SINGLE VOLUTE
TWIN SCREW PUMP SLM DSP-2C
SEALLESS WITH MAGNET DRIVE, ACC. TO API 676
The leak-free pumps are particularly suitable for pumping toxic, aggressive, flammable and other environmentally hazardous liquids in:

- Refineries
- On-Offshore plants
- Petrochemical Industry
- Chemical Industry

The Klaus Union pump series SLM DSP-2C can be supplied with its own bearing bracket with grease or oil lubricated bearings, or in close coupled design. In case of grease lubricated bearings lifetime greased bearings are the standard, however regreaseable executions are available on request.

The optional available pressure limiting valve (PLV), using Klaus Union valve product line proven design and internals, can protect the pump hydraulic against overpressure and is executed with return to suction as a standard. If requested, the pump casing can be equipped with a connection to directly mount a standard API 520/526 grade safety valve.

The axial split modular casing design allows the pump to be adapted to the customers’ needs without limiting spare parts interchangeability between pumps. This keeps the spare parts and life cycle costs for the twin screw pumps to a minimum.

Of course the pumps also feature the famous “PLUG & PUMP” Cartridge Design to minimize service downtimes.

The construction without shaft seal but with magnet drive guarantees that the pump is leak free, in accordance with the TA-Luft specification (German Technical Instruction on Air Quality Control), and maintenance-free in operation, compared to the version with mechanical seal.

Utilizing the well known maintenance free Klaus Union magnetic drive system, the SLM DSP-2C provides a robust and trouble free solution for the customers’ needs.

The Klaus Union pump series SLM DSP-2C is a single volute twin screw pump, engineered acc. to API 676, latest edition. It uses the same field proven, robust and highly flexible Klaus Union modular system of magnetic drives as the Klaus Union centrifugal pumps. This allows for full spare parts interchangeability between the magnetic drive systems for Klaus Union Centrifugal Pumps and Twin Screw Pumps.

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**Design Details SLM DSP-2C**

- **Pump Screws**
  - Located side by side (horizontally), machined from a single piece bar stock, low pulsating design with optimized screw profile for minimized power consumption.

- **Adaptable Suction/Discharge Casing**
  - To fit project requirements for nominal diameter, rating and execution. Engineered for smooth flow.

- **Radial Slide Bearings**
  - Optimized to meet customer application needs for maximum overall pump lifetime.

- **Flat Gasket**
  - Compliant with technical instructions on air quality control (TA-Luft).

- **Large Diameter Balancing Lines**
  - To prevent clogging due to solids or polymerizing fluids.

- **Intermediate Lantern**
  - With magnet drive rub ring and assembly / disassembly guidance.

- **Magnetic Coupling**
  - Parts interchangeable with centrifugal pump magnetic couplings.
  - Available in API 685 compliant design on request.

- **Bearing Carrier**
  - With high performance bearings following API 676 3rd Edition recommendations.
  - Bearings available oil or grease lubricated (lifetime greased or regreaseable).

- **Single Containment Shell**
  - With leakage monitoring and drain (secondary control/system) on request.
  - Optional: Double containment shell with pressure monitoring (secondary containment system).

- **Inner Magnet Carrier**
  - With additional mechanical rub ring.

- **Centerline Mounting**
  - As a standard. High shaft stability, even during change of operating temperature.
  - Fast adaptable to customer requirements. Close coupled design possible with same casing.
Hydraulically Balanced Design

Large diameter balancing lines ensure the hydraulic balancing of the pump during all operating conditions. For crystallizing products the balancing lines can be supported by additional external balancing lines to avoid clogging and consequential damage to the pump and magnetic coupling. Ports for verifying proper operation of the balancing systems by means of suitable instruments are available on request.

Slide Bearings

Radial slide bearings, utilizing proven designs and experiences gained in our heavy duty, high load centrifugal pump slide bearings, carry the rotors inside the pumped fluid and are lubricated by the pumped fluid.

Close Coupled Design

The SLM DSP-2C is also available in a close coupled version (SLM DSP-2CB). The Closed Coupled Design offers significant cost savings because of the following advantages:

- No alignment between pump and motor required
- No coupling and coupling guard
- No ball bearings
- Pump completely free of scheduled maintenance
- No oil lubrication necessary
- Lower noise level
- Base plates for close coupled design do not need to be rigid acc. to API 676 - 7.3

Magnet Drive as per API 685 - 9.1.3./6.1.9

The magnet drive is configured concentrically and transmits torque without slip via the field of the permanent magnets. The thermally stable samarium-cobalt material (Sm2Co17) withstands operating temperatures of up to 400 °C.

