SULZER

Sulzer Pumps

MPP High Performance Multiphase Pump

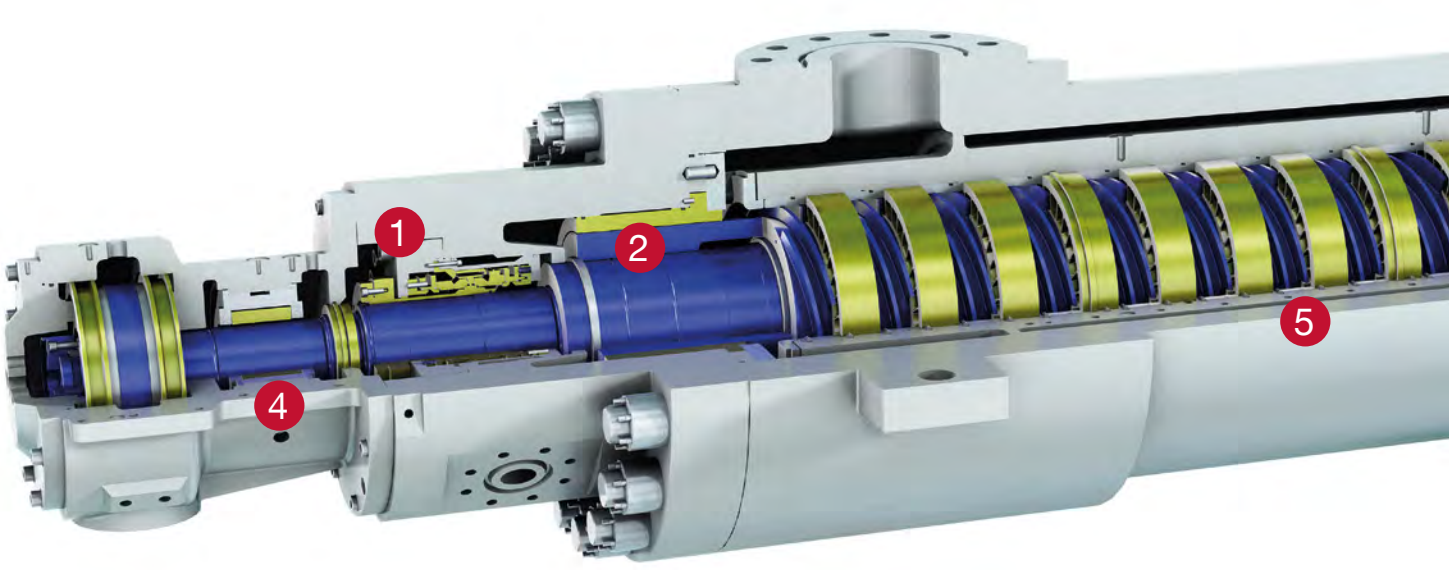
The Heart of Your Process

Main Applications

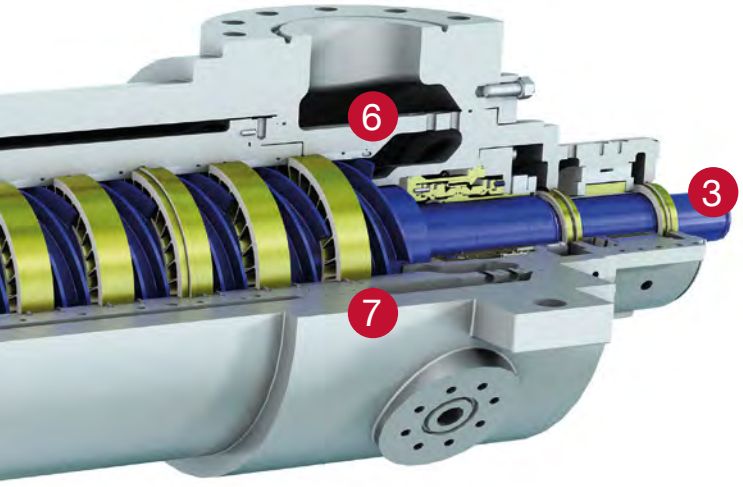
Sulzer multiphase pumps (MPP) are used to pressure boost oil well effluent without upstream separation. As such, they are able to withstand a wide and variable range of process conditions such as:

- variable oil flows
- changing water cut
- variable gas void fractions, fluid pressures and temperatures

They are deployed onshore, offshore, and subsea, in a variety of environments and climates.



