KORTHAUS

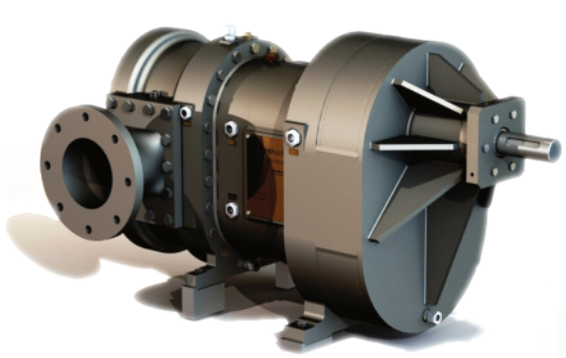
KDPUMPS

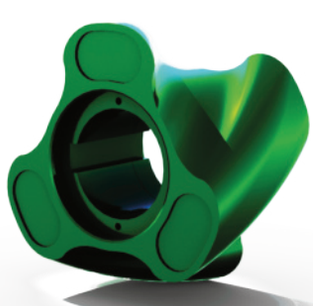
ROTARY LOBE PUMPS

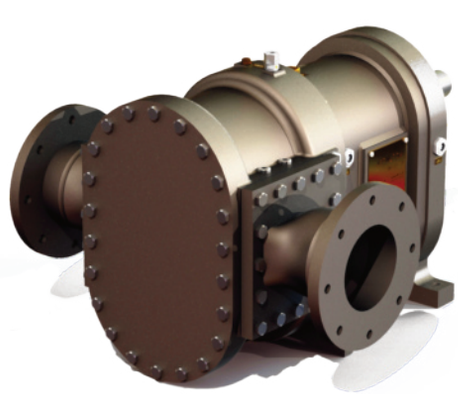
· LOWEST WEAR AND TEAR ·

· PULSATION-FREE FLOW ·

· BEST EFFICIENCY ·







KDPUMPS - INCREASED DELIVERY PRESSURE

Korthaus is a well-known name in the field of chemicals, waste management and the energy sector. Our pumps are field-proved all over the world for decades with lowest wear rates under most difficult conditions. The Korthaus KD Rotary Lobe Pumps follow this tradition and complete the range of Korthaus Pumps.

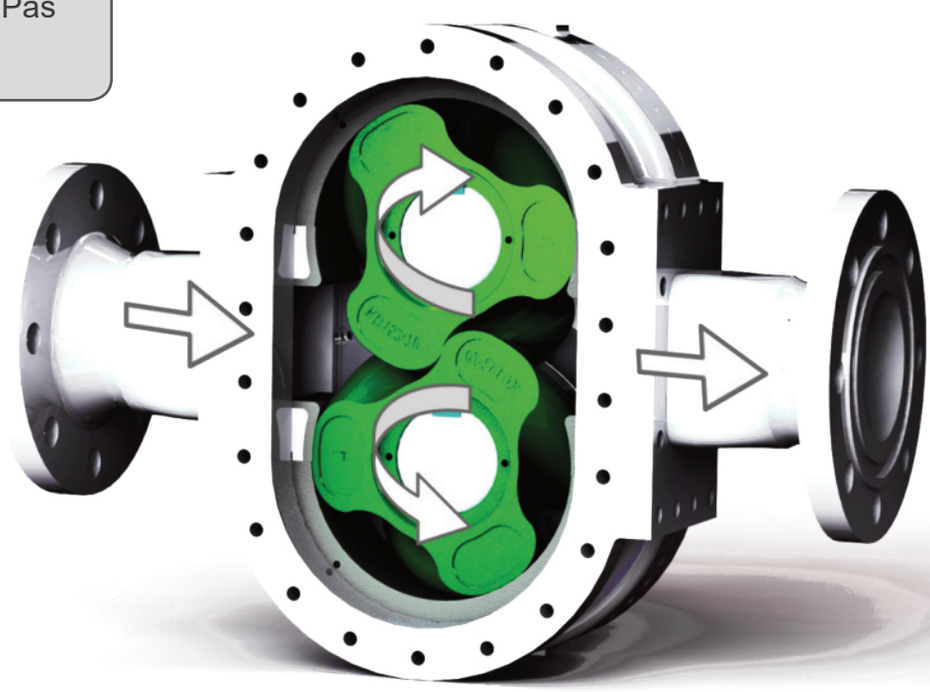
Korthaus KD Pumps are designed for light and heavy duty service in all kind of industries. The heart of the machine is the patented KD.ROTOR with three blades and long sealing lines. The result is a high pressure pump with best efficiency rates.
The pumps are available in a low cost Light-Duty-Line and Heavy-Duty-Line characterized by long life time under extreme conditions. Due to the modular design a Light-Duty Machine can be changed into a Heavy-Duty Machine at any time.

