



Detection in iron ore



Detection tramp metal on belt splice



Detection of non-magnetic manganese steel



Detection metal by size or length

Tramp Metal Detector

The metal detector «Barrier» was developed for detection **manganese** steel in the flow hematite and **magnetite iron ore** with iron content **up to 70%** (and other highly mineralized or magnetic ores), it is the device for detecting tramp metal fragments in the flow of moving material even when conveyed on steel corded belts, operating in a continuous mode. The metal detector is designed to ensure trouble-free operation of crushing equipment at mining and processing industries by automatic detection of metal fragments of both magnetic and non-magnetic metals.

Detection in iron ore

Metal detector «Barrier» is effective on conveyor belts transporting hematite and magnetite iron ores with an iron content of up to **70%**.

Detection of manganese steel

Sensitivity to magnetic metal and non-magnetic manganese steel is equal, which makes it possible to detect manganese steel of smaller dimensions.

Detection on belt splice

It allows detecting foreign metal on riveted belts, even directly at the joint.

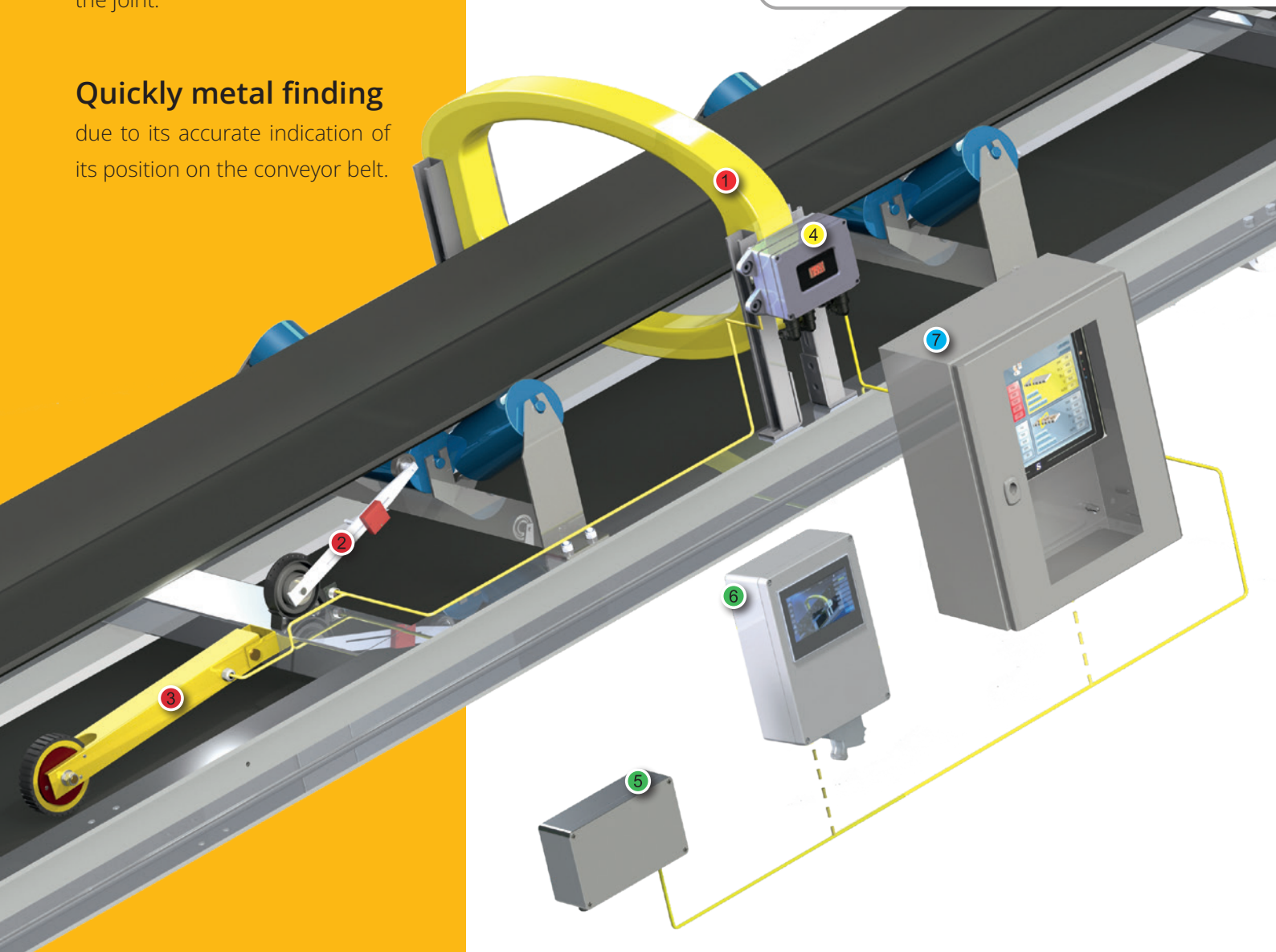
Quickly metal finding

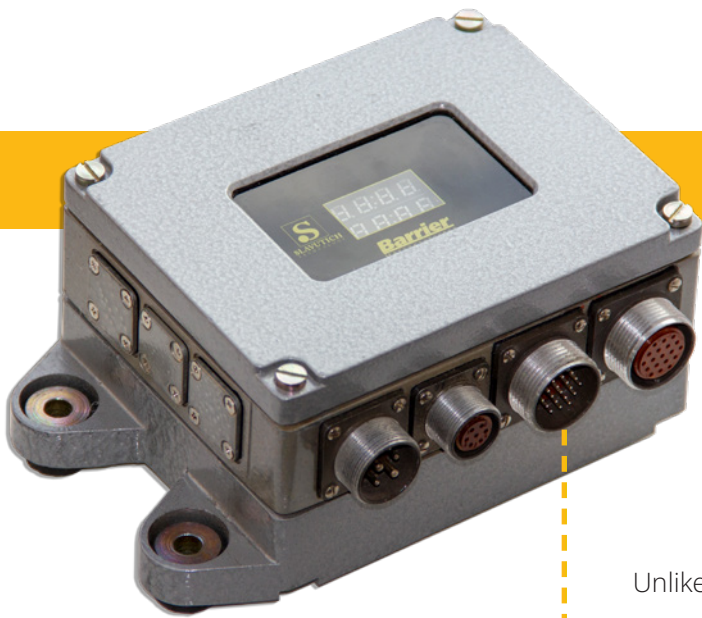
due to its accurate indication of its position on the conveyor belt.

