Low Noise Roller Technology Revolution
Improve Working Conditions and Environment

CONCH
海螺新材

CONCH UHMWPE ROLLER

Recycling, High-tech Products

Energy Saving
Consumption Reduction
Low Carbon Emissions



河南省华北工业塑料有限公司
Henan North China Industrial Plastic Co., Ltd

CONCH New Materials Profile

Conch (Anhui) Energy-Saving and Environmental Protection New Materials Co., Ltd. (hereinafter referred to as "Conch New Materials") is an important part of the "One Foundation, Five Industries" development strategy of Conch Group. Founded in 1995 and listed in 2000, the company mainly engages in business such as new plastic materials and aluminum alloy profiles, solar photovoltaic materials, precision molds, windows, eco-friendly boards, SCR denitrification catalysts, UHMWPE conveyor rollers, and other energy-saving and environmentally friendly products. It has more than 30 sub-companies in China and abroad, covering 13 provinces and four overseas countries: Thailand, Myanmar, Indonesia, and Uzbekistan. Through rapid development in recent years, Conch New Materials has gradually built a diversified development pattern driven by green building materials, environmentally friendly materials, and functional new materials.

Listed Company
High-tech Company

Diversified Development
Green + Eco-friendly
+Functional New Materials

30+4
Global Layout
30+ Subsidiaries
(4 overseas)

Henan North China Industrial Plastic Profile

Henan North China Industrial Plastic Co., Ltd. is a subsidiary of Conch New Materials. The company has over 60 automated extrusion lines for ultra-high molecular weight polyethylene (UHMWPE) roller pipes, 7 UHMWPE roller assembly lines, and 1 steel roller assembly line, with an annual production capacity of over 800,000 units. It has been recognized as the Henan Provincial UHMWPE Roller Engineering R&D Center; its product quality exceeds the T/QGCML1473-2024 Group Standards, and it holds 28 utility model patents and 5 invention patents. Its products are widely used by companies such as Conch Cement, POWERCHINA, CHN Energy, Sinopec, Jinneng Holding, China Huadian Corporation, CMOC Group Limited, Rizhao Steel, and Fuzhou Port Luoyuanwan. Adhering to the business philosophy of "High Quality and Sincere Service" and the corporate spirit of "Unity, Innovation, Dedication and Contribution", Henan North China Industrial Plastics is willing to work with customers to "Create A Living Space for The Future of Mankind."

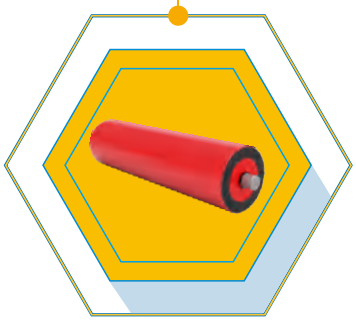


Iteration - Born to be Better

With over 20 years of experience in conveyor roller R&D and manufacturing, we adopt a demand-driven approach to solve industry pain points, driving product iteration and technological innovation. From the foundational first-generation steel rollers, to the performance-breaking second-generation UHMWPE rollers, and to scenario-specific niche rollers, we continuously innovate to provide safer, more efficient and economical conveying solutions for mining, steel, cement, ports and power industries. All products and production technologies have independent intellectual property rights.

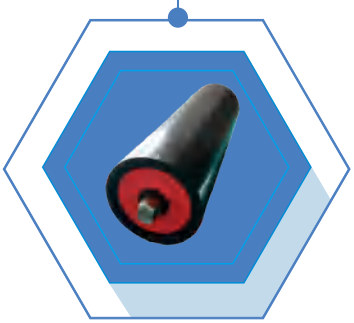


- Foundation-
Steel rollers ensures stable load capacity, good choice for general applications



