



Energy & Data Transmission Systems for Underground Applications





Systems for Under-ground Applications

Conductix-Wampfler energy & data transmission systems keep tunnels moving forward.

Whether it's for road, rail, water, pedestrians or for access to minerals or metal ores, tunnels are a vital part of modern living. Conductix-Wampfler are the world's leading provider of systems for the safe and efficient transfer of electrical power, media and data to the machines that do the work. Our solutions combine all our years of experience into high quality, robust solutions for a wide range of applications:

- Tunnel Boring Machines (TBM's)
- Roadheaders
- Drill jumbos
- Rock Bolting Rig
- Charging Machines
- Scalers
- Loaders
- Shotcrete Machines
- Service Platforms

Conductix-Wampfler – The Global Leader in Energy and Data Transmission Systems

Who we are

Conductix-Wampfler are the world's leading supplier of energy, data and media transfer system for mobile applications. As part of our Focus Markets organisation, our Mining & Bulk Materials Handling team are dedicated to providing our customers with the solutions they need to make sure their equipment keeps running in this demanding, 24/7 environment.

With more than 80 years experience in this market, we speak the language of our customers and are committed to providing excellence in our products and services.

Our Products

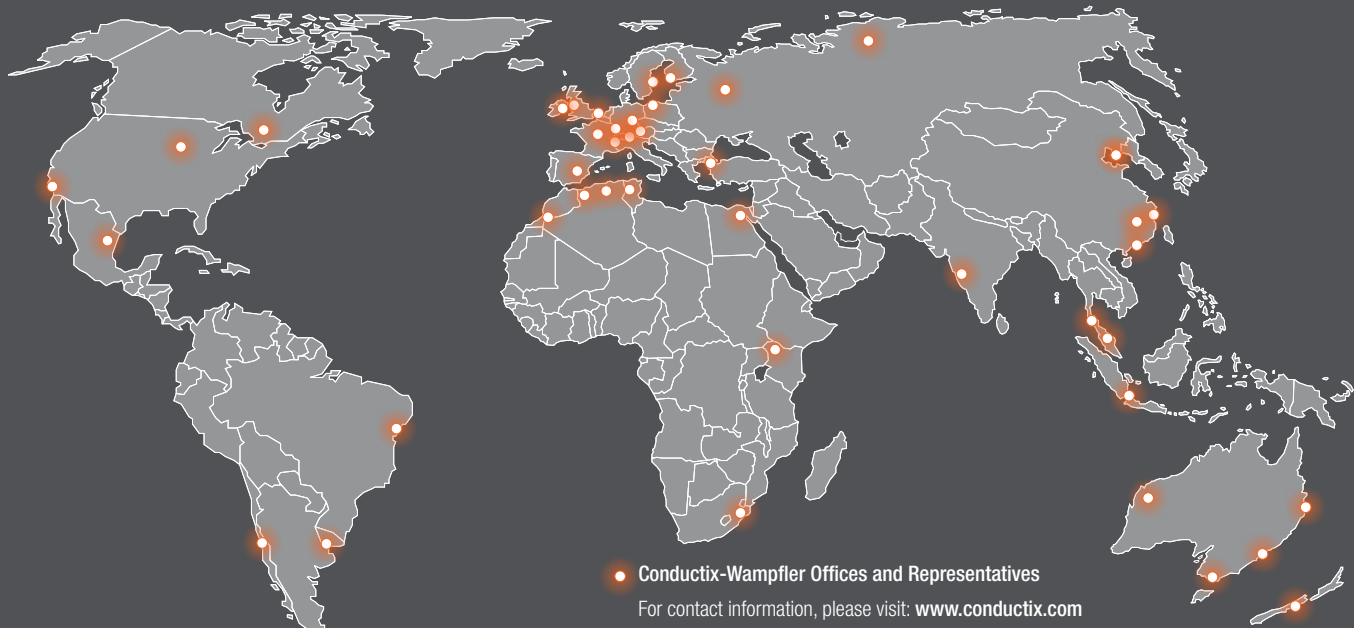
Conductix-Wampfler have the largest portfolio of products available in the market, providing the widest range of solutions available.

