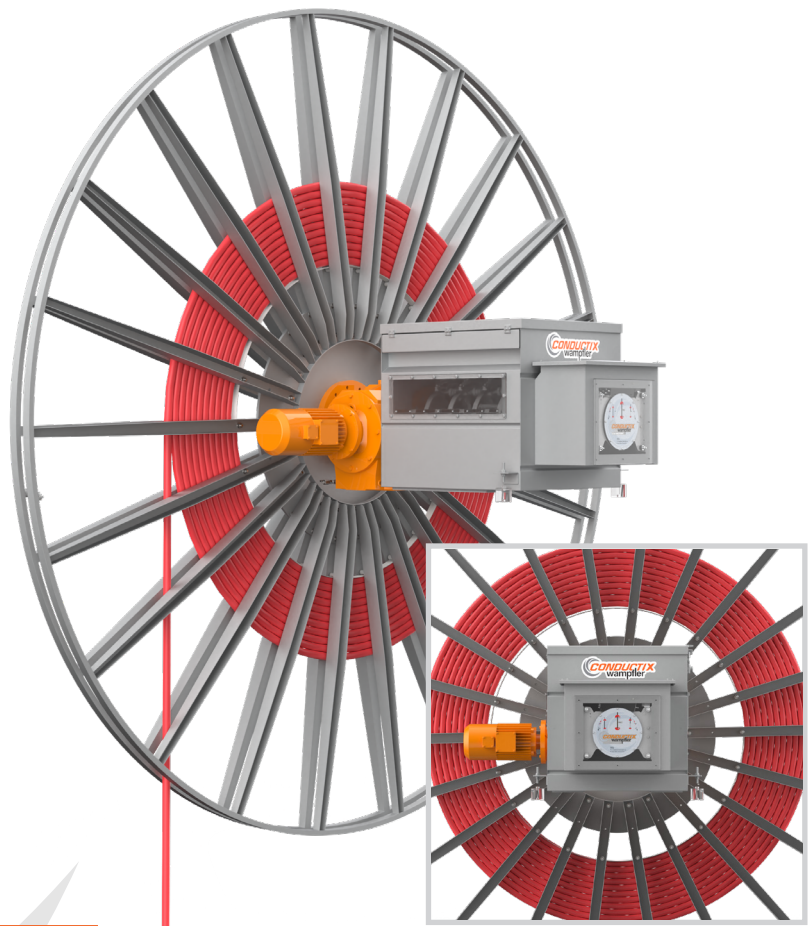


# Motor Driven Reels

## CHD VFD Cable Reel

CHD VFD Datasheet



**CONDUCTIX**  
wampfler

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# Application

CHD VFD cable reel is designed to feed power and data to bulk material handling machines in harsh environments: mines, ports, steel mills, power plants, paper mills.

We developed specific gearboxes with high radial load capacity and high resistance to fatigue for CHD cable reel to meet multiple application conditions.

Our Core V2 Control unit varies the spool shaft torque linearly along the travel for an almost-constant cable tension with different winding and unwinding curves.

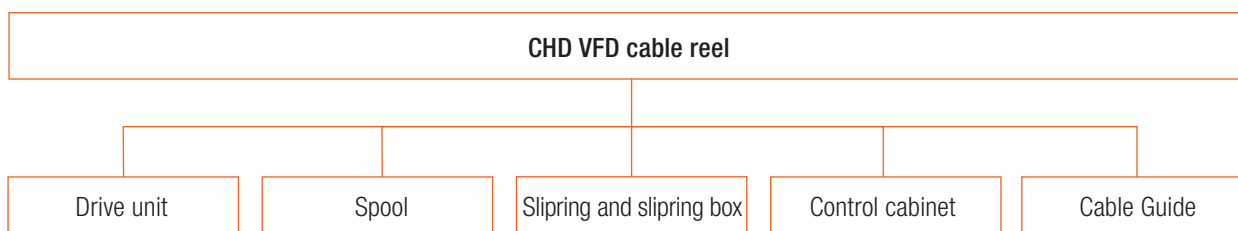
Our CHD VFD cable reel is controlled by our Core V2 Control Unit interfaced to the PLC of the machine via high level industrial bus.