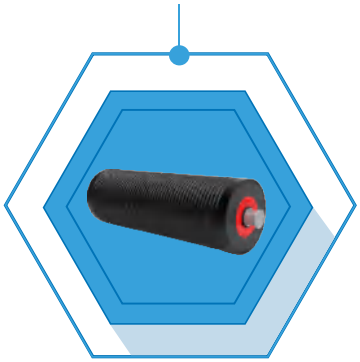
Era 1.0

-Upgraded-
UHMWPE rollers Technological Breakthrough, Resolving Pain Points

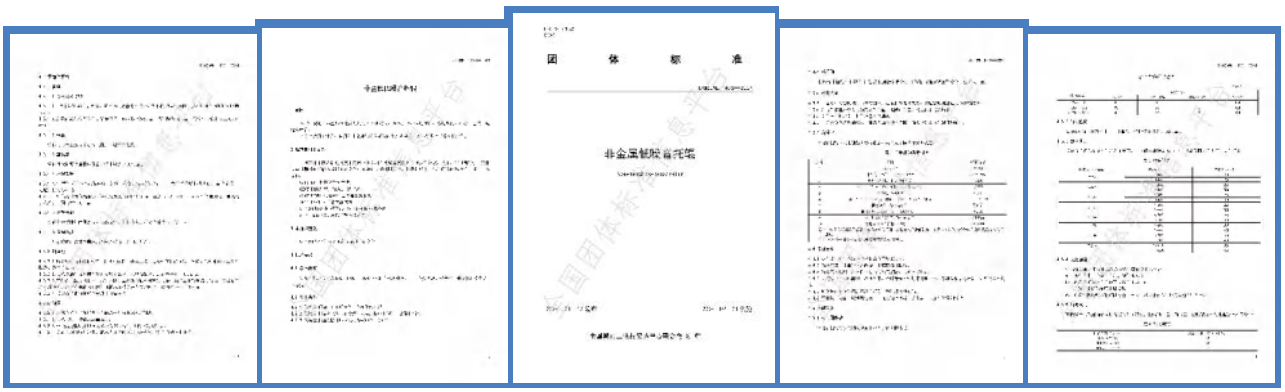


Era 2.0

-Application-
Specialized R&D and manufacturing targeting industry pain points



Era 3·0



All parameters and all-dimensional performance are superior to the T/QGCML1473-2024 group standard.

CONCH UHMWPE ROLLER

- Modified UHMW-PE Tube is highly wear-resistant and impact-resistant;
- New sealing structure prevents grease leakage and evaporation;
- Maintains its physical properties for a long time, free of maintenance for life;
- Self-lubricating with an ultra-low friction coefficient to prevent belt wear and damage;
- Lightweight and easy to install;
- All parameters and all-dimensional performance are superior to the T/QGCML1473-2024 group standard.





- Highly Wear-resistant Tube
- Superior Sealing Performance
- Designed Service Life of 60,000 Hours
- Empowering the Development of Green Industry

UHMW-PE Rollers: High-performance Engineering Plastics

Made of ultra-high molecular weight polyethylene (molecular weight >4.5 million), it is an ideal upgrade for conventional steel rollers with excellent physical properties.

Core Value: Driving industry transformation by replacing steel with advanced engineering plastics.

Revolutionary material innovation fundamentally solves long-standing industrial conveying pain points of conventional steel rollers, including easy wear, high energy consumption, loud noise and frequent maintenance.

5 APPLICATION SCENARIOS FOR CONCH UHMWPE ROLLERS



One solution per industry, One product per application

Based on a deep understanding of various industries, we provide scenario-specific R&D and customization to achieve peak performance under any operating condition. All our rollers and manufacturing equipment are protected by independent intellectual property rights.

UHMWPE roller diameter (unit: mm)

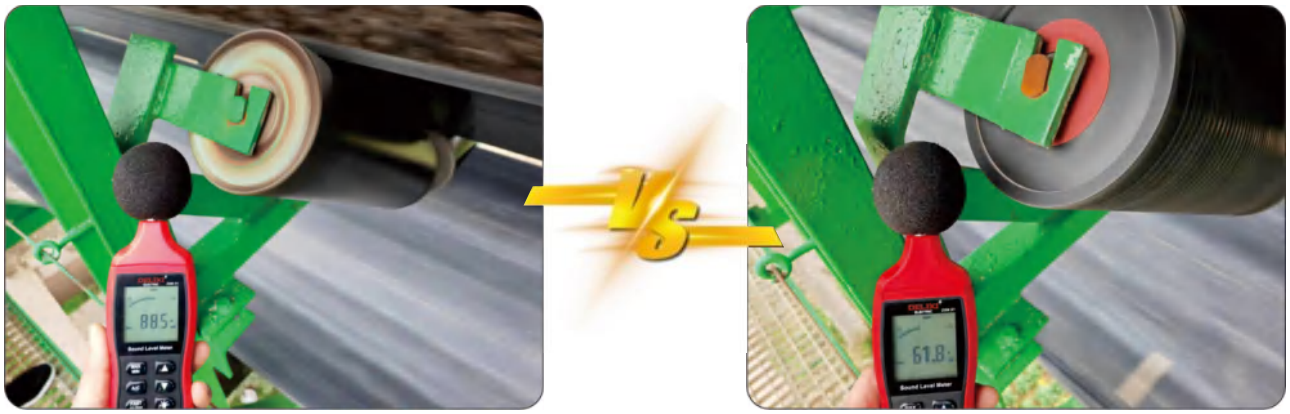
76	89	108	133	159	178	194	219
63. 5	102	114	127	140	152	165	194