The metal detector stops the conveyor for manual extraction (or controls the rectifier station electromagnetic separator for automatic removal) when the tramp metal is detected, shows the size and length of the detected metal and its position relative to the conveyor search coil on the local digital display and remote graphical display.

Prevents conveyor belt damage due to long rods piercing the belt at transfer points, the Metal Detector «Barrier» in this mode selectively detect only long metal objects of a given length

- 1 - Conveyor search coil 1D203
- 2 - Belt clip detector module 1C503
- 3 - Metal position module 1C301
- 4 - Conversion module 2M409F / 2M409A
- 5 - Control module 3B409M or
- 6 - Control module 3B409E
- 7 - Operator panel 5E409





Conversion module 2M409F

The module 2M409F performs the metal detection function, automatic adjustment when the composition of iron ore changes, sensitivity correction, calculates the size and length of the detected metal and its position on the conveyor belt.

Unlike many other Metal Detectors, in case of several fragments are detected, 2M409F displays their total size, which eliminates metal skipping when searching for it, if there are several tramp metal fragments on one section on the belt, and some of them are under the transported material.

Control module 3B409E

The 3B409E module provides visualization and control of the metal detector, network connection via Ethernet (Modbus TCP) / RS485 (Modbus RTU), user access control system, event log, visualization of the primary data of the metal detector in real time mode.

3B409E could be installed up to 50 meters from the metal detector's conveyor search coil .



