



PHOENIX CONVEYOR BELT SYSTEMS

Program of Conveyor Belts



For top performance,
endurance and economy

 **PHOENIX**
Extreme Conveyor Belt Solutions

Phoenix has established a respected global market presence based upon innovative product design and cutting edge technology. Our range of conveyor belt products is developed from



engineered product designs that have been tested and proven to provide the highest level of product performance in conveying applications worldwide. Dedication to all aspects of the manufacturing process and the highest level of quality control standards ensure that our products provide the best value to our customers. With over 110 years of experience and a multitude of world records, Phoenix Conveyor Belt Systems GmbH continues to demonstrate its position as the global leader in conveyor belt technology.

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Extreme Conveyor Belt Solutions





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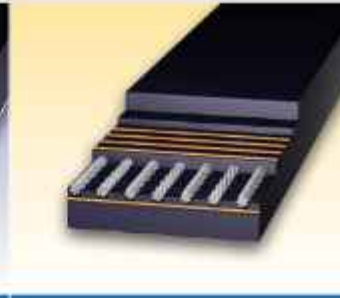
1904

Manufacture of the first conveyor belt. The belt's tension carrier initially consisted of fabric made from cotton and rayon staple.



1956

Manufacture of the first steel-cord conveyor belt.



1973

Introduction of the PHOENOTEC active protection system, consisting of synthetic individual cords.



1975

Delivery of the world's first self-extinguishing steel-cord conveyor belt, for use underground.

From the start of conveyor belt production...

1998



Delivery of 5,500 m of type St 4000 conveyor belt for the Pierina gold mine in Peru, located at 4,200 m above sea level. It is the steepest overland conveyor belt, with an inclination of 18°.

1999



Delivery and assembly of the world's strongest conveyor belt – the PHOENOCORD St 7800, for the Los Pelambres copper mine.

2003

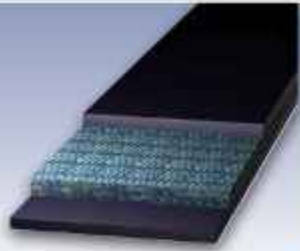


Delivery of the heaviest conveyor belt reels worldwide for the highest elevated copper mine worldwide – Collahuasi. One conveyor belt reel type St 6300 weighs 58 t.

2006



The longest conveyor belt on earth is conveying limestone from a mine located in India across the state border to a cement plant in Bangladesh. The single flight conveyor is 17 km long.



1979

The first PVG conveyor belt; with a PVC-impregnated carcass and CR covers.



1981

First delivery of the world's heaviest conveyor belt; with a weight of 52 metric tons.



1986

Delivery of the world's strongest underground conveyor belt – PHOENCORD St 7500 – for the Prosper Haniel mine.



1995

Delivery of the world's strongest generator-operated conveyor belt; with the highest dynamic splice fatigue strength worldwide. For the El Abra copper mine.

...to the most modern, high-performance, conveyor belts for surface and underground applications.

2007



An 8 km long, path-breaking application, with bi-directional conveying of hot clinker, coal and limestone in top and bottom run.

2013



Development of the PHOENOGUARD PX One for all monitoring system.



Product Range

Steel-cord conveyor belts

PHOENOCORD



PHOENOCORD with PHOENOTEC



Textile conveyor belts

DUOFLEX



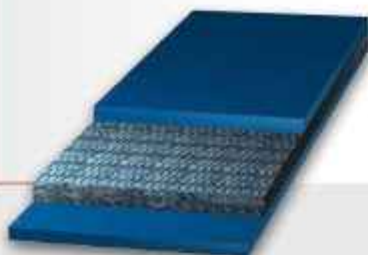
POLYFLEX



POLYFLEX with PHOENOTEC



UNIFLEX PVC



UNIFLEX PVG





Special conveyor belts

PHENOPIPE



PHENOTOP



Phoenix S-Wall



PHENOHOIST



Belt monitoring

**PHENOCARE SC
Splice Guard**

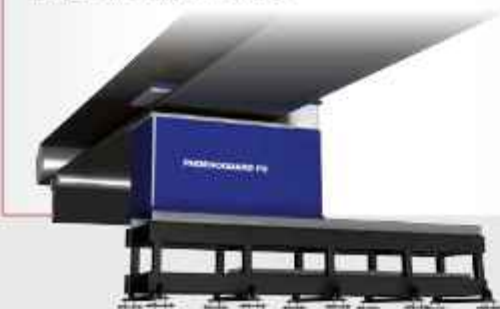
**PHENOCARE
Cord Guard XD**

**PHENOCARE
Cord Guard**

**PHENOCARE
Sensor Guard**



PHENOGUARD PX





Steel-cord conveyor belts

PHOENOCORD®

Steel-cord conveyor belts provide:

- › Lowest elongation
- › Longest conveyor routes
- › Highest breaking strength
- › Highest capacity
- › Longest working life

PHOENIX has been a pioneer in developing and fabricating steel-cord conveyor belts. A wide range of steel-cord conveyor belts up to a width of 3,200 mm and single length up to 60 metric tons in various cover grades are available. Based on decades of experience



with outstanding research and development, PHOENIX has been demonstrating its leadership in conveyor belt technology. We are looking forward to be challenged with new performance requirements.

