

# ThickThin®-technology

## pewag snow chains – now lighter and with longer life span

A chain is only as strong, as its weakest link. But why must every chain link have the same shape? Can we built better chains by combining different types of chain links? pewag found the answer by consistently working on a new technology to radically improve chains. The result of this research is the ThickThin-technology®: For the first time in the history of chain manufacturing different chain links (different in shape, length and thickness) can be assembled in one chain. For this reason pewag can manufacture the best combination for the various areas of use.

### What is your advantage?

Reduced weight, considerably longer life span and optimum grip.

# snox®-technology

## pewag snox: world's most convenient snow chain

Chains often have to be mounted when the weather is extremely unfriendly. Fastening the hooks and rings to link parts of the chain together increases the mounting time. pewag snox is the first chain system without these connecting elements. The tensioning system acts fully automatically and regulates the optimum tension of the chain as if by magic.

# servo-technology

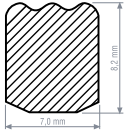
## pewag snow chains are clever

Tensioning systems for snow chains have to get more convenient: This was pewag's main goal when developing the latest generation of automatic ratchets. The key objective was to make mounting the chains easier by enhancing the tensioning system. To improve performance and user friendliness, pewag uses the new servo-technology as first manufacturer in the world.

# Wave profile links

## pewag snow chain with wave profile links

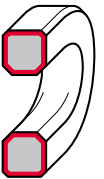
To increase both grip and life span pewag introduced the wave profile. pewag differentiates chain links between a rectangular (for example 7 mm broad but 8.2 mm high) and a square version (for example 7 mm broad and 7 mm high). Which one of these basic shapes is used depends on the chain's area of use. For example, pewag unimove traktor has a rectangular link shape while the pewag austro super-series partly consists of square wave profile links.



# Square grip links

## pewag snow chains with square grip links

Square grip links intertwine and prohibit the chain from twisting when exposed to pressure and provide optimum drive and brake performance because they "bite" into the snow. Chains that do not have these distinct edges inside do not offer this advantage.



# Asymmetrical pattern-style chains

## pewag asymmetrical pattern-style chains run smoother and provide better traction

The chain track shows that the distances between the chains A1 are considerably closer with the Asymmetrical pattern-style chain compared to the similar built H-pattern-style chain with the distance A 2. The center section of the H-pattern-ctyle chain serves exclusively to keep the vehicle on track. The asymmetrical pattern in contrast contributes not only to keeping the vehicle on track, but also improving brake and drive performance. Consequently, the asymmetrical pattern-style



chain runs smoother and provides better traction. pewag is the only manufacturer in the world, that produces chains in asymmetrical design, because this design requires more experience and know-how than standard designs.

## TitanGrip®

### pewag special alloy

Snow chains marked with the TitanGrip® trademark are made from a special high-grade alloy steel. The combination of titanium and boron steel in conjunction with a sophisticated heat treatment process provides maximum wear resistance.

## Guarantee and Warranty

### pewag warranty conditions

In terms of the quality of our snow chains, the warranty period for our product, in the valid pewag warranty conditions, is one year from the date of purchase. In any case, please read the attached assembly instructions and warnings thoroughly before using our product. We guarantee for the contractually agreed properties and quality of our products. We declare that our products are manufactured according to the strict ISO 9001 regulations.

1. Each warranty claim requires the compliance with operating instructions of the vehicle, assembly instructions and instruction manual as well as the warnings.
2. pewag does not warrant for
  - a) natural wear and tear
  - b) damages or errors that were caused due to improper handling and/or treatment, through changes or interferences with the device or due to using non-original-pewag-parts.
  - c) damages that were not already present at the time of delivery.
3. The vehicle using the product needs to be in a perfect technical condition.
4. The warranty is exclusively based on the product itself. All possible consequential damages of any sort are excluded from the warranty.
5. Warranty claims need to be reported to us in written form immediately after establishing the complaint in question. For the substantiation of the claim please enclose the valid warranty document and all necessary details such as technical details, proof of the date of purchase, exact course of events and all conditions of the damages etc. Furthermore, to verify the warranty claim please send us the complete product with all damaged parts free of charge.
6. In the case of a justified complaint that falls within the terms of the warranty, we reserve the right for the repair of the damage i.e. improvements, exchanging of parts or the delivery of replacement. Cash replacement is not possible.
7. This warranty is valid worldwide. For both parties the place of performance is the headquarters of the manufacturer.