Design Principle of KD.PUMPS

Rotary lobe pumps are self-priming positive displacement pumps without valves. A pair of symmetrical rotors are arranged contact-free in a housing. The contrariwise rotating of the two rotors displaces the fluid from suction to discharge nozzle. The helically twisted rotors are working contact-free against each other and create a constant flow without pulsation.

Capacity of the pump increases proportionally with the speed of the machine. The size of the chambers between blades and housing allows a sensible free grain passage and transports the fluid gently with low shear.

capacity	max. Q = 650 m³/h
delivery pressure	max. p = 24 bar
viscosity	max. η = 10^4 mPas
NPSH	bis unter 1m



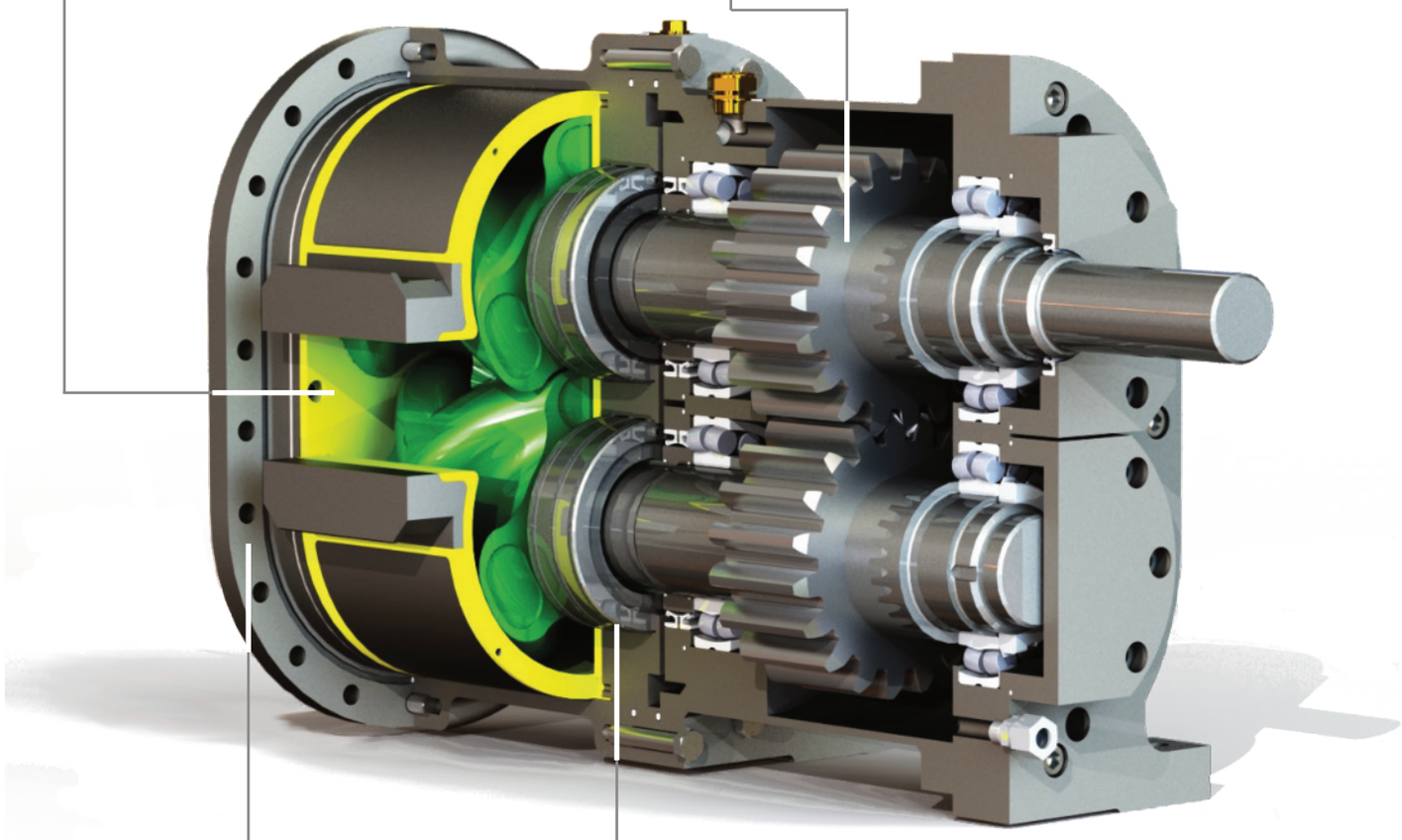
PUMP DESIGN

Working Chamber - Wet End

The patented technology of KD.ROTORS guarantees an exact contact-free operation and allows dry-running periods. The design of the rotors conveys into highest efficiency and pulsation-free flow. Due to our patented KD.PROTECT technology our wear parts exceed between three up to six times in duration of lifetime comparing to conventional designs.

