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2015



## EXPERIENCE AND INNOVATION 70 YEARS PRODUCING TYRE PROTECTION CHAINS



FROM THE INVENTOR AND WORLD MARKET LEADER



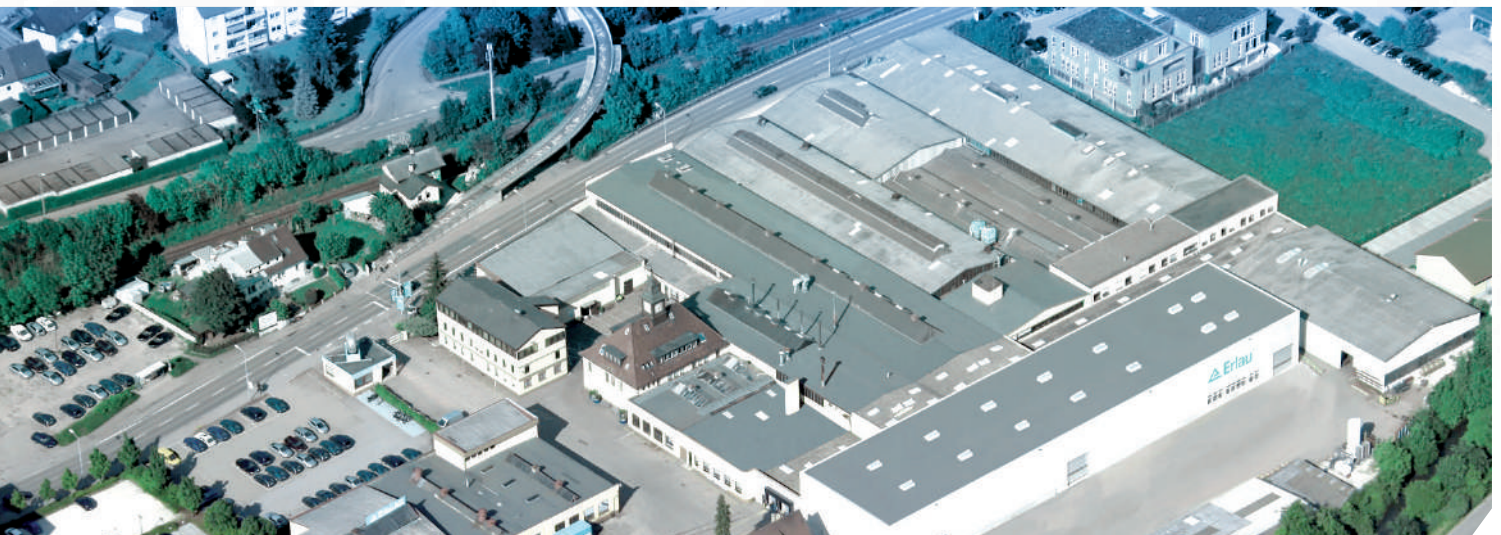
# SUCCESS FOUNDED ON EXPERIENCE AND EXCELLENCE

Based in Aalen, Germany, RUD boasts a 140 year legacy in round-link chain manufacturing, a high degree of technological specialisation, quality, safety and customer focused market leadership.

From early adaptations of its long-established welding, forging and heat treating technology, RUD has developed their Tyre Protection Chains

to become today's essential accessory which is used throughout the mining and quarrying world as well in many other demanding industries such as steel making, scrap handling and demolition.

Now, after 70 years of refinement and innovation, RUD supplies more than 65% of the world market for Tyre Protection Chains.



# RUD's GLOBAL REACH

RUD is a progressive, family enterprise with a global reach dedicated to environmentally responsible growth within the natural resources and bulk handling industries.

The group's success is founded on long-standing continual research development and their partnerships with customers whose satisfaction and confidence is derived from high quality technical innovations.