PHOENOCORD™

Top cover

Bonding rubber

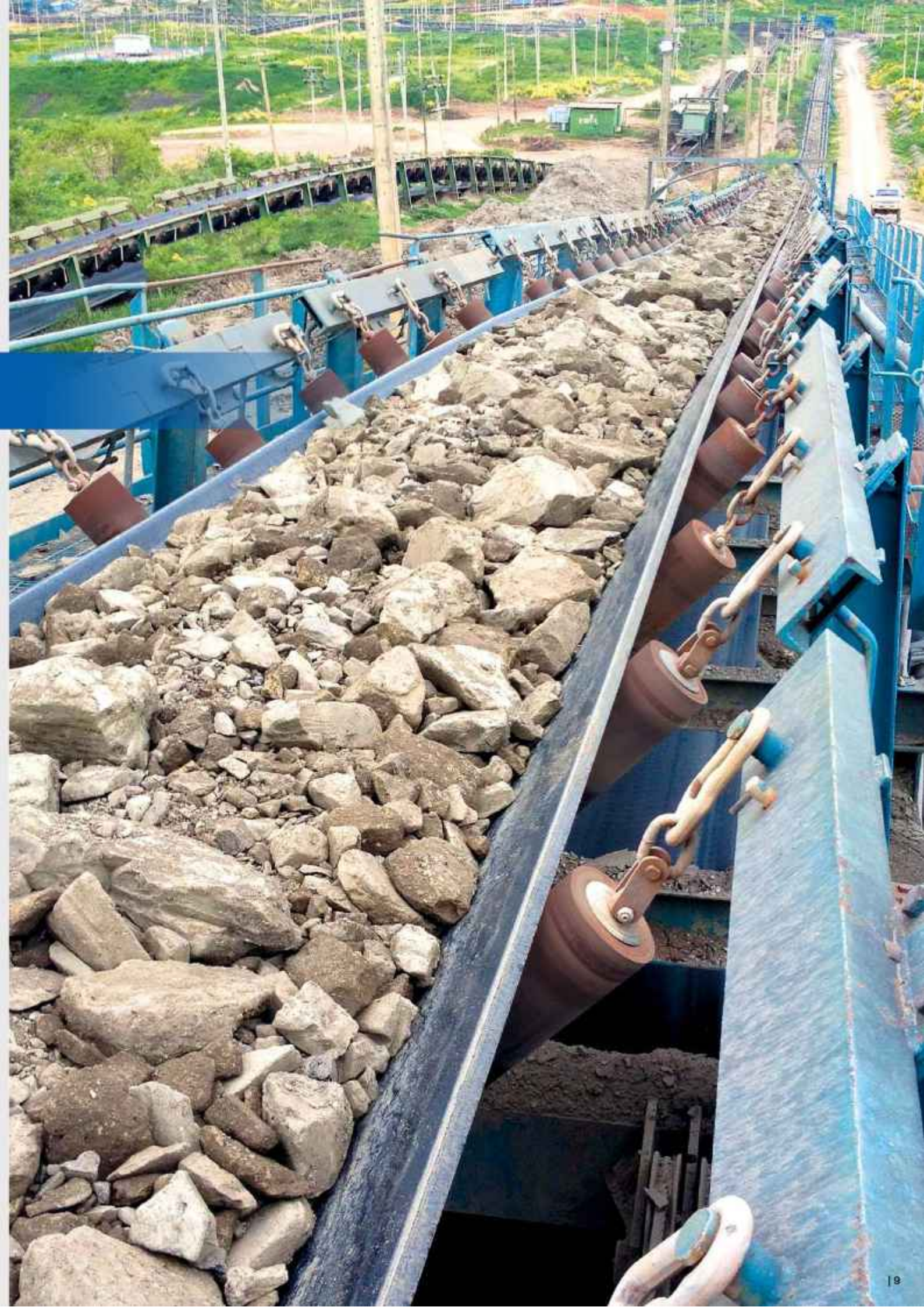
PHOENOTEC

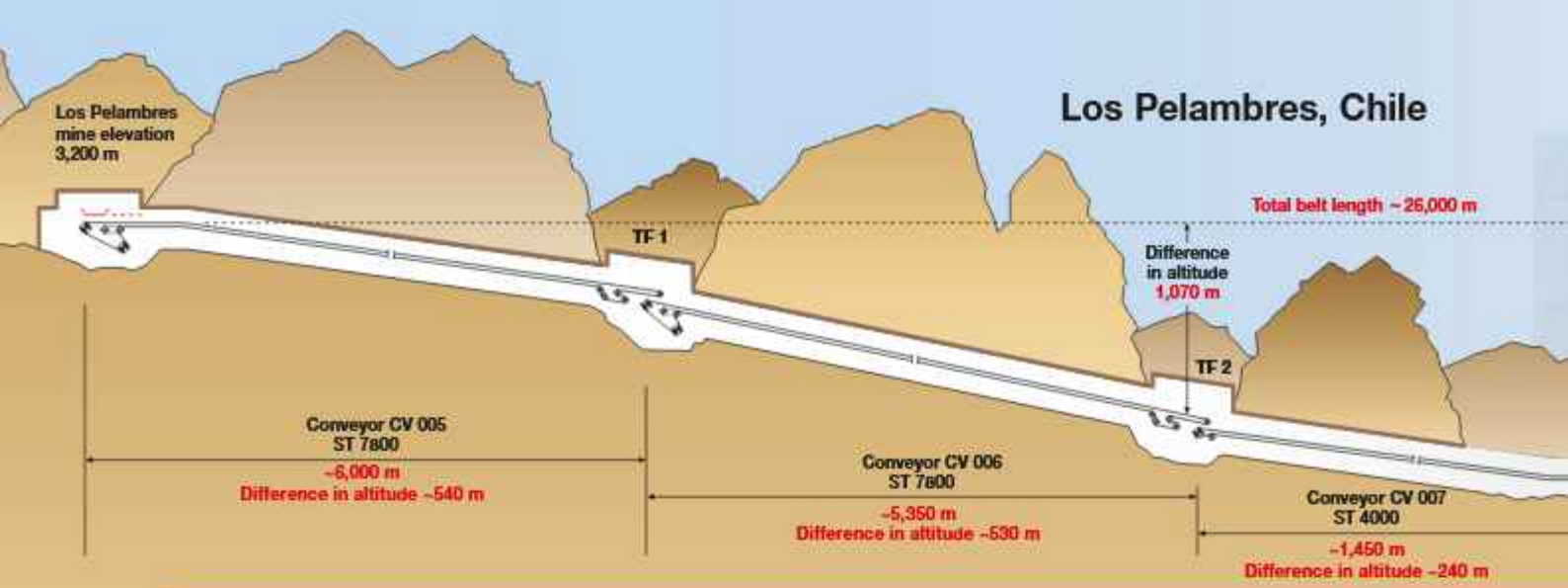
Steel-cord tension carrier

PHOENOTEC

Bottom cover







Steel-cord conveyor belts

PHOENOCORD®

Phoenix has been the leading manufacturer of high-strength conveyor belts to meet demanding operating conditions for decades.