Gear Box

The synchronous gear guarantees the contact-free operation of the two rotors. An overload protector is integrated to prevent damage in case of a crash. The machine-version KD-G adds a reduction gear as a second gear stage. Gear ratio can be changed with any problems later on if necessary due to changing working conditions.



Pump Housing

All wear parts - including rotors, wear parts and sealings - can be changed fast and easily by means of opening of the pump cover. Therefore disconnecting the pump and the pipeline is not necessary.

Sealing

There are several types of sealing available for the working chamber which are designed as a cartridge version Two additional sealings are located between an oil quench and the gear box for perfect protection of the gear box against pollution.

KD.PROTECT - LONGEST LIFETIME. LOWEST WEAR.

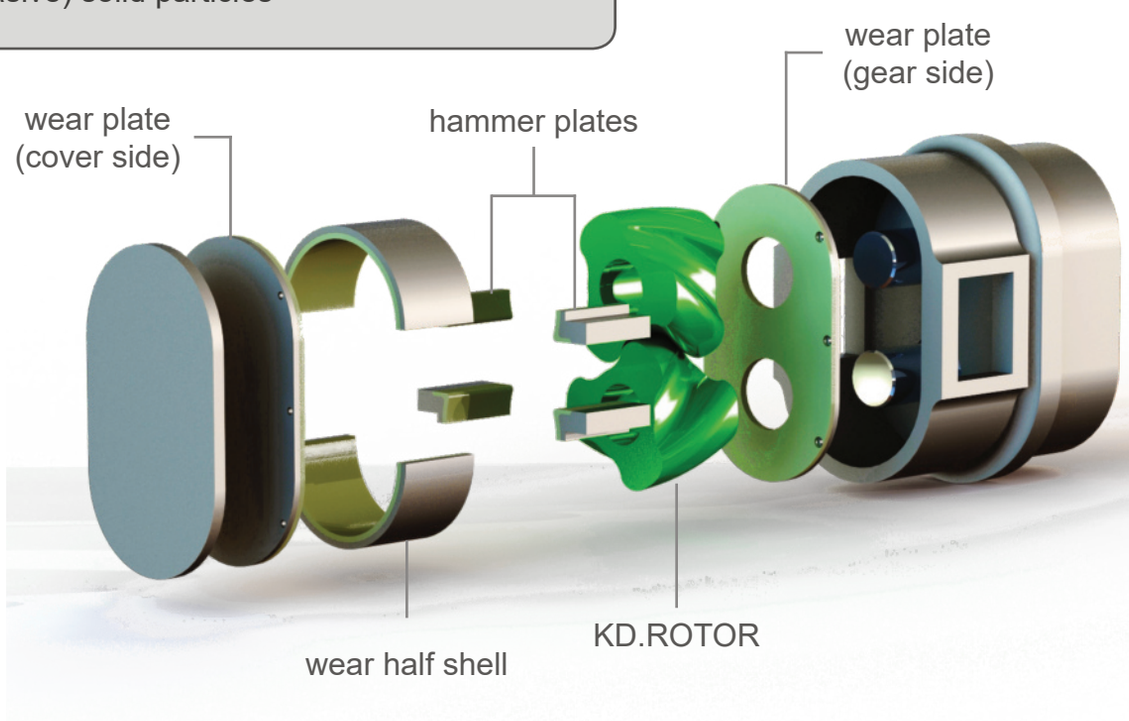
The best Engineering ...