Our Production Units (with sales activity)



Our Sales Units (with manufacturing activity)



# WHAT IS A TYRE PROTECTION CHAIN?

A Tyre Protection Chain is a dense mesh of case hardened special quality alloy steel elements which wraps around the tyre to protect the tread and sidewalls of the tyres against cuts, punctures and excessively high wear rates.

The flexible composition of the mesh enables the chain to adjust to the tyre as it deforms during the loading or hauling operation.

The chain's highly-efficient, self-cleaning properties prevents the mesh from becoming filled and clogged achieving the best possible traction and increased productivity.

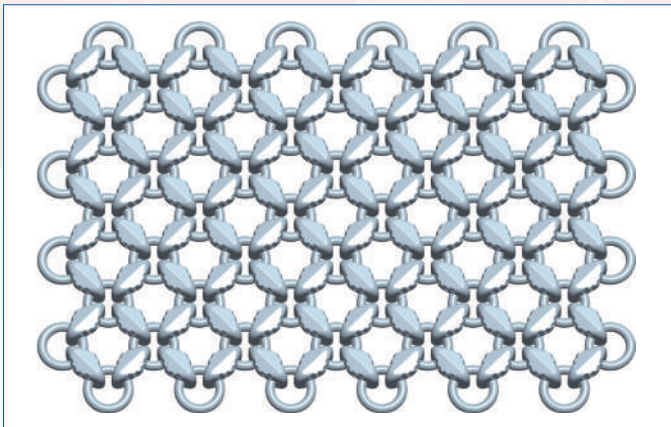
70 years of research and development, complemented with on going investments in state-of-the-art production facilities and quality control labs in both Europe and South America, has ensured RUD to be the world market leader in the Tyre Protection Chain market and offer a range of superior chains designed to suit the most challenging applications.

RUD experts are on hand from your initial enquiry, through delivery and installation, routine check-ups and on-call 24/7 for the life of your Tyre Protection Chain.



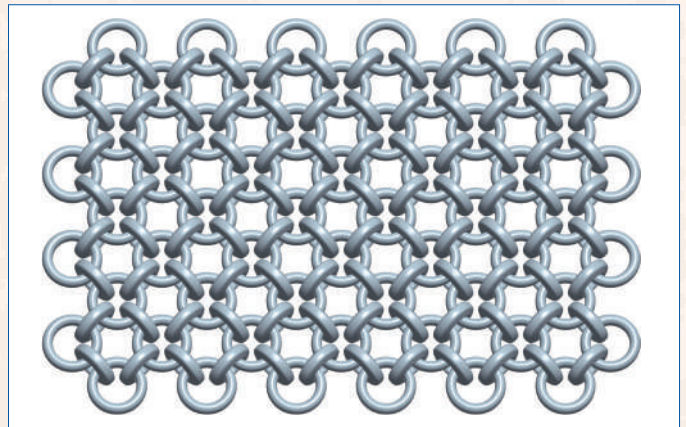


# RUD SOLUTIONS SAVING TYRES, SAVING TIME, SAVING MONEY



## RING-LINK SYSTEM

- Drop forged wear links
- Tried and tested technology
- A wide range of wear links

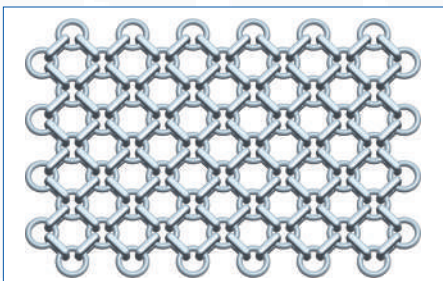


## RING-RING SYSTEM

- Drop forged wear rings
- Perfect tyre protection giving excellent chain life on very abrasive materials.

