

pewag

**WORLD'S
STRONGEST
CHAIN**
www.pewag.com

Tire protection chains

Protection and traction





Content

Powerful chains for individual applications

pewag tire protection chains are used on all 5 continents from -35 °C in mining applications to + 600 °C in hot slag. For more than 60 years pewag tire protection chains contribute to keep the machines in mines and steel mills moving.

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pewag group

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Welcome to the pewag group

We are an internationally operating group of companies. Our track record goes back to the year 1479.

Determination to innovate pewag group's Mission Statement expresses the goals of our actions:

Driven by our determination to innovate, we at pewag manufacture the world's best chains today and in the future. The high quality of our products and services as well as the passionate commitment of our employees guarantee safety for moving people and goods. Our customers set the benchmark for our achievements.

Principles of pewag group

Brands

The values of our premium brands are demonstrated by our first class quality and innovations and are communicated consistently and coherently. We anticipate market demands and changes in the environment and adapt our strategies, organization and actions accordingly.

Due diligence

In all our processes we use due diligent business practices and efficiency and strive to improve these continuously. In the long run, high profits secure the future of the organization and the growth of the corporate group.

Technological leadership

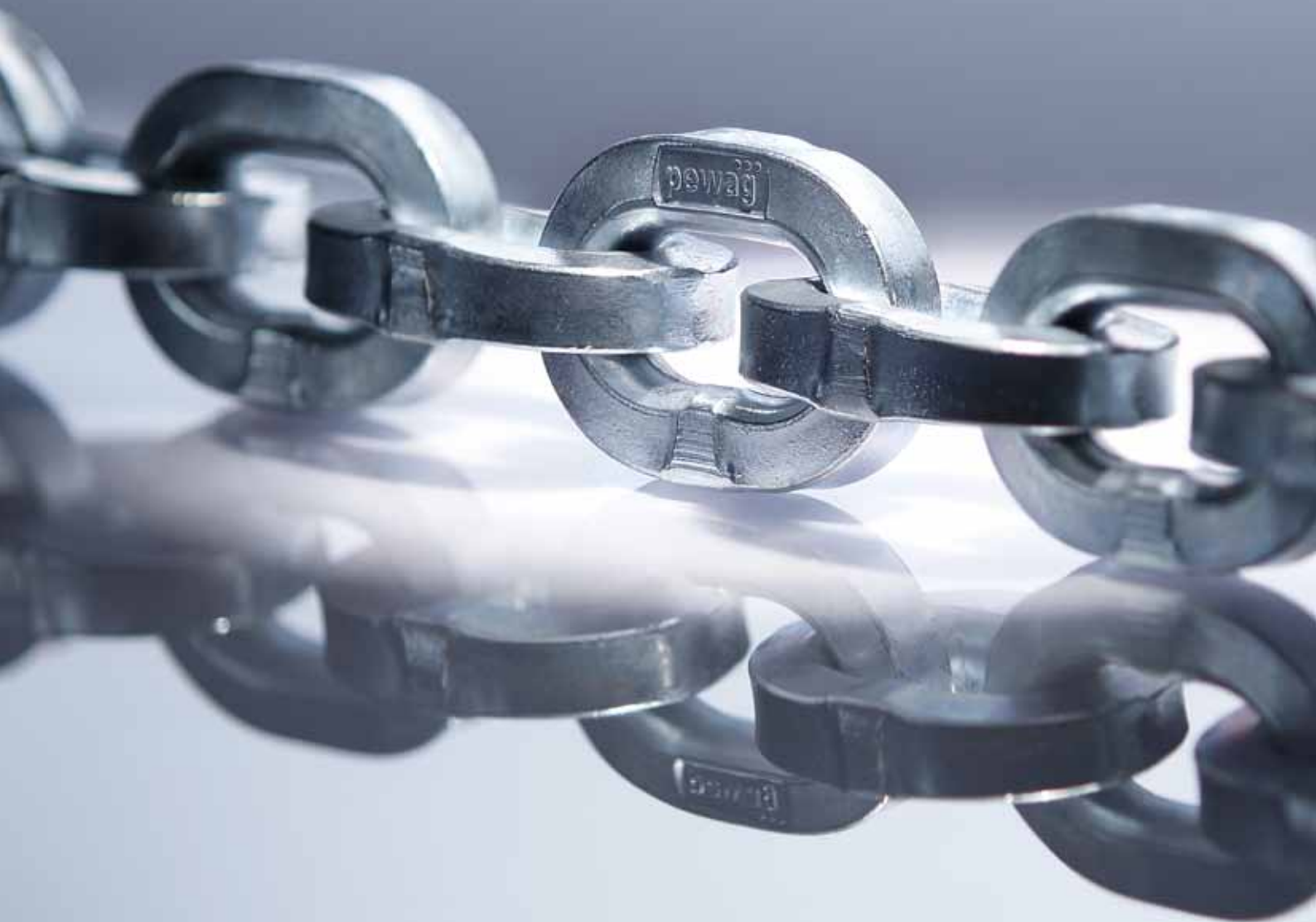
We secure our technological leadership through highest product quality, constant improvements and innovations of products, as well as manufacturing processes. We commit ourselves to careful treatment of the environment by reducing the use of energy and raw materials, ensuring the longevity of our products and making them recyclable.

People within our group

We value open, honest and team-oriented work-style, which is based on transparent communication. The ideas, opinions and experience of our employees are valuable inputs for our decision making process. We strive for stable and fair partnerships with our customers, suppliers and other business partners. Social aspects are considered when making business decisions.

We are a modern group of companies which looks back to a tradition and experience of more than 500 years. Since our founding years, a lot has changed, but the values that made our success possible from the beginning remain.

**pewag group –
Innovation. Quality. Partnership.**



History of the pewag group

Advantage through tradition

The history of pewag group goes back to the 15th century and therefore makes us the oldest chain manufacturer worldwide. With our experience we are ready for the future.

