

**COMMERCIAL OFFER FOR THE SUPPLY OF GRAIN CLEANING EQUIPMENT**

**R1-SKV 100 COMBINED AIR CLEANING SEPARATOR**



is designed to separate grain from both light impurities and heavy impurities, which differ from grain on size (width, thickness).

|   |                                  |
|---|----------------------------------|
| Grain cleaning efficiency from impurities                       | min 60%                          |
| Circular rotation frequency of the sieve body, (number per min) | 360±20                           |
| Rotations radius of the sieves body, mm                         | 9±2                              |
| Air consumption for m <sup>3</sup> /h at output                 | at output 7300 m <sup>3</sup> /h |
| Aerodynamic resistance  | 800 Pa                           |
| Total installed power, including:                               | 8,03 kWt                         |
| - aspirator   | 6,55                             |
| - cleaning separator  | 1,1                              |
| - pneumatic channel   | 0,38                             |
| Overall dimensions, mm, max:                                    |                                  |
| - length  | 2750                             |
| - width   | 3040                             |
| - height  | 2800                             |
| Mass, kg  | 2900                             |

### R1-SKV 100 RELIABILITY CHARACTERISTICS

| №  | name   | value |
|----|--|-------|
| 1. | Mean time between failures, h                      | 1000  |
| 2. | Average Recovery Time, h                           | 10    |
| 3. | Service life before overhaul, years, not less than | 5     |
| 4. | Service life, years                                | 10    |
| 5. | Coefficient of technical use                       | 0,85  |

### R1-SKV 100 DELIVERY SET

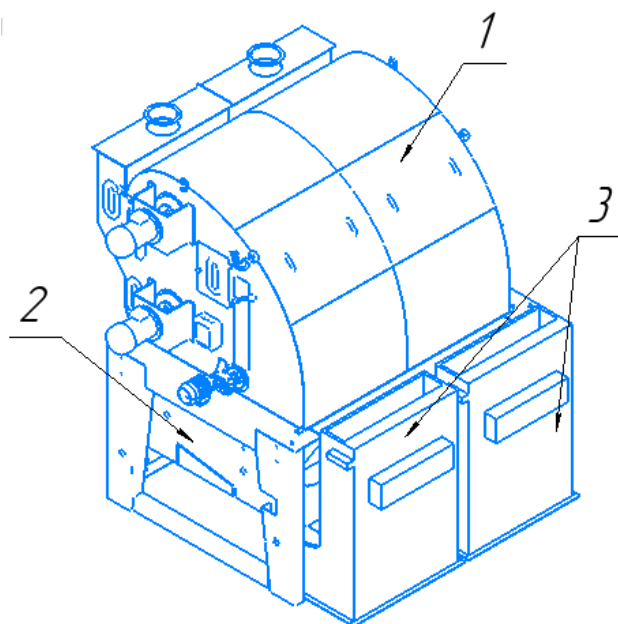
| article                | name                 | q-ty, pcs | remarks |
|------------------------|----------------------|-----------|---------|
|                        | Separator / Screener | 1         | box     |
| A1-BLS-16.02.000       | Pneumatic channels   | 2         | box     |
| P1-BDZ-M-00.000 "VIHR" | Aspirator            | 1         | pallet  |

## R1-SKV 100 DESIGN AND PRINCIPLE OF OPERATION

### 3.1. Separator/ screener design.

Fig. 1 shows the design of the separator/screener. It consists of 3 main units: aspirator (1), separator (2) and pneumatic channels (3). Aspirator 1 provides preliminary cleaning of grain from light impurities. Separator/screener (2) separates grain from impurities which differ from it on width and thickness. Pneumatic channels (3) provide fine cleaning of grain from light impurities.