Note: Custom non-standard & special-shaped rollers available.

Low-Resistance & Low-Noise Rollers - Cement, Building Materials



- Noise-dampening lip seals combined with dampers to block noise from rotating parts.
- Use low-noise deep groove ball bearings.
- Precision-machined roller tube surface, with T.I.R. (Total Indicator Reading) < 0.1mm.
- Ensures stable, vibration-free operation, minimizing secondary noise from support structure vibration.
- U-shaped ventilation grooves on the tube surface reduce belt friction and wind resistance noise.



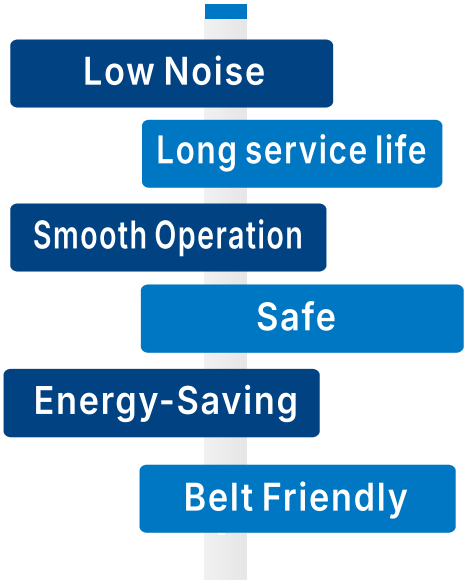
Conventional Metal Roller

CONCH UHMWPE Roller

CONCH UHMWPE low-noise rollers reduce belt conveyor noise to below GB12348 national standard.			
Belt Width (mm)	Belt Speed (m/s)	Noise Level (dB)	
		1m	30m
B1000	3.8	60	52
B1200	4.2	65	52
B1200	4.5	70	53
B1400	4.9	70	53
B1600	4.9	73	54
B1800	5.0	73	54
B2000	5.0	75	55
B2200	5.2	75	55
B2400	5.4	75	55

Technical Parameters

No.	Test Item	unit	Technical Parameters
1	T.I.R	mm	⩽0.2
2	Axial Displacement	mm	⩽0.4
3	Axial Displacement After Drop Test	mm	＜1.2
4	Axial Load Capacity	KN	＞15
5	Rotational Resistance	N	⩽2.5
6	Water Spray Test	g	0
7	Immersion Test	g	5
8	Friction Coefficient	–	⩽0.1



Low-Resistance & Low-Noise Rollers—Solving Pain Points in the Cement Industry

Industry Pain Points

Cement production features abrasive dust, high humidity and long conveying distances. These harsh conditions make bearings prone to particulate ingress and seizing, increasing rotational resistance and energy consumption. Operational noise often exceeds 85 dB (violating environmental regulations), while material adhesion causes belt abrasion and frequent roller failures, leading to unplanned downtime and high labor costs.

Core Strengths

- Rotational resistance ≤ 2.5 N (far superior to national standards), saving 15%–30% energy vs steel rollers; this advantage is most prominent in long-distance, high-power motor conveyor systems.
- Operating noise level ≤ 65 dB(A), making it ideal for belt coveyors located in close proximity to residential areas, office buildings, or central control rooms.
- Ultra-smooth UHMWPE surface, non-stick to cement, powder and slurry. It offers superior belt protection, eliminating scratches and tearing, and reducing misalignment and material buildup.
- Noise-dampening lip seals and IP67-rated protection; even amidst heavy cement dust, the bearings remain free of contamination and seizure, requiring no maintenance or lubrication.
- Service life is 3–5 times longer than standard steel rollers, greatly reducing downtime and labor costs. Reduced high-altitude replacement frequency ensures sustained, high-yield productivity for cement production lines.
- 1/3 lighter than steel rollers, enables single-person replacement. This significantly alleviates labor intensity and minimizes the safety risks associated with manual handling.