## CHD Typical Parameters

Application	Stacker/Reclaimer, Ship Un/Loader, Bucket-wheel Excavator
Ambient temperature	-20°C - +40°C
Humidity	30% ~ 90%
Altitude	≤1000m
Installation	Gearbox frame with 4 holes
Drive mode	VFD
Brake mode	Electromagnetic brake
Slipring max voltage	24kV
Slipring max current	630A
Max travel speed	50m/min

## CHD Components



## Standard Configuration

Spool	Mono-spiral spool
Slipring	24V to 24kV
Drive unit	CHD gearmotor
External fasteners	A2-70
Cable guide	Two-way direction
Control cabinet	Core V2 equipped with ABB or Siemens converter (VFD)

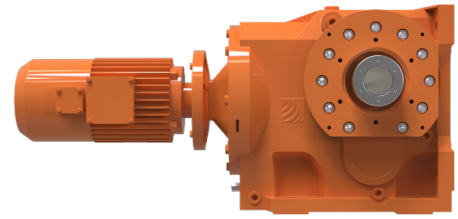
## Options

HMI	
PLC	ABB or Siemens
Motor fan	Forced cooling

## Drive Unit

We specially developed the CHD gearbox for reliable high radial load and large torque output. It passed our demanding accelerated lifetime tests on our continuously-running test benches.

Its cast iron casing and the output shaft high strength steel assure its high load and torque capacity.



**We offer 2 sizes of CHD gearbox:**

**CHD16 and CHD20, as described in below table:**

CHD Gearbox Type	CHD16	CHD20
Gearbox radial type	45000N@223mm	70000N@223mm
Gearbox max output torque	4000N.m	5000N.m
Motor poles	4 poles or 6 poles	4 poles or 6 poles
Gear ratio	160	160
Cable max O.D	75mm	75mm
Oil type (-10°C~40°C)	L-CKD220 heavy duty industrial gear oil, Shell, 11.2L	L-CKD220 heavy duty industrial gear oil, Shell, 21L
Oil type (-40°C~60°C)	S4GX220 heavy duty industrial gear oil, Shell, 11.2L	S4GX220 heavy duty industrial gear oil, Shell, 21L

- VFD motor configuration: 0~100Hz, incremental encoder, brake with manual release, heater, PTC.

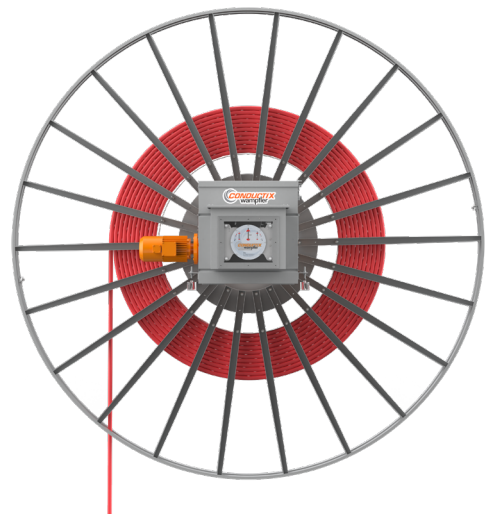
## Spool

The spool is one of the most critical components of cable reel system. Choosing the ideal spool will optimize performance and maximize the life of the cable. Conductix-Wampfler designed years ago a modular range of spools that is used on CHD. The spools of choice for CHD are monospiral spools wrapping the cable in the same plane and preventing cable from twisting. It is your guarantee of a longer cable life.

Monospiral Spools offer maximum exposure to ambient air and best cooling of the cable.

Conductix-Wampfler spools are made from Hot Dip Galvanized steel arms and rims fixed on a center disk.