Timetable of important events

- 1479** First documented references of a forging plant in Brückl
- 1787** Foundation of a chain forgery in Kapfenberg
- 1803** Foundation of a chain forgery in Graz
- 1836** Establishment of an iron casting plant in Brückl
- 1912** Production of the First Snow Chain worldwide
- 1923** Merger of plants in Graz and Kapfenberg – Creation of the name “pewag”
- 1972** Foundation of a sales company in Germany
- 1975** Foundation of a sales company in the USA
- 1993** Foundation of pewag austria GmbH
- 1994** Foundation of the first subsidiary in Czech Republic
- 1999** Acquisition of the Weissenfels Group
- 2003** Separation from the Weissenfels Group
- 2005** Reorganization into 2 groups:
Schneeketten Beteiligungs AG Group – Snow Chains
pewag austria GmbH Group – Technical Chains
- 2009** Acquisition of Chaineries Limousines S.A.S.



Lithography forging plant Brückl 1855



Anchor chain forgery 1878



Chain forgers 1956

Quality management

Our ultimate goal is to achieve customer satisfaction

To reach this goal, the quality management of the pewag group is determined by the principle: “We supply our customers with high-quality products which fully meet technological standards and its usage requirements,” this is summarized in the four following mandatory principles:

Market oriented quality

To maintain and improve its competitive position, the quality of products and services of the pewag group must meet both the specifications of our customers and the standards one can expect from the technological leader in the industry.

Economic quality

As a profit-oriented company the quality is also determined by the material used, labor costs and financial possibilities, i.e. also within the framework awarded by the customer.

Responsibility for Quality

Quality management is the task and obligation of executives at all levels. Every employee of the pewag group has to be integrated by management in the preparations, execution and evaluation of the quality management measures.

Every employee takes the responsibility for the quality of his work.

Process oriented quality assurance

The close interaction between sales, product development, production and customer service is regulated within the individual companies by fixed processes and activities, as well as responsibilities with the aim to reach and maintain the defined quality standards.



Business areas

Environment – we take responsibility

Working with pewag products

The pewag group has a substantial and diverse spectrum of products and services.

Our range of products varies from traction chains for tires (snow chains for passenger cars, trucks and special-purpose vehicles, tire protection chains for mining vehicles) over different industrial chains to products for the do-it-yourself sector (light chains, belts, etc.)



Segment A
Snow and forestry chains



Segment B
Hoist and conveyor chains



Segment C
Do-it-yourself



Segment D
Engineering



Segment F
Lifting and lashing chains and accessories



Segment G
Tire protection chains

Ecological awareness in all areas



We continuously strive to keep the influence of our business on the environment as low as possible. Our production and warehousing is organized so that all legal requirements on environmental protection are fulfilled. Furthermore, we consider ecological aspects for our product development, processes and distribution channels and include these in our business planning.

Consequently, we are permanently striving for a continuous improvement and development of our established products to reach higher load capacities and safety for our customers with lighter weights and longer life spans.

Wherever we cannot avoid an environmental impact, we strive to reduce the use of energy, environmentally harmful emissions and keep the production of waste to a minimum. When investing in new machines we consider the technically most adequate and economically feasible state-of-the-art designs for their designated area of use.

Our environmental management is certified according to ISO 14001:2004. Regular internal audits assist to supervise compliance, test the effectiveness of our set standards and serve as a basis to determine improvement potentials.

Out of this long-lasting tradition we take responsibility for our products, employees, our sites and the environment very seriously.

We commit to comply with all environment-related regulations and continually improve our performance for the environment by defined goals. For that purpose we use modern production technologies. We enhance the ecological awareness of our employees by regular trainings.

We engage with our customers, neighbors and government agencies in an open communication and inform them about our environmental management wherever appropriate.

By providing advice, we want to inform our customers about the environmental aspects related to the use of our products – especially their long life spans. We are striving to motivate our customers and suppliers to consider environmental protection in their sphere of influence and use the same environmental standards as we do.

Customer proximity

International presence

After a changing history pewag has established itself today as one of the world's leading chain manufacturers with 22 sales locations and 6 production sites on two continents - Europe and North America.

pewag as an international corporate group is supported by a strong and professional partner network. This cooperation allows for optimized customer service and support.

Production and sales locations

Europe

Austria	pewag austria GmbH, Graz pewag austria GmbH, Kapfenberg pewag Schneeketten GmbH & Co KG, Graz pewag Schneeketten GmbH & Co KG, Brückl pewag engineering, Kapfenberg AMW Grünberger Handelsgesellschaft mbH, Wien
Germany	pewag Deutschland GmbH, Unna pewag Schneeketten Deutschland GmbH, Unna
France	J3C S.A.S. pewag France, Seyssins Chaineries Limousines S.A.S., Bellac
Italy	pewag italia s.r.l., Andrian
Netherlands	pewag nederland B.V., Hillegom APEX International BV, Hillegom

Europe

Poland	pewag polska Sp. z o.o., Buczkowice
Russia	OOO „pewag“, Moscow
Sweden	pewag sweden AB, Emmaboda
Slovakia	pewag slovakia s.r.o., Krškany
Czech Republic	Řetězárna Česká Třebová s.r.o., Česká Třebová pewag s.r.o, Vamberk
Ukraine	TOV „pewag Ukraine“, Lviv

North America

USA	pewag Inc., Bolingbrook, Illinois pewag Inc., Rocklin, California
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pewag group presents
itself on the internet.
More ...