## Snow chain advice

### Tips and tricks for the right use

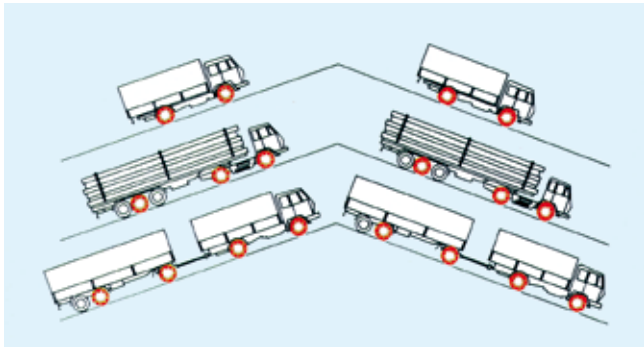
- Please check if there are specifications or recommendations for the use of snow chains for your vehicle (instruction manual, dealer information).
- Please make yourself familiar with the chains before you need them. Read the mounting instructions carefully and learn how to use the new chain with a mounting test on dry ground.
- Mount the chain when the road is snow covered, icy or if snow chains are mandatory – this is also true for 4x4 vehicles – to avoid getting stuck, interfere with traffic or even endangering yourself.
- Always mount the chain on the drive axle (instruction manual!). For 4x4 vehicles please consider the recommendation of the manufacturer.
- After around 50 meters please check for the correct chain tension and its fit on the tire - re-tighten or correct if necessary.
- Re-tighten the chain if it starts hitting the wheel well. Please be careful: Too high chain tension can lead to tire damage, wheels spinning and increased wear.
- The road performance of your vehicle changes with snow chains (especially on bare pavement)! Please do not go faster than 50 km/h – on bare pavement and slow down accordingly!
- Demount the chain as soon as the road conditions improve to avoid unnecessary wear.
- Check the wear condition of the chains regularly. By reversing the chain you can double the life span and increase its life. Chains, the links of which are worn down to more than half of their diameter are not safe to operate anymore.
- For vehicles with heavy use (buses, transporters, cabs) we recommend the use of strengthened snow chains (UZ-S, A-S, A-SV).
- We use the standard tire sizes, which are specified for tire manufacturing by the ETRTO (European Tyre and Rim Technical Organisation), to determine our chain sizes. For the correct fit of the chain on the tire, the tire must also be mounted on the correct rim (consider the size specifications of the manufacturer); different rim sizes can affect the fit. Extremely worn or retreaded tires can also affect the fit negatively.

**Attention: In any case consider the enclosed operating and mounting instructions of the chain as well as the warnings!**

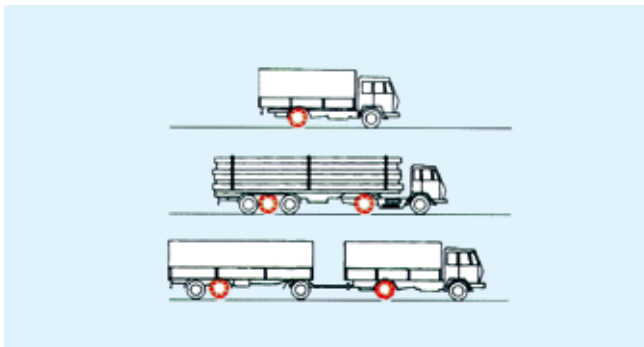
# The right chain use

## Guidelines for utility vehicle chains

Driving in the mountains – especially driving down-hill – one additional chain should be mounted on the steering axle.



