A guide to security turnstiles

bsia
british security industry association

Contents

1. Acknowledgments

The BSIA acknowledge the assistance given by the following member company for the development of this guide:

dormakaba

2. Copyright and Intellectual Property

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2.1. Document change History

Issue	Date	Description
1	01/05/2014	First publication
1.1	28/10/2015	Updated to reflect section name change
2	01/09/2023	Second publication

3. Introduction

A turnstile or entrance control system is designed to deter or completely stop unauthorised entrants while enforcing an access control system to ensure the 'one token one person' rule applies. Security levels vary depending on style and type of the products.

4. Scope

This guide provides details of the different styles and types of turnstile systems, along with an indication of installation, interconnectivity and interoperability of available systems. Comparisons between styles and types are included to help in the specification of the correct product.

5. Terms and Abbreviations

Anti-pass back: The turnstile provides a return signal to the Access Control System to signal that user A has entered or exited the building. If user A passes his proximity card to user B, the access control system will know this entry is potentially fraudulent and prevent access/egress.

Anti-piggybacking: Where methods have been put in place to avoid unauthorised people gaining access to a secured area by passing through in collaboration with another person who does have authorisation.

Anti-tailgating: Where measures have been taken to avoid an unauthorised person following another through a secured entranceway, achieving access without the authorised person's knowledge or consent.

Biometric Control: The use of biological features, e.g., Fingerprints, eyes, voice etc., to ensure that the user is carrying their access control card, and that fraudulent entry is not being gained by a 3rd party.

Breakaway force: The level of force required by the turnstile user, to collapse the turnstile barrier or barriers to allow emergency escape.

DDA Compliance: Indicates whether a particular product is capable of allowing use by a disabled person. Previously this related to The Disability Discrimination Act. The applicable Act (except in Northern Ireland) is now The Equality Act. For further information refer to BSIA Form 173, An Access Control Guide to Disability Discrimination.

DDA Disability Discrimination Act (see DDA Compliance)

Egress: The exit of a user from a building through a turnstile.

Fail-safe: The turnstile will collapse or release all locking to allow non-secure egress during an emergency situation. Used in the majority of situations as part of a cohesive fire evacuation strategy.

Fail secure: During an emergency situation, the turnstile will ensure that any user is not `trapped' within the unit before locking to ensure that security is maintained in all situations.

Ingress: The entry of a user into a building through a turnstile.

Return signal: A signal or pulse from a turnstile to signify that a user has activated/used/or carried out an unauthorised passage through the units.

Protection against attack: Refers to security interlocks, which are available in a range of attack ratings including RC2, RC3 and bullet resistant to BR2 & BR3.

Weight sensing: A method of preventing piggybacking by the security interlock weighing the occupant(s) of the turnstile during operation. If the weight exceeds the permissible weight of the user, access will be denied.

6. Types

Security Interlock

Security Interlock

Full Height Turnstile

Tripod Turnstiles

High security speed gates

Speed gates
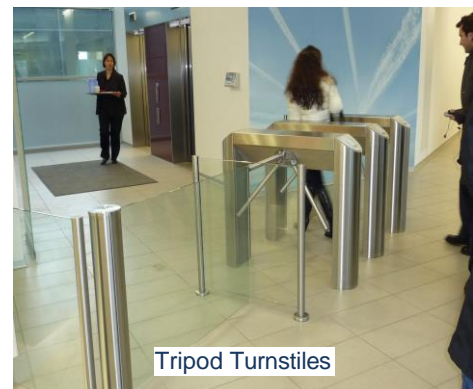
7. Security levels

Most waist-height turnstiles rely on the user's responsibility to prevent collaboration between users, enabling unauthorised ingress/egress.