www.pewag-group.com
www.pewag.com



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Benefits and Service

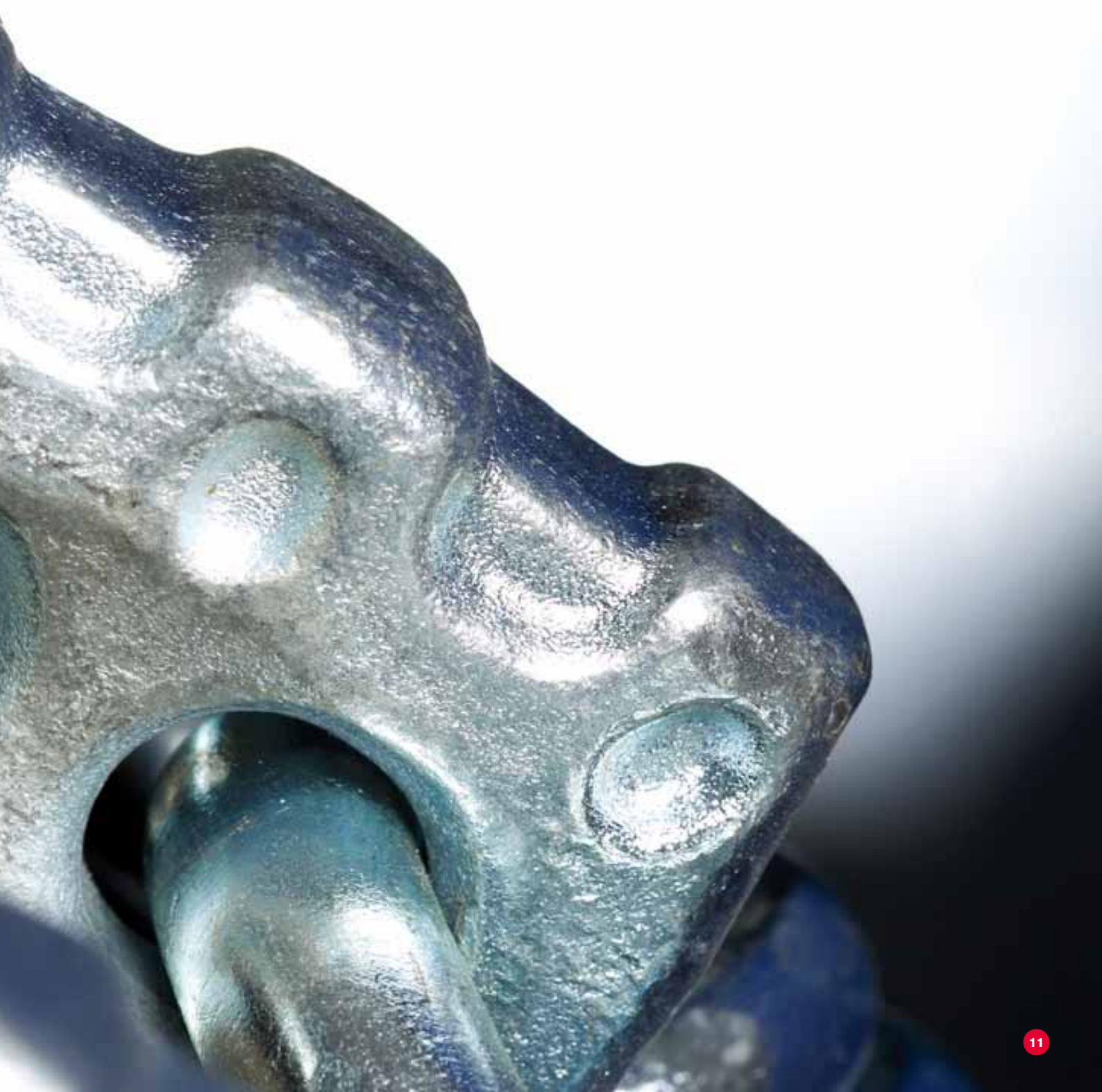
Benefits 12

Service 12



Benefits and service

Overview



pewag tire protection chains

Benefits

Earth Mover Tires, which represent the highest single cost factor for the operation of a wheeled unit, are sensitive to cuts, punctures and other damage.

Their high value and world-wide shortage means that pewag Tire Protection Chains solve many of these problems by providing the following advantages:

lower direct hourly operating costs:

- multiplied tire life – significant reduction in tire costs
- predictable service life of chains and tires – accurate budgeting at lower costs
- minimized down-time due to tire failure – maximum equipment availability
- improved stability, increased traction and better penetration for digging and break-out – increased productivity in tonnage per hour

Additional benefits:

- optimum tire protection – reduced tire maintenance
- protection plus traction with chain use – safe operation even in worst conditions



Service

After Sales Service, an elementary key point of pewag's long-term partnership with our customers, is offered by the pewag worldwide network:

- technical assistance and repair by chain experts
- training in chain handling (mounting, correct tensioning, repair, adjustment, dismantling, etc.)
- inspection calls including performance reporting
- availability of spare parts
- special tools and accessories facilitating chain handling and maintenance
- manuals and relevant risk assessments



pewag connects the world –
local service for a global market

**Please find our worldwide distribution
partners on www.pewag.com**



Application Areas

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Application areas

Overview



Open pit mining

Strong chains for great performance

pewag is always in the forefront when it comes to chaining the world's largest machines and tires. Large-scale mining operations owned by renowned international companies are choosing pewag as their reliable and innovative partner for the protection of their tires.

Characteristics

- giant loading and hauling machines (XXL)
- large fleet of earthmovers
- expensive and vulnerable tires
- huge mining areas
- millions of tonnes to be moved
- 24/7 operation



Underground mining and tunnelling

High quality in deepest grounds

From low surface tunnelling to deepest level mining at 4785 m pewag tire protection chains keep underground operations going. pewag chains are used with a wide range of highly specialized equipment like loaders, shuttle cars, scoops and other wheeled vehicles, for both protection and traction.