Chains have to be put on the drive axle and the penultimate axle of the trailer.

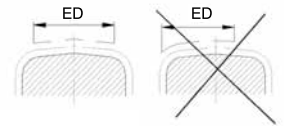


## Reversing of ED-chains

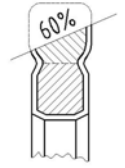
### For optimum utilization

To utilize the wear volume of snow- and off-road chains in an optimum way, it is necessary to reverse the chains. Chains in "ED" version have welded bars to increase the wear volume. When reversing chains in "ED" design, please consider the following points:

The chains have to be mounted on the tire in a way that allows for the "ED"-area to be in the middle of the running tread of the tire. This can be achieved by extending or shortening of the inside chain.



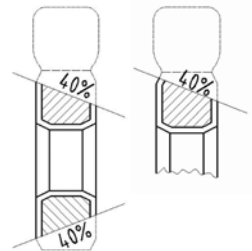
The chain may be used until 60% of the welded bars are worn. This should be measured at the "ED" links which are on the edge of the running mesh.



Once the wear state of the chain is reached they have to be changed on the vehicle: The right chain is mounted on the left side of the vehicle and the left chain on the right side. This way, the diagonally worn wear bars are used in an optimal way.



The chains can only be used until all wear bars are worn completely. If the "ED"-bars in the middle of the running mesh are completely worn and the chain links up to 40% then you can reverse the chain. Single remains of "ED" bars on the edge of the running mesh have to be grinded-down before reversing the chain to avoid damage to the tires.



The reversed chains can be used until the other link side shows around 40% wear. From this point the chains are not safe to operate anymore.

## Possibilities of adjustment

### Achieve a longer life span of the chain

- pewag uniradial, uniradial SED
- pewag universal, universal ED
- pewag unimove TT
- pewag unimove traktor
- pewag forstgrip
- pewag forstgrip pro
- pewag forstgrip cross

To increase the life span of the chain it is crucial to fit the chain to the tire in an optimal way. This can be achieved by shortening the



side chains at the clevises. The number of clevises depends on the chain type and its size. When closing the clevis the pin has to be closed again tightly.



Furthermore we recommend to change the chain from one tire to the other after half of its expected life span to achieve a more constant wear.

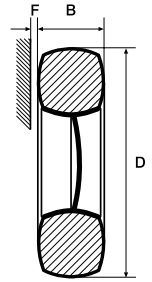
**Shortening of the side chains:**

The chain is shortened evenly at the clevises (see arrows). At each clevis the approximate same number of chain links should be hung back.

**Attention: Asymmetrical shortening can lead to shifting of the chain!**

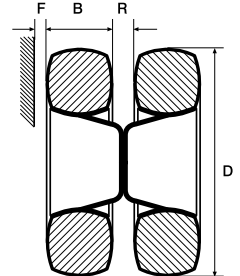
**Attention when ordering!**

Snow chains for less popular or special tires: When ordering chains for tire dimensions, which are not in this list, please give us the following information: D, B and F. See questionnaire on page 94.



Twin chains with a big tire distance or rare tires: If the distance R between twin tires is abnormally large, then the usual twin chains according to the list might not fit anymore.

In this case, please indicate the distance R when ordering. When ordering chains for dimensions which are not mentioned in the list please indicate following measures: D, B, F and R.



# Chain sizes tire dimensions

# Dimension- specifications

## Valid norm sizes and norm rims of the manufacturers

## Tires are labeled in a standardized way

All tire specifications are standardized with the valid norm sizes and norm rims according to DIN and ETRTO (European Tyre and Rim Technical Organisation) at the day of production. For retreaded tires and twin tires with non-standard rim distance the fit of the chain cannot be guaranteed. Please check if there are restrictions or recommendations (according to the technical operating manual of the vehicle manufacturer) for the use of snow chains.

