Production Portfolio Pumps:

Pumps with Magnet Drive

- Twin Screw Pumps, SLM LN
- Centrifugal Pumps according to DIN EN ISO 2858, SLM NV
- Centrifugal Pumps according to ANSI B73.3, SLM AVO
- Centrifugal Pumps for Refinery and Petrochemical Applications according to API 685, SLM AVP
- Centrifugal Pumps for High Pressure Applications, SLM SV / SLM GV
- Centrifugal Pumps for High Temperature Applications, SLM NHO
- Centrifugal Pumps for Liquids Containing Solids, SLM NV
- Self-Priming Centrifugal Pumps, SLM SV
- Multistage Centrifugal Pumps, Tension-Rod or Barrel-Type Design, SLM GV
- Submerged Centrifugal Pumps, SLM NVT
- Double-Suction Centrifugal Pumps, SLM ZV

Pumps with Shaft Sealing

- Twin Screw Pumps, DSP / DSPN / SSP
- Centrifugal Pumps according to DIN EN ISO 2858, NOV
- Multistage Centrifugal Pumps, Tension-Rod or Barrel-Type Design, GOS / GOVT
- Horizontal and Vertical Propeller Pumps, P
- Bottom-Flange Propeller Pumps, UP
- Submerged Centrifugal Pumps, TP NO
- Double Suction Centrifugal Pumps, NZ

Production Portfolio Valves:

- Valves, T-Pattern
- Valves, Y-Pattern
- Gate Valves, Isomorphous Construction Series
- Gate Valves, Wedge or Wedge Plates
- Relief Valves
- Check Valves
- Sight Glasses
- Strainers
- Filters
- Bottom Valves

KU_DSP_E_07/13_0001

TWIN SCREW PUMPS SERIES DSP/DSPN

Klaus Union GmbH & Co. KG

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44795 Bochum
Germany

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Fax +49 234 45 95 - 7000

E-Mail info@klaus-union.de
Internet www.klaus-union.de

Klaus Union Quality and Application

Klaus Union Twin Screw Pumps

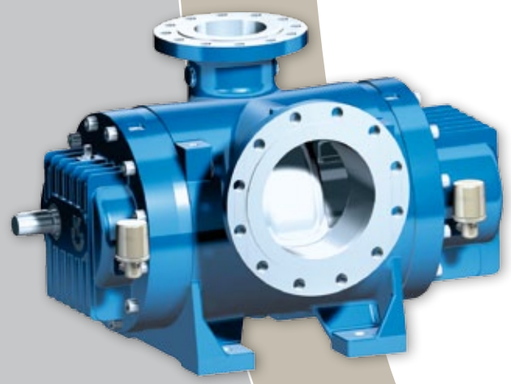
Klaus Union Twin Screw Pumps series DSP/DSPN are double volute, self-priming positive displacement pumps for low, medium and high pressure duty, suitable for transport of abrasive/non abrasive, corrosive/non corrosive, lubricating/non lubricating, high or low viscous fluids.

Selfpriming Screw Pump with two screws in double volute and hydraulically balanced design. The drive torque is transmitted from the double helix drive screw to the likewise double helix idler screw via herringbone gears.

The screws rotate closely meshing but without contact in the spindle bore of the interchangeable pump casing insert. As a result of the special profile geometry, sealed cavities are formed, which transport the pumped liquid continuously with low shear and without turbulences from both suction chambers axially to the discharge chamber.

For optimum strength and low shaft deflection both, drive screw and idler screw are manufactured from single piece bar stock.

The patented shape of the Klaus Union spindle profile requires 10 to 20 % less power consumption compared to standard geometries of comparable pump designs.



Quality Assurance

A major component of the Klaus Union ethos is to ensure highest product qualities. Existing quality assurance procedures with Klaus Union suppliers are constantly monitored from order placement, goods receipt to final assembly. This quality assurance system, developed on latest technologies, complies with the requirements of international regulations. Klaus Union is a DIN EN ISO 9001 certified Company.