Characteristics

- low profile equipment from XS to L
- limited space for chain installation
- narrow operating space and long driving distances
- extreme stress and load for the machine, tires and chains
- difficult equipment and tire maintenance
- frequent tire failures
- 24/7 operation



Quarrying

The right choice for every need

The largest group of users exploiting all kind of materials, from aggregates to ornamental rock. Their very specific and numerous requirements are fully covered by pewag's wide range of chain solutions.

Characteristics

- equipment from XS to XXL
- high diversity of rock, from soft limestone to hard granite, in all sizes
- load & carry operation
- seasonal operation
- premature tire wear and failure
- 1 to 2, maximum 3 shift operation



Slag and scrap handling

Tire protection in extreme applications

Very high temperatures, liquid steel slag, large and solid scrap pieces, concrete driveways, etc. mean toughest working conditions. pewag's successful answer: reinforced, highly wear resistant and customized chain designs.

Characteristics

- equipment from M to XL
- temperatures up to 1200°C (2190°F)
- punctures and tire burning
- abrasive ground conditions
- exceptional stress and load
- limited time for maintenance
- operation with time limitation



Traction

Safety with pewag compact cross chains

pewag chains ensure that mining operations keep on rolling! A great diversity of machines can be chained such as loaders, dozers, graders, dump and service trucks. For seasonal use on ice and snow as well as for continuous use on slippery and muddy ground.

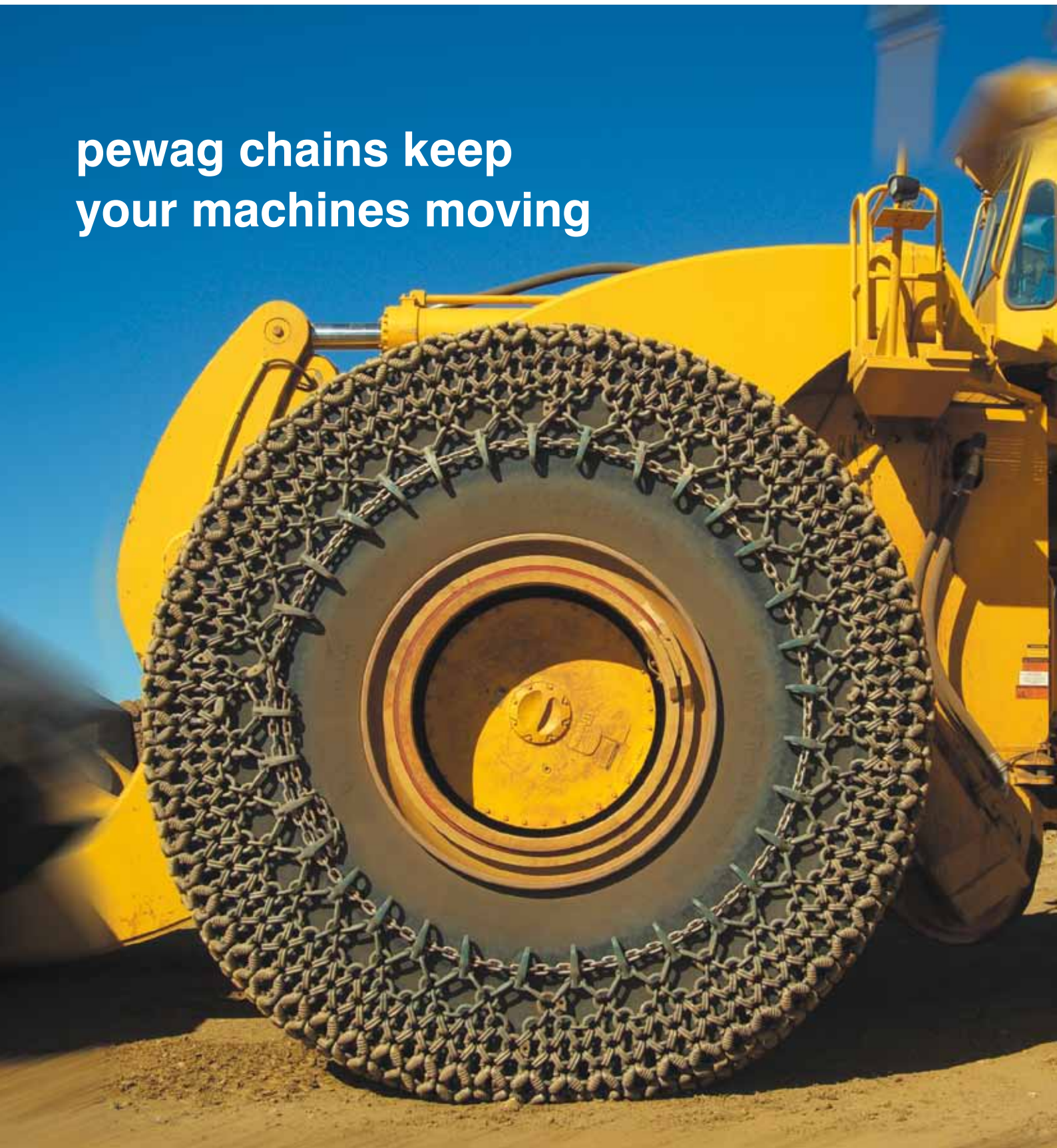
Characteristics

- great diversity of machines from XS to XXL
- ice and snow
- slippery or muddy surfaces
- steep inclines
- spinning wheels
- safety requirements for operator and machine
- seasonal or continuous use throughout the year