The Korthaus Design sets new standards for rotary lobe pumps. Focusing on descreasing the wear rates and maximizing the lifetime of the pump, Korthaus engineers created the patented design KD.PROTECT by means of using CAD / CAM - systems supported by FEM analysis and self-developed design methods. This results into hardened steel rotors running in rubber armored wear plates.
KD.PROTECT is used for HeavyDuty operation and **increases the lifetime of wear parts up to 3-6 times** in comparision the Light Duty Line.

... results in Maximized Reliability

When using KD.PROTECT-Technology, already the inlet of the pumping chamber is protected by **hammer steel plates**.
Therefore oversized grains can be broken and could avoid a possible blockade / crash of the pump. The working chamber is surrounded by thick walled **rubber plated wear plates** and half shells. The flexible rubber tolerates e.g. grains of sand and reduces the wear of the steel rotor. The **massive steel rotors** are made of high strength steel with overall hardening or double hardening if needed. This results in a maximized lifetime even under the most critical conditions.

- increasing the lifetime 3 up to 6 times
- wide range of various material combinations available
- wide range of rubber types available
- low wear costs due to increased lifetime of wear parts
- maintenance without dismantling of pipeline and pump
- especially suitable for slurries and sludges with high loads of (abrasive) solid particles



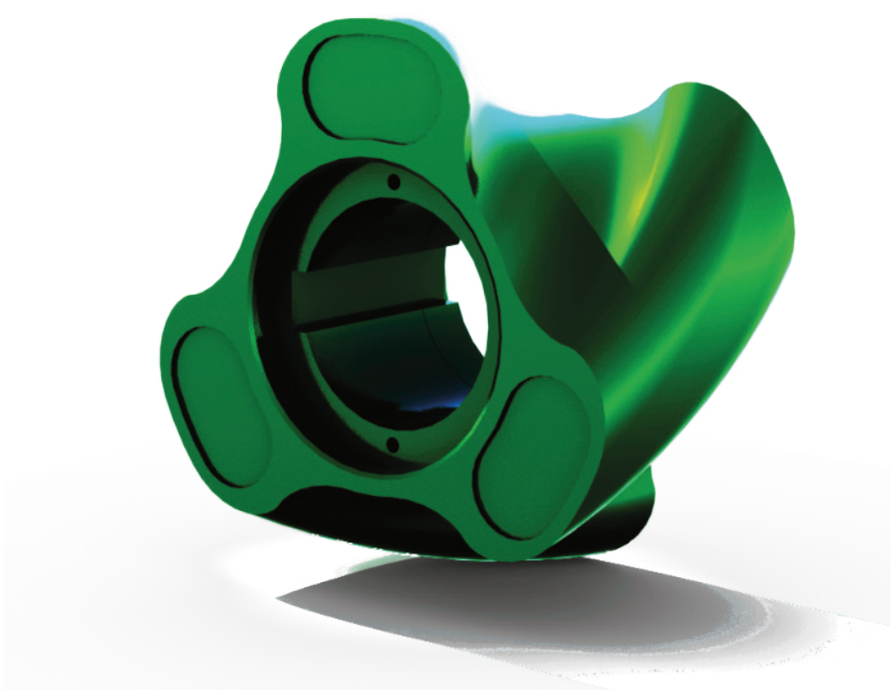
KD.ROTOR - MAXIMIZED EFFICIENCY

Sophisticated Elegance...

