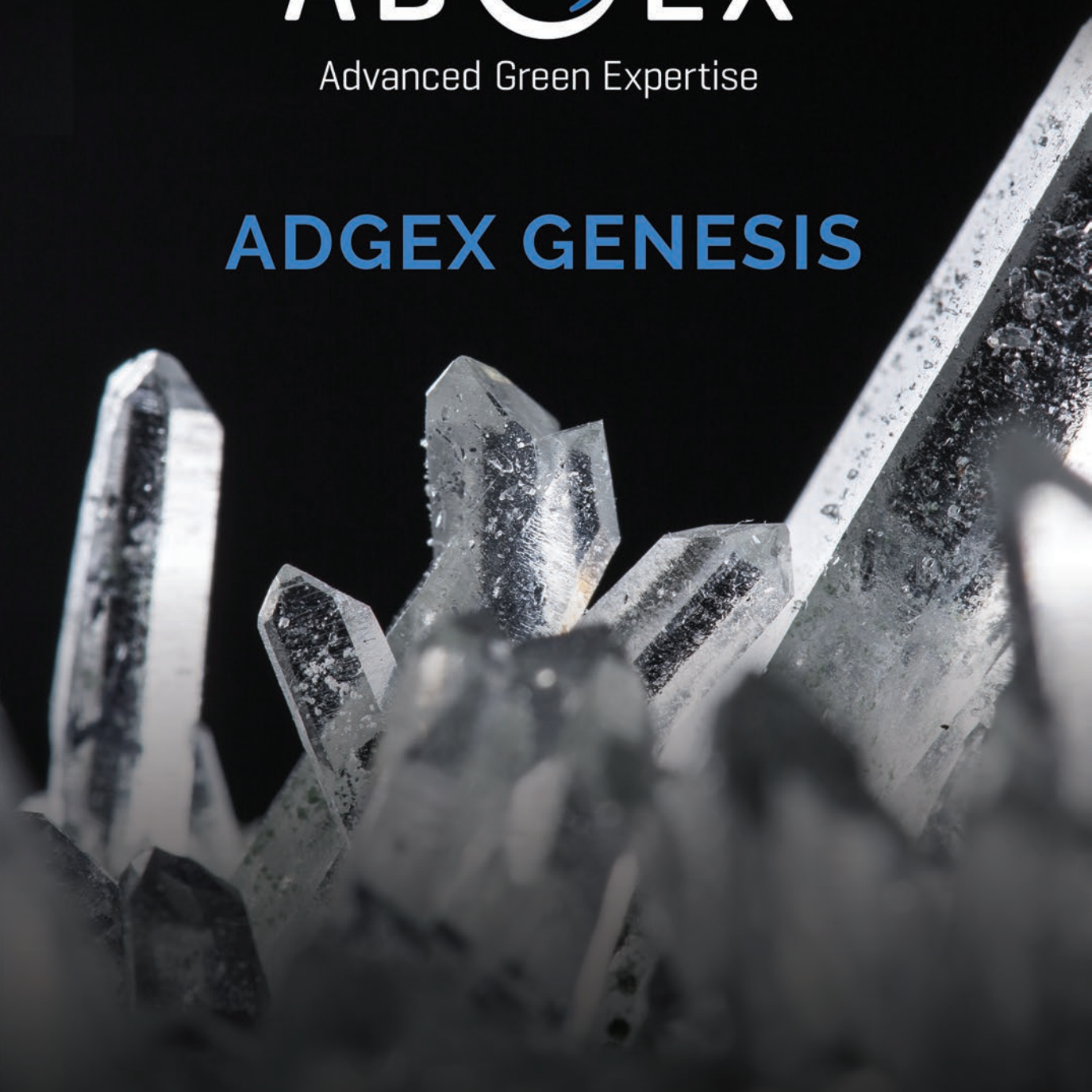




Advanced Green Expertise

ADGEX GENESIS



INNOVATIVE HIGH-END PLATFORM
FOR ULTRA-PERFECT SINGLE
CRYSTALS GROWTH

ULTRA-PERFECT SINGLE CRYSTALS

Crystals are the most eagerly sought, expensive and at the same time deficient component of modern instruments. Crystal is able to generate laser beam, detect ionized radiation, transform solar light into electricity etc. Nevertheless, scientific and technological progress demands higher level of perfectness and enhanced specifications of single crystals.



