



**HOW TO CHOOSE GIRIS INTRINSICALLY SAFE TOOLS**

It is essential to know: intrinsically safe tools, made of steel alloys coated with copper and bronze does not fully meet requirements of GOST 31441.5-2011 and can be a source of fire or explosion, it is also exposed to accelerated corrosion, that does not comply with safety instructions on warranty when exposed to hydrogen sulfide. Tool made of aluminium-bronze alloy BrA\*<sup>1</sup> or copper, does not satisfy the requirements for hardness and strength, safety requirements for installation and repair work (the tool may be broken in hands) and is subject to considerable deformation, that creates great difficulties during the operation.

Искробезопасный инструмент SESTRUM

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**DESCRIPTION**

Hand-operated intrinsically safe, nonmagnetic, corrosion resistant tool, made of beryllium-nickel alloy with addition of nickel BrB2<sup>2</sup> (durability D), allows to work safely in all classes explosion-proof zones and fire-hazardous zones. Intrinsically safe tools are made according to Specifications (TU)3926-003-87311639-09 and meet all requirements. Mechanical and technical parameters of the material of which tools are produced are comparable to similar parameters of steel alloys. The characteristics of the material ensure long term service of tool. Hand-operated intrinsically safe made of beryllium-nickel alloy BrB2 with addition of nickel and meets the requirements of safety instructions on warranty when exposed to hydrogen sulfide. Hand intrinsically safe tools are designed for equipment installation and maintenance works in potentially explosive and fire-hazardous areas at ambient temperatures from -60°C to +60°C.

**INNOVATIVE TECHNOLOGIES**

For giving high strength preforms for beryllium alloy workpieces on specially developed cyclic process of aging when producing GIRIS intrinsically safe tools (technology of increased strength and flexibility) the cyclic annealing process is being held in dissociated ammonia (a mixture of ammonia and hydrogen) with a small addition of argon and other gases. All this has allowed to produce a very wide range of products with the durability D.

**TECHNICAL FEATURES**

Ambient temperature, °C	-60...+60
Durability	D
The composition of the material from which the tool are made	Bronze-beryllium alloy with the addition of nickel

*Basic data on the materials used for GIRIS tools manufacturing*

Name of marking	Main composition, %				Impurity content, not above %				
	Be	Ni	Ti	Cu	Al	Fe	Pb	Si	the total % of impurity
BrB2	2,0	≤0,07	–	0cr.	0,15	0,15	0,005	0,15	0,5

**OPTIONS, ACCESSORIES AND VERSIONS**

- Explosion-proof box (case with corrugation) for transportation and storage in accordance with GOST R EN 13463-5-2003 / KEYS.

**MARKING FOR ORDER.**

NAME - SIZE / VERSION AND ACCESSORIES OR GIRIS CODE FOR ORDER

**INTRINSICALLY SAFE TOOLS OPERATING RULES**

Hand-operated intrinsically safe tool, as long as steel, may acquire a small deformation as a result of excessive wear or misuse. Such deformation is easily eliminated by surface treatment, both flat

and curved parts of the instrument: sharpening, trimming. It is only allowed to requalify the tool out of hazardous area at room temperature. Scraping should be done with cooling for heating of tool does not exceed 200 ° C. Overheating can aggravate the hardness of intrinsically safe tool, resulting to a loss of strength.

For complete information on GIRIS tools you please look at the site [gorpalex.ph](http://gorpalex.ph).

<sup>1</sup> CuA\*.

<sup>2</sup> CuBe2Ni(Co).

