

Ensure Your Productivity. Voith CPC Coupling Family for AFC Drives



The Voith family of chain protection couplings (CPC) is specifically designed for use in armored face conveyors (AFC). These fill-controlled couplings are extremely robust and perform reliably under the toughest underground working conditions. They range in power from 525 kW to 1600 kW in nominal operation. To meet underground safety codes and requirements, the couplings use water as a benign, non-flammable operating medium. In addition, Voith CPC couplings meet all relevant mining safety standards, such as Chinese MA certification.

Benefits at a glance

- Reliable continuous operation under the most demanding working conditions
- Higher efficiency by specifically designed XL blade wheel profile
- Can start up as many times in sequence as necessary to break an AFC free
- Extremely safe, powerful and requires little installation space in the drive train (no additional space in the power supply cabinet)
- Uses environmentally benign, non-flammable fluid (water) as the operating medium

Maximum value through highest availability

CPC couplings are designed to limit torque in the drive train to a defined maximum value, protecting the chain and all components against damage. The result is an increase in availability of the armored face conveyor, with greatly reduced maintenance costs.

Thanks to mechanical separation of the input and output sides in hydrodynamic couplings, the motor can start up virtually load-free – no matter how much load is being carried on the chain. During start-up, Voith fluid couplings very gently introduce torque based on pre-set limitations, protecting the motor. The chain is pre-tensioned smoothly until the armored face conveyor starts moving, thus protecting it from excessive strain or damage.

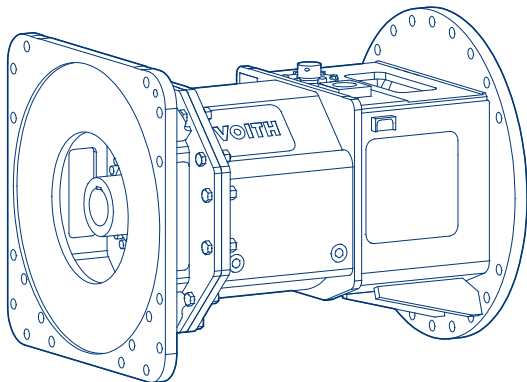
CPC couplings also protect motors against damage by blocked chain. Thanks to the proven principle of hydrodynamics, fill-controlled fluid couplings simply slip free, preventing shock torques and ensuring that AFC drive components and chain are protected.

In multi-motor AFC drives, the couplings allow for sequential start-up of the motors, which reduces demand on the power grid. During nominal operation they provide load sharing avoiding overload on individual motors.

A coupling for every power requirement

CPC 700

The CPC 700 is an innovative and very compact coupling for mid-power and thin-seam armored face conveyor drives. It features the Voith exclusive XL blade wheel profile and a double working circuit for the highest power density. The CPC



CPC 700

700 transmits up to 700 kW and has a low installation height, making it ideally suited for thin-seam coal mining. The CPC 700 features a highly integrated design. The coupling includes a tunnel housing for direct assembly of the gearbox and chain tensioner.

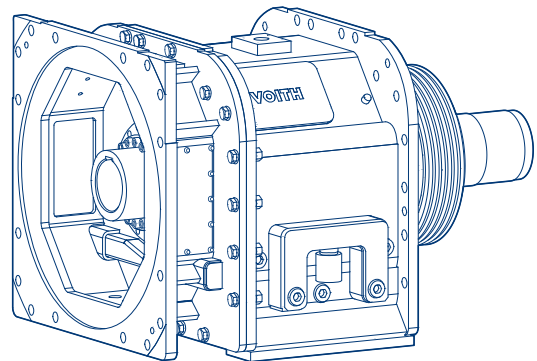
CPC 1000

The CPC 1000 is ideally suited for medium to high-power AFC drives, with a power rating up to 1,000 kW. The coupling is based on the former DTPKWL2 coupling, with some additional features and benefits. Its efficiency has been improved through the use of the XL blade wheel profile, which also results in reduced water consumption. The coupling also features an optimized control system. For the CPC 1000, Voith also offers a metal bellow coupling. This connecting coupling compensates for large misalignments at low restoring forces between coupling housing and bell housing. It has no wear parts and is maintenance-free, resulting in a long service life.

CPC 1200 and 1600

The CPC 1200 and 1600 are particularly well suited for heavy-duty use on armored face conveyors in underground mining. Thanks to Voith's innovative XL wheel profile, these couplings transfer up to 60% more power compared to standard couplings of the same size. Even extremely high coal faces can be mined smoothly and efficiently.