Turnstile Type	Compliant DDA [1]	Physical Security Level [2]	Typical Appearance	Speed	Ease Of Use	Typical Cost	Emergency [4] Egress
DDA Passgate	Yes	🔒	Low	N/A - open gate	Easy	£	Unhindered
Tripod	No	🔒	Low – Medium	Medium 25 +	Easy	£	Unhindered restricting arm drops down on Fire Alarm Auto reset.
Half Height Turnstile	No	🔒 🔒	Medium	Low – Medium	Easy	£ £	Hindered
Speed Gates - high gates		🔒 🔒 🔒	Medium	Fast 25 - 30	Easy	£ £ £	Unhindered
Speed Gates - Std gates		🔒 🔒	Medium	Fast 25 - 30	Easy	£ £ £	Unhindered
Comact Speed Gate	Yes	🔒	Medium	Fast 25 - 30	Easy	£ £ £	Unhindered
External Turnstile		🔒 🔒 🔒 🔒	High	Medium 15-20	Easy	£ £ £	Hindered
Full height Turnstile	No	🔒 🔒 🔒 🔒	High	Medium 15 -20	Medium	£ £ £	Hindered
Security Interlock	Yes/No [5]	🔒 🔒 🔒 🔒 🔒	High	Slow 3 - 4	Medium	£ £ £ £	N/A not used for emergency escape
Security Revolving Door	No	🔒 🔒 🔒 🔒 🔒	High	Medium 15 - 20	Medium	£ £ £ £	N/A not used for emergency escape

Key:
[1] Indicates whether a product of this type is typically DDA compliant. Products vary and compliance can be dependent on other circumstances
[2] Level of physical security in comparison with other types
[3] Speed measured in persons per minute

4 Level of emergency access for this type of product
5 DDA access possible depending on diameter

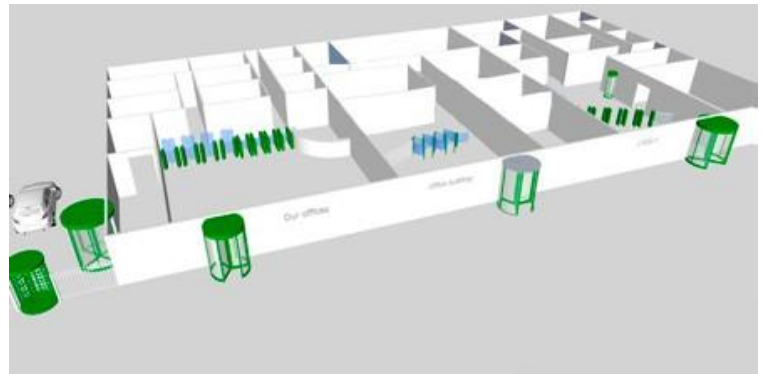# 8. Typical Locations & Example Use

Glass

Turnstiles and Barriers

Office & Commercial

- External perimeter security
- Reception area
- Visitor segregation
- Internal security

Financial

- Banks
- Data Centres
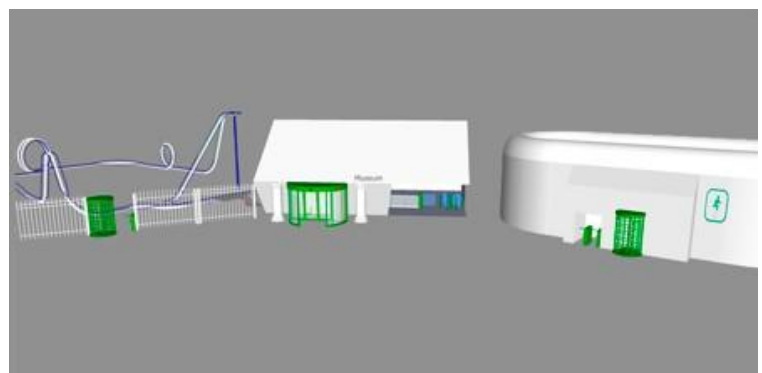- Protecting areas containing sensitive data

Airports

- Passenger separation
- Self check-in
- Self boarding

Leisure

- Stadiums
- Museums
- Theme parks
- Libraries
- Attractions

9. Systems Integration

Security turnstiles can be integrated with the following peripherals, with many physically integrated within the body of the units:

- Card readers; proximity and swipe, smart cards etc.
- Keypads
- Biometric systems
- Cameras
- Lift destination control
- Card collection systems
- Building Management systems
- Fire/intruder
- TCP/IP Ethernet networks

Care must be taken to ensure the access control reader choice is compatible with the usage and speed of the chosen turnstile. Proximity readers will provide a higher flow of traffic, whilst bio-metric readers may cause slow passage through the chosen turnstile.