1975 Phoenix supplied the world's first self-extinguishing conveyor belt, type PHOENOCORD St 4000, meeting the strictest safety requirements for underground coal mining.

1986 The world's strongest conveyor belt – PHOENOCORD St 7500 – was installed at the Prosper-Haniel mine. This revolutionary belt simultaneously conveys raw coal to the surface and tailings back underground.

1995 Phoenix supplied a 20 km long steel-cord conveyor belt for the El Abra copper mine, an 1,600 mm wide PHOENOCORD St 6800.

1999 Phoenix again demonstrated outstanding performance with the supply of world's strongest conveyor belt. The PHOENOCORD St 7800 has an actual breaking strength of more than 8,600 N/mm, running in two tunnel systems of the Los Pelambres copper mine. Up to 25 MW of energy are generated by the down-hill conveyance of the ore.

2003 Delivery of the heaviest conveyor belt reels world-wide for the highest elevated coppermine world-wide – Collahuasi. One conveyor belt reel type St 6300 weighs 58 t.

2015 After 19 years of continuous service and 900 Mt of conveyed copper ore, the PHOENOCORD St 6800 at the El Abra copper mine was finally replaced.





Difference
in altitude
1,310 m

Concentrator 1,600 m
above sea level



Textile conveyor belts

DUOFLEX® and POLYFLEX®

Our manufacturing capabilities include a complete line of textile conveyor belts in a wide range of cover compounds to meet short and medium distance material handling applications. PHOENIX manufactures textile conveyor belts up to a width of 3.200 mm.

Phoenix manufactures a huge number of standard conveyor belts besides steel tension carriers and special conveyor belts.

DUOFLEX

Two-ply belt with intermediate rubber

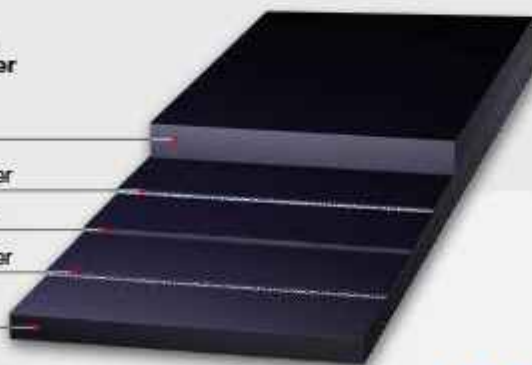
Top cover

Textile, tension carrier

Intermediate rubber

Textile, tension carrier

Bottom cover



POLYFLEX **Multiply belt**

Top cover

Textile,
Tension carrier

Bottom cover





Phoenix is the major specialist for constructing and producing conveyor belts of all types. Phoenix conveyor belts are supplied in various grades of covers, which are adapted to special requirements and conditions of use such as:

- › fire-protection safety,
- › resistance to aggressive transported materials like chemical mediums, fats and oils,
- › extreme abrasion resistance for highly abrasive bulk materials.



POLYFLEX

Multiply belt with PHOENOTEC transverse reinforcement

Top cover

Bonding rubber

PHOENOTEC

Bonding rubber

Textile tension carriers

Bottom cover





Textile conveyor belts

UNIFLEX®

A generation of conveyor belts for high-performance conveyance in underground coal mines. With highest fire-protection safety. UNIFLEX PVG.

Phoenix had already begun to develop self-extinguishing textile conveyor belts with solid woven tension carriers and rubber covers for a wide range of strengths during the 1970s.

The PVC plastomer and the CR elastomer were used as basic materials. A new generation of belts was created, which are distinguished by the following features.

- › High wear and tear resistance.
- › Fatigue-resistance.
- › Vulcanized splices as per DIN 22101.
- › Suited for mechanical fastening.
- › Meeting strictest safety requirements for underground mining.

UNIFLEX PVG

Phoenix achieved the first official approval worldwide for this type of belt in the year 1979. Available in strength up to 4,000 N/mm.

UNIFLEX PVC

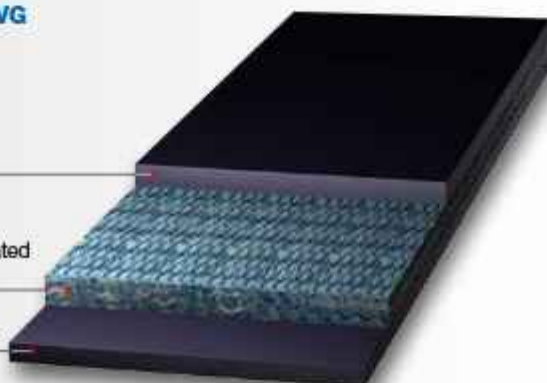
Uniflex PVC conveyor belts consist of a PVC-impregnated solid woven tension carrier and PVC covers. Uniflex PVC conveyor belts are ideally suited for underground heading with frequent length adjustments.