Mining-Safety Low-Noise Rollers— Mining

In 2012, leveraging our extensive expertise in UHMWPE technology, we launched our specialized Mining-Safety Low-Noise Roller. Purpose-built for the extreme dust and humidity of underground mining. It meet stringent FRAS (Fire Resistant Anti-Static) safety standards for explosion-prone environments.



- Corrosion-resistant and lightweight, it allows quick, safe installation and adapts ideally to harsh underground mining conditions;
- Triple labyrinth plus lip seal design creates a fully sealed barrier against water and dust, protecting the roller from water ingress even under continuous mine dripping conditions;
- Reducing tunnel noise by 15–20 dB, it greatly enhances on-site comfort and shields workers from long-term hearing fatigue;
- Anti-static and non-sparking design;
- Self-lubricating with low friction, it prevents belt wear and eliminates fire risks from frictional heat of seized rollers.

The Mining-Safety Low-Noise Roller ensures conveyor system noise fully compliant with national occupational health standard GBZ 188-2007.



Technical Parameters			
No.	Test Item	unit	Technical Parameter
1	T.I.R	mm	⩽0.2
2	Axial Displacement	mm	⩽0.4
3	Axial Displacement After Drop	mm	<1.2
4	Axial Load Capacity	KN	>15
5	Rotational Resistance	N	⩽2.5
6	Water Spray Test	g	0
7	Immersion Test	g	5
8	Noise Test	dB	⩽45
9	Friction Coefficient	-	⩽0.1
10	Surface Resistance	Ω	$\leqslant 5X10^{8}$



Salt & Corrosion Resistance Rollers-Port



Port Logistics: Are These Challenges Giving You a Headache?

- High-salt and high-humidity environments easily corrode steel rollers, causing premature failure and poor system reliability.
- Seawater and slurry ingress easily cause bearing seizure, leading to premature belt wear and fire risks.
- Coal, ore, and grain suffer from material adhesion/scale buildup; conveyor belts misalign and tear, leading to frequent shutdowns.
- Replacing rollers is labor-intensive, time-consuming, and costly, affecting terminal loading/unloading efficiency.



Specialized Solutions for Port Terminals: Salt-Resistant & Anti-Corrosive • Non-Stick & Clog-Free • Long Service Life & Stable Operation

01 Superior Salt Resistance and Corrosion Protection:

Modified UHMWPE material feature excellent saline-mist and seawater corrosion resistance, immune to oxidation and pitting, suitable for high-temperature, high-salinity port logistics.

02 Self-Lubricating and Non-Adhesive:

Smooth and low-friction roller surface prevents material buildup, ensuring a clean operation that without belt mistracking and tearing.

03 Multiple Sealing Systems for Maximum Reliability:

Multiple sealing systems prevent water, dust, and salt mist ingress, ensuring the bearing operates smoothly over the long term without seizing.

04 Lightweight and Long-Lasting:

33% lighter than steel for easy, low-risk installation; service life 3–5 times longer. Lead to minimal downtime and replacement frequency, greatly lowering maintenance and overall operating costs.

05 Energy-Saving & Enhanced Safety:

Low rotational resistance reduces motor energy consumption.

Ex-proof & Anti-corrosion Rollers - chemical

In high-risk corrosive chemical environments, our Ex-proof & Anti-corrosion Rollers eliminate rust and spark hazards of steel rollers. Featuring excellent acid and alkali resistance and permanent anti-static performance, it is the best upgrade solution for chemical plant conveyor systems.



Explosion-proof for Greater Safety · Corrosion-resistant for Enhanced Durability

Explosion Safety

Spark-free performance for maximum safety in explosive chemical zones

Highly Resistant to Acid and Alkali Corrosion

Resistant to acids, alkalis, salt spray, and chemical media; remains rust-free over the long term.

Anti-Aging & Crack-Resistant

Engineered for extreme environments defined by high heat, intense humidity, and severe corrosion.

High Wear Resistance, Long Service Life

Engineered from UHMWPE for superior abrasion resistance and high impact strength, ensuring an extended service life.