10. Interconnections

Most turnstile products are fully compatible with the majority of access control systems in the market today, purely requiring a two-door controller to control ingress and egress through the units.

Two separate inputs are required per barrier to operate the unit in each direction, in the majority of cases being a normally open, going closed connection.

Other inputs may include visitor access and override + modes and operation controls. Most units provide a fire alarm input to allow emergency egress, either allowing break-out or providing unhindered egress if required.

11.   Installation Requirements

Units will require a structurally sound, level surface to allow their installation and to ensure reliable operation. However, specialist fixings can be used to allow installation on raised access floors and soft screed finishes.

All units will require a number of inputs and outputs, which can be facilitated by conduits located within the floor, the design of which should always be referred to the manufacturer for details.

In locations where the user does not wish to damage the existing floor, most turnstile types can be installed on raised plinths, allowing the units to be easily removed and not necessitate the adaptation of floor finishes.

Full-height units can be cabled from above, making the installation easier with less disruption to the floor.

12.   Configuration

As a rough guide when calculating the number of turnstiles required the following formula (based upon 15% of the building population entering/exiting the building in five minutes) can be used. However, it is highly recommended that all users consult a reputable turnstile manufacturer for an accurate recommendation.

Total Installation Capacity (per Minute) = (Building Population x 15%) / 5

Standard Width Lanes: 650mm:
This dimension is critical to ensure that two users cannot enter through the turnstiles `side by side', thereby gaining unauthorised access.

Wheelchair Accessible Lanes: 900 – 1000mm:
Allows passage for wheelchair users and those with other impairments or who are in need of assistance.

Side Pass Gate:
Consideration may be given to providing supervised access for visitors, couriers and those with large luggage or parcels.

Barriers:
Most turnstile manufacturers will provide a variety of turnstile designs to suit the individual client's requirements and to provide an aesthetically seamless appearance.
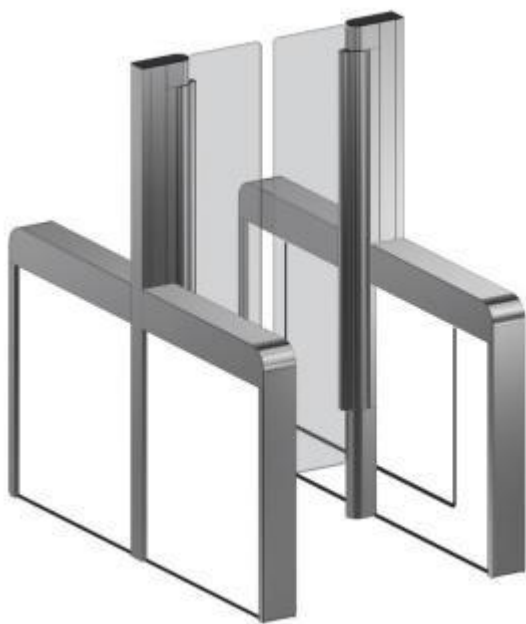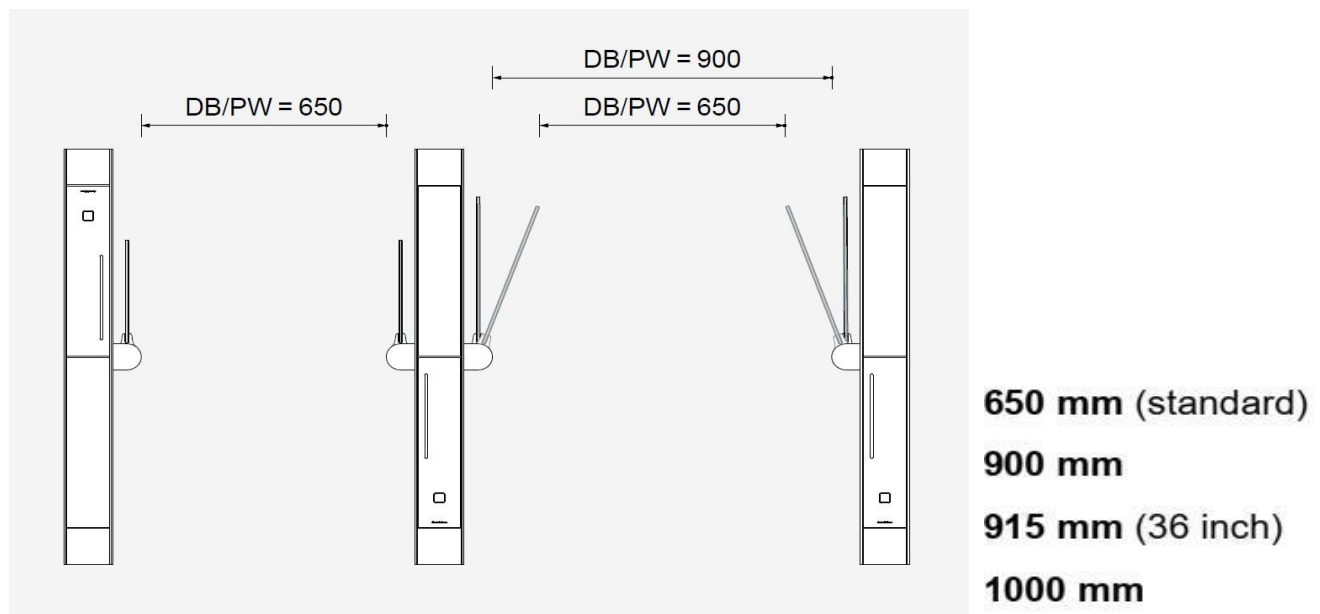
Glass and Post Systems