Our reeling systems, festoon systems and energy guiding chains, handle cables and hoses safely and efficiently under the most demanding of conditions.

Our conductor rail systems and slip ring assemblies provide robust alternatives when the application demands something different.

Our products are manufactured and tested to high standards, with our facilities certified under ISO9001:2008.

Conductix-Wampfler can provide systems engineered to meet the specifications of the customers equipment, all of which are designed and built to withstand the harsh operating conditions in mines, bulk storage facilities and bulk terminals.



Global Experience – Local Service

We are present in more than 80 countries in the world and with our global network of Centres of Excellence, Production Centres and Sales & Marketing Offices we can provide unrivalled worldwide coverage, supporting our customers with reliable products and customized solutions.

So if it's a cable reeling drum for a stacker in South America or a energy guiding chain for a bulk crane in China, Conductix-Wampfler have the solution for you.

Motor cable reels

Reel solutions for real situations

A range of drive, drum and control options are available, according to the application, the environment and your preference, with reeling lengths up to 500 m as standard (longer upon request), current and voltage ratings of up to 800 A and 43,2 kV and Ingress Protection ratings up to IP55 (higher rating upon request). Special finishes and certification for hazardous environments are also available.

Target applications

Tunnel boring machines in civil engineering or mining operations

Orion cable reel with external slipping on Herrenknecht TBM



Orion cable reel on Tunnel Boring Machine by The Robbins Company

Hydra cable reel feeding power on Tunnel Boring Machine by Herrenknecht

TMRD a skid mounted unit for a typical mining application



Characteristics Cable Reels

• Principle drive options

- **Electric Asynchronous** – Standard 230/400 V 50 Hz IP55 motors (others available on request) with aluminium or cast iron bodies (depending on frame size). Cast iron high resistance reduction gear casing with special case hardened gears. Our customized brake group prevents the cable from unwinding when the machine is parked. A 4 position limit switch is used to ensure safe operation

- **Hydraulic**
- **Pneumatic**
- **Torque motor**

• Drum options

Orion and Hydra reels are fabricated from drawn steel plates and are designed to accommodate the long cable lengths required for this application.

- **Orion** – equipped with a level winding device, the Orion from Conductix-Wampfler is capable of handling up to 500 m of cable (more upon request). It is available with internal or external slip ring; internal solution to minimize the envelope or external alternative to facilitate maintenance.

- **Hydra** – when space is extra tight, the Hydra from Conductix-Wampfler offers the best solution. Thinner shoulders on the drum, an internal slip ring, the lateral motor and the special shaped frame ensure that every inch of space is used effectively, giving the longest cable length possible for the space available.

- **TMRD** – Is a skid mounted unit specially designed for mobile power feeding systems, utilising low or medium voltage for machines operating in tunnels, yards or severe environments.

- **TMSC** – Mobile storage of low and medium voltage cables, for use during move up of mobile machines. Supplied without slip ring, it is used only after complete unwinding of the cable on machines operating in tunnels, shipbuilding and in harsh environments.

• Sliprings

- **Supply** – Low voltage: at 1 kV, current up to 800 A
 - Medium voltage: from 3 – 43,2 kV, currents up to 800 A