## 3 DIFFERENT CHAIN MESH CONFIGURATIONS PROVIDE

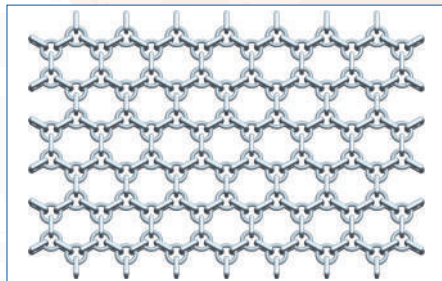
### PROTECTION



## FELS

- All-round tyre protection for mining, quarrying, slag and recycling operations.

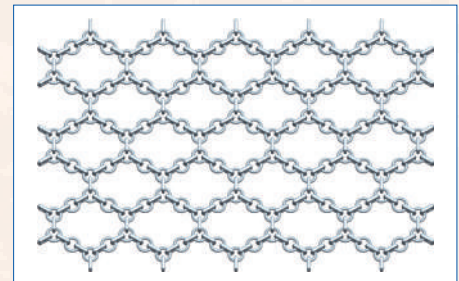
### PROTECTION + TRACTION



## GARANT

- Greater traction and safety on gradients and wet or slippery surfaces.

### TRACTION



## GARANT 10

- Greater traction and safety on snow, ice and wet surfaces.



# RUD INNOVATIONS SAVING TIME AND MONEY

## EASYLOCK

Installation of a Tyre Protection Chain (TPC) requires a set of special Omega rings to 'stitch' the two ends together. Closing these rings has traditionally involved using pins and hammers, increasing the risk of flying metal fragments and injury.

To save time and money and increase safety, RUD, the world-leading Tyre Protection Chain manufacturer, has introduced EASYLOCK – a connecting ring that can be fitted and removed quickly and easily.

EASYLOCK is comprised of an open 'Omega' ring and a locking hasp. Once the ring is passed through the wear links, the hasp is pushed over the two prongs and secured by a 90° turn of the integral locking device with an allen key.

EASYLOCK then remains in place until removed in the same simple procedure.

Delivered with a new set of RUD Tyre Protection Chains, or available separately, EASYLOCK can be retro-fitted to any 19 mm or 22 mm TPC.



*A product is only as good as its support.*

## CHAIN MONITORING SYSTEM (CMS)

It is not by chance that RUD has come to dominate the world market for Tyre Protection Chains.

Modern, state of the art production facilities ensure consistent weld integrity and sophisticated alloys ensure durable, longer-lasting and lighter, energy saving links.

Expert installation and life-of-chain support optimises operational chain life delivering Tyre Protection Chains that mine and quarry, demolition, recycling and steel industries have come to rely upon.

Affirming confidence in its technology, RUD now offers Chain Monitoring System (CMS) – the first tyre chain monitoring system.

An embedded RFID device records the productive history of the Chain including: batch number, test results, installation, maintenance, incidents, operating hours plus much more.

A hand-held SMART READER collects the data from several sets of chains for download and interpretation by the plant manager.





# RUD TYRE PROTECTION CHAINS – ADVANCED ASSET PROTECTION

Rapid deterioration of earthmover tyres through excessive abrasion and sudden total loss through punctures or sidewall cuts has always been a costly problem for mines, quarries and other heavy industries.

Despite economic slowdowns, demand still remains a high priority for mineral resource companies that can demonstrate competitiveness in quality, price and delivery.

Where load and haul is a central component of the operation, optimising mobile plant availability is the key to success. This success depends on highly skilled staff and a rigorous maintenance schedule which pays particular attention to the condition of tyres within their fleet.

The on-going worldwide earthmover tyre shortage has led to the increase in cost plus the decrease of availability of replacement tyres, and has forced a number of plant owners and operators to stockpile spare tyres 'just in case'.

Proven to extend a tyre's useful life by a factor of up to ten, RUD Tyre Protection Chains provide increased efficiency and productivity, reduced operational costs, improved safety levels and minimum downtime for all of your operations.



