chains and sprockets

Complete overview
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Kurzprofil KettenWulf Gruppe

Industrielle Anwendungen

KettenWulf Förderketten, Antriebsketten und Kettenräder finden weltweit Anwendung in den unterschiedlichsten Industrien, wie zum Beispiel:

» Fahrtreppenindustrie
» Schüttgüterindustrie
» Automobilindustrie
» Stahlindustrie
» Stahlwasserbauindustrie
» Holzindustrie
» Papierindustrie
» Lebensmittelindustrie
» Verpackungsindustrie

Herkunft und Gegenwart


Expansion weltweit: Heute gehört die KettenWulf Gruppe mit 6 Produktionsstandorten in Europa und Asien zu den europaweit größten und führenden Produzenten von Förderketten, Antriebsketten und Kettenrädern. Über 800 Mitarbeiter entwickeln, produzieren und vertreiben auf rund 40.000 qm individuelle Lösungen im Bereich der Förder- und Antriebstechnik rund um den Globus:

» Deutschland  » USA
» Belgien  » Japan
» Frankreich  » China
» Österreich  » Tschechien
» Polen

Business locations

KettenWulf Werk Kückelheim mit Verwaltung
KettenWulf Werk Sieperting
Wulf Chain USA
Hangzhou Wulf Chain China
KettenWulf export
KettenWulf Division Ferlachers Förderketten Austria
KettenWulf Division Dyna Chains Belgium
Articulated chains are all chains which have a hinge made of pins and link plates at specific intervals — the so-called pitch. The main elements of these chains are link plates and hinge sections. The links of the majority of chains are equipped with bushing and, often, with a roller to improve the articulation and reduce the wear on the hinge. These types of chains are called “bush conveyor chains.”

Articulated chains are manufactured from different qualities of material depending on the area of application. This is done to cope as optimally as possible with the strains and environmental influences such as corrosion, heat, dirt etc. The multitude of application areas for articulated chains has led to different structural shapes. A selection of the most popular types of chains are included in this catalogue. Our main area of manufacturing is special chains, but, of course, we also supply all types of conveyor chains including those with other dimensions. Please send us your request.

Conveyor and transport chains in all designs and dimensions for all applications and industries. Tailor-made chains upon request. Standard chains according to DIN and ISO. Galle chains, draw bench chains, block chains, liftchains and articulated gear racks for locks and weir systems. Pinions, bush chains DIN 8164 and standard, roller chains according DIN 8187.

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**Structural shapes of chains**

Articulated chains are manufactured from different qualities of material depending on the area of application. This is done to cope as optimally as possible with the strains and environmental influences such as corrosion, heat, dirt etc. The multitude of application areas for articulated chains has led to different structural shapes. A selection of the most popular types of chains are included in this catalogue. Our main area of manufacturing is special chains, but, of course, we also supply all types of conveyor chains including those with other dimensions. Please send us your request.

**Excerpt from our delivery program chains**

- **Galle chain**
- **Draw bench chain**
- **Liftchain** for hydraulic steelwork industry
- **Bush chain**
- **Bush conveyor chain** with oil lubrication
- **Bush conveyor chain** with grease lubrication
- **Bush conveyor chain** non-lubricated
- **Bush conveyor chain** non-lubricated, with additional sealing
- **Low maintenance bush conveyor chain** with patented sealing for long intervals between lubrication
- **Bush conveyor chain** non-lubricated, with additional sealing

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- **Liftchain** hydraulic steelwork industry
- **Slepped chain** escalator industry
- **Non-back-bending chain** bulk material industry
- **Bridge type chain** bulk material industry
- **Pendulum conveyor chain** car industry
- **Slat conveyor chain** car industry
- **Slat chain for skid-transport** car industry
- **Block chain** steel industry
- **Slat conveyor chain** steel industry
- **Slepped chain** escalator industry
- **Bridge type chain** bulk material industry
- **Pendulum conveyor chain** car industry
- **Slat conveyor chain** car industry
- **Slat chain for skid-transport** car industry
- **Block chain** steel industry

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**Conveyor and transport chains in all designs and dimensions for all applications and industries. Tailor-made chains upon request. Standard chains according to DIN and ISO. Galle chains, draw bench chains, block chains, liftchains and articulated gear racks for locks and weir systems. Pinions, bush chains DIN 8164 and standard, roller chains according DIN 8187.**

Please send us your request.
### Dimensions of bush conveyor chains acc. to DIN 8165 and DIN 8167

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>DIN 8165</th>
<th>DIN 8167</th>
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<tbody>
<tr>
<td>p</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>b</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>d</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td>d3</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>d1</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>l</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>f</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>t</td>
<td>5</td>
<td>5</td>
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</tbody>
</table>

**Ratings of bush conveyor chains acc. to tables**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>DIN 8165</th>
<th>DIN 8167</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>b</td>
<td>75</td>
<td>75</td>
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<tr>
<td>d</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td>d3</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>d1</td>
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<td>30</td>
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<td>l</td>
<td>20</td>
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<tr>
<td>f</td>
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<td>10</td>
</tr>
<tr>
<td>t</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

**Attachment angles**

- The attachment angles can be executed bent or welded, single side or both sides.