The patented core technology of the Korthaus Rotary Lobe Pump is named KD.ROTOR. Its stylish shape with helically twist and long sealing lines compliments the armor of KD.PROTECT. Our rotors are engineered with highest accurances for maximized efficiency and therefore an increased lifetime and reduced energy cost.

... in Engineering Quality

The development of the optimized shape demands for the mathematical algorithms and the methods of CAD-based shape modelling. Its challenging production requires the most modern CNC machine tools and allows an exactness of the shape of less than 0,05mm. The optimized shape and exactness of production results in maximized efficiency up to 30 percent and pulsation-free flow.



- lowest wear and tear due to rotor shape
- long sealing lines of rotor increase effiency of the pump up to 30 percent
- pulstion-free flow - no output pulsation
- avoids cavitation at lowest NPSH
- self-priming
- suitable for dry running
- capacity porportioal to speed of pump

Light Duty - Line

The rotors are armored with several different rubber qualities. The wear parts of the housing are made of steel.

Heavy Duty - Line

KD.PROTECT based, massive steel rotors are used with overall hardening or double hardening. These rotors are working in rubber armored wear plates and half shells combined with protecting hammer plates.

KD.SEAL - MAXIMIZED PROTECTION

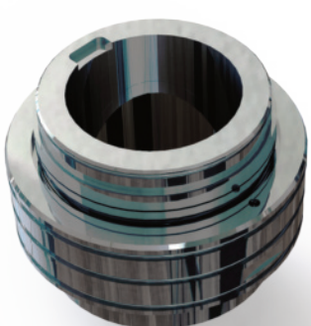
Sealings designed by Korthaus ...

The sealing systems of the pump have to avoid strong leakage of the pumping media and have to protect the gear box against pollution. For a short time of dry running it needs lubrication of the sealing in order to avoid damages of valuable sealing. A damaged sealing is followed by break down of the pump. The KD Sealing System designed by Korthaus engineers is a system of several different sealing types to achieve the utmost realiability of Korthaus pumps.
All sealing types are designed as a cartridge type fitting into the standard KD sealing housing dimension. Changing of the sealing type is always possible at any time. Changing can be done in a standard maintenance procedure by the owner or Korthaus Service.

... protect Pump and Environment

KD.SEAL means that the housing dimensions of several sealing types are standarized. Different seal types can be realized with flush or greade connections and a barrier fluid connection or quensh type. The sealing type of the pump can be changed later on if the pumping application changes.
Between the mechanical seal and gear box a pressureless quench box is arranged. It lubricates the sealing under every condition. Between quench box and gear box there are two additional shaft sealings arranged together with two oil eyes in order to check the status of the seals. Additionally to our extremely well portected sealing we developed the SEPERATOR which keeps long fibrees away from the main sealing.

- changing of sealing time possible at any time
- cartridge-design for easy assembling
- SEPERATOR: protection of sealing against fibres
- pressureless quench box as part of standard design
- two additional shaft sealings with status checking to prootect the gear box



Types of Sealings

- ***Unbalanced single mechanical seal***
  Running Gear Seal-Technology with Seperator and grease lubrication.
  material: Tungsten carbide / silicon carbid
- ***Patented radially working self-adjusting packing seal***
  material: aramid / hard chrome lubricated by oil / grease
- ***Balanced single mechanical seal***
  protected by our patented Seperator when needed
  material: tungsten carbide / silicon carbide
- ***Balanced double mechanical seal***
  Back-to-Back arrangement with barrier system
  material: tungsten carbide / silicon carbide

KD PUMPS - DESIGN VERSIONS

The two design versions of the Korthaus KD Rotary Lobe Pumps are called LightDuty-Line and HeavyDuty-Line. Both versions are using the same outline dimensions. Therefore all components of one version are interchangable with components of the other version and can be mixed without any additional effort.