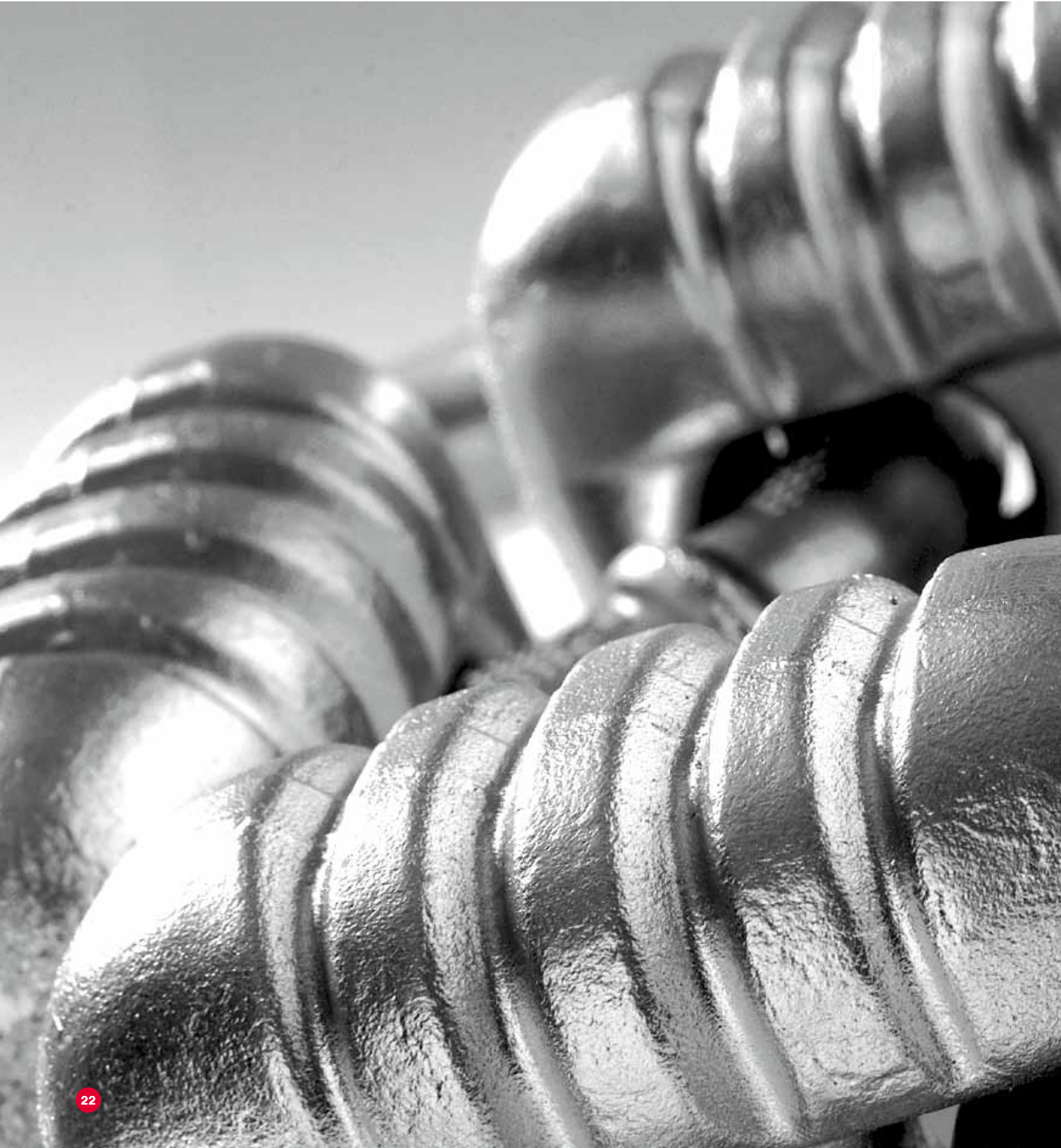
pewag offers a large variety
of customized chains for
different applications

**pewag chains keep
your machines moving**



Products

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Products

Product overview



Premium Series

High performance in toughest operations

The pewag Premium Series comprises the links pewag tycoon and pewag ringstar. These tire protection chains are of the highest quality and provide optimum lifetime and performance in the toughest environments. Main focus of the pewag Premium Series are users of L - XXL equipment and those who are working in the toughest and most abrasive conditions as found in open pit and underground mining, quarrying and many other applications. The pewag tycoon link range is a completely new development and the result of our continuous R&D program based on the experience of 200 years of chain manufacturing.

pewag tycoon

Premium Series

Ultra-resistant heavy duty wear link especially developed for the world's largest wheel loaders as well as for operations in most abrasive hard rock conditions.

Available sizes: 14 | 14/16 | 16 | 16/18S | 18 | 18/20S | 23
Suitable mesh design: square, hexa