**"IDEAL"
SINGLE CRYSTAL**

Ultra-Perfect or "Ideal" single crystal is volumetric crystalline system with completely faceted crystallization frontline, free from defects with high transparency level.

Crystals has no lifetime – however, majority of market fields are currently experiencing ever-growing shortage of high quality flawless single crystals due to energy intensive existing methods of their growth and high level of wastes generation from initial feedstock.

ADGEX GENESIS has evolved innovative technological platform for synthesis of "ideal" large-format and oriented single crystals.

ADGEX GENESIS PLATFORM EMBRACES

- New scientific field in the area of single crystals growth
- Innovative technology of single crystals synthesis "Exceptional Environment"
- Unique apparatus for single crystals growth

Such holistic approach allows us to deliver turnkey solutions for any customers needs in the field of synthesis of "ideal" large-format and oriented single crystals. All scope of crystals, grown on the basis of technology "Exceptional Environment" feature greater specifications as compared to analogues currently presented on the global market, lending them exclusive and universal range of application. Application field of the crystals, grown under the technology "Exceptional Environment" excels all existed material engineering fields and simultaneously reveals new unexplored areas for their application.

THE WORLD'S FIRST SCINTILLATING CRYSTAL ZNW04 GROWN UNDER THE TECHNOLOGY "EXCEPTIONAL ENVIRONMENT" with length of 240 mm and diameter of 90 mm



COMPETITIVE ADVANTAGES OF "EXCEPTIONAL ENVIRONMENT" TECHNOLOGY (AS EXEMPLIFIED BY CRYSTAL DETECTOR ZNW04)

Parameters	ADGEX GENESIS metod	Another currently existed methods
Weight	20 kg	1kg
Size of crystals - diameter - length	up to 140mm up to 300mm.	up to 50mm. up to 150mm.
Dislocating density	no more 100/cm2	10000/cm2
Efficiency ratio of initial materials	5kW	30kW
Energy consumption	90%	40%

SYNTHESIS TECHNOLOGY

"EXCEPTIONAL ENVIRONMENT"

Alternatively to current growing technologies of crystals, when they are simply pulled unless desired shape and size are reached, our technology "Exceptional Environment" is based on the method of layerwise growth via establishment of ideally-suited natural environment..

Our unique apparatus, specifically designed for the technology "Exceptional Environment" allows growing "ideal" single crystals with unparalleled perfect structure and diameter of up to 260 mm and height of up to 500 mm.

Unique apparatus are expressly designed for technology "Exceptional Environment" and allows growing "ideal" large-format and oriented single crystals in a laboratory conditions.

Synthesis is completely automated and computerized thanks to our own software. Simple settings and full computerization allows adapting parameters of the apparatus for any sort of single crystal.

ATMOSPHERIC APPARATUS GENESIS-AIR



Atmosphere chamber GENESIS-AIR is designed for synthesis of oxide single crystals in aerial environment at atmospheric pressure and temperature of max 1600°C.

Possible crucible materials:
platinum

Operating temperature:
up to 1600 °C

Power consumed:
5 kW

Diameter of crystals:
up to 160 mm

Temperature accuracy:
0,01 °C

Weight accuracy:
not less than 20 mg

Weight of growing crystals:
up to 50 kg

Product yield:
up to 90%

Vacuum chamber GENESIS-AIR is designed for synthesis of single crystals in vacuum or gaseous environment at atmospheric pressure and temperature of max 2300°C.