Motor hose reels

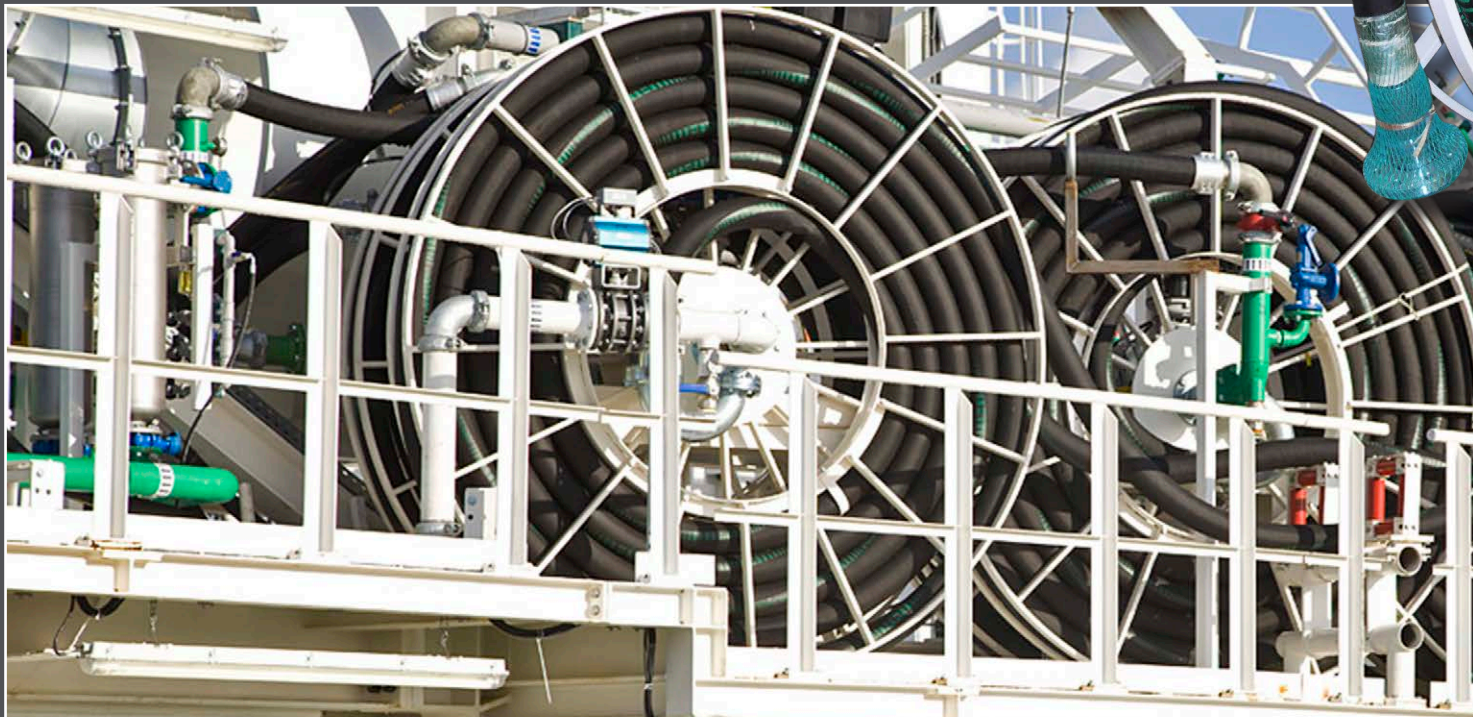
Reel solutions for real situations

Water for dust suppression, compressed air for services or other fluids, e.g. service air, breathable air, grout, exhaust water, industrial water, bentonite, concrete, foaming agent and silica acid, are a critical part of tunneling operations. Hose reels from Conductix-Wampfler have a long history of providing proven solutions for this duty, with working pressures up to 25 bar as standard (special solution 50 bar).

Target applications

Tunnel boring machines in civil engineering or mining operations

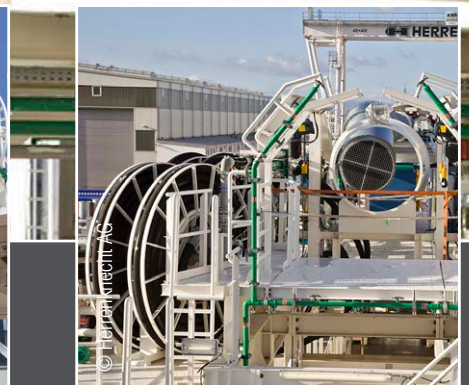
Hose reels installed on back up section of Herrenknecht TBM for Rastatt project in Germany



Hose reel during TBM build up for Herrenknecht "Bossler tunnel" - Germany



Hose reel during TBM build up for Herrenknecht "Karlsruhe" - Austria



Hose reel during TBM build up for Herrenknecht "Rastatt" - Germany



Characteristics Hose Reels

• Principle drive options

- **Electric Asynchronous** – Standard 230/400 V 50 Hz IP55 motors (others available on request) with aluminium or cast iron bodies (depending on frame size). Cast iron high resistance reduction gear casing with special case hardened gears. Our customized brake group prevents the cable from unwinding when the machine is parked. A 4 position limit switch is used to ensure safe operation