Smooth Operation, Low Resistance

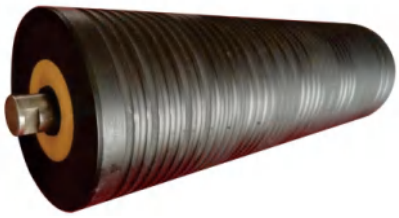
Rotates smoothly without seizure, reducing energy consumption and maintenance costs.



High-Temp & Corrosion Resistance Rollers - Power & Steel

High-Temperature Conveying Solutions for Power Plants and Steel Mill

Made of specially modified engineering plastics, our rollers offer excellent thermal stability and abrasion resistance. Precision U-shaped surface grooves optimize heat dissipation for smooth, low-noise, vibration-free rotation. Advanced thermal insulation and high-temperature lubricants prevent grease degradation, ensuring long-term stable performance and extended service life.



Product Features

1.High-Temperature Resistance

It does not soften, deform, or ablate in high-temperature environments, ensuring long-term, stable operation—even in steel plant sintering zones or alongside power plant boilers.

2.Superior Corrosion Resistance

Impervious to acids, alkalis, flue gas and dust, it never rusts or peels. It maintains stable performance in harsh environments and requires no frequent repainting or maintenance.

3.Highly Wear Resistance

Wear-resistant even under heavy loads and continuous operation, its service life is several times longer than that of ordinary rollers—meaning fewer replacements and significant cost savings.

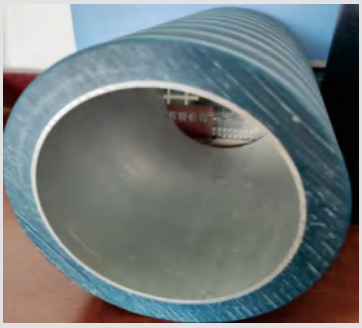
4.Smooth Operation Without Seizing

Low resistance, no belt abrasion, and low noise—resulting in greater energy efficiency for the equipment and a longer service life for the belt.

5.Less Maintenance, Less Downtime

One-time installation enables long-term stable operation, reducing maintenance and downtime and boosting overall line efficiency.







Specially Designed for Harsh Operating Conditions:
High Temperature, High Dust, Heavy Loads, and Severe Corrosion









Application Scenarios: Thermal Power Generation / Steel Smelting / Sintering / Blast Furnace / Coking / Cement

6 Superior Features of CONCH UHMWPE Rollers

01 Long Service Life

Special sealing material and new structure prevent grease leakage and evaporation, greatly improving the rollers' service life.



02 Low Noise

By solving belt conveyor noise pollution that harms employees, we ensure noise meets national industrial hygiene and emission standards, therefore supporting green mine construction.



03 Smooth Operation

Non-absorbent roller tube features superior self-lubrication. It resists material adhesion under normal and low temperatures, eliminating sticking issues and enabling smoother conveyor operation.



04 Safety

Eliminating seizure-related hazards, the modified UHMWPE roller tube will not overheat, catch fire, or tear the belt.



05 Belt Friendly

The modified UHMWPE roller tube offers a low coefficient of friction, which significantly reduces belt wear and prolongs its service life.



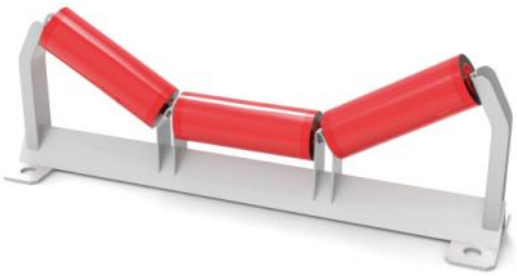
06 Energy Saving

Light weight and low rotational resistance.

Weight Parameter Comparison: CONCH UHMWPE vs Steel Rollers

No.	Roller Model	Bearing Model	Roller Weight (kg)	Rotating Part Weight (kg)	Rotational Resistance(N)	Note
1	Φ 159-600	6306	16.86	12.84	3.0	Steel Roller
2	Φ 159-600		11.67	7.8	2.5	UHMWPE Roller

Steel Rollers - Classic, Reliable, Solid Foundation



Heavy-Duty Load & Impact Resistance

Universal Fit for All Applications



Stable operation with low resistance

Reliable Sealing, All-Environment Ready

Mature technology guarantees stable load capacity, good choice for general applications.