**Notes**

- The dimensions and angles are rounded and depend on which type of chain is used.
Deep link chains acc. to DIN 8165 and DIN 8167

Further dimensions according to customer’s need possible.

Hollow bearing pin chains (hollow pin chains) formerly acc. to DIN 8165 and DIN 8168

Further dimensions according to customer’s need possible.

RATINGS acc. to DIN 8165

RATINGS formerly acc. to DIN 8165

Further dimensions according to customer’s need possible.

RATINGS acc. to DIN 8167

RATINGS acc. to DIN 8168

Further dimensions according to customer’s need possible.
DIN 8165 and DIN 8167 applicable for these types of chains. (see page 8)
Other dimensions are available on request.
The different structural shapes are shown hereafter.
Dimensions B, ME, and RA are at customer’s specification.

- **Type A** (L-form)
  - **Type B** (L-form)
    - Execution of through conveyor chain with welded rakers and mounting holes. Distance and dimensions of mounting holes according customer’s need.
  - **Type C** through conveyor chain with bent and welded scrapers
  - **Type D** (U-form)
    - Through conveyor chain with double bent scrapers
  - **Type E**
    - Through conveyor chain with cranked link plates and bent scrapers
  - **Type F**
    - Double-strand through conveyor chain with bent scrapers
  - **Type G**
    - Double-strand through conveyor chain with welded clip angles, scrapers screwed down with backlash
  - **Type H**
    - Double-strand through conveyor chain with welded angles and screwed down scrapers
  - **Type I**
    - Double-strand through conveyor chain with screwed down scrapers
Calculation of conveyor chains

Calculation of of through conveyor chains

\[ F_u = 1.1 [2 \cdot a \cdot q \cdot \mu_f + l \cdot G_\gamma \cdot \mu_f] \cdot g \] [N]

**peripheral force**; horizontal conveying

\[ F_u = 1.1 [2 \cdot a \cdot q \cdot \cos \alpha \cdot \sin \alpha + l \cdot G_\gamma \cdot \cos \alpha \cdot \sin \alpha] \cdot g \] [N]

**peripheral force**; slope conveyance

\[ G_\gamma = B \cdot h \cdot z \cdot 2 \cdot \gamma \left( \frac{\pi}{180} \right) \text{ or } G_\gamma = \frac{Q}{3.6 \cdot v} \left( \frac{\pi}{180} \right) \]

**Conveyor weight**

**Material correction value** \( \mu_f \): 0.2 sand-steel through; 0.33 stone-steel through; 0.35 grain-steel through

**The greater values relate to horizontal**, the smaller ones to vertical conveyance.

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**LIST OF VALUES**

<table>
<thead>
<tr>
<th>bulk material</th>
<th>density ( \gamma ) [kg/m³]</th>
<th>max. angle slope ( \beta )</th>
<th>wet ( \beta ) ( % )</th>
<th>discharge angle ( \gamma ) ( % )</th>
<th>motion ( \beta ) ( % )</th>
</tr>
</thead>
<tbody>
<tr>
<td>ash and slag</td>
<td>700</td>
<td>18</td>
<td>50</td>
<td>20</td>
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</tr>
<tr>
<td>limestone</td>
<td>750</td>
<td>15 - 20</td>
<td>50</td>
<td>30</td>
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<td>iron glance</td>
<td>3200</td>
<td>18 - 20</td>
<td>40</td>
<td>30</td>
<td></td>
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<tr>
<td>minerals (Cu/Br)</td>
<td>2400</td>
<td>18 - 20</td>
<td>40</td>
<td>30</td>
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<tr>
<td>light minerals</td>
<td>2400</td>
<td>15 - 18</td>
<td>35</td>
<td>20</td>
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<td>coal, barite</td>
<td>640</td>
<td>14</td>
<td>35</td>
<td>20</td>
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<tr>
<td>graphite</td>
<td>2000</td>
<td>15 - 18</td>
<td>35</td>
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<tr>
<td>calculated line</td>
<td>600</td>
<td>15 - 18</td>
<td>35</td>
<td>15</td>
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<tr>
<td>dry lime</td>
<td>1200</td>
<td>15 - 20</td>
<td>35</td>
<td>15</td>
<td></td>
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<tr>
<td>sand</td>
<td>750</td>
<td>12</td>
<td>35</td>
<td>15</td>
<td></td>
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<tr>
<td>gravel</td>
<td>1400</td>
<td>18 - 20</td>
<td>45</td>
<td>30</td>
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<tr>
<td>coke</td>
<td>490</td>
<td>15 - 18</td>
<td>50</td>
<td>30</td>
<td></td>
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<tr>
<td>conveyor coal</td>
<td>630</td>
<td>17 - 30</td>
<td>45</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>sorted coal</td>
<td>950</td>
<td>15</td>
<td>40</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>clay, loam</td>
<td>1600</td>
<td>15 - 20</td>
<td>45</td>
<td>20</td>
<td></td>
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<tr>
<td>floor</td>
<td>610</td>
<td>12 - 15</td>
<td>55</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>marl</td>
<td>2150</td>
<td>15 - 18</td>
<td>45</td>
<td>30</td>
<td></td>
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<tr>
<td>mortar</td>
<td>1750</td>
<td>12 - 15</td>
<td>45</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>concrete, city</td>
<td>235</td>
<td>15 - 17</td>
<td>45</td>
<td>30</td>
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</tr>
<tr>
<td>sand</td>
<td>1850</td>
<td>12 - 15</td>
<td>45</td>
<td>30</td>
<td></td>
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<tr>
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<td>45</td>
<td>0</td>
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<tr>
<td>wheat</td>
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<td>20</td>
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<tr>
<td>cement</td>
<td>1470</td>
<td>10 - 12</td>
<td>50</td>
<td>30</td>
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</tr>
</tbody>
</table>
We supply the corresponding sprockets with all of our chains. The sprockets are milled on CNC machines with standard or tailor-made teeth systems. The shape of the tooth can be optimised and adapted to your individual requirements.