*Without a full set of sound tyres, a loader or a truck is just an expensive liability.*





## IN OPEN PIT OR UNDERGROUND MINES, SHARP-EDGED ROCKS AND ABRASIVE SURFACES CAN DESTROY TYRES WITHIN A VERY SHORT PERIOD OF TIME

When it came to laying down the planet's mineral resources Mother Nature could have been a lot more considerate.

Diamonds in a freezing Artic lake, copper and gold high in the South American Andes, iron ore in the Australian desert, coal seams deep underground and complex deposits are just some of the challenges confronting companies engaged in winning the materials – common and rare – essential to today's living.

In modern mining and quarrying, the man with pick, shovel and pan has been superseded by sophisticated machines that take giant bites out of the ground and haul them away for crushing and refining on a day to day basis. Given the multi-million investments in these machines, optimum productivity is the core requirement making any unscheduled downtime both inconvenient and expensive.

In open-pit, where wheeled machines are used for stripping, loading, hauling and stockpiling, ultimately, the operation's profitability will depend upon the tyres without which the machine becomes just an immobile complex arrangement of metal components.

Operating in artificially lit galleries, underground mining, tunnelling and caving are among the most demanding and hazardous of activities. Here, Tyre Protection Chains not only save tyres but also provide operator safety.

For mobile, surface operations, miners can select from the wide range of RUD Tyre Protection Chains to ensure the correct tyre protection and/or traction chain is specified for their site.





## IN QUARRIES, ABRASIVE SURFACES AND SHARP EDGED ROCKS ARE A GREAT HAZARD FOR TYRES

Quartz, silica, dolomite, basalt and granite are just some of the causes of excessive tyre wear. Flint, slate, shale-like rocks or demolition debris can cause punctures and deep sidewall cuts.

One minute your loader crowds into the rock fall, the next it is slumped, immobile and you are on the phone looking for a temporary fix or a replacement tyre.

If yours is a small operation, this could put your entire production on a costly standby.

RUD believes that prevention is the only true solution, therefore to assist you in operating more efficiently and cost effectively a tyre protection chain such as RUD's RING-LINK or RING-RING system is required to create a barrier between your tyres and the ground.

The density of the mesh will depend on the exact nature of the work site but it should be self-cleaning and the links specially hardened to resist wear at the points where they interact with the connecting rings.

RUD has the world's largest product range and can supply the perfect Tyre Protection Chain for all types of machines to suit any applications.





## WORKING WITH SMOULDERING HOT SLAG CAN SCORCH TYRES, CAN LEAD TO LOST EQUIPMENT AND RISKS HUMAN LIFE.

Steel making is one of the toughest environments for men and machines. Pot carriers are used to carry 40 cu m ladles of molten slag to the dumping pit. Wheeled loaders then transfer the still fiery slag to the recycling point which recovers residual steel for re-smelting and limestone cinder for block-making. Whether liquid or cooling, slag is an unforgiving material subjecting tyres to heavy abrasion.

### RECYCLING SCRAP METAL AND DEMOLITION SITES PLACE EXTREME DEMANDS ON LOADER TYRES

Any person who has visited a demolition site or a scrap metal re-processor will be acutely aware of the hidden hazards faced daily by the tyres of wheeled loaders.

In demolition, a wheeled loader is used to feed the crusher hopper and load the tipper trucks. Every time the loader crowds into the demolition heap there is a risk that a tyre will be pierced by a concealed length of rebar. Similar damage can occur when loading flattened cars into the baler or lifting tangled pieces of scrap metal for smelting.

To avoid unscheduled downtime, RUD recommends using a Tyre Protection Chain (TPC) which encases the vulnerable tread and sidewall of the tyre with a close impenetrable mesh.

With deadlines to meet the operator can be assured that after fitting RUD TPCs, any delay will not be due to their tyres.





## SAFE TRACTION FOR YOUR PRODUCTIVITY

At a number of sites either where the terrain is slippery due to muddy conditions, or where the machines have to deal with icy haul roads then poor traction can be a major problem.