pewag ringstar

Premium Series

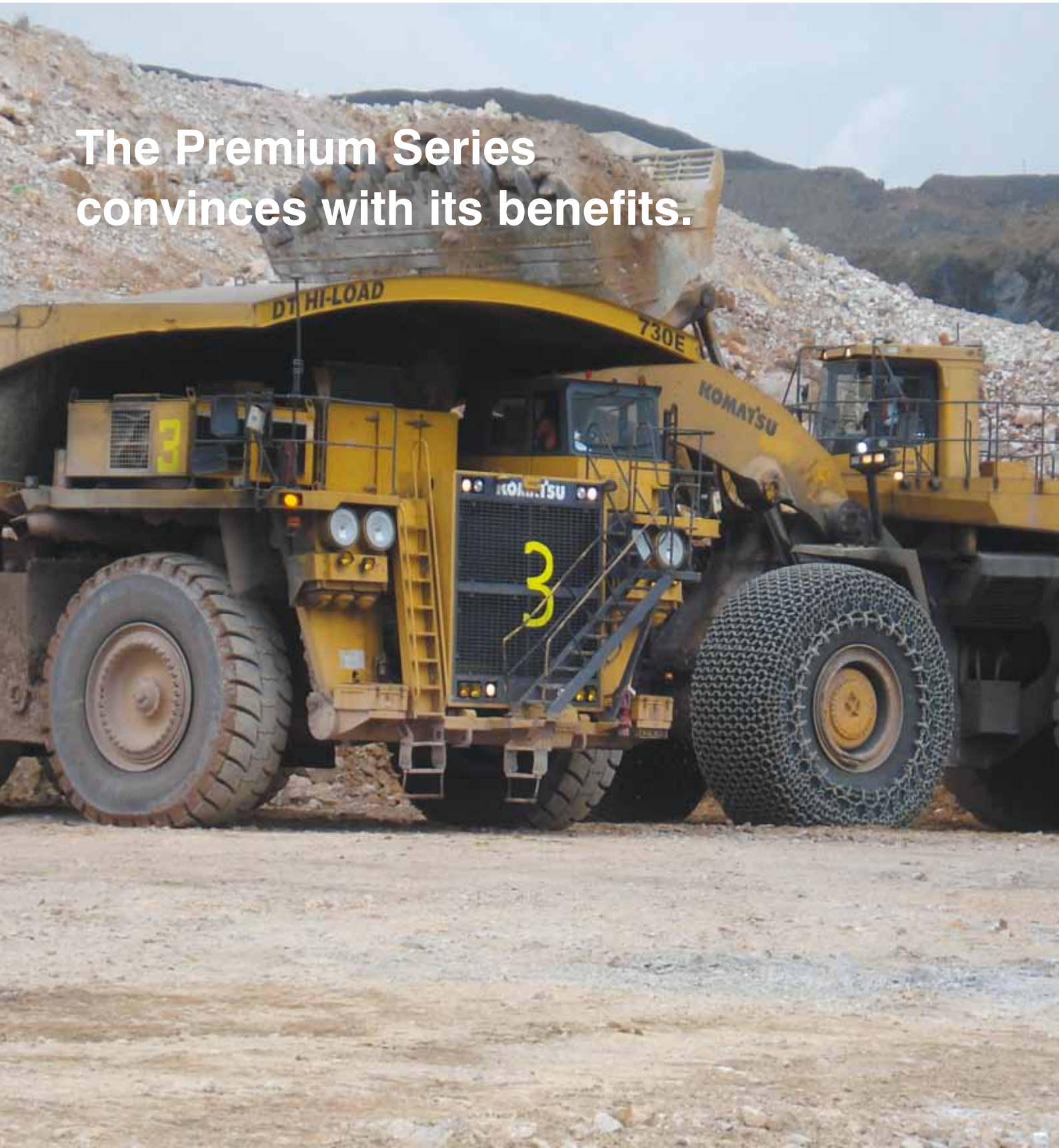
Extremely tight (square) mesh design for optimum tire protection and long service life in wet and abrasive conditions. Excellent traction on ice and snow in hexagonal mesh design.

Available sizes: 16
Suitable mesh design: square, hexa



Highest productivity,
lowest costs per hour, maximum
service life and minimum
maintenance requirements

**The Premium Series
convinces with its benefits.**



Professional Series

Quality chains for challenging applications

The pewag Professional Series includes the wide link range of pewag's most reliable and long-term successful Tire Protection Chains such as the pewag compact, pewag granite and pewag spike. The excellent performance of these products has been approved for many years by the most demanding customers. These chains have been continuously improved and produced to the high quality standards of pewag. Their excellent performance has been a benchmark for many years and is only topped by the new chain generation of the pewag Premium Series. The main focus of the Professional Series are all customers using XS-XXL equipment in soft to hard rock, steel plants and in other difficult applications. These chains also provide an optimum solution for all users who require traction (and sufficient protection) on ice, snow and any other slippery or muddy terrain.

pewag compact

Professional Series

Heavy duty link for giant loaders with large wear volume for maximum service life. Suitable for all rock applications and in large scale mining operations.

Available sizes: 21
Suitable mesh design: square, hexa



pewag granite

Professional Series

The multipurpose chain link suitable for slag and scrap handling as well as for all rock applications. This link design offers excellent tire protection and traction.

Available sizes: 12 | 14 | 16 | 18 | 18/20S
Suitable mesh design: square, hexa, quad cross, compact cross



Basic Series

Start-up with high quality chains

The pewag Basic Series contains the link type pewag tyro. The great performance and highly attractive price of this product assure excellent cost efficiency. This development is the result of a long-term R&D project. pewag tyro is 100 % manufactured in Austria to the high quality standards of pewag.

The pewag Basic Series represents the entrance to the world of high quality tire protection chains. The main focus of the pewag Basic Series are applications in soft (limestone) to medium hard (basalt) rock and using S-L equipment (tire dimension up to 45/65-45).

pewag spike

Professional Series

Narrow link design with prominent grip teeth provides excellent traction and self cleaning. For all applications where traction is needed.

Available sizes: 12 | 14 | 18 | 21

Suitable mesh design: square, hexa, quad cross, compact cross



pewag tyro

Basic Series

Innovative link design with excellent wear volume for optimum price-performance ratio. By offering best protection and sufficient traction it is suitable for S-L sized earth moving equipment working in soft to medium hard rock applications.