Features



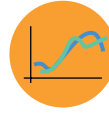
Remote diagnostics of the metal detector



Autocorrection of metal detector settings



CAN / Modbus TCP / RTU networking capabilities



Visualization and data analysis



User access restriction



Event log

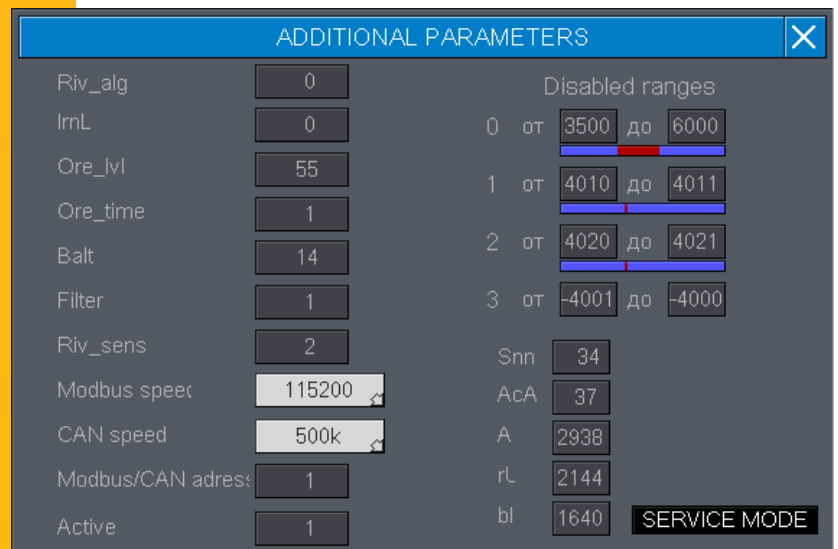
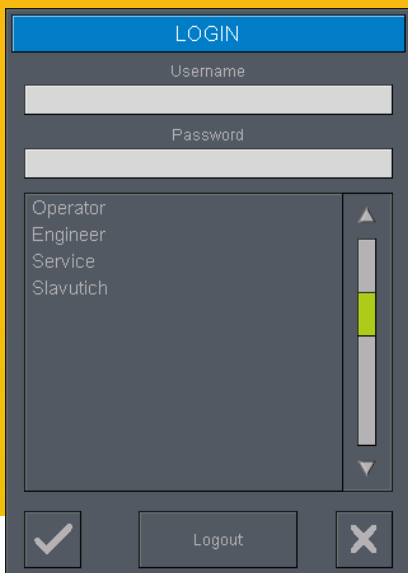
Autocorrection of settings during ore properties change

Autocorrection of metal detector settings is performed by the method of operational control of the content of a useful component in the iron ore (or other highly mineralized or magnetic ores) raw material (product), comparison of the obtained data with preset product profiles and automatic profile switching.

Fine tuning

Real-time access to all parameters and variables of the metal detector allows you to make such settings without going directly to the production line during its operation:

- ore compensation
- belt joint adjustment
- sensitivity setting



User access restriction

Ability to create your own policy for delimiting access to the metal detector. Operate up to 255 users with different levels of access to changing parameters or profiles of metal detectors. Each authorization in the system is registered in the Event Log.

Remote Diagnostics

Remote management via VNC, as well as full access to display and configure all metal detector parameters over Modbus TCP (Ethernet).

Data analysis

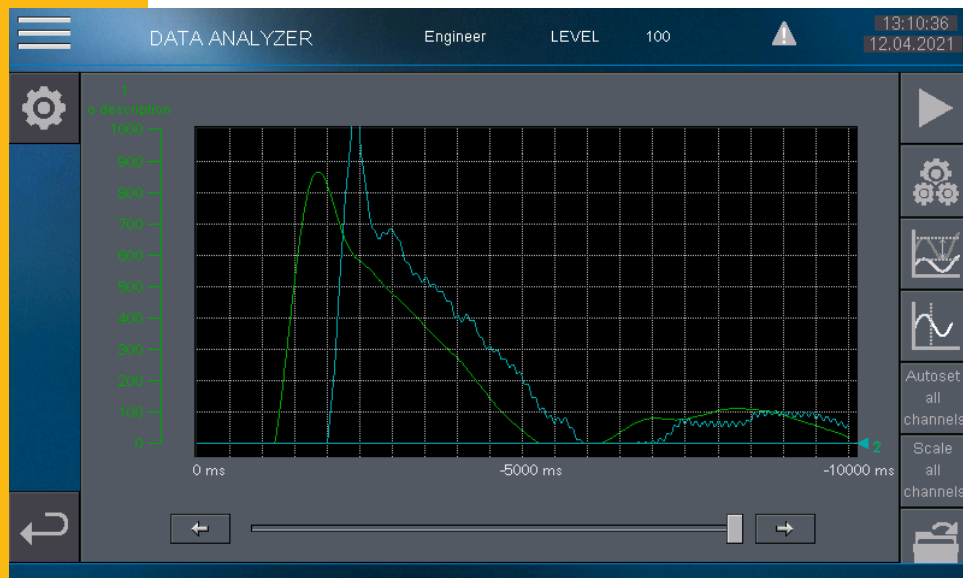
Real-time visualization of metal detector data, with the ability to display by trigger, fix and scale each channel.

