

# TITAN

*CR-2 is a high quality double skin steel partitioning system ideal for cleanroom applications.*



LEE  
MODULAR STEEL WALLS  
A TROAX COMPANY



# CLEANROOM THEORY

This guide is intended to outline the basics of cleanroom construction and how Titan partitions can be used as a part of a complete cleanroom solution.

## Classes

Cleanrooms have a range of classes which refer to the count of 0.5um particles per square foot or metre. There are several standards for cleanrooms but the two most common are the US Federal Standard 290E and the new ISO 14644-1 (Although the US standard was cancelled in 2001, it is still widely used today).

## Factors

The complete cleanroom package consists of many parts including the partitioning, air handling system, furniture, flooring etc. The level to which staff clean down before entering, their overalls that are worn and the number of air changes per hour also affect the cleanroom environment.

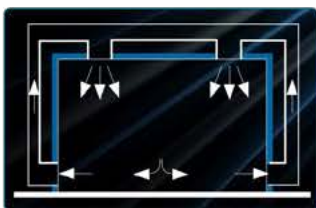
For a cleanroom to be certified to a specific standard, all components must lend themselves to a specific level of cleanliness set for the desired class. On its own, Titan partitioning does not have a cleanroom class but can achieve one if combined with other components.

| Class | maximum particles / m <sup>3</sup> |         |         |            |           |         | FED STD 209E Equivalent |
|-------|------------------------------------|---------|---------|------------|-----------|---------|-------------------------|
|       | >0.1 pm                            | >0.1 pm | >0.1 pm | >0.1 pm    | >0.1 pm   | >0.1 pm |                         |
| ISO 1 | 10                                 | 2       |         |            |           |         |                         |
| ISO 2 | 100                                | 24      | 10      | 4          |           |         |                         |
| ISO 3 | 1000                               | 237     | 102     | 35         | 8         |         | Class 1                 |
| ISO 4 | 10,000                             | 2370    | 1020    | 352        | 83        |         | Class 10                |
| ISO 5 | 100,000                            | 23,700  | 10,200  | 3,520      | 832       | 29      | Class 100               |
| ISO 6 | 1,000,000                          | 237,000 | 102,000 | 35,200     | 8,320     | 293     | Class 1,000             |
| ISO 7 |                                    |         |         | 352,000    | 83,200    | 2,930   | Class 10,000            |
| ISO 8 |                                    |         |         | 3,520,000  | 832,000   | 29,300  | Class 100,000           |
| ISO 9 |                                    |         |         | 35,200,000 | 8,320,000 | 293,000 | Room Air                |

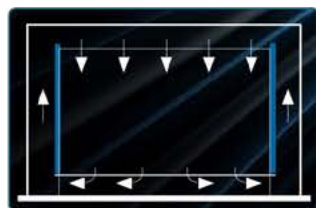
## Air Handling

Air handling is the most important element within a cleanroom. There are two main categories of airflow: laminar and non-laminar. Non-laminar systems are cost effective and typically used for classes 100,000 to class 1000.

Laminar systems give better performance by pushing particles through a perforated raised floor and hence can be used for classes 100 to 1.



Non-laminar airflow



Laminar airflow



## Where Titan fits in...

Titan has been designed specifically for cleanrooms. Its two line junction keeps dust traps to a minimum and its powder coated finish is an ideal surface for clean environments. It is also completely demountable, enabling one panel to be removed without having to dismantle the whole enclosure. All hardware accessories come in stainless steel as standard due to its excellent 'clean' properties.

Details such as flush glazing eliminate ledges and improve aesthetics. For use in higher class cleanrooms all joints can be silicone sealed to stop air loss and reduce particle traps. Magnetic blinds are also available, which are controlled with a portable dial - keeping the panel face free from unnecessary clutter.

## Titan partitioning for cleanroom applications and clean environments.

Titan is a high quality double skin cleanroom partitioning system, although its versatility allows it to be used in more than just cleanroom applications.

Used in conjunction with the correct air handling and HVAC systems, Titan is ideal for working towards an ISO 14644-1 Class 5 cleanroom environment. Following completion of the air handling system, it can also achieve a pressure cascade testing result of 30 pascals (30 Pa). This is achieved by reducing the number of joints and ledges, using special flush glazing and by utilising coved skirting.

Maximum performance is obtained by sealing all joints after installation, including perimeters to glazed apertures. Ceilings are formed from a single line junction panel with an optional facility for carrying a person's weight or maintenance purposes.

Titan can be multi-tiered and profiled for warehouse and office divisions to create a more appropriate environment in specialised areas. Normal applications would be in dry environments where Titan can be cleaned to our specification. Please consult our sales office for details.



Flush glazing is supplied as standard. This reduces the number of ledges and junctions, giving an improved functionality and aesthetic appearance.



Lock & handle units are integrated, however there is a selection of locking options available including digital locks & swipe card locks. Stainless steel handles & kick plates are also available on all doors.



Several types of floor detail are available to suit a variety of requirements. These include coved skirting and basic U-channel amongst others.

# PANEL OPTIONS

## Panel Dimensions (mm):

Standard Heights: 2440, 2745, and 3050.

## Standard Widths:

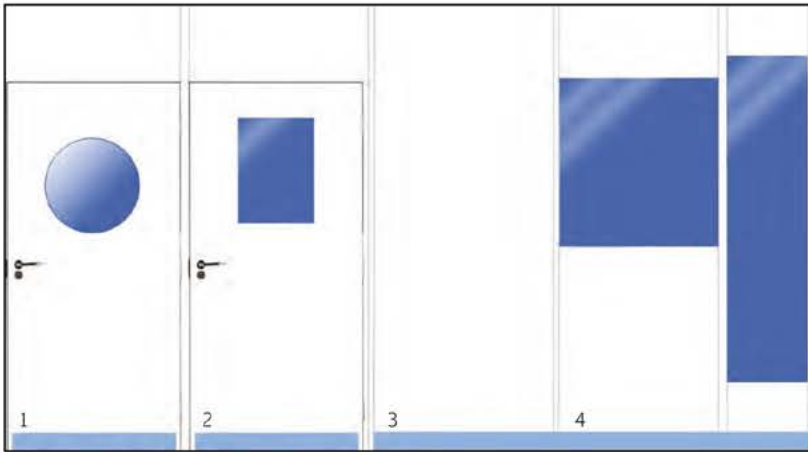
300, 500, and 1000. Services panels are also available in 300mm.

## Flush Glazing Apertures:

1000(w) x 940(h) Standard 500(w) x 1600(h)

## Finish:

TGIC- and lead-free polyester powder coating are available as standard in the distinctive RAL 9010 white, with an average coat thickness of 70 microns. Non-standard and corporate colours are also available upon request. Anti-static / electro dissipative, and antimicrobial powder coatings are also available.



- 1 - Steel door with circular vision panel
- 2 - Steel door with rectangular vision panel
- 4 - Steel / glass / steel
- 5 - Full glass 500mm wide panel

Options for extra sound reduction are available. There are also options for several different floor details including coved skirting, bull nosed skirting and stainless steel kick plates. Titan can also be manufactured in a form that can more readily withstand moist atmospheres.

**Note: Many different components are required to form a cleanroom environment. Titan is ideal as one of those components, forming a high quality cleanroom specification environment.**

