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| ISB.A | **HIGH-THROUGHPUT**  **INSPECTION SYSTEM** | | | |
| General description | | | |
| Key Features  * **High penetration** – betatron with energy 7.5 MeV can penetrate 340 mm of steel at speeds up to 12 km/h * **High throughput –** the portal inspection system can scan up to 200 trucks per hour at speeds up to 12 km/h * **Low radiation dose** - Dose to cargo is only 2,5 µSv per scan at a scan speed of 12 km/h. Scatter radiation dose to the driver is less than 0.006 µSv per scan at scan speeds up to 12 km/h, * **Compact design** – the width of the portal inspection system is 8 m, height – 6 m and length 3 m. | | | **X-ray radiation source with the collimator and local radiation shield**.  **Detection system** made on the base of scintillation detectors and has a high sensitivity provided the high penetrating ability and contrast sensitivity at the low radiation doses**.**  **The heat-insulated metal construction** where there are the X-ray radiation source, detection system, and the climate control system provided the functionality of all System at any weather conditions**.**  **The control system** provided the overall control of the betatron and detection system during the scanning process**.** The Start-Stop subsystem provides registration a moment when a truck cabin passes a beam plane which initiates the X-ray radiation source to scan a container. This function enables to pass through the portal up to 200 trucks per hour, and they drive without stops.  **X-ray, electric and mechanic security system**  **The data processing, visualization and storage system.** | |
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| ISB.A | | **HIGH-THROUGHPUT**  **INSPECTION SYSTEM** | | | |
| Main parameters | | | |
| SYSTEM CHARACTERISTICS   |  |  |  | | --- | --- | --- | | Throughput, Trucks per Hour | 200 | 12 m (40-foot) containers | | Penetration of steel at scan speeds up to 12 km/h, mm | 340 |  | | Resolution at scan speeds up to 12 km/h, mm | 12.5 |  | | Contrast Sensitivity at scan speeds up to 12 km/h, % | 3 |  | | Minimum number of the operators, person | 1 |  | | | | | X-RAY SOURCE   |  |  | | --- | --- | | High energy X-ray source, MeV | 7.5 | | Bremsstrahlung dose rate at the peak energy and at 1 m distance from the target, at 300 Hz, not less than at 7.5 MeV, not less than mGy/s | 1.25 | | Maximum sizes of the focal spot, mm | 0,3×3 | | The maximum output angle of bremsstrahlung radiation | 520 | | Repetition frequency, Hz | 300 | | |
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| SAFETY   |  |  | | --- | --- | | Radiation dose to the cargo per scan at a scan speed of 12 km/h µSv | 2.9 | | Scatter radiation dose to the driver per scan at scan speeds up to 12 km/h, less than µSv | 0.006 | | Maximum radiation boundary (0.5 µSv/h), m | 10×20 | | | | | Dimensions   |  |  | | --- | --- | | Cargo  Height, m  Width, m  Length, m | 4.5  3  20 | | Cargo vehicle configuration | Allow any vehicles with multiple containers | | Scan field of view | from 0,2 m to top of vehicle | | Standard scan speed, km/h | 12 | | Speed range, km/h | 5 – 16 | | |

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