UNIFLEX PVG

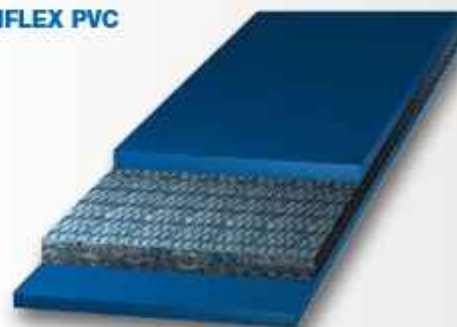
Top cover

PVC impregnated carcass

Bottom cover



UNIFLEX PVC





Special conveyor belts

MAGMA®

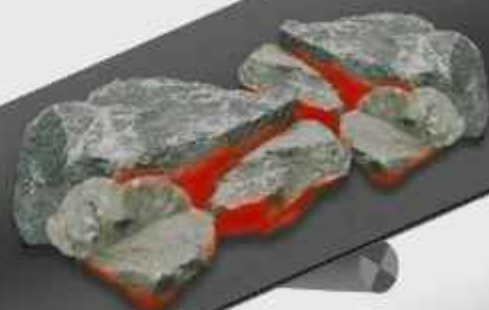
Heat resistant conveyor belts

MAGMA family members:

MAGMA is our standard heat resistant compound for constant operating conditions up to 150°C and short time peak temperatures up to 180°C. The **MAGMA** quality is an efficient choice with very high abrasion resistance and good performance.

MAGMA SUPER is the premium compound for extreme heat resistance, with an assurance for trouble-free operation at temperatures up to 200°C.

The innovative **MAGMA EXTREME** has similar characteristics like **MAGMA SUPER**, but also an additional basalt layer inside the belt. This layer provides an extra protection for the carcass and allows permanent temperatures up to 220°C and short time peak temperatures up to 300°C.





The image features a large-scale industrial conveyor belt system in a quarry or mining environment. The conveyor belt, with its distinctive red and black rollers, runs diagonally across the frame, carrying a load of grey, angular rocks. The background shows a vast, open landscape under a clear sky, with a large, light-colored rock formation visible in the distance. The overall scene conveys a sense of heavy-duty industrial operation.

 **PHOENIX**
Extreme Conveyor Belt Solutions



Special conveyor belts

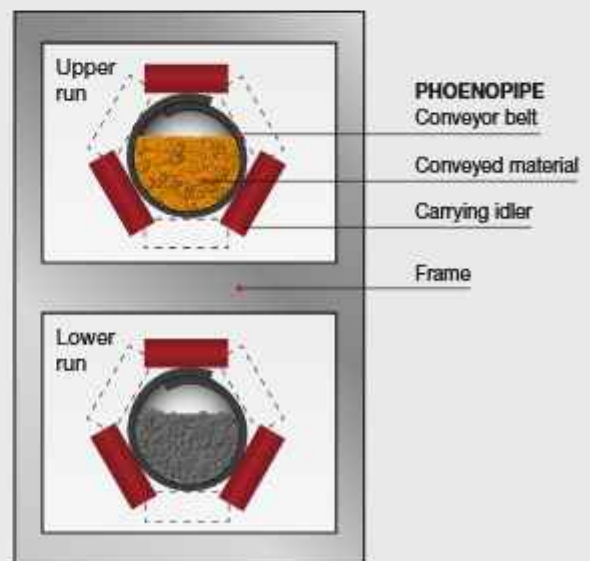
PHOENOPIPE®

The closed conveyor belt

Closed conveyor belts are gaining increasing importance because they meet the growing requirements for a clean environment. The ability to maneuver through more narrow curves, possibly leads to a shorter conveyor route since, transfer stations can be avoided.

PHOENOPIPE conveyor belts are primarily used where bulk materials must be conveyed along horizontal and vertical curves in confined spaces. PHOENOPIPE's special capability of adapting to topography allows material to be conveyed through difficult terrain and over long distances. PHOENOPIPE's important advantages

are protection of the conveyed material from environmental influences like rain and wind as well protection of the environment by avoiding spillage of the conveyed material such as ash from power stations and gypsum. Cost reductions are possible by shortening the conveyor route and avoiding transfer stations.



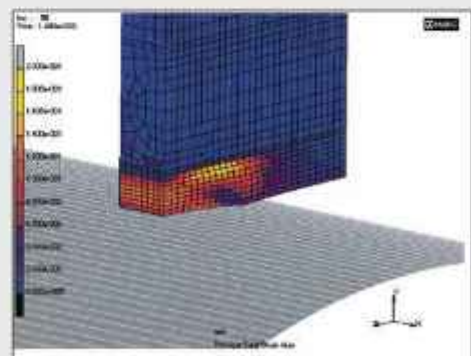
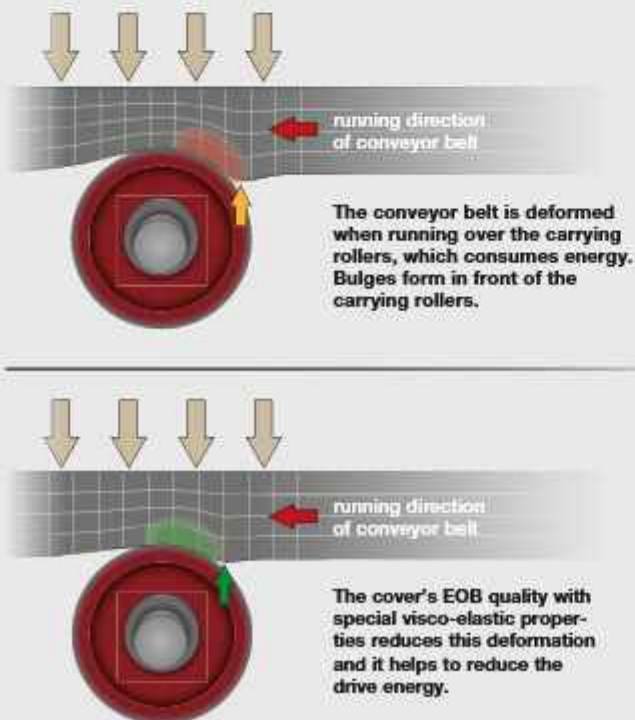


PHOENOCORD® EOB

The energy-optimized conveyor belt

PHOENOCORD EOB conveyor belts can dramatically reduce energy consumption by up to 25%. This is an important contribution to increasing the economic efficiency of long conveyor routes.

