Long-term maintenance of value of resilient floor coverings

Influence of chair and furniture glides as well as chair and furniture castors

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1 Introduction:

This Technical Information summarises experiences with chair and furniture glides as well as chair and furniture castors and gives recommendations for equipping and maintenance of furniture feet. The objective of this Technical Information is the long-term maintenance of the use value of resilient floorings.

The castors of hospital beds and furniture castors in the health sector are not covered by this Technical Information.

2 Definitions:

For reasons of simplification, in the following chair and furniture glides are jointly referred to as furniture glides. Unless explicitly differentiated between, "furniture castors" also means chair castors.

Several standards exist in which the properties and requirements for furniture and furniture castors are described. There are no standards or generally recognised definitions for furniture and chair glides. However, extensive experience exists in among experts, which is compiled in this Technical Information.

The explanations of EN 12528 and 12529 apply to furniture castors.

3 Damage patterns and causes:

The choice of suitable furniture castors and furniture glides has a significant influence on maintaining the value of resilient floorings. Damage to floorings can occur in a short time in case of unadjusted dimensioning, unsuitable material or insufficient maintenance of furniture glides and castors.

The causes of damage to resilient flooring surfaces during use are generally not due to quality defects in the covering, but mostly due to use-related effects. For example, in schools, highly scratched flooring surfaces occur in classrooms even after a relatively short use time. One reason for this can be that the flooring was replaced during renovation, but the existing furniture remained in the rooms. Another cause of damage is that the periods between cleaning are lengthened significantly in some cases and there is increasingly more dirt on the floor that can cause damage.

Old furniture glides, whose sliding surfaces are rough or have burrs are no longer functional and must therefore be replaced. The same applies to highly soiled glides and castors.

Particularly in schools, a damage pattern can be found that is caused by continuous "rocking" of the chairs (rocking backwards and forwards). In this way, the chair sled feet, which can be extremely sharp-edged, are loaded with the whole weight of the person. This leads to extreme notching effects in some cases and thus inevitably to damage to the flooring and the combination of bonding and covering.

Lasting indentations in resilient coverings occur under excessive point loads due to inadequately dimensioned glides and castors or even unsuitable glider geometry.

If hard or incorrectly dimensioned castors are used on resilient coverings for a lengthy time, lasting indentations are found and in some cases heterogeneous floorings can also delaminate. Damage below the floor covering can also occur, typically in case of incorrect castors and excessive load/strain. For example, a levelling compound, which is suitable for normal castor load but not for increased requirements, such as use in a hospital, is ground or split under the basic conditions described above.

Due to their design, where swivel castors are used, swivelling from the forward to the rear alignment (and vice versa) causes very high loads to occur that are the same as "erasing".

Metal slides with adhering dirt after seven months of use

Highly damaged nylon glides after three to four months of use

Nylon glides with thick dirt adhesion after eight months of use

Worn felt glides after eight months of use

Sharp-edged, damaged, worn and unsuitable, soiled chair glides

Lasting indentations due to high point load and hard glides

Unfavourable geometry results in a higher point load

Damage pattern caused by sharp-edged furniture foot

Irreparable damage caused by hard castors

Discolouration and imprints due to unsuitable castors

Delamination after overloading by chair castors

Scratched and dirty castors will therefore very quickly leave behind damage in the flooring surface.

Depending on their material composition and colour, glides and castors can cause permanent discolourations of resilient floorings.

4 Preventive measures to avoid damage

The following is invariably recommended:

- Choose suitable furniture castors and/or
- glides
- Use soft castors and glides only
- Regular cleaning of the flooring surfaces and castors and glides
- Immediate replacement of damaged/worn castors and glides
- Use of glides with replaceable inserts
- Do not move furniture with locked castors forcefully
- Do not move castors faster than 4 km/h (roughly equal to walking pace)
- Adequately dimensioned entrance mats
- Sensitisation of users and information about possible damage.

Materials for furniture glides and castors

EN 12528 and EN 12529 specified castors with soft tread (Type W) for resilient floorings. To prevent damage due to furniture feet, by analogy, use soft furniture glides made of suitable felt, special textile fibres or suitable plastics (e.g. TPU, PTFE).

Design and dimensioning

Sharp-edged furniture feet and those whose contact surface is not flat, can cause damage to flooring constructions due to notch effects or high point loads. The contact surfaces of furniture glides should therefore be rounded at the edges and be positioned flat, to reduce point loads and to prevent the resulting indentations.

Maintenance of furniture castors and glides

Like the flooring itself, castors and glides must be cleaned regularly and their functional capability must be checked.

On replacing floorings (changing the type of flooring) the condition and suitability of furniture castors and glides should be checked and renewed or reconditioned if they are damaged or worn.

Further recommendations

When purchasing new furniture, pay attention to whether they are equipped with suitable glides or castors in the factory or whether they can be retrofitted.

When purchasing new furniture you should order spare glides or castors at the same time, or ensure that glides and castors can be reliably supplied at a later date.

5 Proofs of delivery/reference sources

The following list of manufacturers of furniture glides and castors is intended as an overview only and no claim is made that it is exhaustive.

School furniture

2-component multi-function glides

These glides are gentle on the flooring surface and highly limit the possibility of rocking backwards and forwards and teetering movements.

Manufacturer: www.olplastik.de
www.vs-moebel.de

Replaceable glides for school furniture

Manufacturer: www.olplastik.de
www.quickclick.de

Chair/furniture glides made of PTFE

Manufacturer: www.magiglide.de
www.olplastik.de

Special glides made of textile fibre under the name “scratchnomore”

Manufacturer: www.dr-schutz.com

Special glides named “Floor-Care”

Manufacturer: www.vs-moebel.de

Soft and very soft felt glides

Manufacturer: www.olplastik.de
www.profigleiter.de
www.wagner-system.de

Glides made of PA6 die cast zinc with sliding surfaces made of polyurethane or felt

Manufacturer: www.gross-froelich.de

Replaceable plastic glides

Manufacturer: www.olplastik.de
www.wagner-system.de

Chair/furniture castors

Soft chair castors with treads made of polyurethane or thermoplastic polyurethane

Manufacturer: www.gross-froelich.de
www.tente.de
www.wagner-system.de

6 List of sources and normative references

Relevant standards and codes of practice are listed in the following. They reflect the current status at the time of printing the Technical Information.

EN 1335-1

Office furniture. Office work chair. Part 1: Dimensions. Determination of dimensions

EN 1729-2

Furniture. Chairs and tables for educational institutions. Part 2: Safety requirements and test methods; 2016-03

RAL-GZ 430/6

Besondere Güte und Prüfbestimmungen für Schulmöbel (Particular quality and test provisions for school furniture); 2019-01

EN 16139

Furniture. Strength, durability and safety. Requirements for non-domestic seating; 2014-03

EN 12528

Castors and wheels - Castors for furniture - Requirements

EN 12529

Castors and wheels - Castors for furniture - Castors for swivel chairs - Requirements

EN 16139

Furniture. Strength, durability and safety. Requirements for non-domestic seating; 2014-03

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