- **Hydraulic**
- **Pneumatic**
- **Torque motor**

• Drum options

Drums are fabricated from radially arranged steel sections to ensure efficient hose support. Painted finish. Hose reels capable of handling up to DN300 (12") hose

- **Mono-spiral**
- **Semi-wide**
- **Dual mono-spiral** – 2 mono-spiral drums acting together on 1 reel

• Fittings & Gaskets

- **Fluidic rotary joint** – special steel with nickel plating as standard with suitable gaskets
- **Fastenings** – galvanized steel as standard, stainless steel upon request
- **Pipe fittings** – galvanized steel as standard

Motor cable & hose reels | NAMI series

Reel solutions for real situations

Underground mining demands simple, robust solutions for cable and hose handling. Simple, to ease maintenance and replacement and robust to stand the rigour of this tough environment. The NAMI series of reels is designed in line with the Machine Directive 2006/42/CE and respects all the relevant standards. Available with an optional 4 position limit switch, stainless steel bolts and special paint finish.

Target applications

Underground drill jumbos, rock bolting rig, charging machines, scalars, loaders, shotcrete machines, scalars, man-lifts/working platforms.

Hydraulic drive cable reel on shotcrete machine



NAMI cable reel on shotcrete machine by Putzmeister

NAMI reel on shotcrete machine by Cifa

NAMI reel on shotcrete machine by Sika



Characteristics Cable & Hose Reels

NAMI series

- Principle drive options

- **Hydraulic** – driven from the machines onboard hydraulic circuit via the reel mounted valve block, the reel responds to machine movement to wind in the cable or hose in winding mode. For unwinding, the movement of the machine draws the cable or hose from the drum. When parked a hydraulic brake acts to prevent accidental unwinding of the cable or hose. The brake can be released to allow manual winding of the cable or hose.

- Drum options

Fabricated from drawn steel plates with hardwearing painted finish NAMI reel is generally used as a cable reel and on request can also host hoses up to DN50 2" bore.

- *Semi-wide configuration*
for maximum cable capacity with smallest space
- Sizes from 610 mm to 1000 mm I.D and 800 mm to 2000 mm O.D.
- 300 mm to 500 mm width

- Reduction gear

- *Casing* – Cast iron casing
- *Gears* – Nitride steel for long life
- *Bearings/seals* – Greased for life bearings

- Sliprings

- *Supply* – Standard voltage 1 kV
- Maximum current (in motion) 600 A (270 A at standstill)
- Protection rating IP55
- 3 phase plus PE as standard (+2 x 250 V, 15 A control rings on request)

ATEX Slip ring solutions

Turning and slewing the safe way

Conductix – Wampfler is experienced in supplying ATEX slirping solutions. Our STAR range is used in potentially explosive atmospheres, with two alternatives: Low Voltage slirping (up to 1000 V), suitable for currents up to 800 A, with integral signals unit. Medium voltage, with new solution up to 24 kV, and current up to 800 A.

Suitable for:

- a) system type: group I mining,
- b) category: M2
(possibility of presence of an explosive atmosphere.)
- c) environment with gas (metano).
- d) temperature class: 150 °C
(defines the max temperature of the surface)



24kV reel with ATEX slirping



Truck with reeling systems including TMRD with ATEX slirping

CESI

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CERTIFICATO

CERTIFICATO DI ESAME CE DEL TIPO

101. Apparecchiature e Sistemi di Protezione destinati ad essere utilizzati in atmosfera potenzialmente esplosiva

102. Numero del Certificato di Esame CE del tipo:

CESI 40 ATEX 091

103. Apparecchiature: Primo stato di corrente tipo STAR 0, STAR 1, STAR 2 e STAR 3.

104. Costruttore: **COMET Italia S.p.A.**

105. Indirizzo: Via De Capitani 14/16, 20085 Agnate Bracon (Milano)

106. Questo apparecchio o sistema di protezione e, se eventuali, sistemi ausiliari sono descritti nel capitolo di presente certificato nei documenti descritti nelle Spedizioni di serie.