The spool gap is adjusted to the dimension of the cable and can be readjusted. CHD spools dimensions range from 1,8m outer diameter to 7,5m outer diameter and are pre-defined and pre-validated.





# Slipring and Slipring box

Conductix-Wampfler has decades of experience in the design and manufacture of slip ring assemblies. Our sliprings are recognized as the simplest and most reliable. The main slipring types are power slipring, control slipring and fiber optic transmitter (TFO).

Conductix-Wampfler was one of the first cable reel manufacturers to develop a fiber optic transmitter meeting industrial reliability requirements. Fiber optic cables are ideal for transmitting large amounts of information over long distances in a secure and reliable manner.

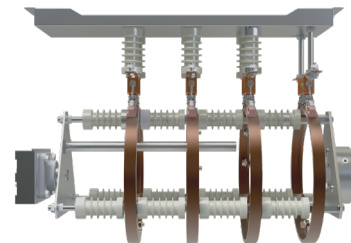
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## Slipring application parameters

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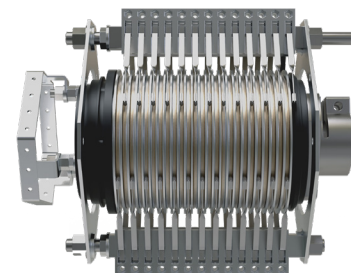
### 01 Power slipring

Low voltage: up to 1000V/630A  
High voltage: up to 24kV/500A  
100% duty cycle



### 02 Control slipring

Voltage: up to 500V 24A  
100% duty cycle



### 03 TFO

Single-mode (9/125), multi-mode (50/125 and 62.5/125) and mixed  
Attenuation: single-mode: < 1.5 dB multi-mode: < 1.0 dB  
Available in 40, 80, or 120 turns and 12, 18, or 24 fibers types  
Standard connectors are type ST



Slipring box material is 304(316L option), IP grade is IP65.

High voltage slipring housings are equipped with heater and membrane breathers to avoid moisture.

# Control Unit



Control cabinet

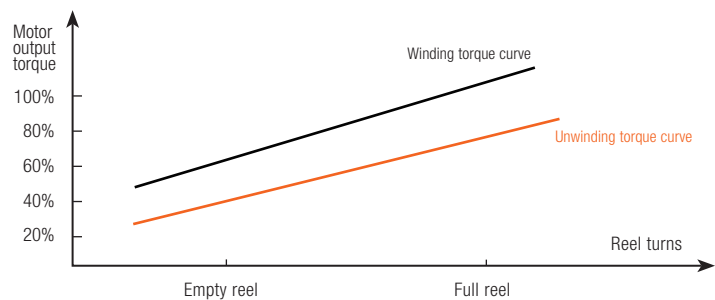
CHD's Core V2 control units supply continuous torque control and reel motor speed regulation. They vary the torque linearly during winding and unwinding and ensure near-constant cable tension during both phases. This effectively protects the cable and extends its lifetime.

CHD's Core V2 control units accurately control the torque for each layer of cable in the monospiral spool. The analog encoder feedback enables the converter to exert precise torque control at each turn. The motor is equipped with an encoder for fine control of the speed, even at low speeds in acceleration or deceleration phases.

