

## Chains and Sprockets for dams and locks



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## The KettenWulf Group worldwide



### **The company headquarters in Kückelheim**

For over 85 years, KettenWulf, as an expanding global company, has stood for quality, reliability and flexibility. More than 1200 employees develop, produce and market customized solutions in the field of conveying and drive technology at ten locations across Europe, America and Asia. All around the globe, KettenWulf is your strategic partner when it comes to delivering optimal product quality.

Be it the Sauerland, Hangzhou, Atlanta or Pune – as an international company with worldwide operations, our employees are always at your service to meet your unique business needs and to provide you with industry leading technical support.

Trust, loyalty and commitment – these values are what KettenWulf stands for. As a medium-sized, family-run company, cultivating a strong, personalized partnership with both our customers and suppliers is our highest priority.



**Top Right:** Our central European storage and sales facility in Ghent, Belgium

**Middle Right:** Production and sales facility in Ferlach, Austria

**Bottom Right:** The Chinese production and sales facility in Hangzhou

## Galle Chains

In the hydropower industry, Galle Chains are used on the dams to operate the tainter gates or on the water gates to move the gates of the lock-chambers, allowing vessels to pass through.

In the majority of cases custom installation is required for the project. Our customized products are perfectly engineered to satisfy the technical requirements. The high quality of our chains guarantees a long life and a high level of reliability for your installations.

**Illustration 1:**  
Galle Chain with anticorrosion coating, breaking load: 3300 kN



**Illustration 2:**  
Stainless steel Galle Chain with hump link plate and flanged rollers breaking load: 1625 kN



**Illustration 3:**  
Galle Chain with Pear-shaped end-link and hump link plates, breaking load: 1950 kN



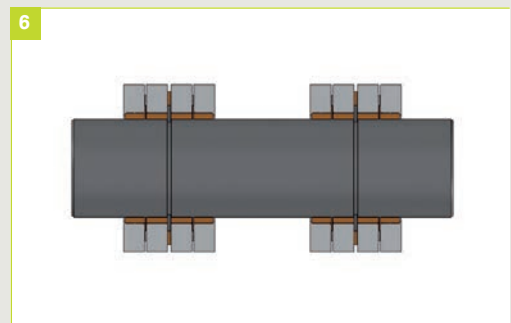
**Illustration 4:**  
Chain with axle fixation system outside of chain-link plate, breaking load: 7400 kN



**Illustration 5:**  
Reinforced chain with wear bushings, breaking load: 1500 kN



**Illustration 6:**  
Chain link plates with wear bushings



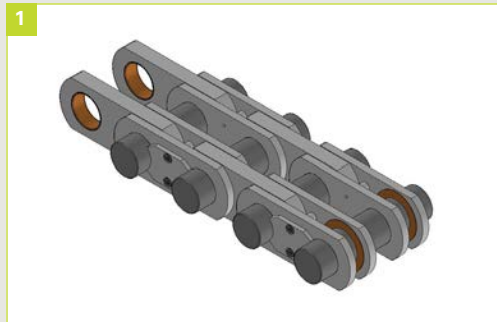
## “Maintenance-free” Galle Chains

Protecting the environment has come to the forefront in the design and modernization of installations. Our customers are increasingly using “maintenance-free” chain technology. KettenWulf is the undisputed leader in this sector and offers two types of chains:

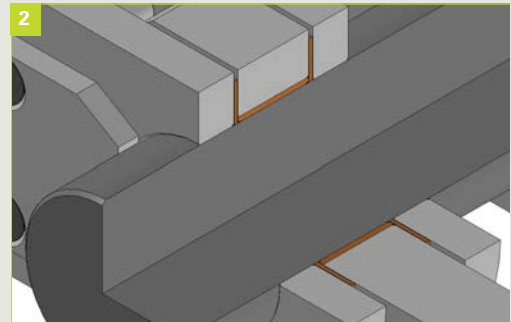
Chains with fixed pins and chains with floating pins. Both are produced from stainless steel and their link plates are fitted with self-lubricating bushings.

These chains do not need to be relubricated and do not require additional maintenance work. Their use allows product service life to be extended and contributes to a reduction of maintenance costs as well as a reduction in pollution caused by lubricants.

**Illustrations 1 + 2:**  
Maintenance-free chain  
with fixed axles

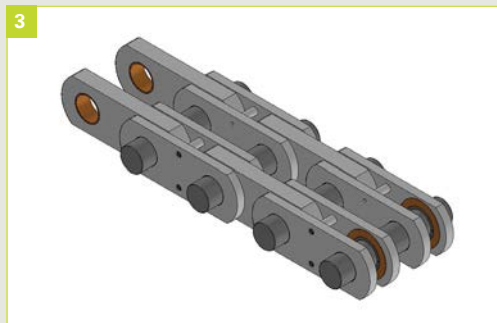


Fixed pin chain technology provides the best price-quality ratio (only the internal chain link plates are equipped with self-lubricating bushings).

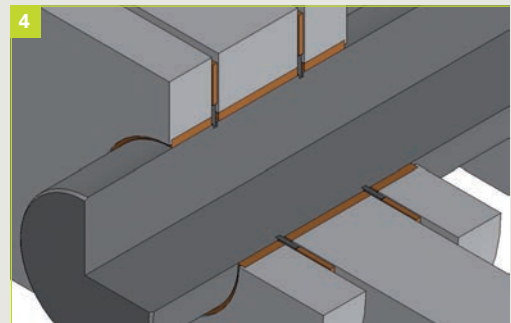


External chain link plates are fixed by means of a security attachment in the axle. Furthermore, the assembly and disassembly of the pins can be done without difficulty.