Sensitivity mode

Two sensitive mode can be activated separately or together: along the length and/or over the total size of the foreign metal. Every mode has own relay output signal if they activated together.

Control of operator actions

It is carried out based on the results of analyzing the data of the event log and allows you to reliably establish the effectiveness of metal detection with the ability to save data to a USB drive.



The screenshot shows the 'EVENT JOURNAL' interface. At the top, it displays 'Engineer', 'LEVEL 100', and the time '12:41:40' on '12.04.2021'. The main area is a table with columns for 'EVENTTIME', 'LEVEL', and 'DESCRIPTION'. The events are color-coded: red for errors, cyan for status changes, green for PLC actions, and purple for parameter changes.

EVENTTIME	LEVEL	DESCRIPTION
12.04.21 12:41:37	0	The end of the ore
12.04.21 12:41:35	0	CONVEYOR_BLOCK ERROR
12.04.21 12:41:34	0	Metal detection, size - 1470
12.04.21 12:41:34	0	Distance to metal - 12
12.04.21 12:41:34	0	Length - 8
12.04.21 12:41:34	0	The beginning of the ore
12.04.21 12:35:56	0	Parameter Ore_level changed 50(Old:0)
12.04.21 12:35:53	0	Parameter U changed 220(Old:0)
12.04.21 12:35:43	0	Start the conveyor
12.04.21 12:35:43	0	Conveyor stop
12.04.21 12:35:43	0	Start the conveyor
12.04.21 12:35:43	0	Conveyor stop
12.04.21 12:35:30	0	The end of the ore
12.04.21 12:35:28	0	PLC turned on
12.04.21 12:35:28	0	PLC turned off
12.04.21 12:35:28	0	No CAN communication
12.04.21 12:35:28	0	PLC turned on

Operation of the metal detector during welding

It is possible without loss of sensitivity at a distance of 2 meters from the metal detector search coil.