The advantages of the energy-saving PHOENOCORD EOB conveyor belt result from the special viscoelastic properties of the bottom cover and constructional elements. The virtue is proven by practical test of the ITA/University of Hanover as per DIN 22123.





High abrasion resistance conveyor belts

MVF

MVF offers the highest degree of abrasion resistance. Phoenix conveyor belts with MVF compound have provided excellent results in many applications for silica, slag, limestone and other highly abrasive or sticky materials.



MVF-A

The cover grade MVF-A offers the same excellent physical parameters as the cover grade MVF with additional acid protection. To protect the conveyor belts from the harmful effects of sulphuric acid, Phoenix has incorporated additional acid resistant components into its MVF-A cover compound.

A typical application is in copper ore mining where sulphuric acid is sprayed on the conveyed material.







Special conveyor belts

PHOENOTOP®

PHOENOTOP cover belts are transversely rigid and are used to cover conveyor belts. The belt rests on its edges only. Thanks to its longitudinal flexibility it can be lifted off the steel construction when loading and unloading.



PHOENOTOP COVER BELT

Top cover

Transverse stabilizing reinforcement

Carcass

Bottom cover



PHOENIX S-Wall

Phoenix S-Wall™ corrugated sidewall belts are designed for the transportation of bulk materials on steep or vertical incline angles. The range of profiles and base belts available, means we are able to cover all applications with inclines from 0 to 90 degrees.

Benefits

- › With the ability to convey at angles up to 90 degrees,
- › Eliminates the need for transfer points, which in turn, reduces the risk of spillage.
- › With the extensive range of belt sizes available, the Phoenix S-Wall™ system is capable of handling almost all materials.
- › The reduced amount of moving parts means the system requires limited maintenance activities.

Product range

S-Wall™ belts can be supplied with S (light duty), HDS (Medium – Heavy Duty) and XHDS (For Special applications) Sidewalls. Sidewalls can be supplied with or without fabric reinforcement. Fabric reinforcement comes as standard in HDS120 and above. The different cleat types are combined with the respective sidewalls, the geometry of the cleat will depend on the lift angle and material.

S-Wall™ corrugated sidewalls and cleats are available in standard, oil, and heat resistant quality. Special qualities such as flame retardant are available on request.

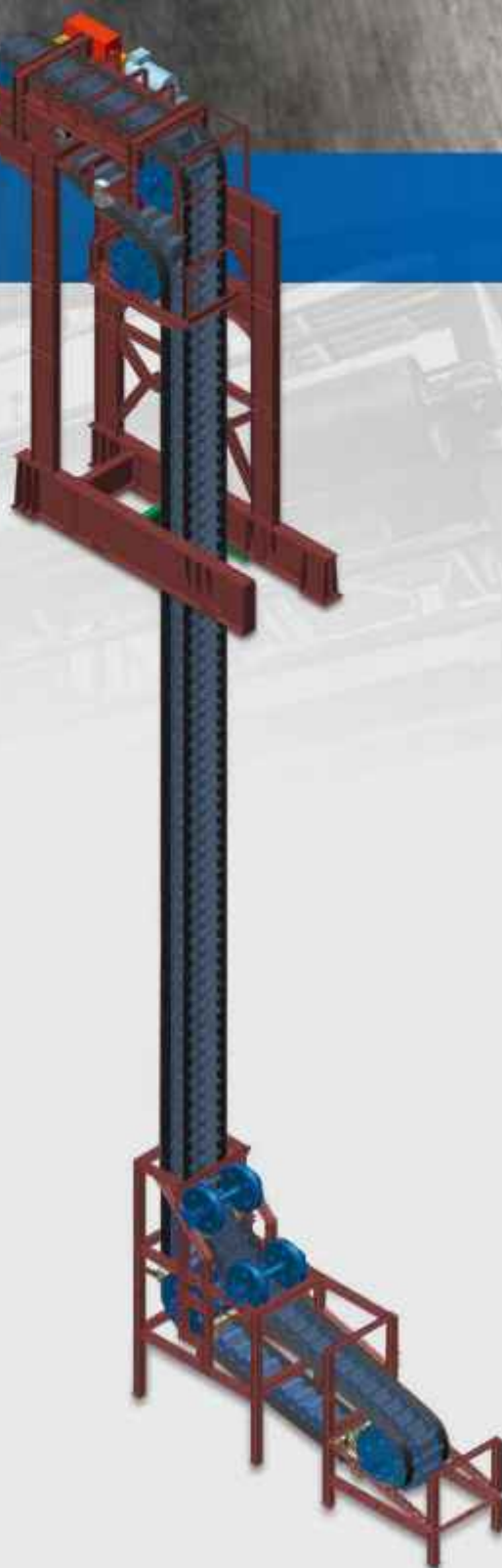


PHOENOHOIST®

The newly designed PHOENOHOIST® was developed for high-end vertical conveying in underground mines and the tunneling industry.

The belt consists of two PHOENOCORD belt stripes which are connected by strong rubber covered cross traverses. The material is carried by fabric reinforced rubber buckets, which are mounted to the cross traverses. All three components are connected threaded joints which allow quick and easy installation.

As the material lays safe in the rubber buckets, the PHOENOCORD belt stripes are only used to transfer the forces resulting from dead weight and carried material operating weight.





