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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Gardening machinery -- Powered material-collecting systems --
Safety
(English Translation)**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard uses the redrafting method to modify and adopt the international standard ISO 21628.:2008 Full ", while incorporating the content of ISO 21628.:2008/Amd 1..2015.

The technical differences between this standard and ISO 21628.:2008 are as follows.

-Regarding the normative reference documents, this standard has made adjustments with technical differences to suit China's technical conditions.

The situation is reflected in Chapter 2 "Regulatory Reference Documents", and the specific adjustments are as follows.

Replace ISO 730 with GB/T 1593, which adopted the international standard, and ISO 730 replaces ISO 730-1 (see 4.6);

Replace ISO 4413 with GB/T 3766, which adopts international standards (see 4.7);

Replace ISO 3600 with equivalent GB/T 9480 (see 5.1.1);

Replace ISO 11684 with GB 10396, which adopted the international standard (see 5.2.2);

ISO 12100.:2010 is replaced by GB/T 15706 equivalent to the international standard, ISO 12100.:2010 is replaced by ISO 12100-1.:2003 (see 4.1);

Replace ISO 13849-1 with GB/T 16855.1 equivalent to the international standard [see 4.2.2 c)];

Replaces ISO 13857.:2008 with GB 23821-2009 equivalent to the international standard, ISO 13857.:2008 replaces ISO 13852.:1996 (see 4.1);

Replace ISO 2332 with GB/T 20343 equivalent to the international standard (see 4.6);

Add a national standard GB/T XXXX.2 (gardens) equivalent to the international standard ISO 5395-2 in the normative references Safety requirements for lawn mowers powered by internal combustion engines-Part 3. Stepper lawn mowers) (see section 1) chapter) Add a national standard GB/T XXXX.3 (gardens) equivalent to the international standard ISO 5395-3 in the normative reference documents Safety requirements for lawn mowers powered by internal combustion engines-Part 3. Mounted lawn mowers (see section 1) chapter).

Please note that some elements of this document may involve patents. The issuer of this document is not responsible for identifying these patents.

This standard is proposed and managed by the National Forestry Machinery Standardization Technical Committee (SAC/TC 61).

1 Scope

This standard specifies the design and structural security of power-driven aggregate systems used in agriculture, horticulture, and site maintenance (such as landscaping).

Full requirements and their inspection methods. This standard applies to suspended, semi-suspended and traction machinery produced after its promulgation and implementation.

This standard provides methods for eliminating or reducing mechanical hazards when using aggregate systems for their intended purpose.

This standard does not address environmental hazards, road safety, electromagnetic compatibility, power output devices (PTO), PTO drive shaft protection and control requirements begging.

This standard does not apply to GB/T XXXX.2 (Safety requirements for lawnmowers powered by internal combustion engines for garden machinery. Part 2. Stepping Lawn mowers) and GB/T XXXX.3 (safety requirements of lawn machinery for garden machinery powered by internal combustion engines-Part 3. Mounted Machinery specified in lawn mowers).

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this document.

For undated references, the latest version (including all amendments) applies to this document.

GB/T 1593 Three-point rear-mounted suspension device for agricultural wheeled tractor 1593-2015, ISO 730.:2009, MOD) GB/T 3766 General rules and safety requirements for hydraulic drive systems and their components (GB/T 3766-2015, ISO 4413.:2010, MOD) GB/T 9480 Rules for the preparation of manuals for agricultural and forestry tractors and machinery, lawn and garden power machinery (GB/T 9480-2001, ISO 3600.:1996, EQV) GB 10396 General rules for safety signs and hazard graphics of agricultural and forestry tractors and machinery, lawn and garden power machinery (GB 10396-2006, ISO 11684.:1995, MOD) GB/T 15706 General rules for risk assessment and risk reduction of machinery safety design (GB/T 15706-2012, ISO 12100.:2010, IDT) GB/T 16855.1 Safety components related to mechanical safety control systems-Part 1. Design rules (GB/T 16855.1-2008, ISO 13849-1.:2006, IDT) GB 23821-2009 Safety of machinery to prevent the upper and lower limbs from touching the danger zone (ISO 13857.:2008, IDT) GB/T 20343 Three-point suspension equipment for agricultural tractors and machinery. Gap range around the equipment (GB/T 20343-2016, ISO 2332.:2009, IDT) GB/T XXXX.2 Safety requirements for lawn mowers powered by internal combustion engines for garden machinery. Part 2. Stepper lawn mowers (GB/T XXXX.2-XXXX, ISO 5395-2.:2013, IDT) GB/T XXXX.3 Safety requirements for lawn mowers powered by internal combustion engines for garden machinery. Part 3. Mounted lawn mowers (GB/T XXXX.3-XXXX, ISO 5395-2.:2013, IDT)

3 Terms and definitions

The following terms and definitions apply to this document.

Material-collecting system Suspended, semi-suspended and traction machinery that collects blades of grass and leaves by the vacuum suction provided by the fan.

Note: Materials collected include other organic or non-organic materials in the form of debris in the work area.

Inlet device

On the side of the air inlet of the fan casing, there is an opening part of an air suction hose or a rigid pipe.

Discharge chute

The fan housing conveys the material from the fan to the open part of the collecting tank.

Normal operation and service Use the machine for its intended purpose and in accordance with the requirements for operation, maintenance and safe use regulations.

4.1 Basic principles and design guidelines

For related but not serious hazards, the design of the machine should follow the provisions of GB/T 15706.

Unless otherwise specified in this standard, openings and related safety distances shall meet the requirements of Table 1, Table 3, Table 4 and Table 6 in GB 23821-2009.

4.2.1 Suction (feed) side

The feeding hose or rigid tube should be fixed on the feeding device. Unless a tool is used, the feed hose or rigid tube should not be removed. Instructions for use the book shall contain instructions for removing obstructions [see 5.1.2 e)].

4.2.2 Discharge trough

4.2.2.1

The area of the discharge slot shall not be greater than 625 cm².

4.2.2.2

In order to prevent contact with the dangerous parts of the fan, the machine shall meet one of the following requirements.

- a) The minimum distance from the discharge slot inward to the outer contour of the fan should not be less than 850 mm.
- b) The minimum distance between the outline or component of the machine used to limit contact with the fan and the fan profile is 850 mm. The request shall be made by Use the arm test tool shown in Figure 1 to test, the test tool should start from the shaded area shown in Figure 2, and move according to the operator's arm Every direction of operation is detected as far as possible towards the direction of the fan. The safety distance of 850 mm should start below the shaded area shown in Figure 2, for example below 700 mm height. The arm test tool tail plate should be parallel to the machine, and the force applied to the test tool should not exceed 20 N. The safety distance is a cumulative dimension formed by a dimension chain measured in sections.
- c) The discharge slot shall meet the requirements of Table 1, Table 3, Table 4 and Table 6 in GB 23821-2009. If this requirement is met by other devices, the device maintains its position whenever the operator approaches the discharge slot in a possible way. Unless using tools and full Meet the requirements of Class 1 of GB/T 16855.1, otherwise the device shall not be removed.
- d) there should be means to stop the fan, before instructing the operator to contact the fan