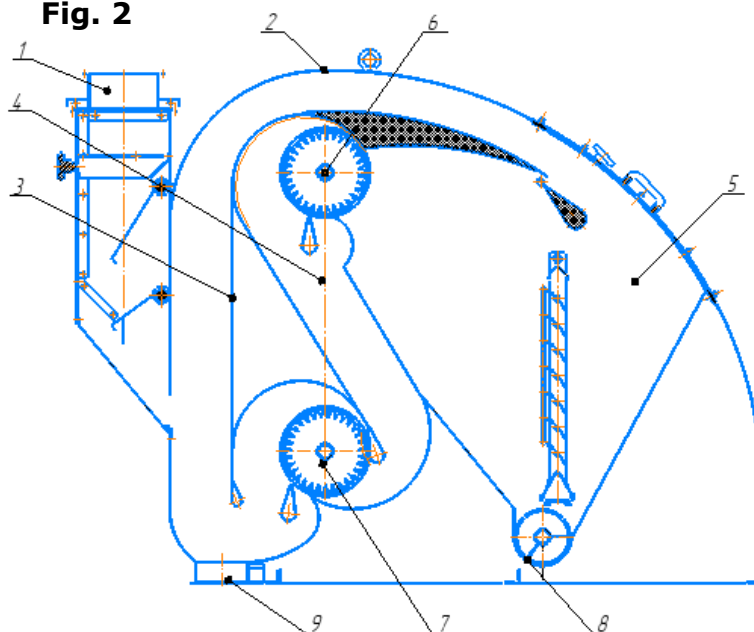
- 1- Aspirator
- 2- Separator / Screener
- 3- Pneumatic channel



### 3.1.1. Aspirator.

Aspirator (Fig. 2) consists of an intake duct (1), body hull (2), which is an assembled welded construction, made of sheet steel, the inner walls and partitions of it form a pneumatic separating channel (3) and a recirculation channel (4), and sedimentation chamber (5). Two diametric fans are installed into the sedimentation chamber (5): the upper fan (6), the lower fan (7) and a screw conveyor (8) for the extraction of light aerodynamic impurities. A duct (9) is welded to the bottom of the pneumatic separating channel 3 for discharging the purified product from the aspirator.

**Fig. 2**



- 1 – intake duct;
- 2 – body hull;
- 3 – pneumatic separating channel;
- 4 – recirculation channel;
- 5 – sedimentation chamber;
- 6 – upper fan;
- 7 – lower fan;
- 8 – screw conveyor;
- 9 – duct

### 3.1.2. Separator and pneumatic channels.

The separator/screening sieve (Figure 3) consists of a closed sieve body (1) suspended on the frame (2) and a block of two pneumatic separating channels (3).

The sieve body consists of two parallel working sections; each of them has retractable sieve frames in two levels. Each level consists of two sieve frames that are connected when installed in the body by means of hooks consisting of corners (37) and laths (36).

The sieve frames are divided into cells by means of longitudinal and transverse bars; in each cell there are two rubber balls (11) with a diameter of 35 mm, designed to clean the sieves from stuck particles. Mesh drums are attached to the lower planes of the sieve frame.

A drive motor (8) is mounted on the front wall of the screen body, which, by means of two V-belts (9), drives the pulley (12) to rotate with an unbalanced load fixed to it, which ensures the circular motion of the screen body.

Ducts and inspection ducts (3) are installed on the front part of the frame.

(13) and (14) trays serve for the removal of large and small impurities.

The pneumo-separating channels (22) are intended for the final separation of light impurities from the grain. In the separator there are two pneumatic separating channels, to each of them the grain comes from the corresponding section of the sieve

body. A movable wall (23) is installed inside the pneumatic separating channel, the position of which ensures the clarity of the separation of light impurities from the grain. Moving the top and bottom of the movable wall is provided by turning the handles (25) and (18). The air flow is controlled by turning the throttle valve (27) with the handle (26).

### **3.2. The principle of operation.**

The flow diagram of the combined air separator is shown in Fig. 4.

The technological process of cleaning grain crops is carried out as follows:

The raw material is fed through the duct to the aspirator housing. Under the influence of two diametrical fans, primary cleaning from light aerodynamic impurities which enter the sedimentation chamber and then are discharged by a screw conveyor.

The grain, purified from light aerodynamic impurities, enters through eight nozzles into the separator: four streams for each body section are organized for a uniform supply of grain to the separator.

A further description of the flow chart is given for one body section and one pneumatic separating channel.

From the intake duct the grain is fed to a sorting sieve, on which it is distributed uniformly over its entire width by the valve.