Cantilevered Glass Systems

Standard Speed Gate configurations

DB/PW = 900

DB/PW = 650

DB/PW = 650

650 mm (standard)
900 mm
915 mm (36 inch)
1000 mm

Gate heights:

990mm
1200mm
1400mm
1600mm
1800mm

13. Environmental Benefits

In conjunction with an access control system and connection to the building management system, turnstiles can facilitate savings on energy loss by detecting when certain building areas are unoccupied.

Most products use steel, stainless steel and glass and recyclable plastics. They can be recycled at the end of their life.

14. Insurance requirements

Many installations will benefit from high-security turnstile systems in reducing premiums against loss or damages.

15. Service and Maintenance

It is recommended that a minimum of 1-2 preventative maintenance visits per annum are carried out on all turnstiles. However, in areas of high traffic flow or abuse, additional maintenance visits may be appropriate.

16. Standards & legislations

For European Countries, all products should comply with the requirements of the appropriate European Directives and be marked with a CE mark.

The UKCA marking is the product marking used for products being placed on the market in Great Britain (England, Scotland and Wales). The UKCA marking applies to most products for which the CE marking could be used.

https://www.gov.uk/guidance/using-the-ukca-marking

For America, UL 325/3295 apply.

17. Summary

Security management plays an increasingly important role in today's society, and ensuring you offer your customer the most appropriate and effective access control solutions to meet their security needs is vital.

With the extensive range of security turnstiles available in the market today, each designed to suit different levels of security, you are sure to find the perfect solution that fits your requirements.

Seeking professional advice from a BSIA turnstile manufacturing member prior to specifying a turnstile system is highly advised. They will be able to advise you on the best type of product suited to your required level of security and provide recommendations on installation and access control integration.

This document was created by the Access and Asset Protection Section (formerly Access Control Section) of the British Security Industry Association (BSIA).

The British Security Industry Association is the trade association for the private security industry in the UK. Our members provide over 70% of UK security products and services and adhere to strict quality standards.

Access control provides the ability to control, monitor and restrict the movement of people, assets or vehicles in, out and around a building or site. Products range from token-based systems and digital keypads to biometric identification systems and the associated hardware.

Access control products are subject to fast-moving technological development. A significant focus of the BSIA Access Control Committee is to raise awareness amongst end-users and specifiers of the different types of equipment that is available and the most appropriate environments for using them.

BSIA membership will raise your company profile and ensure that your business is at the heart of influencing the future of the security industry. You will become part of a unique group of high-quality and professional companies that are well-respected and well-represented to government, end users, specifiers, standards and legislative bodies. For more information, contact the BSIA.