A pressurised flush flow is taken off at a high pressure location in the hydraulic system and fed to the magnet drive, where it provides for the necessary heat dissipation. The pressurised flush flow ensures that the temperature rise in the containment shell area does not lead to evaporation of the pumped liquid (see Fig. 2).
Single Containment Shell with Drain at the Intermediate Lantern (Fig. 3.)

The standard version of the SLM DSP-2C pump is equipped with a single containment shell. The intermediate lantern is equipped with a labyrinth system to the atmosphere and a drain connection (D1). A pressure gauge or a liquid sensor can be utilized as a leakage monitor. The labyrinth seal upstream of the anti-friction bearings serves as a throttling point in the event of containment shell damage leading to product escaping into the intermediate lantern. The pressure rise or the presence of liquid is detected by the monitoring system.

Optional Packages
- Special / customized baseplates
- Various heating options adapted to customer and application requirements
- Flushing connections
- High Pressure Design for increased inlet pressure systems (up to 400 bar)
- Instruments to verify proper operation of pump and early failure detection
- Mag Drive Systems optimized for highest viscosities
- High Efficiency magnetic coupling systems optimized to customer operating needs

Secondary Containment System as per API 685 - 3.66 (PE + TE3)
- Double containment shell
- Monitoring device on containment shell manifold, pressure sensor (PE)
- Flushing of contaminated isolation shell after breach of the inner shell can be accomplished by introducing flush liquid into the manifold. The flush liquid will decontaminate the cavity between both shells and exit thru the breached inner shell into the process area
- Drain hole in intermediate lantern plugged (welded or threaded)
- TPX Temperature monitoring system (TE3)
- Alternatives available on request

Secondary Control as per API 685 - 3.67 (JE + LE1 + D2)
- Single containment shell
- Pump power monitoring (JE)
- Liquid detection in vertical section of the discharge piping system (LE1)
- Secondary, welded drain connection on intermediate lantern with flange/blinded backup bearing seal on drive shaft (D2)

Secondary Control System as per API 685 - 3.68 with Liquid Sensor (LE2)
- Welded drain connection on intermediate lantern with flange/blinded
- 3-way adapter on drain connection
- Backup seal on drive shaft
- Monitoring device, liquid detector (LE2)

Secondary Control System as per API 685 - 3.68 with Pressure Sensor (PE)
- Welded drain connection on intermediate lantern with flange/blinded
- 3-way adapter on drain connection
- Backup seal on drive shaft
- Monitoring device, pressure transmitter (PE)

Basic Monitoring (TE3 + JE)
- TPX Temperature monitoring system (TE3)
- Load controller (JE)
Product Range Pumps:

Pumps with Magnet Drive

- Centrifugal Pumps acc. to DIN EN ISO 2858 & DIN EN ISO 15783, SLM NV
- Centrifugal Pumps acc. to ANSI B73.3, SLM AVO
- Centrifugal Pumps for Petrochemical Applications acc. to API 685, SLM AVP / SLM APC
- 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 OT
- 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 2V
- Twin Screw Pumps acc. API 676, SLM DSP-2C

Pumps with Shaft Sealing

- Centrifugal Pumps acc. to DIN EN ISO 2858 & DIN EN ISO 5199, NOV
- Multistage Centrifugal Pumps, Tension-Rod or Barrel-Type Design, GOV / GOVT
- Horizontal and Vertical Propeller Pumps, P
- Bottom-Flange Propeller Pumps, UP
- Submerged Centrifugal Pumps, TP NO
- Double Suction Centrifugal Pumps, NZ
- Twin Screw Pumps acc. API 676, DSP-2C / DSP-4C

Product Range Valves:

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

Klaus Union Service Performance:

- Workshop / On-Site Repairs
- Genuine Spare Part Delivery Worldwide
- Spare Parts Storage
- Customized Spare Parts Management
- On-Site Maintenance
- Installation
- Retrofitting
- On-Site Testing / Monitoring
- Customer Advisory Service
- Start Up & Commissioning
- Individual 24 / 7-Service
- Trouble-Shooting
- In-House & On-Site Training
- On-Site Assembly and Disassembly
- Long-Term Maintenance Contracts
- Maintenance Planning and Consulting
- Diagnostics

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