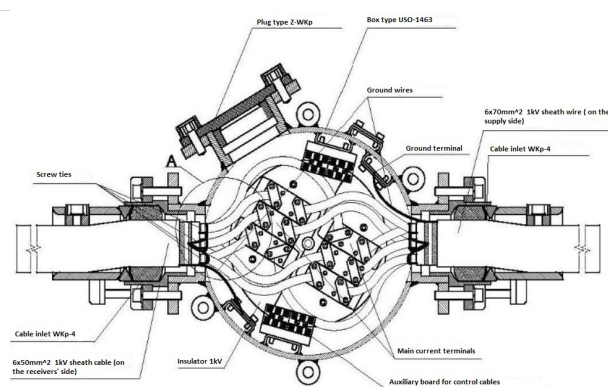
- The basic feature of the series is their universality: The box housing can be used for voltages up to 1kV and 3.6 / 6kV.
- The universality also lies in the possibility of using the enclosure of the box to enclose the 1100V insulator for connecting wires with a single system of supply wires as well as with a double system (6 wires).
- It is possible to use the box housing with a cover with sight glasses to install measuring or signaling systems.
- It is possible to connect more than 2 cables or wires together - 3 cables for 6kV boxes, 4 cables for 1kV boxes.
- The box can also be used to lead out the signal or control cable by using a reducing plug in the inlet.
- Apart from connecting power wires, it is possible to connect up to 12 control wires (6 control wires for USO 2-6352, USO 2-6353 boxes) located in power cables, e.g. 1kV and 3.6 / 6kV power supply for longwall shearers.

4. Other features of USO 2 - ** boxes**

- Simple and tight closing of the box - opening can be performed with a universal key for mine switches, the so-called roll with a rack.
- The control circuits in the USO 2-6352, USO 2-6353 boxes are located in a fully shielded box in the center of the box insulator.
- Each box has internal and external terminals for connection to the SUPO of the mining plant.
- USO 2 - **** boxes can work in a horizontal and vertical position. They are adapted to be attached to the side wall or, for example, to the structure of a face conveyor.
- The oval shape of the boxes and the inner lining of the boxes type USO 2-6352, USO 2-6353 protects the inner wires against contact with sharp edges.



Installation example of three 3.3 / 6 kV sheathed cables with general and individual screens, with control cables in a USO 2-6353 box



Installation example of two 1 kV sheathed cables with general and individual screens, with control cables in a box type USO 2-1403 (as a through box) - connection of control cables not shown