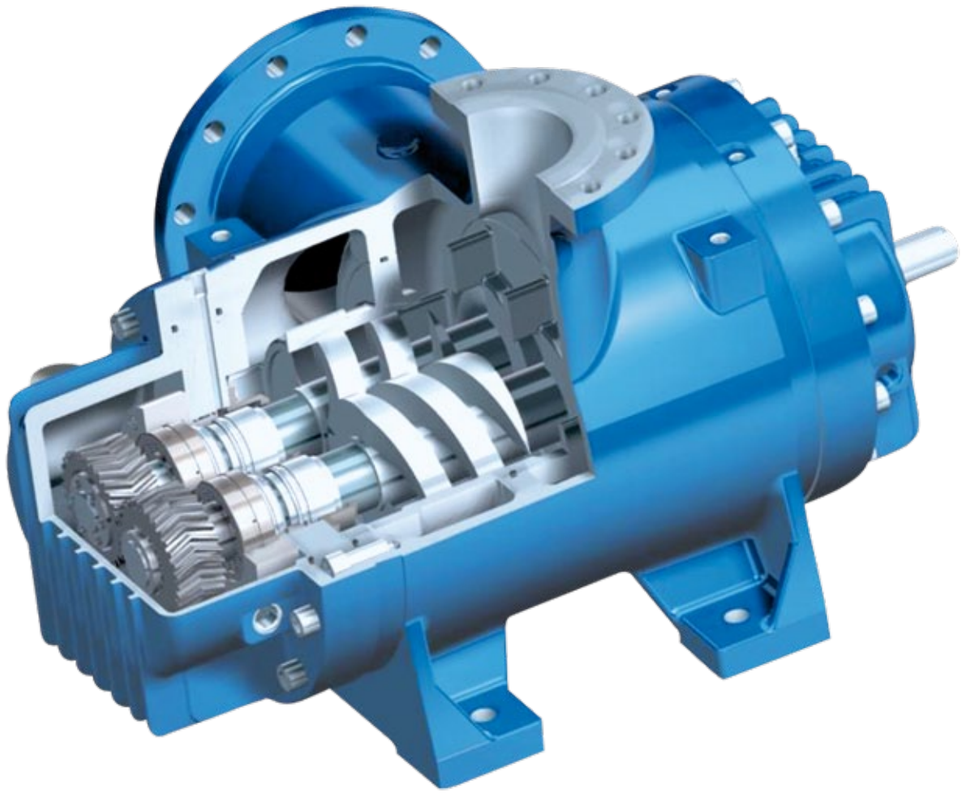
Twin Screw Pumps by Klaus Union are used in

- Oil & gas
- Tank storage
- Chemical and petrochemical industry
- Power generation and fuel oil systems
- Shipbuilding

Twin Screw Pumps by Klaus Union are used for

- Crude oil and finished-products
- Low and high viscous products
- Clean or abrasive products
- Neutral or corrossive chemicals
- Fuel oil
- Lubricating oil
- Tar
- Bitumen
- Asphalt
- Fats
- Resins
- Residues

Klaus Union Twin Screw Pump Design



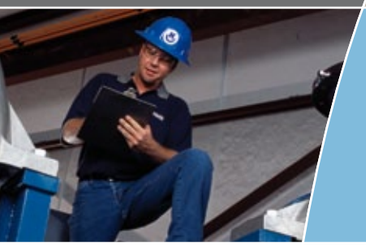
General Design
Selfpriming Screw Pump with two screws in double volute and hydraulically balanced design. The drive torque is transmitted from the double helix drive screw to the likewise double helix idler screw via herringbone gears.
The screws rotate closely meshing but without contact in the spindle bore of the interchangeable pump casing insert. As a result of the special profile geometry sealed cavities are formed which transport the pumped liquid continuously with low shear and without turbulences from both suction chambers axially to the discharge chamber.
For optimum strength and low shaft deflection both drive screw and idler screw are manufactured from single piece bar stock. Patented Klaus Union spindle profile requires 10 to 20% less power consumption compared to standard geometries.

Bearing
Drive screw and idler screw are carried in spherical roller bearings or tapered roller bearings located outside the pumping chamber on drive end and gear side. The bearings are not in contact with the pumped liquid and hence, the pumps are suitable to handle non-lubricating and corrossive products.
A bearing option with an intermediate lantern and bearing cooling is available for high temperature applications.
All bearings are oil lubricated.

Shaft Seals
Drive screw and idler screw are sealed by unbalanced or balanced, single or double acting, maintenance-free mechanical seals in acc. with DIN 24960 on drive side and gear side. Seal manufacturer, materials and design are selected to match the actual operating conditions.