For tires of haul vehicles (EM-tires) there are different depths in the profile of the running tread (L2, L3, L4, L5). L5-tires, for example, are bigger on the diameter and need a larger, in the running tread longer, chain. Thus the profile section must be considered in this case. In case of doubt we ask you to measure the tire: Diameter and tire width.

This price list contains chain types and sizes of the most popular tire dimensions. It is impossible for us to list all tire sizes of all international brands, especially special vehicles like industry and construction-site vehicles. Generally we can also deliver suitable chains for many tire sizes which are not listed, if you can provide us with the tire brand and type and the exact size specifications or the tire measurements.

**Passenger car tires**

normally metric  
metric, i.e.: 195/65 R 14  
For passenger cars labels without width are not used anymore, i.e.: 165 R13 = 165/80 R13



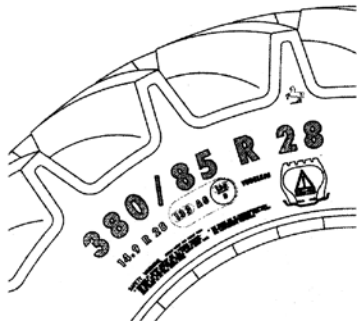
<b>195</b>	tire-width in mm
<b>65</b>	cross section ratio (The height is 65 % of the tire width)
<b>R</b>	sign for radial tires (belted tires)
<b>14</b>	rim diameter (inch-code)
<b>90</b>	load capacity key figure „90“ means, that the tire can be loaded with a maximum weight of 600 kg
<b>T</b>	speed-sign for the allowed maximum speed:
	Q = 160 km/h      R = 170 km/h
	S = 180 km/h      T = 190 km/h
	H = 210 km/h      V = 240 km/h
	W = 270 km/h      Y = 300 km/h
<b>M&amp;S</b>	mud and snow

**4x4 and light truck chains**

numerical, i.e.: 9 R15LT  
 high flotation, i.e.: 30 x 9.50 R15LT  
 metric, i.e.: 235/75 R15

**Truck chains**

Labels mostly metric, i.e.: 315/80 R22.5  
 or also numerical, i.e.: 12.00 R20



**Off-road tires**

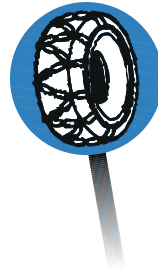
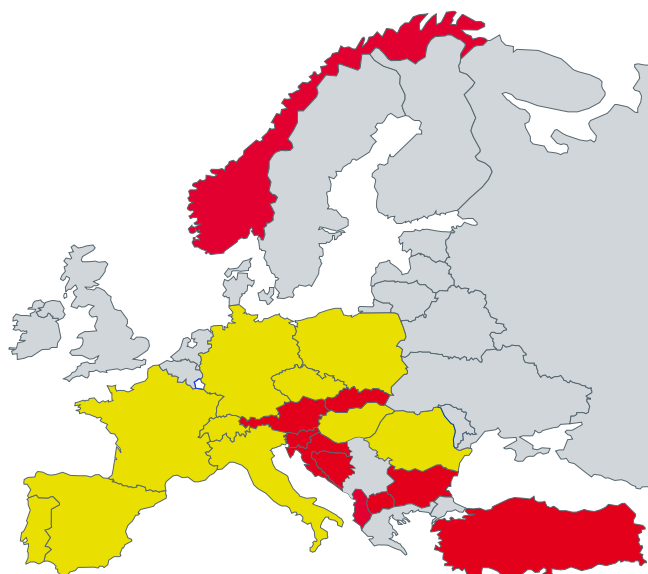
Labels mostly metric, i.e.: 380/85 R28  
 or also numerical, i.e.: 14.9 R28

**Attention:**

14.9/13 R28 = 14.9 R28 > "13" will not be indicated anymore. Often there are both metric and numerical specifications on the tires. Although the circumference of both dimensions is the same, the width is different. In this case please indicate both dimensions or talk to the chain manufacturer to make sure you receive the right chain size. Industrial tires differ in their dimensions from tires with an AS-design. Thus the different classifications of the off-road chains need to be revised and discussed with the chain manufacturer if necessary.