Belt monitoring

PHOENOCARE® SC Splice Guard

PHOENOCARE SC is designed to continuously monitor splice integrity in steel cord conveyor belts. Magnets are placed in front of and behind each splice. Sensors are located on the return side of the conveyor structure. The sensors are connected to a control device that processes information relative to magnet position within a splice. A predetermined distance is established for acceptable magnet position.

PHOENOCARE® Cord Guard XD

Rip and tear monitoring, cord monitoring and continuous splice monitoring for critical highabuse applications

Our complete steel cord belt-monitoring solution, PHOENOCARE Cord Guard XD offers 24/7 rip and transverse tear detection, as well as continuous cord and splice monitoring for steel cord products.





PHOENOCARE® Cord Guard

Transverse tear detection, cord monitoring and continuous splice monitoring for critical applications.

Specifically designed to detect transverse tear, monitor steel cord integrity as well as continuously monitor splice quality, PHOENOCARE Cord Guard can be permanently mounted to your belt system for constant scanning.

PHOENOCARE® Sensor Guard

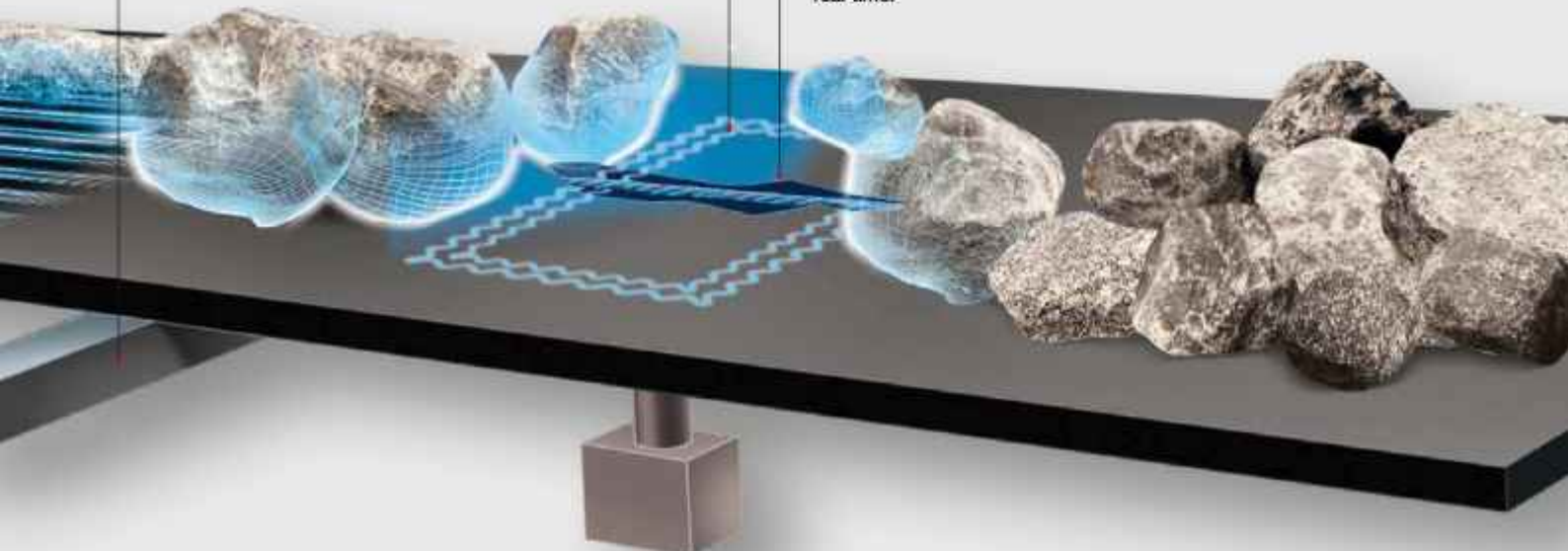
Rip monitoring for critical applications.

PHOENOCARE Sensor Guard provides continuous rip detection for steel cord and fabric belts.

Flat sensor arrays detect cord damage in non-troughed areas of the belt and continuously monitor splice quality.

RFID chips pinpoint location of sensor loops.

Embedded, closed-circuit loops identify belt rips in real time.



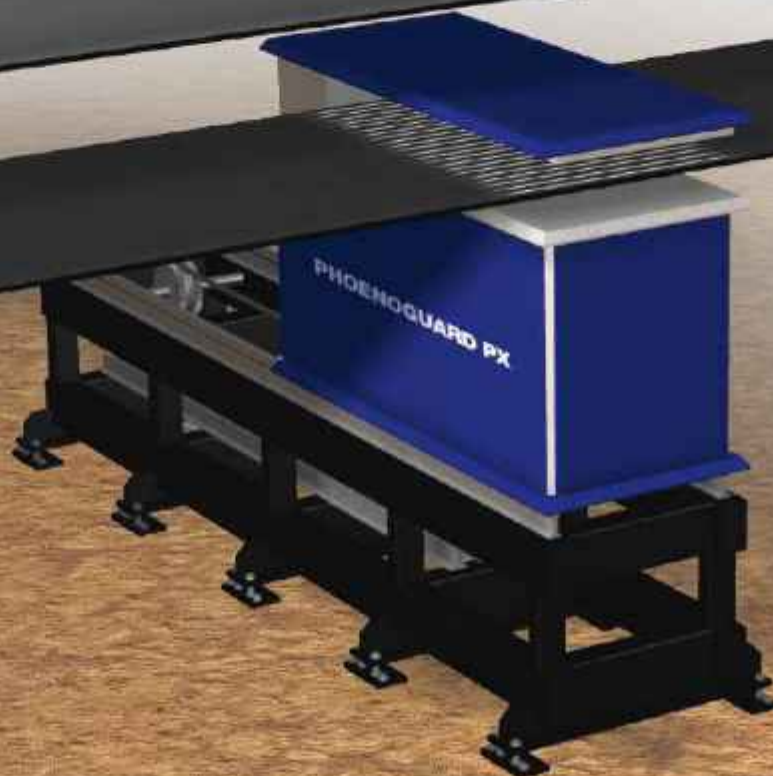


Belt monitoring

PHOENOGUARD PX®

The revolutionary one-for-all PHOENOGUARD PX system has a complete range of capabilities that includes both carcass and cover monitoring technologies.