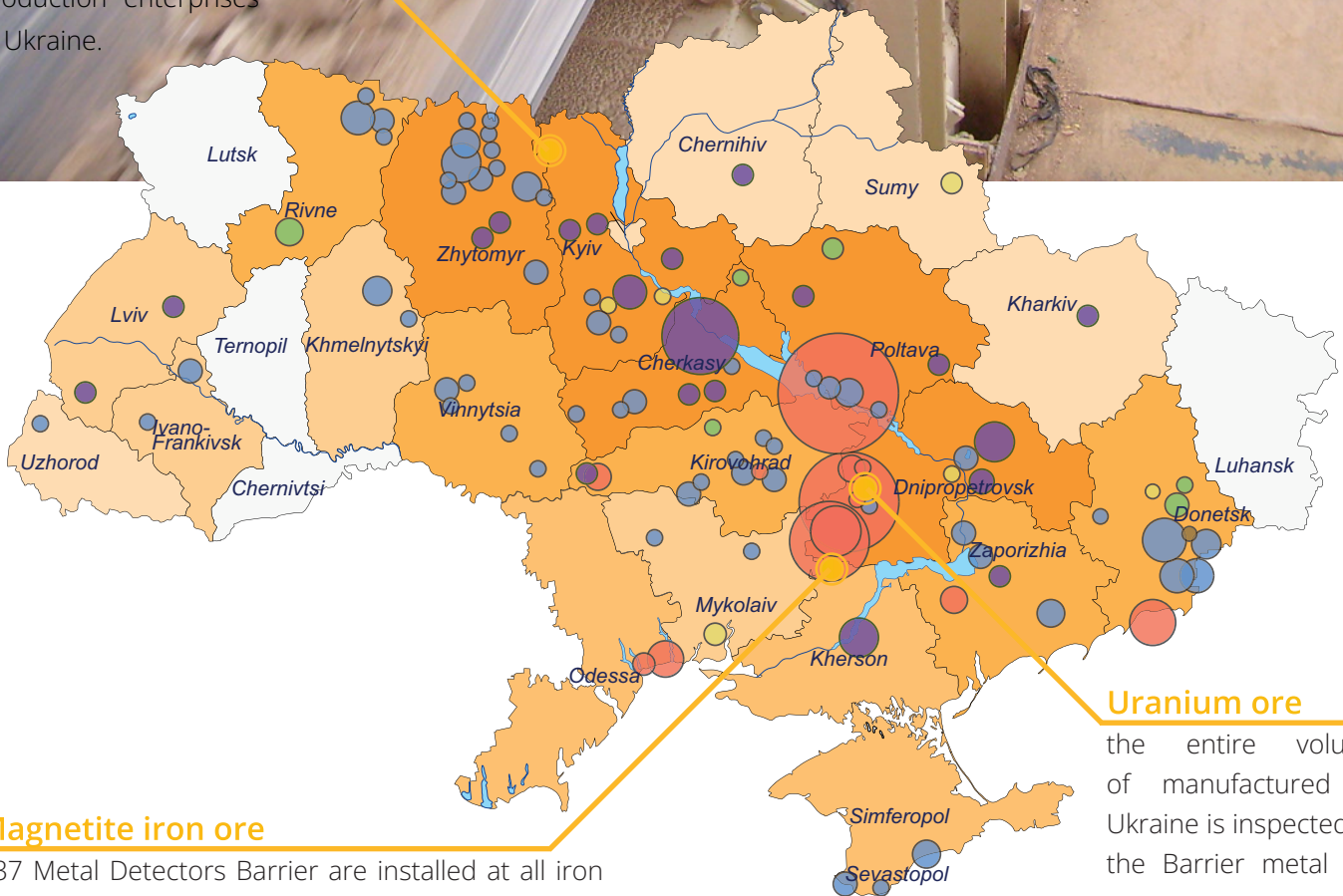




Installation of metal detectors

Granite

Metal Detectors «Barrier» have been installed at 53 crushed stone production enterprises in Ukraine.



Magnetite iron ore

137 Metal Detectors Barrier are installed at all iron mining and processing plants and bulk seaports in Ukraine.

Uranium ore

the entire volume of manufactured in Ukraine is inspected by the Barrier metal detector

Kazakhstan

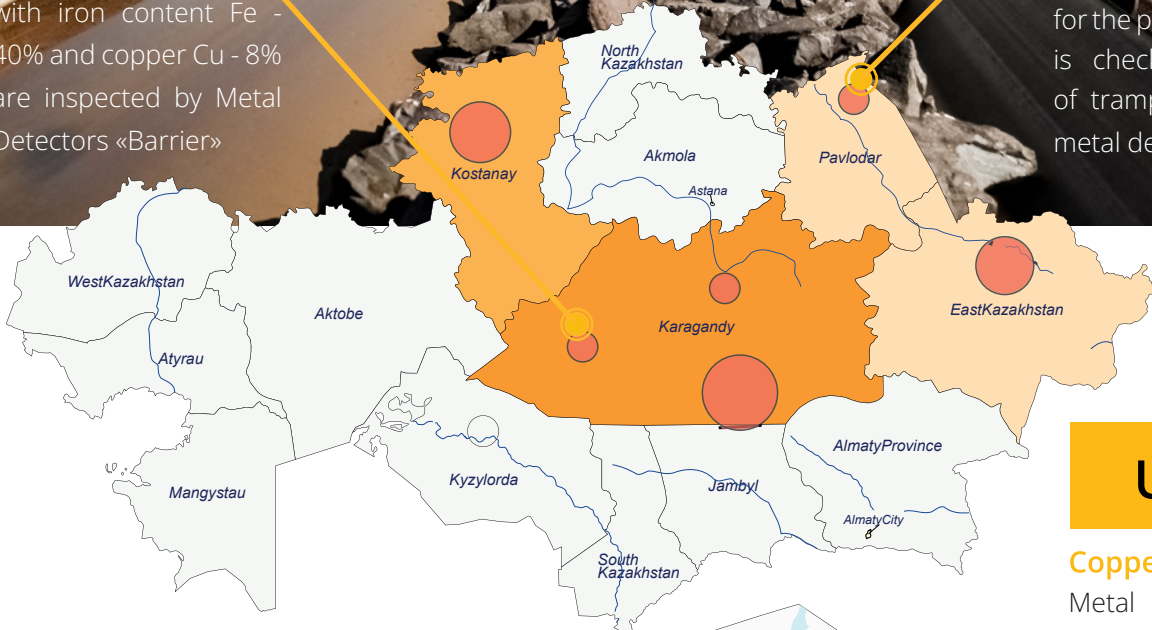


Converter slag

with iron content Fe - 40% and copper Cu - 8% are inspected by Metal Detectors «Barrier»