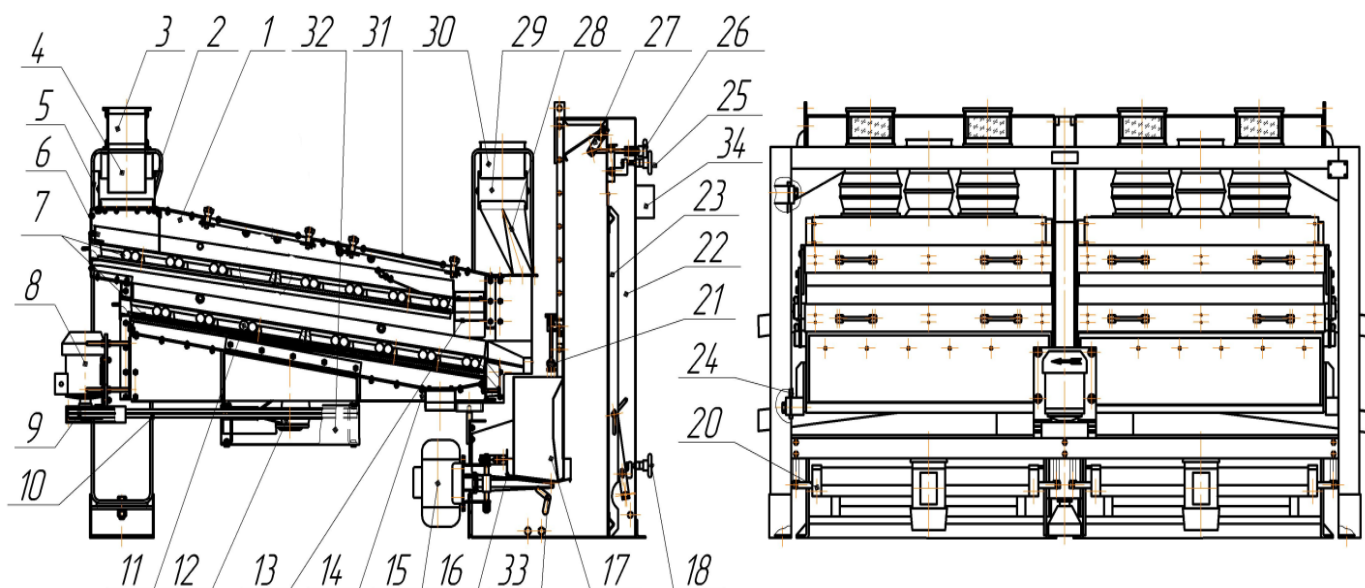
Large impurities (descending from screening grids) are removed from the separator by a tray, and a mixture of grain with small impurities passes through a screening sieve to a sowing sieve.

Minor impurities (after the passing of the separating sieves) at the bottom of the body are directed to the tray and removed from the separator.

Cleaned on sieves from large and small impurities, the grain enters the feeding box of the pneumatic separating channel and the vibrating chute. The height of the grain level in the feed box can be adjusted by means of springs. Presence of grain reserve in the feeding box promotes more even distribution of grain along the width of the pneumatic separating channel and prevents air sucking in this zone.

When air passes through the grain flow, light impurities are released from the grain mass and carried by air through the channel into the sedimentation device (horizontal cyclone, filter, etc.).

The cleaned grain from the pneumatic separating channel, through the hole in the floor of the room, is transported by a gravity flow pipe to further processing in accordance with the accepted technological scheme.

