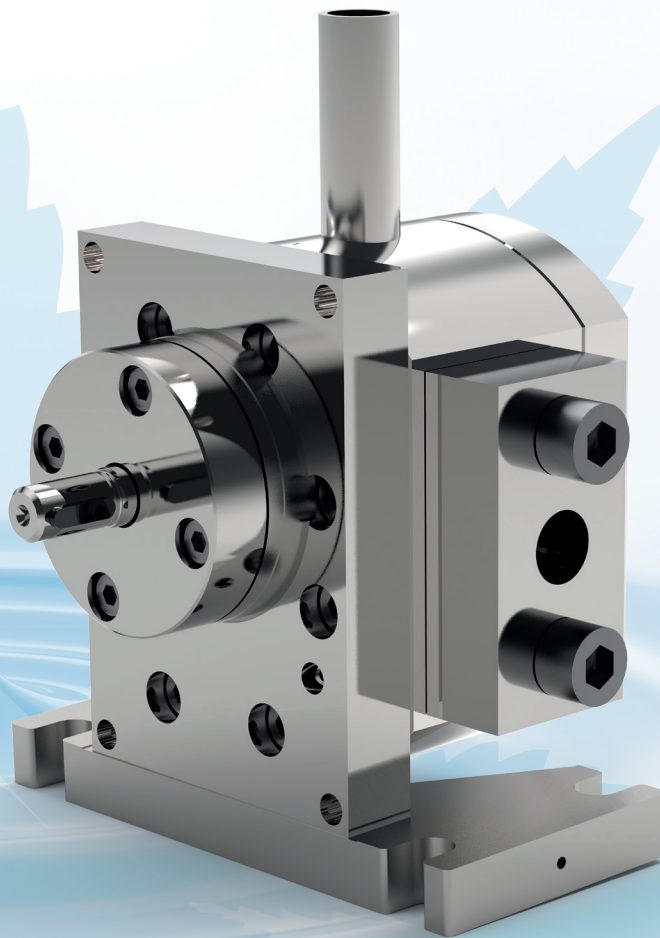


MADE IN GERMANY

Gear pumps for the cannabis industry



WITTE gear pumps for the cannabis industry



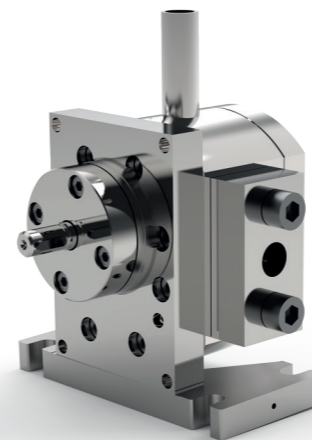
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CHEM and CHEM SP gear pumps for conveying and metering of fluids with low to high viscosity. The application range goes from classic transfer and metering tasks in the chemical and pharmaceutical industries up to the conveyance of monomers, oligomers and prepolymers in the polymer market. Our success in these areas gives us a wealth of

experience and know-how that we bring to the cannabis industry. The requirement to pump viscous and sticky cannabis residue out of vacuum is not simple task. However, our CHEM design handles this requirement with ease. Feed pump and distillate pump requirements also fit our CHEM design giving you one pump to provide a pumping solution in your distillation process.

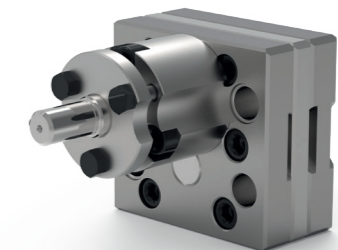
Gear pump range for the cannabis oil applications



Standard chemical pump

316Ti stainless steel gear pump for a wide range of applications offering an optional integral heating jacket, wide range of vacuum tight seal designs and in-line design.

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CHEM SP series

440B stainless steel gear pump for a lower flow range offering a bolt-on heating jacket and various mounting block options.