Possible crucible materials:
**platinum, iridium, quartz, graphite,
boron nitride, silicone carbide,
tungsten, molybdenum, alundum**

Operating temperature:
up to 2300 °C

Power consumed:
10 kW

Diameter of crystals:
up to 260 mm

Temperature accuracy:
0,01 °C

Weight accuracy:
not less than 20 mg

Weight of growing crystals:
up to 100 kg

Product yield:
up to 90%

VACUUM APPARATUS GENESIS-BAR



ADGEX GENESIS OFFERS FOR CORPORATE CLIENTS

APPLICATION FIELDS OF SINGLE CRYSTALS

MADE-TO-ORDER CRYSTALS

GENESIS-AIR

SCINTILLATION CRYSTALS

$\text{CdWO}_4, \text{ZnWO}_4, \text{Bi}_4\text{Ge}_3\text{O}_{12}, \text{PbWO}_4$

ACOUSTO-OPTIC CRYSTALS

$\text{TeO}_2, \text{PbMoO}_4$

NON-LINEAR OPTICAL CRYSTALS

$\text{LiNbO}_3, \text{LiBO}_3, \text{KTiOPO}_4, \text{BaB}_2\text{O}_4$

LASER CRYSTALS

$\text{KGd}(\text{WO}_4)_2: \text{Nd}$

FERROELECTRIC CRYSTALS

$\text{SrBaNb}_2\text{O}_6, (\text{PbMg}_{0.33}\text{Nb}_{0.67})_{1-x}(\text{PbTiO}_3)_x$

GENESIS-BAR

LEUCOSAPPHIRE CRYSTALS

Al_2O_3

LASER CRYSTALS

$\text{Al}_2\text{O}_3:\text{Ti}, \text{YVO}_4, \text{Gd}_3\text{Ga}_5\text{O}_{12}, \text{GdVO}_4, \text{Y}_3\text{Al}_5\text{O}_{12}, \text{YAlO}_3$

SCINTILLATING CRYSTALS

$\text{LuAlO}_3, \text{Lu}_2\text{SiO}_5, (\text{Lu}, \text{Y})_2\text{SiO}_5, \text{Gd}_2\text{SiO}_5$

FERROELECTRIC CRYSTALS

$\text{LiTaO}_3, \text{KTaO}_3, \text{La}_3\text{Ga}_5\text{SiO}_{14}$

OPTICAL ELECTRIC CRYSTALS

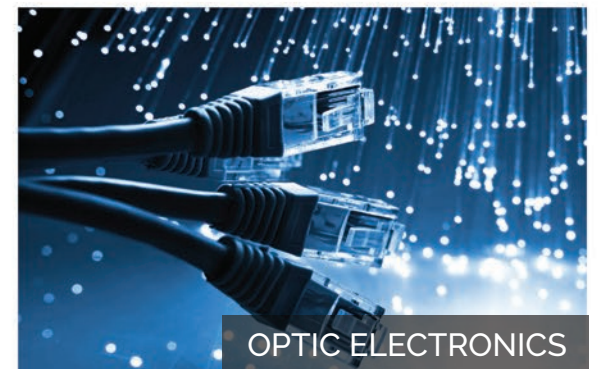
$\text{ZnO}, \text{Ga}_2\text{O}_3$

SEMICONDUCTING CRYSTALS

$\text{Si}, \text{Ge}, \text{CdTe}, \text{InP}, \text{ZnTe}, \text{GaAs}$



POWERFUL PIEZOMOTORS
FOR VEHICLES



OPTIC ELECTRONICS



CONSUMER AND MOBILE
ELECTRONICS



INDUSTRIAL
DEFECTOSCOPY



NEW GENERATION
OF COMMUNICATION SYSTEMS



HOLD BAGGAGE
SECURITY SCREENING



X-RAY
TOMOGRAPHY



X-RAY CARGO

DEVELOPMENT OF INDIVIDUAL TECHNOLOGY FOR SINGLE CRYSTAL GROWTH AND APPARATUS SET FOR LARGE CORPORATE CUSTOMERS

If your Enterprise set a mission to grow "ideal" single crystals, scientific team of ADGEX GENESIS on the basis of individual approach will develop and deliver turnkey synthesis technology of necessary crystals, manufacture and commission required equipment for you Company.

We will train your specialists and impart all peculiarities of tailored process of synthesis control. You will be able to establish production of necessary volume of unique single crystals at your Enterprise.



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