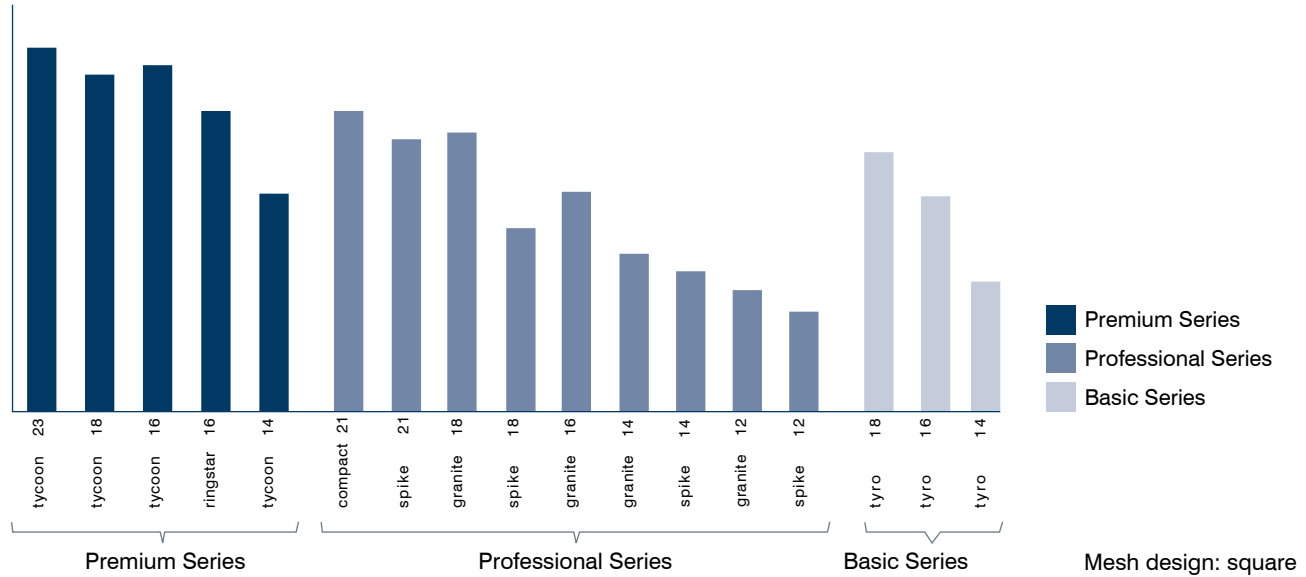
Available sizes: 14 | 16 | 18

Suitable mesh design: square, hexa, quad cross, compact cross



Wear volume comparison chart

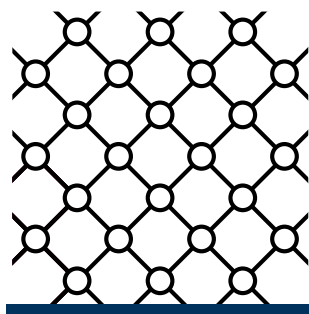
The table shows a comparison of the different link types and sizes.



Mesh design

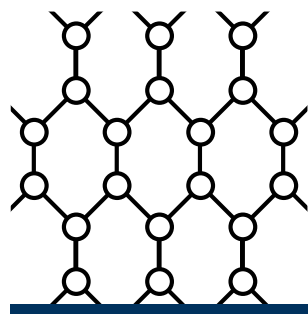
square

The fine mesh of square design provides optimum tire protection even on the sharpest rock.



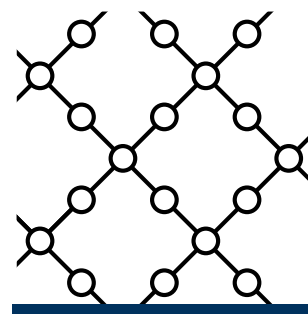
hexa

The hexagonal mesh design ensures excellent grip and sufficient tire protection. Suitable for all vehicles where traction is needed before protection.



quad cross

Special 8-link net construction. Traction chains for tough applications.



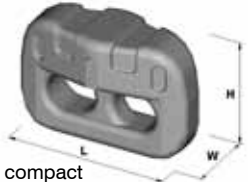
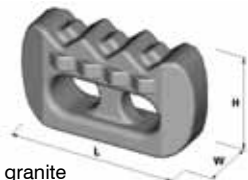
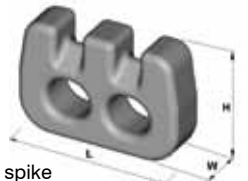

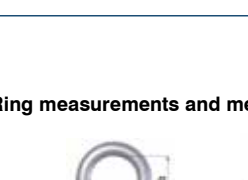
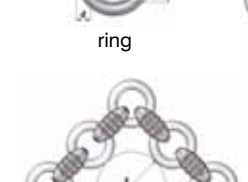
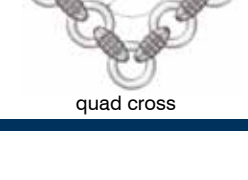


compact cross

Special 10-link net construction provides excellent grip, stable running and the necessary self cleaning. Suitable for all vehicles that require extra traction to fulfil their operational duties.