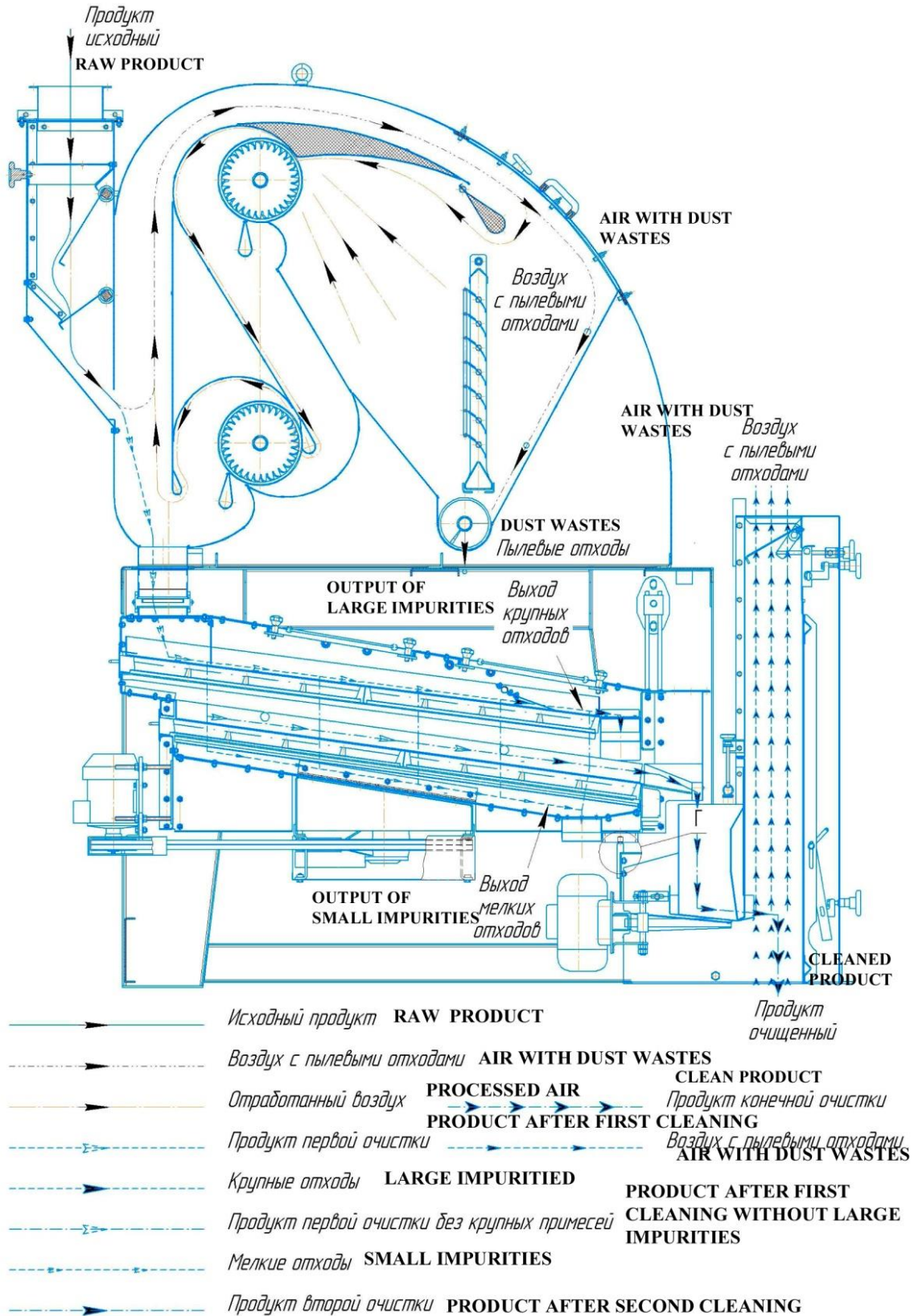


**Fig. 3**

|                             |                                    |
|-----------------------------|------------------------------------|
| 1 – sieve body;             | 17 – feeding box ;                 |
| 2 - frame;                  | 18, 25, 26 – lever handles;        |
| 3 – inspection duct;        | 20 – rubber suspension;            |
| 4 – intake duct;            | 21 - spring;                       |
| 5 - sleeve;                 | 22 – pneumatic separating channel; |
| 6 - clamping;               | 23 – movable wall;                 |
| 7 – sieve frame;            | 24 - suspension;                   |
| 8 – gear motor;             | 27 - throttle;                     |
| 9 - belt;                   | 28 – aspiration duct;              |
| 10 - limiter;               | 29 - sleeve;                       |
| 11 – rubber ball;           | 30 - duct;                         |
| 12 - pulley;                | 31 – hatch cover;                  |
| 13 – large impurities tray; | 32 - guard;                        |
| 14 – small impurities tray; | 33 - stop;                         |
| 15 - vibrator;              | 34 – lighting fixture;             |
| 16 – vibrating chute;       | 35 – loads                         |



### Flow chart diagram for R1-SKV 100 Combined air cleaning separator



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