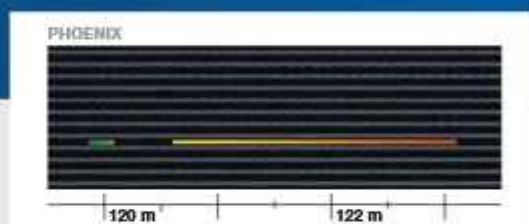
PHOENOGUARD PX allows you to detect and monitor everything from incremental damage to belt surface covers up to potentially catastrophic damage due to pending splice failure or belt penetration by foreign material. Belt alignment can be monitored along the conveyor length to ensure that the belt is not damaged due to contact with structural equipment.



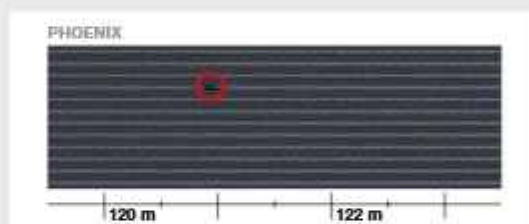


Key benefits of PHOENOGUARD PX:

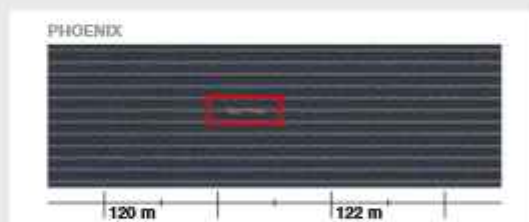
- › Full knowledge of internal and external belt condition
- › Real-time, online image output and remote access
- › Customized automatic incident response
- › Preventive action before major damage occurs
- › Drastic reduction of maintenance and repair costs
- › Minimization of downtimes
- › Belt life prediction and maintenance scheduling
- › Longer belt service life
- › Unprecedented belt safety



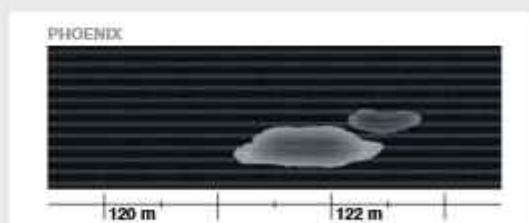
Belt rip (slitting)



