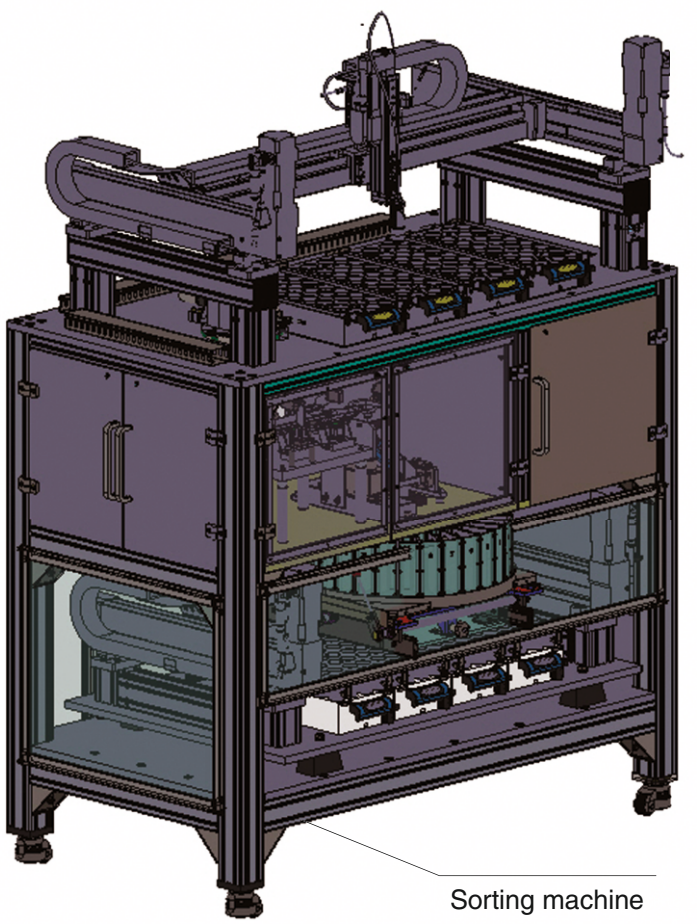
ALROSA GROUP
INNOVATION CENTER
BOUREVESTNIK
RESEARCH ✦ DESIGN ✦ PRODUCTION

AKB-1

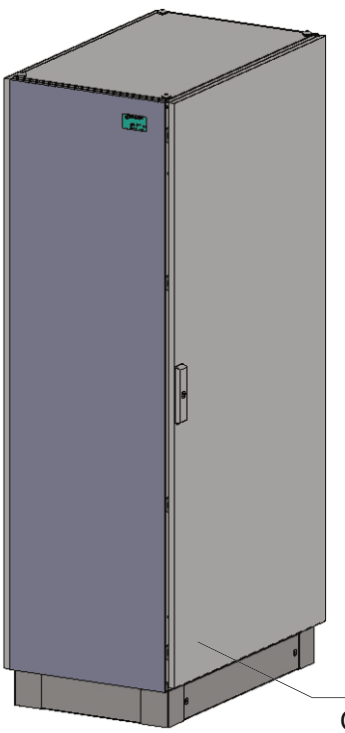
Automatic Boxing Machine

New product



Sorting machine

The AKB-1 Automatic Boxing Machine is designed for the automated sorting of diamonds and other precious stones by weight and classification characteristics. Its area of application includes enterprises engaged in the sorting of precious stones.



Control unit

Specifications:

Size and weight groups to be sorted:

- from 4 grainers to 6 grainers (from 0.896 cts to 1.7955 cts);
- from 8 grainers to 4 grainers (from 1.796 cts to 4.7955 cts);
- from 5 grainers to 10 grainers (from 4.796 cts to 10.7955 cts).

Number of inlet bins, pcs	128
Number of cassettes for inlet bins, pcs	4
Number of inlet bins in each cassette, pcs	32
Volume of the inlet bins, not less than, cts	200
Number of output bins, pcs	128
Number of cassettes for outlet bins, pcs	4
Number of outlet bins in each cassette, pcs	32
Volume of the output bin, not less than, cts	1000
Overall dimensions (without control unit) (WxDxH), mm	1565x860x2010
Weight of the machine (without control unit), not more than, kg	540

Throughput on condition of filled transport system, not less than:

-from 4 grainers to 6 grainers (from 0.896 cts to 1.7955 cts) - 1 crystal in 5 sec;

-from 8 grainers to 4 grainers (from 1.796 cts to 4.7955 cts) - 1 crystal in 6 sec;

-from 5 grainers to 10 grainers (from 4.796 cts to 10.7955 cts) - 1 crystal in 8 sec.

