

INDUSTRIAL AUTOMATED SYSTEM «NIKA-M75» FOR SAPPHIRE SINGLE CRYSTAL GROWING BY KYROPOULOS TECHNIQUE

Equipment is intended for industrial production of sapphire single crystals of optical and optoelectronic quality with weight up to 75 kg.

Technical parameters

Heating temperature	Up to 2200° C
Type of heating	Resistive
Crystal weight	Up to 75 kg
Weight sensor sensitivity	0.5 g
Upper shaft translation	200 mm
Rate of upper shaft movement	от 0,05 mm/h до 130.0 mm/min
Upper shaft rotation	1-50 rpm
Voltage regulator type	Thyristor or IGBT
Output power	0,1 – 80 kW
Precision of power control	0,003 kW
Output power deviation	± 0,1%
Limit vacuum in chamber	$2 \cdot 10^{-4}$ Pa
Pressure of cooling water	200 - 250 kPa



Equipment advantages:

- Automatic system for growth control using a weight sensor
- Direct high precision crystal weighing
- Heat flux measurement through structural elements of equipment
- Video supervision system of the initial stage of the growing process
- Remote control and management of equipment
- Precise control of heating power
- Up to 20% energy savings with using a IGBT voltage regulator