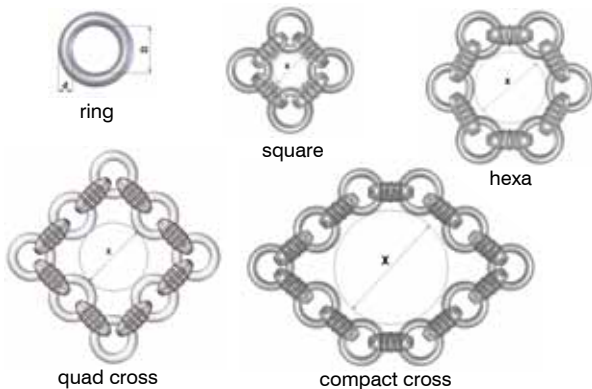


Measurements

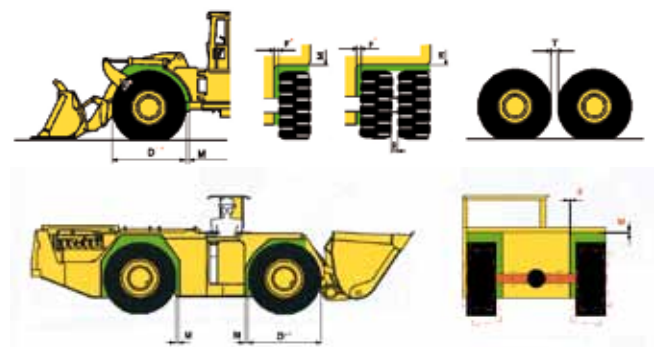
	Link measurements			Ring measurements		Mesh opening (x)				Clearance required for TPC		
	L	W	H	d	D	square	hexa	quad cross	compact cross	M	F	R
 tycoon	12											
granite	63	22	38	12	45	53	103	103	174	70	50	70
spike	60	16	40	12	45	50	96	99	169	70	50	70
 ringstar	14											
tycoon	79	39	47	14	50	61	122	-	-	80	60	80
granite	79	27	46	14	50	67	122	122	204	80	60	80
tyro	76	26	46	14	50	67	122	122	204	80	60	80
spike	71	19	47	14	50	57	112	112	194	80	60	80
 compact	14/16											
tycoon	79	39	47	16	54	64	122	-	-	80	60	80
 granite	16											
tycoon	88	48	59	16	54	60	130	-	-	90	70	90
granite	90	34	53	16	54	67	130	130	222	90	70	90
tyro	88	30	54	16	54	67	130	130	222	90	70	90
ringstar	-	21	69	14x17	54(*45)	44	96	-	-	115	70	90
 spike	16/18 S											
tycoon	88	48	59	18	54	60	126	-	-	90	70	90
 tyro	18											
tycoon	97	46	67	18	64	81	156	-	-	100	70	100
granite	100	38	65	18	64	81	156	156	258	100	70	100
spike	88	24	60	18	64	70	138	140	241	100	70	100
tyro	97	34	62	18	64	81	156	156	258	100	70	100
 compact	18/20 S											
tycoon	97	46	67	19,5	64	78	153	-	-	100	70	100
granite	100	38	65	19,5	64	78	153	-	-	100	70	100
 spike	21											
compact	108	46	72	21	70	83	163	-	-	120	80	110
spike	108	30	72	21	70	83	163	164	275	120	80	110
 tyro	23											
tycoon	112	50	76	23	72	86	170	-	-	120	80	110

M smallest distance between tire surface and machine components
 F smallest distance between tire sidewall and machine components (*measured at lowered shovel)
 R smallest distance between dual tires

Ring measurements and mesh opening (x)



Clearance required for TPC



Attention: „F“ & „M“ measured at fully oscillated axle

Content 30

Spare parts and accessories

Spare parts, accessories 32



Spare parts and accessories

Product overview



Spare parts

Mounting and repair parts

No. 24 End shackle
to fix the loose end
of the tension chain



No. 31 Connecting-/repair ring
to connect the tire protection
chain and to repair broken rings



No. 37 Pin lock
to connect the inside
and outside chain and
to repair broken links



Accessories

Special tools for easier TPC handling

No. 49 Lever hoist



No. 50 Assembly pliers



No. 53 Hydraulic tool set



**No. 54 Mounting tool for
connecting-/repair ring**



No. 58 Drawing-out hook



No. 59 Mounting spike



Original spare parts
from pewag ensure safe
installation and maintenance
of the tire protection chain

Chain installation and maintenance made easy





Data of vehicle for pewag tire protection chains

e-mail: saleinfo@pewag.com

Fax: +43 (0) 316 / 60 70-259

Company _____ **Date** _____

Sender _____

Telephone _____

Telefax _____

E-mail _____

1. Machine

Brand _____ Type _____

2. Tire

Dimension _____

Brand _____ Type _____

Tire tread (L2-L5) _____ Tread new semi worn worn off

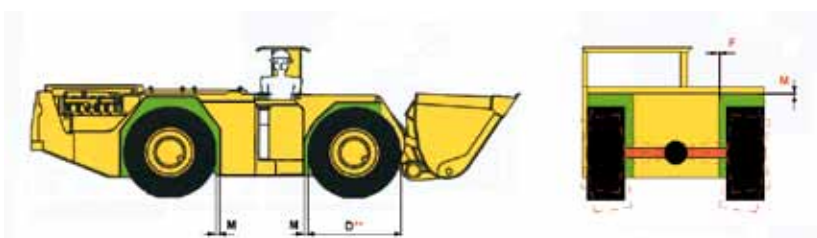
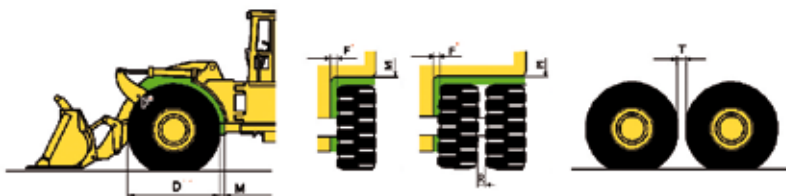
Dimensions d [mm] _____ B [mm] _____

3. Minimum distance

(F + M = minimum distance between tire and machine components)

Front wheels F [mm] _____ M [mm] _____

Rear wheels F [mm] _____ M [mm] _____ R [mm] _____ T [mm] _____



* „F“ measured at lowered shovel
 ** „D“ measured horizontally
 Attention: „F“ & „M“ measured at fully oscillated axle



Data of operating conditions for pewag tire protection chains

e-mail: saleinfo@pewag.com

Fax: +43 (0) 316 / 60 70-259

4. Rock

Type of rock _____ Inclusions in the rock _____

Compressive strength (hardness) Mohs _____ Percentage of quartz (%) _____

Rock sample (in the size of a fist) available* yes no

5. Working distance

Length per haul _____ Steep gradient (%) _____

Soil condition* _____ dry occasionally wet always wet

6. Type of operation

Tire protection chains so far used (brand/type) _____

Average life of tire protection chains (working hours) _____

Operating hours/day _____

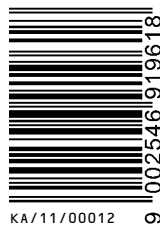
Average life (working hours) protected not protected**

Any other unusual working conditions (such as long idle machine time, long driving distances, great heat, etc.)

* Please check whatever applies
** Consider premature breakdown as a result of damaged tires

Date

Signature



pewag austria GmbH

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