Wrestling to control a loaded truck through lack of traction control is both exhausting and dangerous for the operator, plus increases the risk of 'losing' the truck with all the collateral damage that may involve.

Therefore, where the tyre tread alone cannot provide an adequate grip, RUDs traction chains are essential to assist in the safe operation of the equipment.

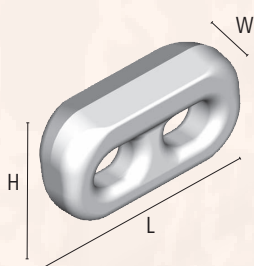
Available with link sizes from 11mm to 23mm, RUD traction chains are suitable for a wide range of applications including: motor graders, scrapers, mining dump trucks, wheeled loaders and snow ploughs.





# WHICH RUD TYRE PROTECTION CHAIN IS BEST FOR YOU

Available with connecting ring diameters from 8 mm to 23 mm, RUD offers the widest range of Tyre Protection Chains. Whatever your application, RUD offers the best configuration of links and rings for your project.



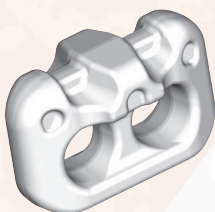
SUPER



DURO / ROYAL /  
IMPERIAL / CROWN



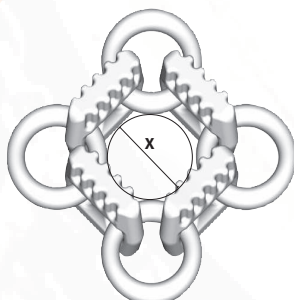
JUMBO Plus / GIGANT Plus /  
GRANIT Plus



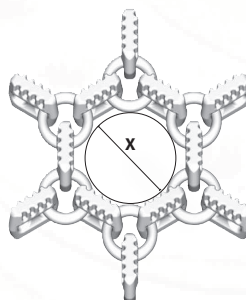
TORO

	Link measurement			Ring measurements		Mesh opening (x)			Clearance required for TPC		
	L	W	H	D	Pr	Fels	Garant	Garant 10	a	b	c
<b>11</b>											
SUPER	62	20	35	11	40	54	103	-	50	70	85
<b>14</b>											
DURO	74	22	51	14	46	63	120	187	60	85	95
<b>16</b>											
ROYAL	85	26	56	16	55	69	133	211	75	100	95
JUMBO Plus	87	46	56	16	55	64	-	-	75	100	95
<b>19</b>											
TORO	88	44	60	19	55	63	127	-	75	100	95
IMPERIAL	100	30	66	19	64	76	150	239	85	120	115
GIGANT Plus	97	53	68	19	64	73	-	-	85	120	115
<b>22</b>											
CROWN	114	36	76	22	75	93	181	287	100	150	115
GRANIT Plus	116	54	80	22	75	91	-	-	100	150	115
<b>23</b>											
CROWN	114	36	76	22	75	93	181	287	100	150	115
GRANIT Plus	116	54	80	22	75	91	-	-	100	150	115

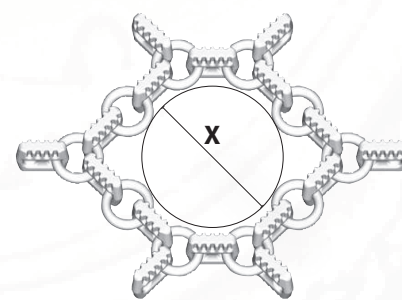
Mesh openings (x)



Fels

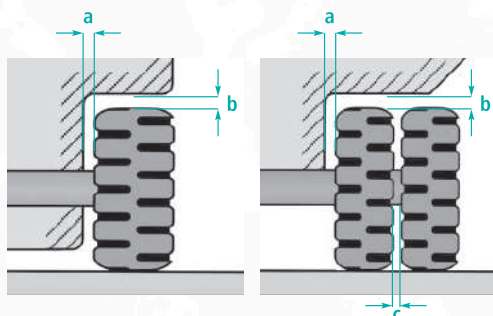


Garant



Garant 10





a (Inside sidewall)  
b (Tread)  
c (Between dual tyres)

These are the minimum clearances required to fit Tyre Protection Chains.  
(centrifugal forces and possible dirt build-up are taken into consideration).