**EM-tires** (tires for hauling vehicles)

EM-tires are available in different profile depths: L2 (normal) to L5 (very deep). Depending on the profile depth the tire diameter changes as well. In this case please talk to the chain manufacturer to make sure you receive the right chain.



# Legal obligations in Europe\*

Depending on the individual country in Europe, there may or may not be legal requirements for the use of snow chains:

- There is a legal obligation to carry chains in the vehicle
- There is a legal obligation to carry chains in winter conditions only
- There is no legal obligation to carry chains at all

**Excerpt of the 29th motor vehicle law**

(valid since 1. 4. 2008/for Austria)

**Passenger Car:** Vehicles of categories M1 and N1 must have winter tires on each wheel at wintry road conditions. If summer tires are used you must have snow chains on two driving wheels if the road is covered with snow or ice. If a road in Austria can only be used with snow chains (marked by a road sign) the snow chain must comply to ÖNORM V5117 resp. V5119. Snow chains or starting aids which only comply to ÖNORM V5121 must not be used according to the law!

**Truck:** This does not apply to vehicles on which snow chains cannot be mounted due to the construction of the vehicle and for vehicles of categories M2 and M3 which are used in line operation.

**ÖNORM V5117** defines the requirements and test instructions for snow chains which can be mounted on vehicles of categories M1 (passenger cars, campers, vans up to 8 seats), N1 (vehicles up to 3,5t), O1 (trailers up to 750kg), O2 (trailers up to 3,5t) and offer at least minimum traction if used according to the regulations.

**ÖNORM V5119** defines the requirements and test instructions for snow chains which can be mounted on the wheels of trucks, semi trucks, omnibuses and trailers and offer at least minimum traction if used according to the regulations.

**Passenger car (M1):**

**Winter tires** 1.11. – 15.4. – Wintry conditions

**Carry snow chains in the vehicle** 1.11. – 15.4. – Obligation for snow chains on summer tires

**Omnibus (M2, M3):**

**Winter tires** 1.11. – 15.4.

**Carry snow chains in the vehicle** 1.11. – 15.4.

**Truck:**

**Winter tires** von 1.11. bis 15.3.

**Carry snow chains in the vehicle** 1.11. – 15.4.

\* According to the laws applicable at the time of printing (May 2010)





# Questionnaire tire chains

Send fax to: +43 (0) 316 / 60 70-142

Company \_\_\_\_\_

Date \_\_\_\_\_

Address \_\_\_\_\_

Telephone \_\_\_\_\_

Telefax \_\_\_\_\_

Mail \_\_\_\_\_

The requested information is needed to ensure the proper chain selection and that fitting is possible.

Application  easy  medium  difficult

Vehicle  truck  tractor  forklift  wheel loader

Tire brand \_\_\_\_\_ Profile \_\_\_\_\_

Tire dimension \_\_\_\_\_  simple  twin

Truck  summer  winter  retreads

Tractor  radial tires  diagonal tires  hauler tires

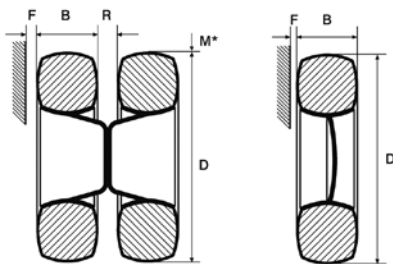
Wheel loader  standard profile (LR bzw. XRDN or XRDA)  rock profile (L5 bzw. XRD1 or XRD2)

Profile height  new  half used  heavily used

**Tire measurements**

D = \_\_\_\_\_ mm

B = \_\_\_\_\_ mm



**Minimum clearance**

F = \_\_\_\_\_ mm

M\* = \_\_\_\_\_ mm

R = \_\_\_\_\_ mm

M\* : Minimum clearance tire tread surface to the chassis

**Remarks**

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