High Load Capacity

High-quality steel pipe delivers superior rigidity and impact resistance, ideal for heavy-load conveying.

Sturdy & Wear-resistant

Stable and deformation-resistant material with outstanding wear resistance for long service life.

Stable Operation

High precision ensures smooth stable operation.

Easy Maintenance

Low maintenance, easy to use.

Reliable Sealing

Dustproof & waterproof, effectively extending service life.

High Cost Performance

Mature manufacturing technology, lower overall operating cost.

As core industrial conveying equipment, it delivers stable and reliable performance for diverse working conditions.

Modified UHMWPE Sheet



High Self-Lubrication, Non-Absorbent

Breaks water-absorption molecular chains, eliminates material adhesion, and ensures smooth feeding.

Low cost

One-time investment, lifelong maintenance-free.

High wear & impact resistance

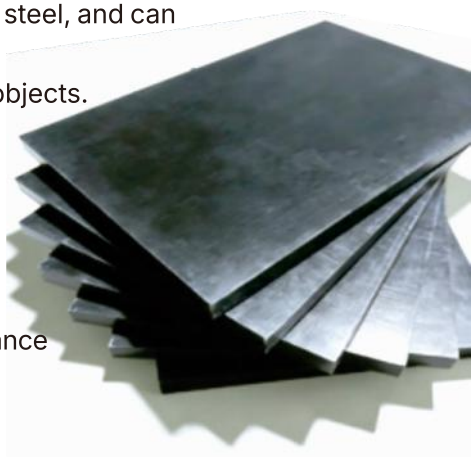
Multiple modifiers were added to maintain the original properties and enhance practicality.

Long Service Life

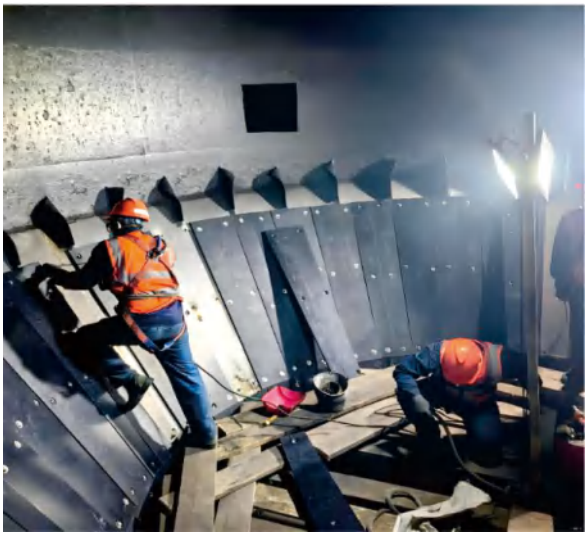
More than 3 times longer service life than the original UHMWPE material.

Modified UHMWPE Liner

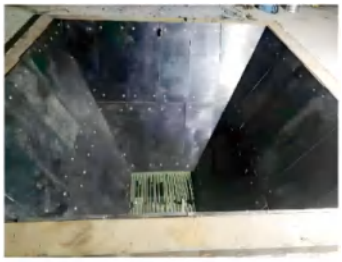
- High Molecular Weight: Over 4.5 million.
- Strong Wear Resistance: The mortar abrasion index is 1/7 of carbon steel, and can withstand high-intensity friction for a long time.
- Excellent impact resistance: able to withstand impacts from heavy objects.
- Excellent Self-Lubrication: Friction coefficient 0.05~0.11.
- Chemical Corrosion Resistance: Resistant to most corrosive media and organic solvents.
- Strong anti-adhesion: The surface has weak adsorption force and does not easily adhere to materials.
- Excellent low-temperature resistance: It can maintain stable performance at an environment of -269°.
- Lightweight: Only 1/8 the weight of steel, easy to handle and install.



