

# Plate glass continuous vertical conveying system

Honghan Ding Peiguang Yang

China Triumph International Engineering Co., Ltd. Shanghai 200063

**Abstract:** A continuous vertical conveying system for plate glass is proposed. When the raw glass production line and the deep processing production line are in different floors, the device can realize the automatic connection between the raw glass production line floor and the deep processing production line, and the glass transported from the raw glass production line can be continuously and vertically conveyed to the deep processing production line, thus realizing the automatic production of the whole line of glass and effectively shortening the item.

**Keywords :** Raw glass production line, Deep processing production line, Vertical conveying system

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## I. Introduction

In recent years, with the rapid development of glass industry, higher requirements are put forward for glass equipment. The equipment [1-5] should not only meet the functional requirements, but also meet the needs of intelligent production, providing a good foundation for the realization of intelligent glass production.

At present, the raw glass production line and deep processing production line are often not on the same floor in the glass production process.

In view of this situation, there is to pile the glass from the raw glass production line directly on the glass shelf, and then lift the whole glass to the floor where the deep processing is located, and then put the glass on the shelf in sequence on the deep processing line respectively to complete the subsequent deep processing process.

A continuous vertical conveying system of flat glass is proposed. When the raw glass production line and the deep processing production line are on different floors, the automatic connection between the raw glass production line and the deep processing production line can be realized, and the glass transmitted from the raw glass production line can be continuously and vertically transported to the deep processing production line to realize the automatic production of the whole line of glass, which can effectively shorten the project construction.

## II. Equipment structure principle

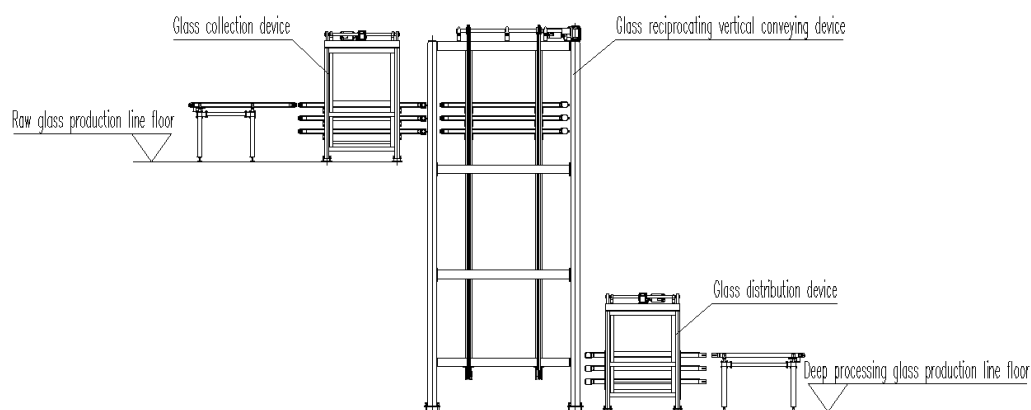


Figure 1 Equipment structure principle

The continuous vertical conveying system of flat glass is composed of the following parts: the glass collection device at the back end of the raw glass production line, the glass distribution device at the front end of

the deep processing production line, and the glass reciprocating vertical conveying device that can rise and fall vertically between the glass collection device and the glass distribution device. The glass collection device, glass reciprocating vertical conveying device and glass distribution device have similar structure principles, which can convey glass horizontally and vertically up and down reciprocating respectively.

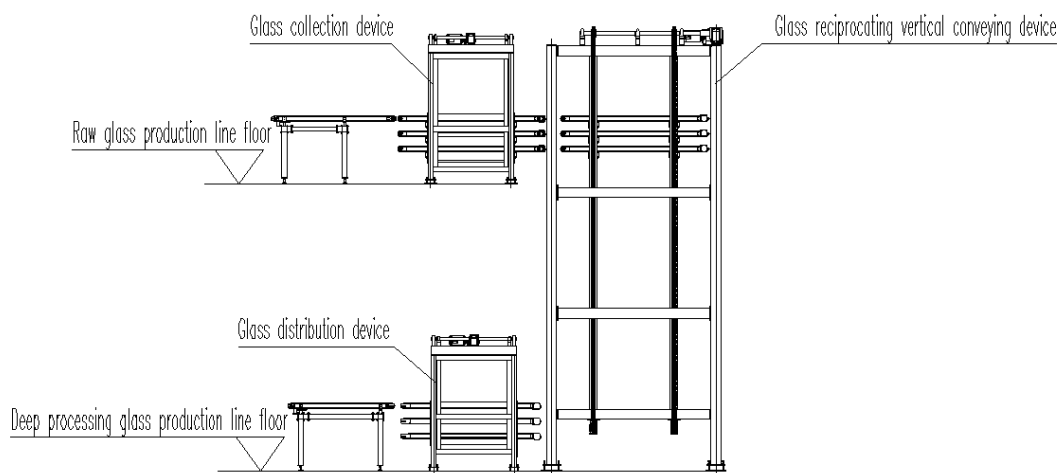
### III. Equipment operation process introduction

The glass collection device is at the end of the raw glass production line. By stepping up or down, the multi-layer roller table in the glass collection device is connected with the original roller from the raw glass production line in turn to receive the glass successively transmitted from the raw glass production line.

When all the rollers in the glass collection device are filled with glass, it is connected to the glass reciprocating vertical conveying device in the waiting position and all the glass is transferred to the Glass reciprocating vertical conveying device at the same time.

After clearing the glass on the roller table, the glass collection device repeats the original glass storage process and continues to receive the glass transmitted from the raw glass production line.

After receiving the glass, the glass reciprocating vertical conveying device can shuttle the glass to the next floor, butt with the glass distribution device, and transfer all the glass to the glass distribution device. The glass reciprocating vertical conveying device returns to the raw glass production line after emptying the roller table and waits for the glass transmitted again by the receiving and storing glass from glass collection device.



**FIG. 2 Structure principle of continuous C-type vertical conveying system for flat glass**

The equipment can only adjust the relative relationship between the glass collection device and the glass distribution device to meet the requirements of the online conveying process of another floor arrangement, usually referred to as the continuous C-type vertical conveying system of flat glass, without adding parts.

### IV. Social and economic benefits

The continuous vertical conveying system of flat glass is designed to complete the automatic connection between different floors in a limited space. An efficient and stable continuous reciprocating vertical conveying technology and equipment for glass between different floors is proposed. Compared with the original conveying scheme of slope roller table <sup>[6-9]</sup>, the investment cost can be reduced by 80% and the construction period shortened by 65%.

### V. Conclusion

This paper introduces the continuous vertical conveying system of flat glass, which can complete the on-line continuous vertical conveying of glass of different floors and realize the automatic continuous of raw glass production line and deep processing glass production line floor, laying a solid foundation for the intelligent production of glass.

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