Shaft Coupling – Coupling Guard
Shaft couplings in accordance with DIN 740 and coupling guards are supplied as accessories. As a standard, torsionally flexible three-piece couplings with an elastic spider are used. Different coupling types, e.g. all metal couplings can be delivered as an option. Upon request couplings and coupling guards in accordance with API and ATEX requirements are available.

Installation/Drive
Klaus Union Twin Screw Pumps Series DSP/DSPN are mounted horizontally on common baseplates. They are connected via flexible spacer type couplings or clutches to electric motors, hydraulic motors or combustion engines.
Upon request, the pump units can be supplied with geared motors, mechanical variable speed gears or fluid couplings.



Klaus Union Performance Technology – Worldwide

Performance Data

Flow Rate	max. 5.000 m³/h (22,000 GPM)
Differential Pressure	max. 100 bar (1,450 psi)
Viscosity	max. 100,000 cSt
Temperature	max. 350°C (662°F)

Higher flow rates upon request.

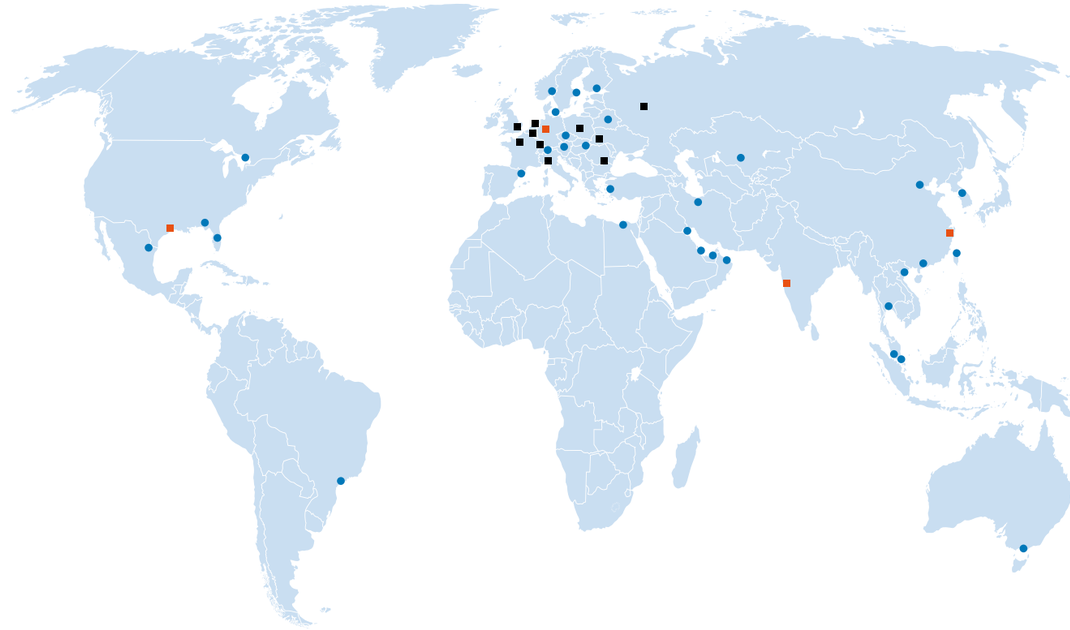
Design Materials

Pump Casing	Carbon steel or stainless steel
Casing Insert	Cast carbon steel or cast stainless steel
Drive and Idler Screws	Single piece bar stock carbon steel or stainless steel
Casing Cover	Carbon steel or stainless steel
Casing Seals	NBR or FPM
Shaft Seals	Selection depending on the individual operating conditions

Upon request, Klaus Union Screw Pumps, Series DSP can be offered in special design materials matching the particular application.

User Advantages

- Twin screw rotors (screws and shafts) made of a single piece of bar stock
- Maximum allowable rotor deflection limited to a minimum of the radial clearance between liner and rotor under max. oparating conditions
- Rotors manufactured in patented energy efficient design
- Rotors manufactured in low-pulsation-design
- Rotors manufactured in low-NPSHR-design
- Gear designs with helical gear teeth
- Interchangeable liner (DSP)
- Seal design with integrated flushing plans available
- Integrated lubrication and cooling systems for gears and bearings available



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