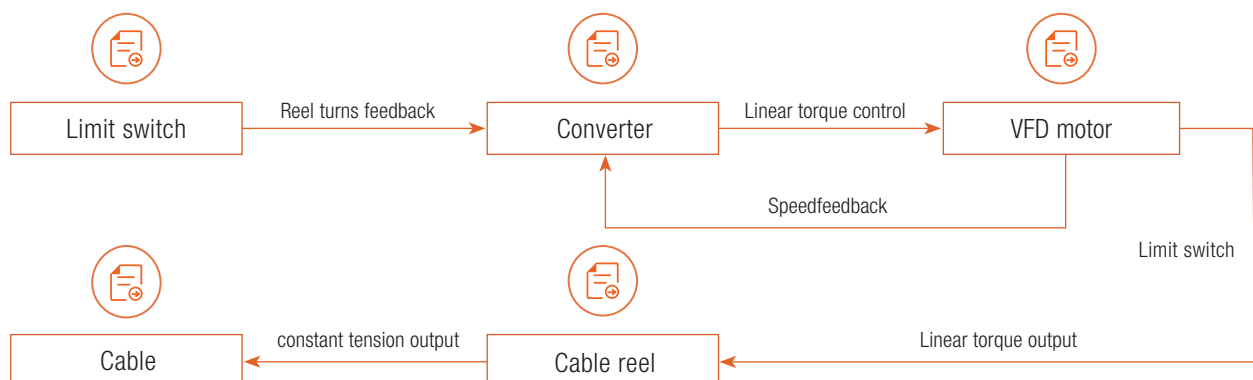
We select in our range the right combination of gearbox, motor and converter (VFD) with the help of automated calculation and selection tool.

We preset the converter (VFD) in our factory and test its operation with the corresponding gearmotor.

Our Service team performs the final on-site commissioning. The currently validated converter brands for CHD's Core V2 control units are ABB & Siemens.



Torque curve



## Standard control cabinet characteristics

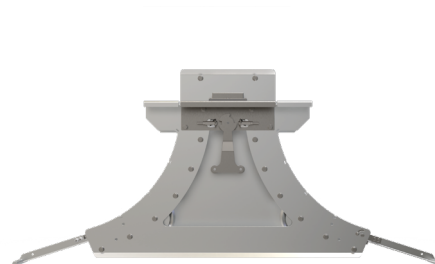
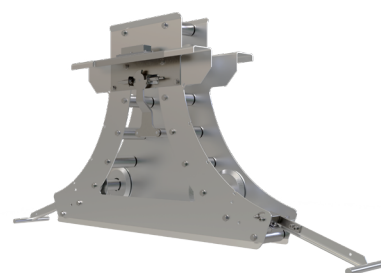
Item	Description
Cabinet size	H2000mm x B600mm x T600mm(standard)
Cabinet material	Carbon steel/stainless steel
Cabinet color	RAL7035
IP grade	IP55
Communication interface	ProfiNet/ProfiBus
Converter brand	ABB/Siemens
Power	3Ph+PE 400V $\pm$ 10%, 50/60Hz $\pm$ 1Hz AC220V 1Ph
HMI	Option
PLC	ABB/Siemens

## Cable Guide

**01** The cable guide directs and guides the cable towards the spool, so that the cable is safely and orderly wound to the spool. Conductix-Wampfler selects the suitable cable guide based on application and cable parameters to best preserve the cable.

**02** Cable guide can be configured with LOP(Local Operation Panel). 5 buttons included in the LOP are: local/automatic, winding, unwinding, reset, emergency stop. The material of LOP box is SUS316L.

**03** Conductix-Wampfler cable guides range from 350 to 1300mm bending radius. They can be equipped with under- and over-tension sensors.