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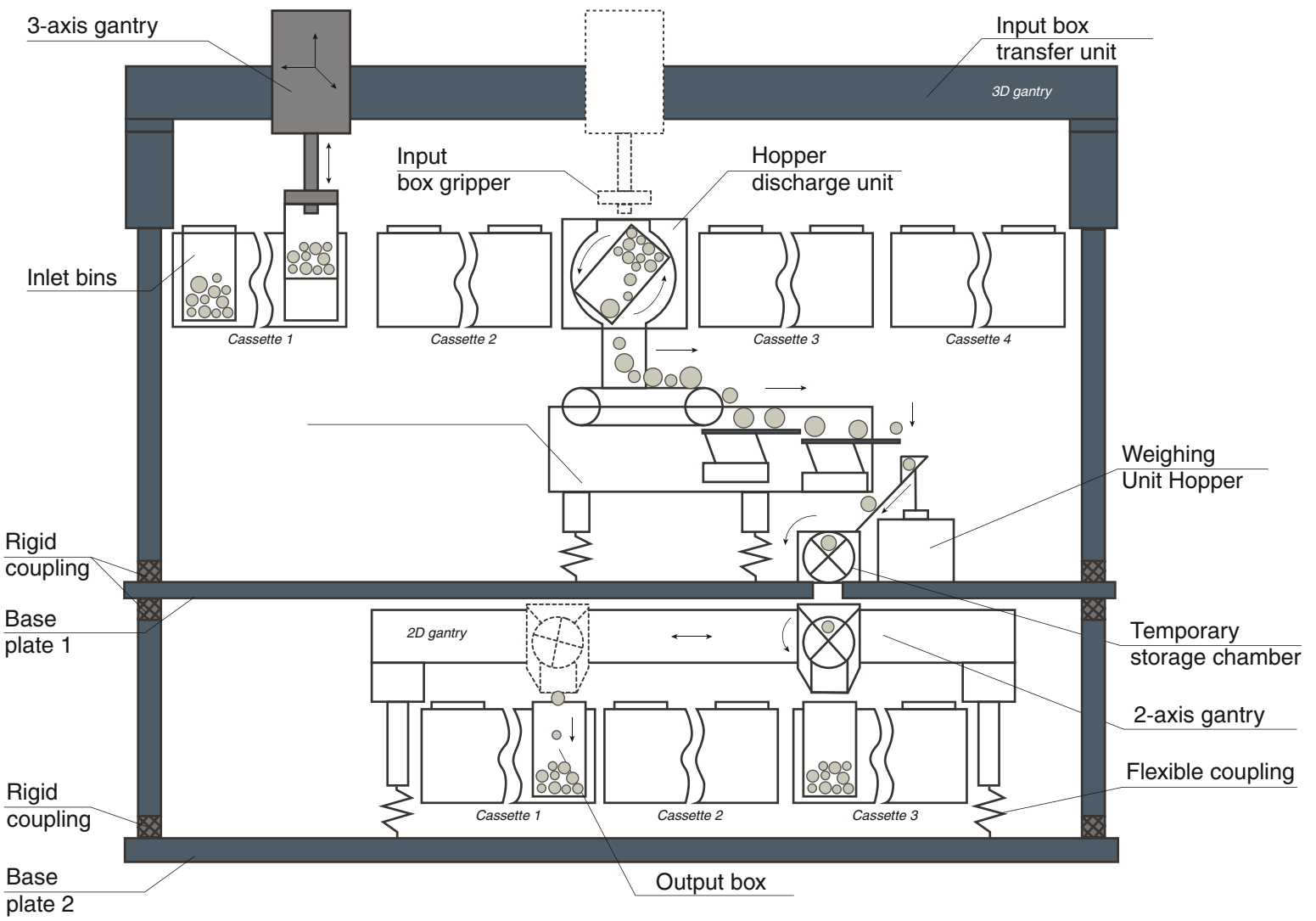
Operation

Pre-classified diamonds, sorted by value, weight, and other characteristics, are loaded into 128 input bins. The diamonds are then conveyed to the hopper discharge unit, where each bin is unloaded into a single-crystal feeder. Subsequently, individual crystals are transferred to the weighing unit hopper for high-precision weighing.
The acquired data is transmitted to the control software. The bin is then unloaded into a temporary storage chamber, and the next crystal is fed onto the weighing scale. The previous crystal awaits readiness for acceptance by the crystal distributor unit, which sorts them into the output bins.
Based on the criterion that the weight and value of the material in all output bins must be approximately equal, the control software, after a crystal is loaded into the distributor, issues a command to place the crystal into one of the 128 output bins.
This process facilitates the sequential sorting of the contents from all input bins.

Principal Process Diagram



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