107. Il CESI, seguendo l'art. 6.072 in conformità dell'articolo 9 della Direttiva 94/9/CE del Consiglio dell'Unione Europea del 21 Marzo 1994, verifica che, come apparecchiatura o sistema di protezione e conforme ai requisiti essenziali di sicurezza e salvo per il progetto e la costruzione di apparecchiature, i sistemi di protezione destinati ad essere utilizzati in atmosfere potenzialmente esplosive, sono del tipo a) b) c) e d).

Le verifiche ed i risultati di prova sono riportati nel rapporto a carattere riservato n. EN-CA-015346.

108. La conformità ai requisiti essenziali di sicurezza è talora il risultato delle conformità alle:

EN 5004:1997 + A1, A2 **EN 50018:2000 + A1**

109. Il simbolo "D" posto dopo il numero del certificato indica che l'apparecchiatura o il sistema di protezione è appurato e sottoposto periodicamente ad un sistema unico, specifico nell'ambito di presente certificato.

110. Questo CESI CERTIFICATO DI ESAME CE DEL TIPO è relativo ad una serie di prodotti, di cui non è prevista l'immatricolazione o sistema di protezione specificati in accordo con la Direttiva 94/9/CE. L'utente acquista di questa Direttiva in applicato al processo di produzione e l'entrata dell'apparecchiatura o sistemi di protezione. Questo requisito non sono oggetto del presente certificato.

112. L'apparecchiatura o sistema di protezione deve ripetere i seguenti test (controlli):

(1) **1 M2** **EX-4.1**

Questo certificato, allegato richiesto, può essere riportato solo integralmente e senza alcuna variazione.

Data di emissione: 20 Maggio 2003

Fiduciario:

Maria Baldo

Maria Baldo

Approvato:

Ugo Colombo

Ugo Colombo

CESI

CONFERMARE LA VERIFICA TECNICA

Autunno 2003

Autunno 2003

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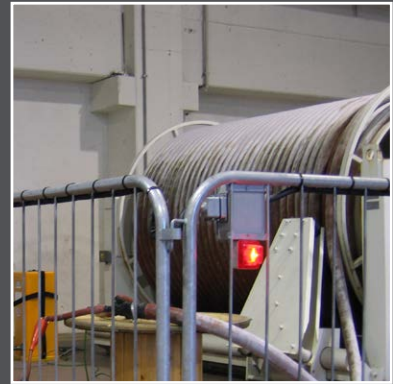
Custom Services you can count on!

You can count on Conductix-Wampfler to meet your specific service needs and requirements.

With our expert teams everything is possible, from initial design and development to long term service contracts.

The more complex your system, the greater your service life and operational reliability expectations are and the more sense it makes to take advantage of our after-sales service.

When it comes to service, you can count on Conductix-Wampfler to perform!



The Turnkey Solution

As a system supplier, Conductix-Wampfler offers you complete turnkey solutions. This includes the delivery of all necessary parts to complete your project.

We consider qualified consulting, project engineering of the complete system, the choice and selection of the right components, optimizing the accessories, the adequate logistic concept, and the commissioning on site to be important elements of Conductix-Wampfler's business activities.

Planning and Development

- Definition of the application parameters
- Selection of the proper components for the required system, optimized to your requirements, application parameters, and environmental factors
- Selection of the optimum energy supply solution in cooperation with you, our customer, as a function of all considerations including cost, service life, operating parameters, installation, and site requirements

Final Assembly

- Supervision of construction, assembly, and mounting on site, or
- Complete installation by our trained specialists

Service Agreement

- Regular maintenance and inspections to increase the operational life of your facility, ensuring long-term performance and availability
- All services required on site in the event of an incident, including spare parts and replacement materials
- Conductix-Wampfler service agreements: The "Worry-Free Package"

www.conductix.com

Conductix-Wampfler has just one critical mission:

To provide you with energy and data transmission systems that will keep your operations up and running 24/7/365.

To contact your nearest sales office, please refer to:

www.conductix.com/contact-search