R69 S / R71 / R71 S /  
R75 S / R75 S Plus

	Link measurement			Ring measurements		Mesh opening (x)			Clearance required for TPC	
	L	W	H	D	Pr	fels	garant	garant 10	a	b
<b>R69 S</b>										
	56	10	56	13.2	46	33	-	-	75	90
<b>R71</b>										
	67	20	67	14	12	-	83	-	85	100
<b>R71 S</b>										
	67	20	67	14	54	41	-	-	85	100
<b>R75 S</b>										
	82	15	82	17.5	64	48	-	-	110	130
<b>R75 S Plus</b>										
	96	18	96	20	75	57	-	-	130	150



TERRA Plus

	Link measurement			Ring measurements		Mesh opening (x)			Clearance required for TPC		
	L	W	H	D	Pr	fels	garant	garant 10	a	b	c
<b>11</b>											
TERRA Plus	69	20	45	11	40	62	114	176	50	70	85
<b>14</b>											
TERRA Plus	80	25	49	14	46	69	128	198	60	85	95
<b>16</b>											
TERRA Plus	85	28	54	16	55	69	133	211	75	100	95
<b>19</b>											
TERRA Plus	100	29	65	19	64	76	150	239	85	120	115
<b>22</b>											
TERRA Plus	116	34	76	22	75	-	181	287	100	150	115



# SIDEFLEX®

While RUD chains have been protecting loader tyres for 70 years, the Tyre Protection Chains work really well with wheeled loaders, wheeled dozers and graders but due to long distances, weight considerations and increased fuel costs, are generally not economically viable for haul trucks.

To overcome this problem, RUD commissioned their design team to come up with a solution and, in 2012 launched SIDEFLEX® – the first cost-effective sidewall protection for haul truck tyres.

In developing SIDEFLEX® the engineers looked beyond their established round-link chain technology.

Simple in concept and installation, SIDEFLEX® comprises a sturdy set of replacement wheel nuts and extensions supporting a flat ring to which is attached a fanned system of overlapping platelets. In action the platelets shield the entire sidewall and deflect any aggressive rock debris that might otherwise pierce the sidewall rendering the tyre useless and immobilising the truck.

While the mounting components are made of steel, the all-important SIDEFLEX® 'shield' is manufactured from a sophisticated engineering polymer.

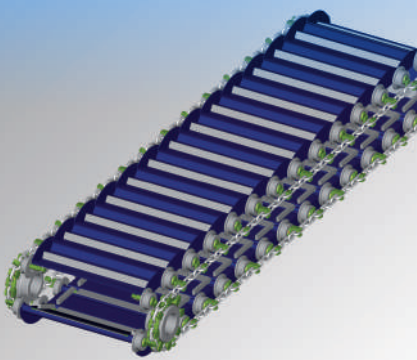
This robust material has an unique capability that enables the platelets to flex and deform upon impact, and then return to their original shape, time after time without any loss of integrity. The entire SIDEFLEX® assembly is so lightweight and low-profile that, for the first time owners of dump trucks – large and small – now have a cost effective means of protecting their assets.

Fully proven and patented, SIDEFLEX® is a brand new concept providing a viable solution to an age old problem.





# THE RUD GROUP PRODUCT RANGE



A wide range of quality, industrial chains for greater productivity and safety.



GLOBAL SERVICE – OUR STRENGTH YOUR ADVANTAGE

WORLDWIDE SERVICE AND SUPPORT



QUALITY AND SERVICE YOU CAN RELY ON  
SINCE 1943



Tyre Protection Chains

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