



## Load Bearing Capabilities

There are three types of situation where the load bearing capabilities of the floor need to be considered:

1. Static Loads e.g. Furniture, filing cabinets etc.
2. Impact loads e.g. Dropped items and stiletto heels
3. Rolling loads e.g. Castor chairs, trolleys and fork lift trucks

In all instances, the effect is due to the load (weight) applied and the area it is applied to.

### Static Loads

As a guide, Polyflor homogeneous, heterogeneous and Polysafe products will withstand permanent damage if the loading does not exceed 87,900kg/m<sup>2</sup> (125 psi) or 52,745kg/m<sup>2</sup> (75 psi) for the Polyflex products. Where loads are concentrated upon small areas such as table legs, any detrimental effects can be minimised by spreading the load using furniture leg cups.

### Impact Loads

Impact loads are where the load is applied suddenly to the surface of the flooring, such as an item being dropped or the footfall from a shoe heel. As a guide, Polyflor homogeneous, heterogeneous and Polysafe products will withstand short term loading up to 503,500kg/m<sup>2</sup> (716 psi) and Polyflex 302,400kg/m<sup>2</sup> (430 psi). There may be some slight initial indentation but the material should recover to its original thickness.

***Note 1: Worn stiletto heels will exert extreme loads in excess of 703,250kg/m<sup>2</sup> (1,000 psi) and as a result may permanently damage the floor covering.***

***Note 2: Sharp pointed objects such as knives will pierce the surface of the vinyl, necessitating a repair.***

### Rolling Loads

Rolling loads cover a range of situations, from castor wheeled chairs and hospital trolleys, to heavy applications such as fork lift trucks. Where these situations occur, the following points need to be addressed prior to the installation of the floorcovering:

#### Substrate

The substrate should always have sufficient strength to cater for the anticipated loading. If the surface has been given a skim coat of underlayment, this should have the same strength characteristics. Friable concrete and concrete in a poor state of repair should always be made good prior to the application of the floorcovering.

***The majority of product failures in situations where rolling loads are found can usually be attributed to failure of the substrate for various reasons, and not the floor covering.***

#### Adhesive

Always seek and follow the adhesive manufacturer's recommendations with regard to product suitability and application. Do not compromise the installation by using an adhesive with a low shear strength.



### **Castor chairs**

It is generally accepted that the Polyflor ranges are unaffected by castor chair wheels and all products pass the castor chair test as determined in the relevant manufacturing standard EN649 (ISO10581 / ISO10582). If damage does occur, it is normally due to incorrect, damaged or sticking wheels or failure of the substrate/adhesive. Always check the wheels for faults before taking the more serious action of uplifting the floorcovering. It should be noted that castor chair wheel manufacturers make different quality wheels for textile and resilient floorcoverings and the correct type of wheel should be specified when ordering new furniture.

### **Other applications**

Typically, the use of most types of hospital trolleys or pallet trucks will not cause any issue with Polyflor Homogeneous, Heterogeneous and Polysafe ranges of floorcoverings. However, it is important that the weight is adequately distributed through the wheels (a minimum of 4 wheels should distribute any weight). The wheels should be in good condition and rotate freely. Caution should be taken when rotating / manoeuvring heavy loads from a stationary position.

### **Other points to consider**

Points to note when considering rolling load suitability:-

1. Solid wheels have less surface contact area than pneumatic tyres.
2. Large diameter wheels have greater surface contact than small wheels when under load.
3. Metal and polyamide wheels are prone to chipping and indentation in use which, in turn, may damage the floor covering.
4. Dark coloured tyres are likely to stain light coloured floorcoverings.
5. High speed driving of fork lift trucks is undesirable as this can lead to ingrained "skid" marks in traffic paths when braking hard.
6. Damage will result to the floorcovering if pallets are dropped whilst the vehicle is still moving.
7. Tight turning circles can increase the loading on the floor, resulting in a breakdown of the substrate and ultimately the floor covering.

### **Avoiding damage to floors**

When moving heavy furniture and fittings across Polyflor products, spread the load by placing strips of 6mm plywood or hardboard on the floor under the load. The load can be moved, allowing the boards to distribute the high point loading over a large area. For very heavy machinery and equipment, consider the hire of hover pads and a compressor. These act like a hovercraft and allow the heavy equipment to float across the floor without contact.

### **General**

Due to the wide range of loading equipment available we cannot provide specific performance criteria for the individual items of equipment. There is not one particular standard to determine the exact load bearing performance criteria, the information is obtained using modified test procedures and is solely provided as a guide.