Applications









Modified UHMWPE Pipe



Anti-static

No Scaling

High Impact Resistance

Wide Temperature Adaptability



High Wear Resistance

Corrosion Resistance

High Self-Lubrication

Strong Weather Resistance, Anti-aging

Applications

Power Systems, Coal Industry, Chemical Industry, Oil Exploitation, Metallurgical Industry, Mining Industry, Dredging Industry, Marine Engineering, Municipal Engineering

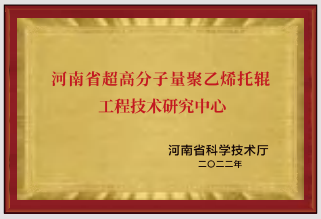


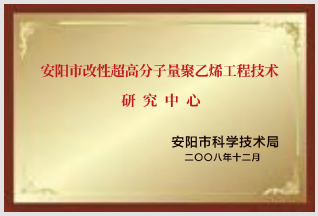






Independent R&D and Innovation









Invention Patent Certificates



Utility Model Patent Certificates

- 16,000m² modern production workshop;
- Ultra-high pressure UHMWPE rollers pipe extrusion line;
- Precision UHMWPE rollers sealing parts production line;
- Fully automatic UHMWPE rollers assembly line.



R&D Laboratory

Manufacturing Equipment



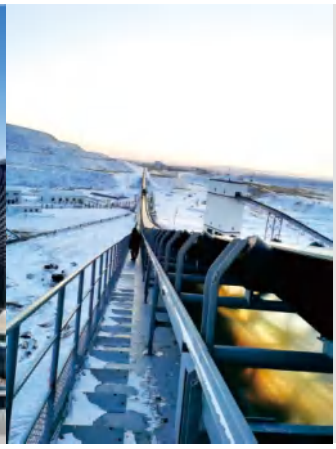






CONCH UHMWPE Roller Project Cases





China National Energy Shengli No.1 Open-pit Coal Mine Coal Conveying System Project

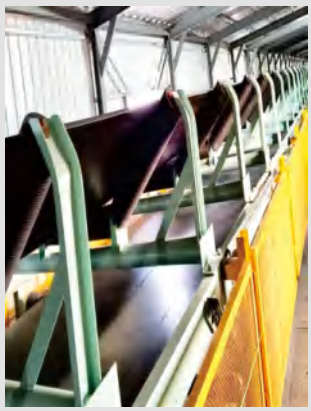
China's First "Coal-in, Ash-out" Long-distance Curved Belt Conveyor

Belt Width: B1600;
Belt Speed: 4.5m/s;
Conveying Capacity: 5000t/h



China Huadian Heavy Industry YUBEI Project,
Guinness World Record Holder
China's Longest Pipe Conveyor,
Pipe Diameter: 400mm;
Belt Width: 1500mm; Belt Speed: 4.5m/s;
Conveying Capacity: 5000t/h





Wuhu Conch Cement Co., Ltd.

Belt Width: B2000mm;
Belt Speed: 1.6m/s;
Conveying Capacity: 1200t/h





The 48km bidirectional curved belt conveyor designed by RBL-REI France for China Resources Cement (Fengkai) Co., Ltd.

Model: 48km*2*B1400mm; Belt Speed: 4.95m/s; Conveying Capacity: 2500t/h

CONCH UHMWPE Roller Project Cases





China Power Construction (Yunfu) Green Mining Co., Ltd.
Belt Width: B2400; Belt Speed: 5m/s; Conveying Capacity: 15000t/h





Rizhao Steel Holding Group Co., Ltd.
Raw Material Belt Conveyor



Sichuan Lisen Building Materials Group Co., Ltd.
Mine Belt Conveyor







Sichuan Yadong Cement Co., Ltd. Mine Belt Conveyor



Anqing Petrochemical Pipe Conveyor

Main Clients



中国华电
中国华能 CHINA HUANENG
MASTEEL 马钢集团 MASTEEL GROUP
CONCH 海螺集团
中国建材
中国石化 SINOPEC
NHI 北方重工
宝丰能源 BAOFENG ENERGY
ANSTEEL 鞍钢集团
华润水泥 CRCEMENT
国家能源集团 CHN ENERGY
LAFARGE 拉法基水泥
中国神华 CHINA SHENHUA
衡运
KDHI 上海科大重工集团
中国煤炭科工集团
晋能控股 JINNENG HOLDING
RBL REI
三宁
DUNSHI 冀东水泥 JIDONG CEMENT
天瑞 TIAN RUI











河南省华北工业塑料有限公司

Henan North China Industrial Plastic Co., Ltd

Add: New Manufacturing Industry Park, Anyang, Henan, China

Tel: 0372-6383888

Web: www.fjsroller.com

E-MAIL: sales@fjsroller.com

North China Plastic Official Website

Conch New Material WeChat Official