CLAIMS

1. A device (1) for separating piece goods (2) to be stored in a picking device, comprising:

a feed device (10) for providing a plurality of non-separated piece goods in a receiving area (11) extending in an X- and Y-direction of the device,

an upper recording device (20) situated in the Z-direction, orthogonal to the X- and Y-directions, above the feed device (10) for capturing images of piece goods (2, 3) situated on the feed device (10) in the receiving area (11),

a control device (30) coupled to the upper recording device (20) for evaluating images produced with the upper recording device (20) and for determining a piece good (3) to be picked from the plurality of piece goods,

a conveyor (40) coupled to the control device (30) having a gripping means (41a, 41b) rotatable about the Z-axis for picking a piece good (2) determined by the control device (30) from the plurality of piece goods,

a deposit surface (50) situated downstream from the receiving area (11) in the X-direction for depositing piece goods picked by the conveyor (40),

characterized by

a lateral recording device (60) for producing at least one image of a piece good (3) picked by the conveyor (40), wherein the control device is configured so that the at least one image produced with the lateral recording device (60) is processed for ascertaining the dimensions of the picked piece good, wherein, the picked piece good is rotated by a predetermined angle about the Z-axis by the gripping means (41, 41b) and another image is produced until all dimensions of the picked piece good are determined,

and based on the results of the image processing performed by the control device (30), the orientation of the picked piece good is ascertained and a preferred storage surface of the picked piece good is established on the basis of specifications by the control device,

wherein the conveyor (40) is activated as a function of the orientation and of the preferred storage surface in such a way that the picked piece good is situated on the preferred storage surface on the deposit surface (50), wherein the recording device (20) is a 3D recording device for capturing 3D images.

2. The device (1) for separating piece goods (2) to be stored in a picking device according to claim 1, characterized in that the lateral recording device (60) is designed as a 3D recording device.

3. The device (1) for separating piece goods (2) to be stored in a picking device according to claim 1 or 2, characterized in that the conveyor (40) is designed as a suction gripper movable in the X-, Y- and Z-directions, having at least one suction head (41a) rotatable about the Z-axis.

4. The device (1) for separating piece goods (2) to be stored in a picking device according to claim 3, characterized in that the suction gripper has two differently dimensioned suction heads (41a, 41b).

5. The device (1) for separating piece goods (2) to be stored in a picking device according to claim 4, characterized in that the suction gripper (40) has a rotary body (42) on which the suction heads (41a, 41b) are situated, wherein the

rotary body (42) is rotatable about a horizontally extending rotation axis.

6. The device (1) for separating piece goods (2) to be stored in a picking device according to any of claims 1 through 5, characterized in that the deposit surface (50) is rotatable.

7. A method for separating piece goods (2) to be stored in a picking device, wherein

a) a plurality of non-separated piece goods (2) are situated with a feed device (10) in a receiving area (11) extending in an X- and Y-direction,

b) at least one 3D image of the plurality of non-separated piece goods (2) is produced using an upper 3D recording device (20) situated in the Z-direction, orthogonal to the X- and Y-direction, above the feed device (10),

c) the at least one 3D image is processed using the upper 3D recording device (20) coupled to a control device (30) for ascertaining the position of the non-separated piece goods (2), and it is determined which piece good of the plurality of piece goods is picked next,

d) the piece good (3) ascertained in step c) is picked using a gripping means (41a, 41b) of a conveyor (40), which is rotatable about the Z-axis,

e) at least one image of the picked piece good (3) is produced using a lateral recording device (60) coupled to the control device (30),

f) the at least one image produced using the lateral recording device (60) is processed to ascertain the dimensions of the picked piece good,

g) wherein, if not all dimensions of the picked piece good are able to be determined, the picked piece good is rotated by

a predetermined angle about the Z-axis and steps e) and f) are repeated until all dimensions of the picked piece good are ascertained,

h) based on the results of the image processing performed in step f), the orientation of the picked piece good is ascertained and a preferred storage surface of the picked piece good is established on the basis of specifications by the control device,

i) the picked piece good (3) is moved to a deposit surface (50) situated downstream from the receiving area (11) in the X-direction, and

j) the picked piece good is situated on the preferred storage surface on the deposit surface (50).

8. The method for separating piece goods (2) to be stored in a picking device according to claim 7, characterized in that the picked piece good (3) is situated on a storage surface by first being situated on another surface of the picked piece good on the deposit surface (50) and then being tipped onto the storage surface.

9. The method for separating piece goods (2) to be stored in a picking device according to claim 7 or 8, characterized in that a 3D image of the picked piece good is produced using the lateral recording device (60).

10. The method for separating piece goods (2) to be stored in a picking device according to any of claims 7 through 9, characterized in that the picked piece good (3) is rotated about the Z-axis according to specifications of the control device before being situated on the deposit surface (50).

11. The method for separating piece goods (2) to be stored in a picking device according to any of claims 7 through 10, characterized in that the picked piece good is rotated about the Z-axis and scanned in the process by the lateral recording device (60) for determining an identifier.