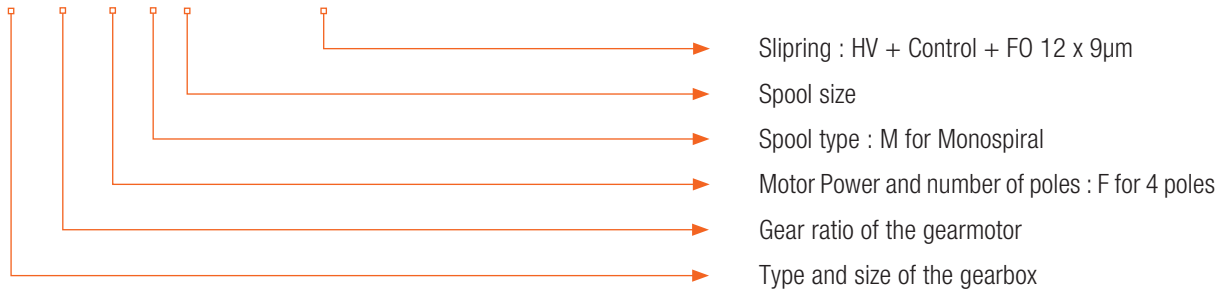




# CHD Type Description

## CHD reference buildup

**CHD20 160 M03F M1847 3TH12+12TC120+TF040.12F009**



# CHD Solution Design

**ReelQuote is our proprietary software to:**

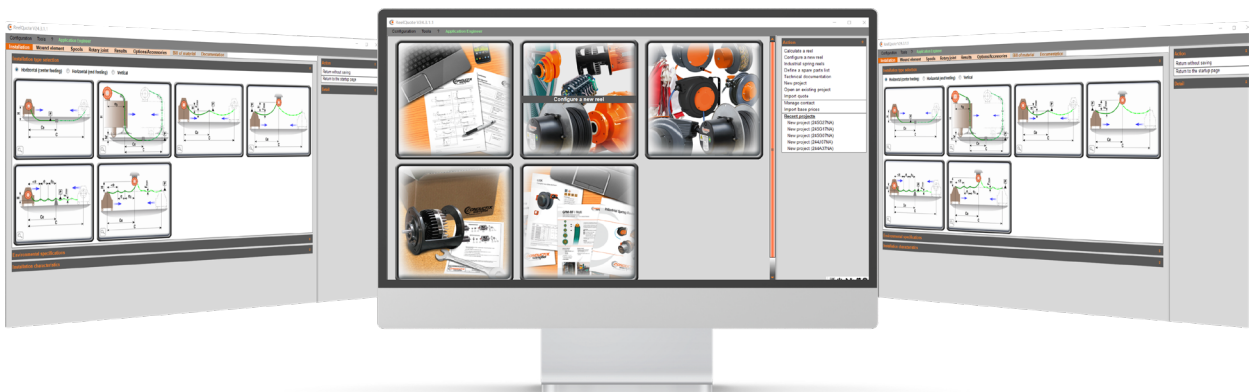
- Define and optimize a reeling system for an application including cable and accessories
- Generate a technical and commercial offer
- Generate project drawings
- Generate an internal order for production in the CoE

Reel Quote contains the characteristics of hundreds of reeling cables

**ReelQuote is continuously improved and expanded :**

- Election rules, models and calculations are updated to prevent the errors that occurred in the past
- New features and options are added
- Field experience is fed back to improve the equations

Each of our reels is delivered with a detailed installation, operation and maintenance manual with details on spool, drive unit.



# On-site Services

Conductix-Wampfler provides customized on-site services based on the wants and needs of our customers. We offer professional services from the preliminary project design to the site commissioning, and provide customers with professional and efficient services based on our company's rich project and site commissioning experience.

Conductix-Wampfler offers on-site commissioning including:

## 1. Mechanical and electrical installation and maintenance


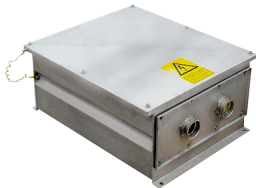
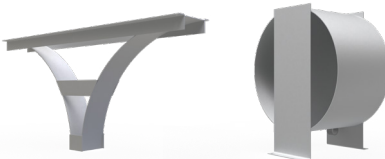

Conductix-Wampfler's teams are trained and experienced: they efficiently install for you complete reeling systems and also spools, drive units, cable guides. They perform the preventive maintenances and the repairs.

## 2. Electrical commissioning

Electrical commissioning mainly includes converter parameters setting, converter program commissioning, cam limit switch setting, PLC program commissioning(option), communication interface commissioning, cable guide commissioning.

# Accessories

We strongly recommend our customers use our proven accessories designed to fit our reeling systems and to preserve the cables.

Item	Function	Pic
Diversion cable guide	Increase the horizontal distance between cable guide and center of spool	
Connection box	Cable switching	
Entries cable device and anchor drum	Fix cable in cable pit	
Roller box	Cable guiding when the installation height is more than 9m.	



# 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.contact](http://www.conductix.contact)**