Bauxite ore

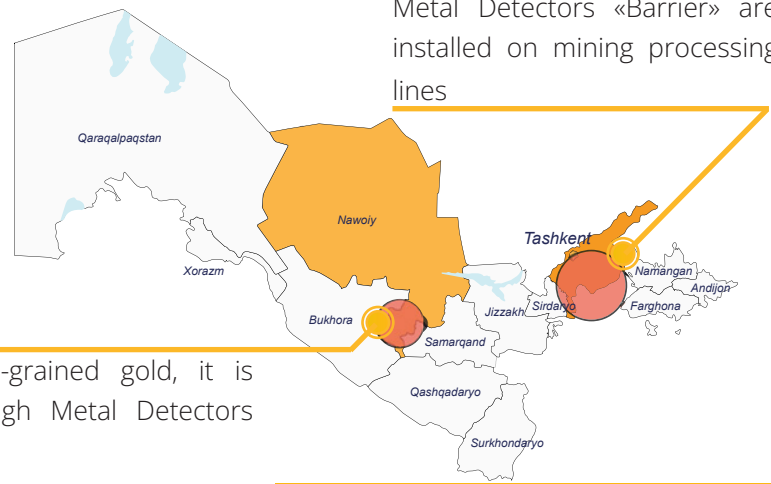
for the production of aluminum, is checked for the absence of tramp metal with «Barrier» metal detectors.



Uzbekistan

Copper-molybdenum ore

Metal Detectors «Barrier» are installed on mining processing lines



Sulphide ore

to output coarse-grained gold, it is transported through Metal Detectors «Barrier-409»

Guatemala



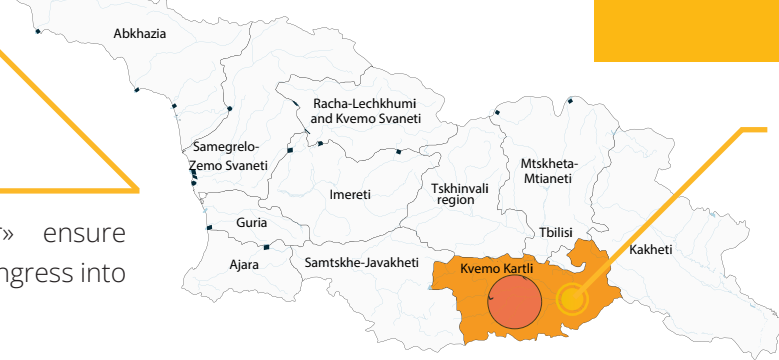
Nickel ore

metal detectors «Barrier» ensure prevention of tramp metal ingress into crushing equipment.

Georgia

Iron oxide-gold-copper ore

of six different types is inspected by the «Barrier» Metal Detectors





We are a leading company with 26 years of experience in the development and production of industrial metal detectors for work with highly enriched and magnetic ores. Since 1997, we have installed over 700 different types of tramp metal detectors for many industries, including metallurgy and mining.

Our first model of the «Barrier» metal detector was developed in September 1997 specifically for the mining and metallurgical complex to process magnetic iron ores. It was the first detector that used digital signal processing, automatic adjustment, and the ability to detect iron and manganese steel, including non-magnetic excavator teeth in a stream of iron ore, without losing sensitivity.

We continuously modernize our «Barrier» metal detectors, maintaining pin-to-pin compatibility with older models. Thanks to this, we ensure support for metal detectors even of the 1997 production year.

Thanks to continuous development and modernization of technologies, we guarantee our clients reliable and efficient solutions that meet the highest industry standards.

 **metal detectors made in Poland**

Weighing & Inspection BV
Brielstraat 112,
9990 Maldegem, Belgium
+32 50 71 09 20
info@wibe.be or info@dynascales.be
www.dynascales.com

Dynascales.com

Powered by Weighing & Inspection