**Illustrations 3 + 4:**  
Maintenance-free  
chains with floating pin



Floating pin chains are equipped with self-lubricating bushings in all link plates (inner and outer).



Another advantage of this configuration is an optimized engagement of the chain into the sprocket, which prevents premature wear on both components. In general, the chain operates more smoothly since the pivoting only takes place in the maintenance-free bearings instead of the tooth gaps.

## Sprockets, shafts and pinions

Sprockets are the key factor for the smooth operation and long service life of each chain system. Based on this fact, KettenWulf manufactures its own sprockets and shafts with an anticorrosion treatment, and upon request in stainless steel. In order to optimize product service life, we only use high quality materials and state-of-the-art production machinery.

Induction hardening and heat treatment of the gear teeth guarantees a high level of resistance against mechanical wear and thus a maximal service life. We also supply fully assembled shafts and spindles ready to be installed.

**Illustration 1:**  
Sprocket with  
bronze bushing



**Illustration 2:**  
Triplex sprocket



**Illustration 3:**  
Drive sprocket with  
shaft, cut from the solid



**Illustration 4:**  
Sprocket drive shaft



**Illustration 5:**  
Pinion gear



**Illustration 6:**  
Pinion rack for for-  
ging manipulator



## Quality and service

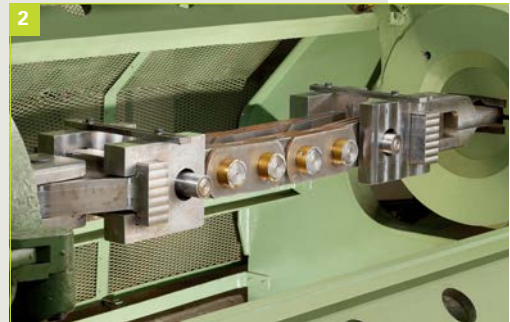
The satisfaction and trust of our customers are the basis of philosophy of the KettenWulf Group. To guarantee constant production of top quality products, KettenWulf has implemented a certified Quality Management System according to the strict directives of standards DIN EN ISO 9001:2008 which are applied in all production management processes. From obtaining raw materials to final inspection, all standards are implemented in order to provide absolutely reliable products.

- » Design conforms to German standard DIN 19704-1
- » Inspection at our premises
- » Verification of clients chain and sprocket drawings
- » Certificates 2.1, 2.2, 3.1 and 3.2 with dimensional checks, hardness values and raw material
- » Charpy toughness test (between -20°C and 20° C)
- » Fatigue strength test of the chain elements

**Illustration 1:**  
Dimensional on site checks



**Illustration 2:**  
Breaking load test up to 3000 kN



**Illustration 3:**  
Lubrication by submerging in a special oil bath



**Illustration 4:**  
Technical on site support during installation



**KettenWulf Betriebs GmbH**  
Zum Hohenstein 15  
D-59889 Eslohe-Kückelheim  
Germany  
T + 49.(0) 2973.801-0  
F + 49.(0) 2973.801-2296  
service@kettenwulf.com

**KettenWulf Betriebs GmbH**  
Export Branch Office  
Am Fallturm 5, Gebäude 2  
D-28359 Bremen  
Germany  
T + 49.(0) 421.696 939 0  
F + 49.(0) 421.696 939 49  
export@kettenwulf.com

**KettenWulf GmbH**  
Division Ferlacher Förderketten  
A-9163 Unterbergen 25  
Austria  
T + 43.(0) 4227.25 27  
F + 43.(0) 4227.35 94  
austria@kettenwulf.com

**KettenWulf NV**  
Division Dyna Chains  
Venecoweg 20A - De Prijckels E17  
B-9810 Nazareth  
Belgium  
T + 32.(0) 9.243 73 73  
F + 32.(0) 9.221 56 03  
belgium@kettenwulf.com

**KettenWulf France SAS**  
10 rue du Château  
59100 Roubaix  
France  
T + 33.(0) 328. 33 28 19  
F + 33.(0) 328. 33 28 16  
france@kettenwulf.com

**Hangzhou Wulf Chain Co. Ltd.**  
40 Tangning Road, Yunhe Town  
Yuhang District  
311102 Hangzhou  
P.R. China  
T + 86.(0) 571.861 899 00  
F + 86.(0) 571.861 899 50  
info@wulfchain.com.cn

**KettenWulf USA, L.P.**  
The Woodlands at Riverside  
8110 Troon Circle SW, Suite 170  
Austell, GA 30168-7852  
USA  
T + 1.678.433 0210  
F + 1.678.433 0215  
usa@kettenwulf.com

**KettenWulf**  
Representative Office Poland  
ul. Ogrodowa 34 B\4  
PL-65-001 Zielona Góra  
Poland  
T + 48.(0) 68.325 43 37  
F + 48.(0) 68.325 43 37  
poland@kettenwulf.com

**KettenWulf**  
Representative Office Japan  
Monoh 4-chome, 14-13  
Minoh-shi  
Osaka 562-0001  
Japan  
T + 81.72.796 24 24  
F + 81.72.722 20 99  
japan@kettenwulf.com

**KettenWulf**  
Indian Liaison Office  
„Shalan“, 377, Sector 24,  
Lokmanya Tilak Road  
Near Bank of Maharashtra,  
Pradhikaran, Nigdi  
Pune-411004  
India  
T/F + 91 20 2765 2302  
M + 91 98 9050 3164  
india@kettenwulf.com

