

Expert Committee Information Sheet 035

# Single-use woven webbing slings made of man-made fibres – Daily use?

## Contents

- 1 Advantages and disadvantages of webbing and round slings
- 2 External transportation
- 3 Use of single-use webbing slings
- 4 Summary and application limits

Lifting equipment such as round steel chains, ropes and multiple use webbing slings are mostly used for in-house transportation with cranes or other lifting devices. Multiple-use webbing slings are widely used for in-house lifting according to DIN EN 1492-1 [1] as well as round slings according to DIN EN 1492-2 [2] (see pictures 1 and 2), as they present a number of advantages compared to other lifting equipment.

## 1 Advantages and disadvantages of flat webbing slings compared to round slings

The significant and well-known advantages and disadvantages are:

- high strength to weight ratio
- low risk of injury to operators
- relatively cheap, especially for smaller load bearing capacity
- susceptibility to cutting, tears and abrasion
- suitable for use only in a specific temperature range
- restricted use because of the material induced low resistance to chemicals



Picture 1: Multiple use polyester (PES) webbing sling according to DIN EN 1492-1 – blue label

## 2 External transportation

Webbing slings are not only used for in-house or in-plant transportation but also for external transportation in the supply industry (delivery), where they are widely used because of the advantages mentioned above. The transport procedure, by which a multiple use webbing sling is used several times to hold the fastened goods during a long transport, is called pre-slung procedure. This is the only operation where the payload is equal to 1,4 times the working load limit (WLL = Working Load Limit) (formerly VBG 9a § 30 section 4, now BGR 500 clause 2.8 [3]). With the introduction of DIN EN 1492-1:2000-10 the factor to provide a margin of safety between the applied tensile forces and the breaking strength of the webbing slings has been reduced from 1:8 to 1:7. So that the pre-slung factor had to be adjusted accordingly from 1,6 times to 1,4 times the maximum load rating (WLL).

The possible increase in the working load limit of the webbing slings for this type of procedure requires that the load weight is known, the appropriate slinging type selected and few load cycles are carried out. At the end of the transport chain e.g. when the goods are off-loaded at the final destination, the webbing sling has to be inspected for defects or damage by a competent person before being re-used.



Picture 2: Multiple use polypropylene (PP) round sling according to DIN EN 1492-1 – brown label

### 3 Use of single-use webbing slings

In addition to the above mentioned lifting equipment, there are so-called single-use webbing slings often used for the external transportation in Germany in accordance with DIN 60005. The single-use webbing slings manufactured according to 60005 are color-coded with an orange label and are clearly marked and tagged/named “Single-use slings” or “single-use round slings” (see pictures 3 and 4). They are manufactured as endless flat webbing sling or as single-use round slings. The disposable slings must only be used once for the transport of goods – from manufacturer to end consumer – and **must be destroyed and disposed at the end of the transport chain!**



Picture 3: Single-use sling according to DIN 60005

Single-use slings, which are not manufactured according to DIN 60005 [4], have different markings and labels (see pictures 5 and 6). The range of application though is the same as the standardized ones. **They must be destroyed and disposed at the end of the transport chain as well!**



Picture 4: Single-use round sling according to DIN 60005

Single-use slings can be clearly identified by the following or similar information: „Einweg-Hebeband“, „don't use twice“, „ne pas reutiliser“, „non riutilizzare“.

Single-use slings are unlike multi-use slings and are smaller for the same working load capacity.



Picture 5: Single-use webbing sling – unstandardized

They are in most cases thinner but extra strengthened to resist cuts and tears. While the safety factor of multi-use slings provides a margin of safety between the applied tensile forces and the breaking strength of 7 to 1; the safety factor of single-use slings is required to be 5 to 1 because of the above mentioned limited range of application. Single-use slings must not be used in the pre-lung procedure.



Picture 6: Single-use sling – unstandardized

The relatively high safety factor of 7 – compared to 5 - takes into account the limited resistance properties against cuts and tears of the material used (made man fibres: polyester, polyamide and polypropylene). Because of the accident occurrence rate the safety factors have not been set too high. Experience has shown that single-use slings – once they reached their final destination in the incoming goods department – are not disposed of and destroyed but they are routinely reintegrated into the production or manufacturing process together with the stored goods.

According to our Expert Committee the accident risk when re-using the single-use slings in the further working process increases significantly.



Picture 7: Single-use slings – use in production

The risk failure of single-use slings increases considerably when they are re-used in the usual production process in the opinion of our Expert Committee.

Picture 8: Single-use slings sharp edges



## 4 Summary and limits of application

Single-use webbing slings are again and again found in the production process of our member companies. The safety factors are definitely lower than those of multi-use webbing slings, which increases the risk of load failures. With regard to work safety and health it is important to ensure that single-use webbing slings are properly used for their intended purpose. **They must be disposed of once they reached their final destination – e.g. at the end of the transport chain.**

The Expert Committee „Woodworking and Metalworking“ is made up of representatives of accident insurance institutions, of social partners, manufacturers and operators. This information sheet is based on the experience gained and compiled by this Expert Committee. It shall particularly raise awareness of the problematic use of single-use webbing slings.

The information sheet has been drafted by the Expert Committee „Woodworking and Metalworking“, section “Lifting Equipment and Maintenance”. This information sheet is currently in the draft phase and comments – to be sent to the publisher - are invited by 30<sup>th</sup> April 2013 at the latest.

This information sheet replaces the information sheet number 035 bearing the same title (issue 10/2009). Further information sheets drafted by the Expert Committee „Woodworking and Metalworking“ can be downloaded from our website [5]. For information about the goals and aims of the information sheets please consult information sheet number 001.

### Bibliographical references:

- [1] DIN EN 1492-1:2000-10 "Textile slings – Safety – Part 1: Flat woven webbing slings, made of man-made fibres for general purpose use", Beuth Verlag GmbH, Berlin
- [2] DIN EN 1492-2:2000-10 "Textile slings – Safety – Part 2: Roundslings, made of man-made fibres for general purpose use", Beuth Verlag GmbH, Berlin
- [3] BGR 500: "Operating work equipment", Section 2.8 „Operating lifting equipment“
- [4] DIN 60005:2006-03 "Textile – Sicherheit – slings – Safety – Disposable flat woven slings, made of man-made fibres for general purpose use", Beuth Verlag GmbH, Berlin
- [5] Internet: [www.dguv.de/fb-holzundmetall](http://www.dguv.de/fb-holzundmetall) or [www.bghm.de](http://www.bghm.de) Webcode: <626>

### Picture credits:

Bild 1, 2, 6: PuZ OA / Barghaus  
 Bild 3, 4, 5: PuZ OA / Jenner  
 Bild 7, 8: PD Hannover / Ristau

### Publisher:

Fachbereich Holz und Metall der DGUV  
 Sachgebiet Hebetchnik und Instandhaltung  
 c/o Berufsgenossenschaft Holz und Metall  
 Postfach 10 10 15  
 40001 Düsseldorf