

ICS 77.180
CCS H 93

YS

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

YS/T 851-2012

**Technical specification for on-line rotating degassing system
used for aluminium and aluminium alloy melts**

铝熔体在线连续除气装置

(English Translation)

Issued on: December 28, 2012

Implemented on: June 1, 2013

**Issued by: Ministry of Industry and Information Technology of the
People's Republic of China**

Table of Contents

Foreword...	3
1 Scope...	4
2 Normative References...	4
3 Classification of Degassing and Filtering Devices...	5
4 Naming Rules for Devices...	5
5 Technical Requirements...	7
6 Inspection Methods...	10
7 Inspection Rules...	12
8 Marking, Packaging, Transportation and Storage...	13
9 Random Files...	14
10 Contents of Order Form (or Contract)...	14

1 Scope

This Standard specifies the classification, naming rules, technical requirements, inspection methods, inspection rules and markings, packaging, transportation, storage, random documents, order forms (or contracts) contents of aluminum melt online degassing and filtering devices.

This Standard applies to aluminum and aluminum alloy box-type online rotary spray degassing and filtering devices (hereinafter referred to as degassing and filtering devices).

2 Normative References

The following documents are essential to the application of this Document. For the dated documents, only the versions with the dates indicated are applicable to this Document; for the undated documents, only the latest version (including all the amendments) is applicable to this

Document.

GB/T 3274 Hot-rolled plates/sheets and strips of carbon structural steels and high strength low alloy structural steels

GB 3766 Hydraulic Fluid Power - General Rules Relating to Systems

GB 11984 Safety Regulation for Chlorine

GB 30078 Safety Specification for Wrought Aluminum and Aluminum Alloy Ingots

Production

GB 30079.1 Safety Specification for Aluminum and Aluminum Alloys Plates, Sheets and Foils and Foils Production - Part 1.Cast-rolling

JB/T 5943 Construction machinery - General specifications for welding parts

YS/T 601 Technical Specification for Process of On-line Degassing and Filtering for Aluminum and Aluminum Alloy Melts

3.1.1 Classification according to the number of rotors

It is divided into single rotor, double rotor and multi-rotor degassing devices.

3.1.2 Classification according to box type

It is divided into fixed box type, pouring box type, rotating box type and vacuum box type degassing devices.

3.2.1 Classification according to filtering levels

It is divided into single-stage, double-stage and multi-stage filtering devices.

3.2.2 Classification according to used filter media

It is divided into glass fiber cloth, foam ceramic plate, alumina ball and ceramic tube filtering device.

3.2.3 Classification according to box type

It is divided into fixed box type, tilting box type and tube type filtering devices.

4.1 Degassing device

4.1.1

The naming of the degassing device should include the equipment code, number of rotors, maximum processing capacity of aluminum melt and box type.

4.1.2

The equipment code is represented by the English "APR" (APR is the English abbreviation of Aluminum purification by rotating degas bank).

4.1.3

The number of rotors is represented by lowercase Arabic letters. Single rotors are marked with "1", double rotors are marked with "2", and so on.

4.1.4

The maximum processing capacity of aluminum melt is expressed by numbers, in "t/h".

4.1.5

The box type is indicated by uppercase English letters. The fixed box type device is marked with "F", the pouring box type device is marked with "P", the rotating box device is marked with "R", and the vacuum box device is marked with "V".

5.1.1 General requirements

5.1.1.1

The design of degassing and filtering devices shall comply with the relevant provisions of GB 11984, GB 30078, GB 30079.I, and YS/T 601.

5.1.1.2

The degassing and filtering device generally consists of the box and upper cover, upper cover lifting mechanism, pouring mechanism, heater, automatic control system, rotor and driving mechanism, gas control system, etc. The design of the degassing device should meet the requirements of 5.1.2~5.1.8, the design of the filtering device shall meet the requirements of 5.1.2~5.1.6.

5.1.2 Box and upper cover

The box body and upper cover are generally composed of lining, insulation layer and iron shell.

5.1.2.1 Lining

5.1.2.1.1

The lining is made of integrally sintered refractory materials, which shall be non-stick to aluminum, resistant to high temperatures, washing, and thermal vibration, good thermal insulation and not prone to chemical reactions with molten aluminum.

5.1.2.1.2

The shape and structure of the lining make it easy to manually clean the slag accumulation.

5.1.2.1.3

The normal service life of the lining shall be ≥ 24 months.

5.1.2.2 Insulation layer

5.1.2.2.1

The insulation layer between the lining and the iron shell shall be filled tightly to ensure that the lining is not loose.

5.1.2.2.2

The insulation layer between the lining and the iron shell has good thermal insulation performance. The temperature rise of the iron shell during operation shall be $< 45^{\circ}\text{C}$.

5.1.2.3 Iron shell

5.1.2.3.1

The steel used for the iron shell shall meet the requirements of GB/T 3274.

5.1.2.3.2

Iron shell welds shall meet the requirements of JB/T 5943.

5.1.2.3.3

The surface of the iron shell shall be conducted anti-rust treatment.

5.1.2.3.4

The overall metal frame of the iron shell is firmly welded and does not deform.

5.1.2.4 Sealing

The matching surface between the bottom of the upper cover and the box is inlaid with high- temperature sealing strips, and the contact surfaces are flush and seamless to ensure that the hot air in the box does not leak out.

5.1.2.5 Functional parts

5.1.2.5.1

The box shall be equipped with a drainage device.

5.1.2.5.2

The degassing box shall have good sealing performance and isolate gas from entering and exiting.

5.1.2.5.3

When using chlorine gas, the upper cover shall be equipped with a safe discharge device for treated gas.

5.1.3 Upper cover lifting mechanism

5.1.3.1

The upper cover lifting mechanism shall operate stably, safely and reliably.