Generally, the sprockets are manufactured with milled teeth outlines. Our heat-treated, high quality sprockets come in a variety of designs and materials and have the additional option of hardened teeth.

Structural shapes of sprockets

<table>
<thead>
<tr>
<th>sprocket standard design</th>
<th>sprocket with patented noise reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>tooth shape conventional design</td>
<td>pinion sprocket</td>
</tr>
<tr>
<td>tooth shape with enlarged groove angle</td>
<td>sprocket with detachable tooth rim</td>
</tr>
<tr>
<td>tooth shape with enlarged gap</td>
<td>sprocket with detachable root segments</td>
</tr>
<tr>
<td>saw tooth shape</td>
<td>pinion sprocket</td>
</tr>
<tr>
<td>groove tooth shape</td>
<td>sprocket for forged link chain</td>
</tr>
</tbody>
</table>

Excerpt from our delivery program sprockets

- Forged sprocket with patented noise reduction
- Pinion sprocket with patented noise reduction
- Driving tooth wheel system
- Pinion shaft
- Split type sprocket for forged link chain
Execution types of sprockets for conveyor chains

sprockets cut from the solid

sprockets in welded execution

sprockets with detachable toothed quadrants and root segments

sprockets with detachable root segments

split type sprocket

sprocket with sheared pin

sprocket with detachable two-piece toothed quadrants

plain deflection sheave with switch opening for wrought clevis strap chains

sprockets and deflection sheaves for wrought clevis strap chain

Quality management

Our quality management is based on the guidelines of DIN/ISO. So we secure the security standard demanded by our customers.

As we only process flawless material, all raw material is carefully checked when it enters the factory. Along with material testing, all prefabricated parts and finished products are subject to on-going quality control. For example, hardness tests are carried out on hardened components.
Applications

**Innovation – progress**

the development of low-maintenance and non-lubricated chain designs

The demand for low-maintenance and non-lubricated chain designs is steadily increasing. Economical and environmental viewpoints are the decisive factors behind the increasing demand. Using low-maintenance and non-lubricated chains results in enormous reduction in costs with regard to maintenance and repair. As no or little relubrication is required, lubrication costs virtually disappear. However, low-maintenance and non-lubricated chains are not suitable for all applications. We have carried out numerous tests to determine which applications are suitable for these type of chains. The aim of these tests was to develop techniques for reducing the wear and tear on the links of conveyor chains without relubricating. We have determined that two basic techniques are possible:

- the application of a coating which reduces wear and tear on the link
- equipping the links with special sliding bearings

low-maintenance chains

We have developed a special patent sealing for use with abrasive or corroding media. The sealing consists of a labyrinth-sealing combined with an abradant sealing. This type of sealing prevents dirt and moisture from penetrating. This is necessary for the lubrication in the chain link to remain intact over a long period of time. The product life of the chain increases considerably when the chain is relubricated less often.

chains not requiring relubrication

Depending on the operating conditions, it is sometimes possible to use chains which do not require any relubrication. This is possible through the use of special, application-specific sliding bearings and/or a special coating on the chain link. In addition to this, link sealing will also be used for some applications.

sprockets with noise dampening systems

The chains running through the sprockets create noises that can be disturbing in a factory or plant. We have developed a special patented noise dampening system to reduce these noises. The dampers cause the sprocket to be fed smoothly into the tooth space rather than thudding against the tooth space. As a result, the noise is reduced to such an extent that it can scarcely be heard amidst the other noises in the factory. Our noise dampening system helps to improve the general working conditions.
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