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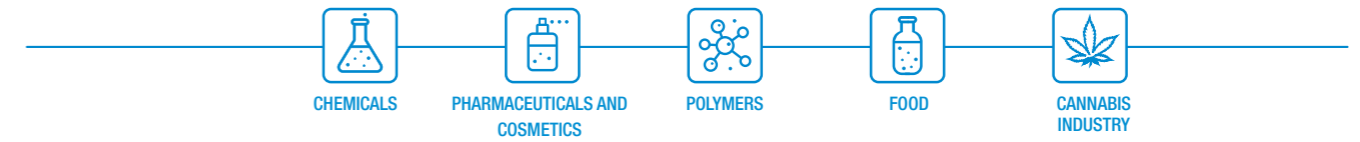
The best pump for your process

is not just a slogan to us – it's what drives and inspires us on a daily basis. WITTE PUMPS & TECHNOLOGY GmbH is an international medium-sized machine designer and manufacturer based in Tornesch near Hamburg.

For over 30 years, WITTE has specialised in developing and manufacturing precision gear pumps. Each pump is precisely tailored to the customer's process and needs. WITTE engineers and designers develop custom gear pumps for use in a wide range of applications..

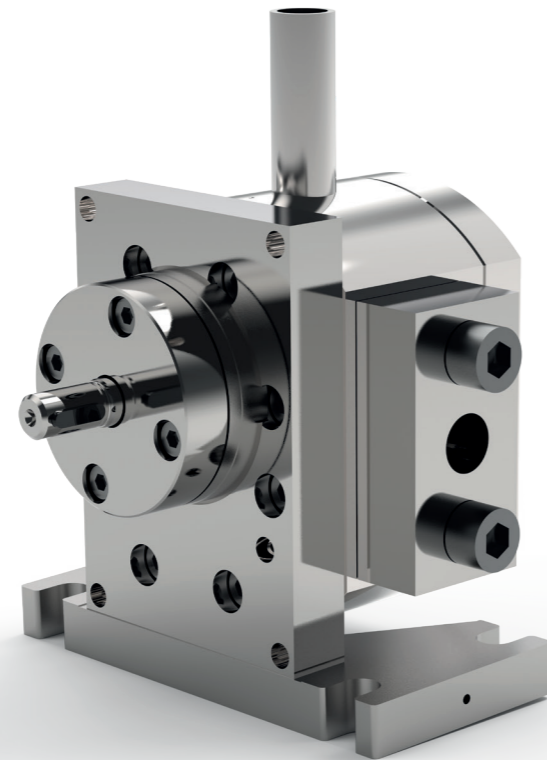
WITTE has its own subsidiaries in the USA, China, Russia and Malaysia, as well as a number of agents representing it worldwide.

Standard chemical pump



CHEM gear pumps provide the highest level of corrosion resistance with a 316Ti stainless steel housing as standard. An optional integral heating jacket provides the best heat transfer to insure the optimum temperature control. A wide range of bearing material options offer many self-lubricating choices. These materials help to protect the pump from damage during operation with a starved inlet condition or

during cleaning with low viscosity fluid offering poor lubrication characteristics. Our selection of sealing options provide the ability to seal vacuum with perfection. Flanges and endplates utilize o-ring seals to further maintain a vacuum tight design. Years of proven experience in wide range of distillation processes gives our CHEM pump and our customers an edge against the competition.



Technical designs

HOUSING
Stainless steel · Hastelloy® · ceramic
GEARS
Stainless steel · Ferralium® · Hastelloy® · ceramic · PEEK
FRICTION BEARINGS
Carbon · NiAg (nickel silver) · silicon carbide · zirconium oxide · tool steel · alum. bronze
SHAFT SEALS
Single internal, single external or double mechanical seal · stuffing box · magnetic coupling
HEATING
Steam · water · heat transfer oil · electric

Operating parameters

VISCOSITY
0.5 to 1,000,000 mPa s
TEMPERATURE
Up to 300°C
SUCTION PRESSURE
From vacuum to max. 15 bar, higher with magnetic drive
DISCHARGE/DIFFERENTIAL PRESSURE
Up to 120 bar
<i>The values listed are maximum values and must not coincide under certain circumstances.</i>
PUMP SIZES
From 0,74 cc/rev. to 92,6 cc/rev. (larger sizes available)