Features and Benefits



1 Heavy duty pressurized double mechanical seals
- Ensures reliable operation whatever the GVF being pumped

2 Decades of balance drum experience
- Allows the pump to make high dP with reasonable thrust bearing loads

3 Tapered shaft end
- Fast coupling removal for ease of mechanical seal maintenance

4 Anti-friction or hydrodynamic bearings
- Anti friction bearings up to 3,600 rpm
- Hydrodynamic bearings > 3,600 rpm

5 Axial split inner casing and split diffuser
- Simplifies maintenance and ensures excellent rotordynamic behavior (no need to disassemble rotor after balancing)

6 Helico-axial hydraulic
- Allows high gas volumes to be pumped, sand tolerant design due to large clearances and abrasion resistant material/coatings

7 Full cartridge pull-out with bolted cover closure
- Reduces downtime and assures pressure tightness

Materials

Material classes	Material
API	Since Sulzer multiphase pumps are used to pressure boost well effluent without separation, Super Duplex SS with Sulzer Metco SUME abrasion resistant coatings are often supplied. Other materials available upon request

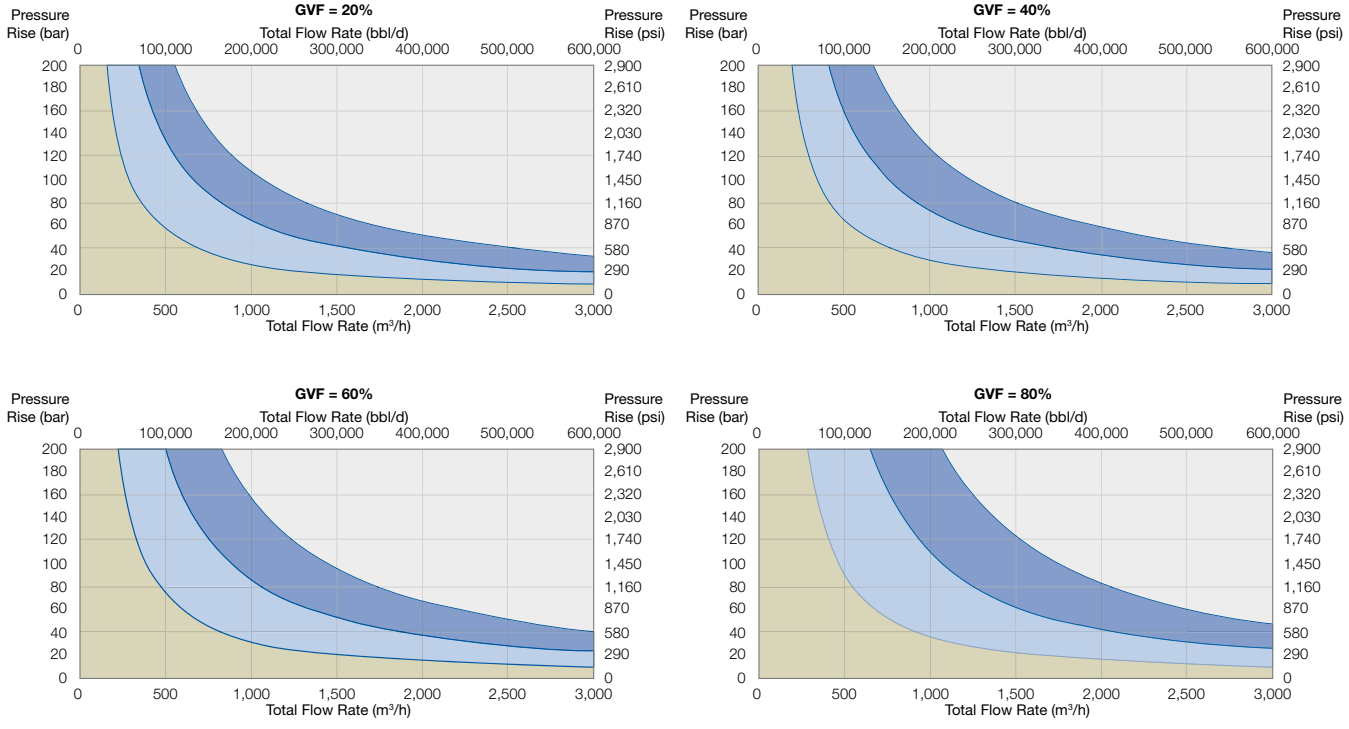
MPP High Performance Multiphase Pump

- Oil & Gas
- Hydrocarbon Processing Industry
- Power Generation
- Pulp and Paper
- General Industry
- Chemical Processing Industry
- Water