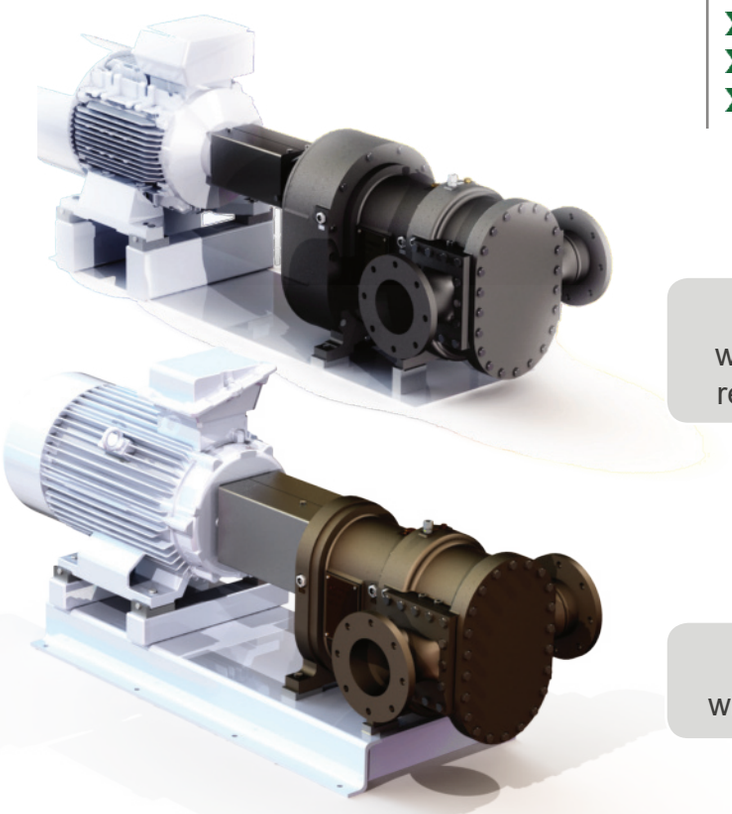
KD Pumps can be directly driven by a motor. The version is called **KD -D**. Alternatively a KD pump is available with an integrated reduction gear stage. The reduction gear stage reduces the motor speed to the lower operating pump speed. The version is called **KD-G**.
Both versions can use an electric motor (frequency changer possible), a hydraulic motor, Diesel engine etc. Atex protection on request.

Light Duty - Line

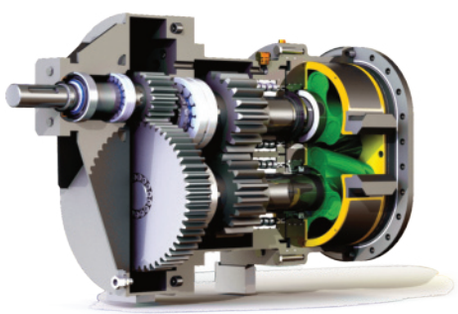
- KD.ROTORs armored with rubber NBR, SBR, FKM, EPDM or PU
- wear plates made of hardened steel
- unbalanced single mechanical seal, type Running Gear Seal
- integrated reduction gear stage (version KD-G)
- integrated overload protection
- LightDuty-bearing up to 16 bar
- massive high-pressure steel housing

Heavy Duty - Line

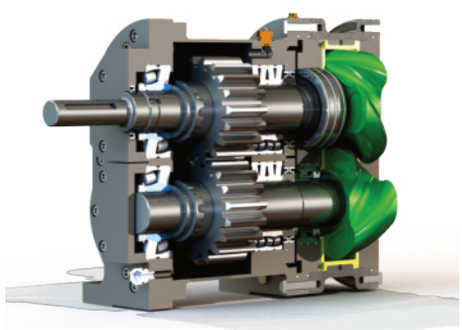
- KD.PROTECT-version: KD.ROTORs made of high strength steel with overall hardening and double hardening in critical areas, rubber armored wear parts made of: NBR, PU, SBR, FKM oder EPDM
- alternatively: housing made of stainless steel
- hammer plates made of hardended steel
- cartridge-mechanical seal (single or double)
- integrated reduction gear stage (version KD-G)
- integratted overload protection
- HeavyDuty-bearing up to 24 bar
- massive high-pressure steel housing



KD - G
with integrated reduction gear



KD -D
with direct drive



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