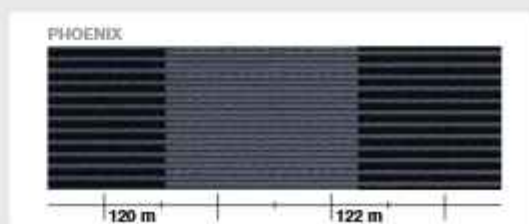
Broken steel cord



Steel cord corrosion



Cover rubber damage



Splice integrity



Research and development/Quality assurance

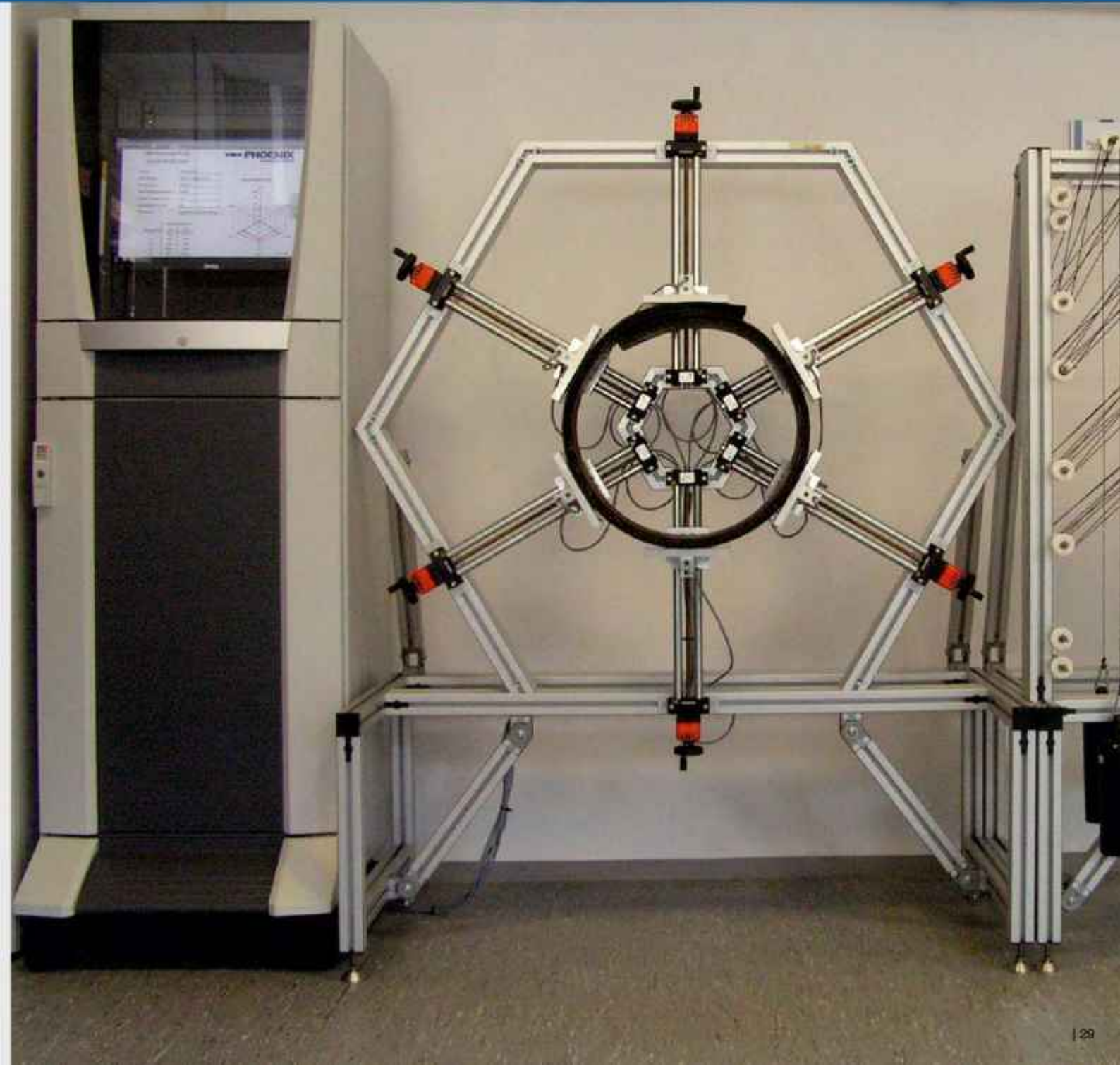
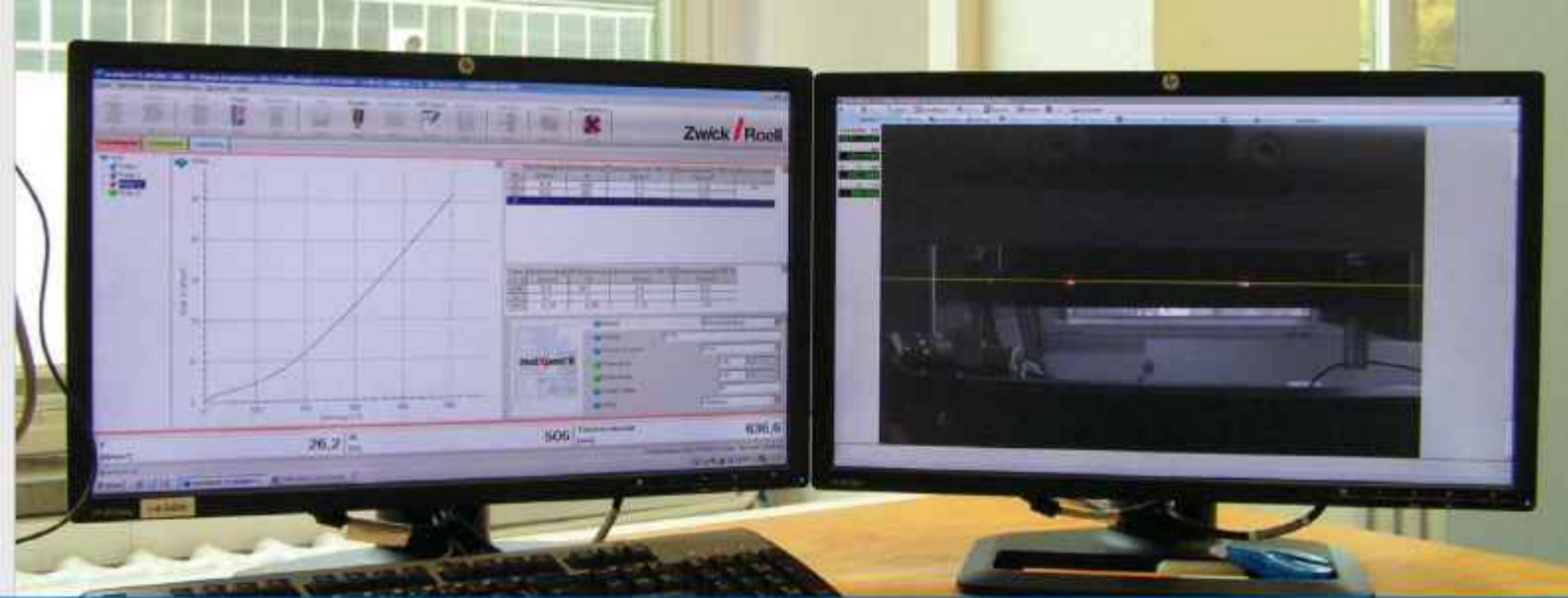
Phoenix Conveyor Belt Systems has the most modern testing centre worldwide for developing conveyor belts. Extensive quality tests ensure the technological lead of Phoenix conveyor belts.



All of the Phoenix Group's production locations and subsidiaries meet the ISO 9001 quality standard. The certification according to ISO 9001 comprises quality assurance during development, production, assembly and distribution. It therefore completely covers all of the areas which lead to higher standards of products and services.

Phoenix Conveyor Belt Systems GmbH fabricates according to all the nationally relevant quality standards like DIN, SABS, MSHA, RMA, BS, AS, CSA, etc.







Service/Splicing

Conveyor belt splices

Making the splice

Phoenix assists starting at the design phase of a project, during installation and until commissioning. Afterwards Phoenix is at your side through inspections carried out by our specialists.

Conveyor belts are usually spliced at site. Making belt splices demands special know-how, experience and cleanest conditions. Qualified PHOENIX engineers precisely plan and execute or supervise this work. PHOENIX has a global network of exclusive splicing and service companies capable to perform this work in accordance with highest PHOENIX quality standards.

One proof of performance are the world's strongest belt splices which Phoenix fabricated in Chile in 1999. The splices of the PHOENOCORD St 7800 are approximately 7 m long and have a dynamic efficiency of 54%.







PHOENIX conveyor belts for all kind of applications – up to the strongest and heaviest belts ever built.

Please contact us for any assistance regarding your conveyor belt requirements.

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