Operating Data

50 Hz		60 Hz
up to 3,600 m³/h	Capacities	up to 500,000 BPD
up to 200 bar dP	Heads	up to 3,000 psi dP
20 to 100 % GVF	Gas Void Fractions	20 to 100 % GVF
0.4 to 6 MW	Power	1,000 to 10,000 HP
up to 6,500 RPM	Speeds	up to 6,500 RPM

Performance Ranges



Assumptions: Suction Temp = 20 °C, Suction Pressure = 30 barA
Liquid Density = 800 kg/m3, Gas Density = 36 kg/m³

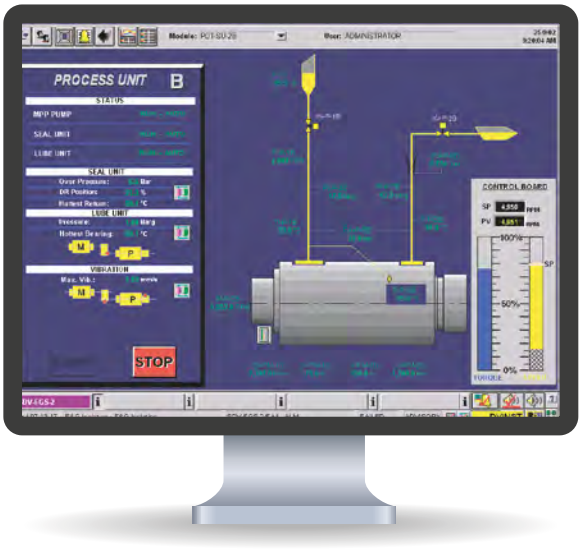
Note: The axis does not represent the real pressure achievable.
This pressure depends on the GVF and suction pressure.

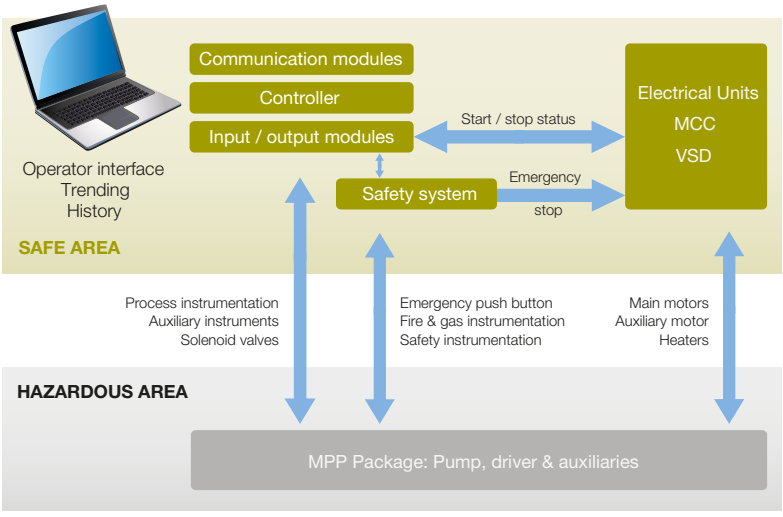
Monitoring and Control

Helico-axial MPPs have a self regulating capability to adapt to gas volume changes under normal operating conditions. They have a wide operating envelope with a large turndown capability.

The pump and its auxiliaries are controlled by a PLC via an operator interface (local and/or remote and allowing for unmanned operation). Trending and history functions are provided.

MPP's are normally operated at a constant speed selected by the operator to achieve the desired output. The operating process control can be effected by changing the speed set point (using a process parameter for control). Variable speed drive (mechanical or electrical) provides a high degree of operational flexibility and suits process changes due to field evolution over time.





An Experienced Partner

Sulzer Pumps is a well-recognized supplier of multiphase pumping solutions. Customers worldwide have successfully turned to Sulzer for their applications.

Algeria, 2 x MPP7

Russia, 4 x MPP11

North Sea, 1 x MPP8

www.sulzer.com