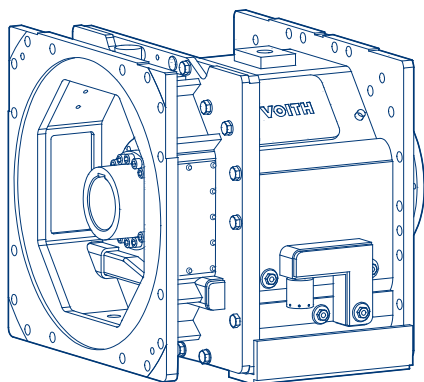
The CPC 1600 is the most powerful fluid coupling for AFC drives, with power transmission up to 1,600 kW. In the event of a sudden blockage caused by falling coal chunks, for example, the CPC 1600 can temporarily transmit up to 4,000 kW in multiple start-up attempts until the conveyor breaks free again. This reduces downtime of the AFC.



CPC 1000

Technical data

Coupling type	CPC 700	CPC 1000	CPC 1200	CPC 1600
Power at 1500 rpm	Up to 700 kW	Up to 1000 kW	Up to 1200 kW	up to 1600 kW
Maximum torque	11 500 Nm	15 500 Nm	18 000 Nm	23 500 Nm
Max. break away torque	Approx. 2.5 of nominal torque	Approx. 2.5 of nominal torque	Approx. 2.5 of nominal torque	Approx. 2.5 of nominal torque
Consecutive start-ups with motor pull-out torque against blocked AFC	Unlimited	Unlimited	Unlimited	Unlimited
Thermal capacity	Unlimited	Unlimited	Unlimited	Unlimited
Standard cooling circuit	ACC	ACC	ACC	ACC
Optional cooling circuit	—	Closed loop	Closed loop	Closed loop
Operating fluid	Water	Water	Water	Water
Connection to motor	Two splitted input hub for easy motor exchange			
Connection to gearbox	Integrated bell housing	Separated bell housing	Separated bell housing	Separated bell housing
Certifications	MA, Atex, MSHA, EAC			

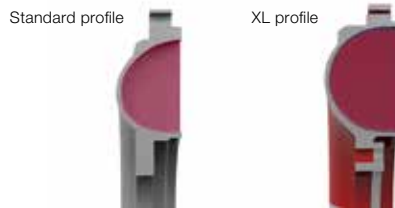


CPC 1200/CPC 1600



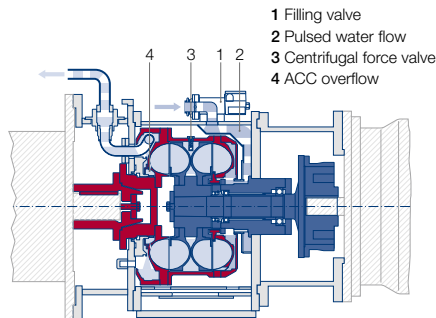
Metal bellow coupling for CPC 1000

XL profile provides highest power density



CPC couplings feature an innovative Voith-designed blade wheel profile called the XL profile, which was developed using the latest Computational Fluid Dynamics (CFD) technology. Drawing on many years of experience and know-how, Voith engineers were able to increase power transmission and efficiency within the same installation footprint.

ACC increases system productivity



All CPC couplings feature an optimized Automatic Cooling Circuit (ACC). ACC ensures that your coupling always has an optimal water level, thus delivering stable, high-power transmission. A light and sturdy valve unit significantly eases coupling control, and the valve design requires very low maintenance — increasing the productivity and cost-effectiveness of your system. ACC is suitable for new couplings as well as for existing units.

Control unit ensures maximum efficiency



To operate the entire system in an optimum way, we also offer control units for our CPC. These enable more efficient operation, reduce water consumption, and ensure minimal downtime. An integrated diagnose function makes service easier and helps to eliminate errors and downtime. We can also provide expert assistance with installation and programming. The control unit is MA certified.

Genuine service improves lifecycle efficiency



For long-lasting, safe operation, we recommend that a standard overhaul of your CPC coupling be done in one of our Voith Service workshops. Our service technicians will perform a factory-certified overhaul of your coupling according to Chinese MA certification standards. We also offer preventative maintenance and system Health Check including vibration measurement, function and performance tests.

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