Pump sizes

PUMP SIZE	SPECIFIC VOLUME (CC/REV)
CHEM 0.74-14-7	0,74
CHEM 1,28-22-6	1,28
CHEM 2,78-22-13	2,78
CHEM 4,7-22-22	4,7
CHEM 10,2-28-28	10,2
CHEM 25,6-36-36	25,6
CHEM 46,3-45-45	46,3
CHEM 92,6-56-56	92,6

Application examples

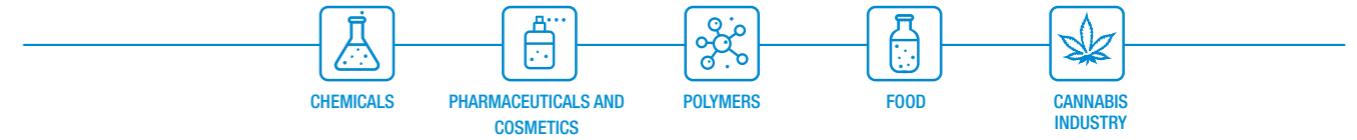
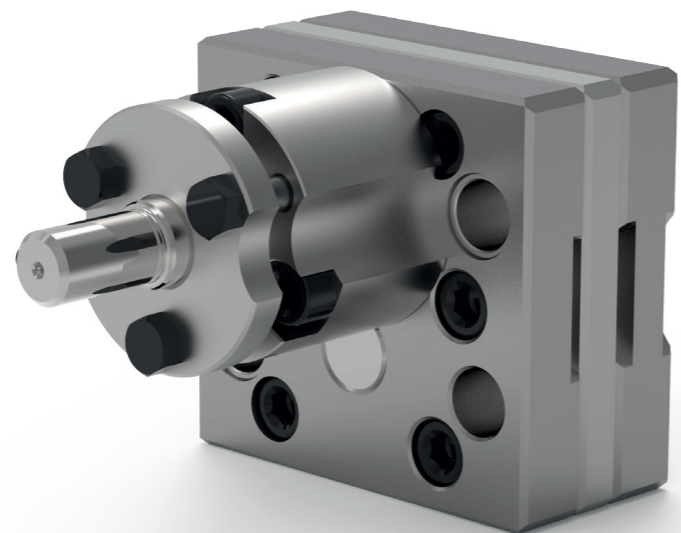
- Feed
- Metering
- Residue
- Distillate

CHEM SP



CHEM SP gear pumps provide corrosion resistance with 440B stainless steel construction. An optional bolt-on heating jacket or an integrally jacketed mounting block provides the required temperature control. Mounting blocks can be designed to offer an in-line flow or designed to suite the specific requirements of your system. Precision control of internal clearances gives our design

the ability to operate at lower pump speeds to provide rates compatible with glass distillation systems. Vacuum tight operation is maintained by tight clearances and precision ground surfaces. Years of proven experience in wide range of distillation processes gives our CHEM SP pump and our customers an edge against the competition.



Technical designs

HOUSING
Tool steel · 440B stainless steel · Various other special materials and coatings available
GEARS
Tool steel · 440B stainless steel · Various other special materials and coatings available
SHAFT SEALS
Stuffing box · Chevron v-seals
HEATING
Steam · water · heat transfer oil · electric

Operating parameters

VISCOSITY
0.5 to 1,000,000 mPa s
TEMPERATURE
Up to 300°C
SUCTION PRESSURE
From vacuum to max. 15 bar, higher with magnetic drive
DISCHARGE/DIFFERENTIAL PRESSURE
Up to 120 bar
<i>The values listed are maximum values and must not coincide under certain circumstances.</i>
PUMP SIZES
From 0.16 cc/rev. to 3.6 cc/rev. (larger sizes available)

Pump sizes

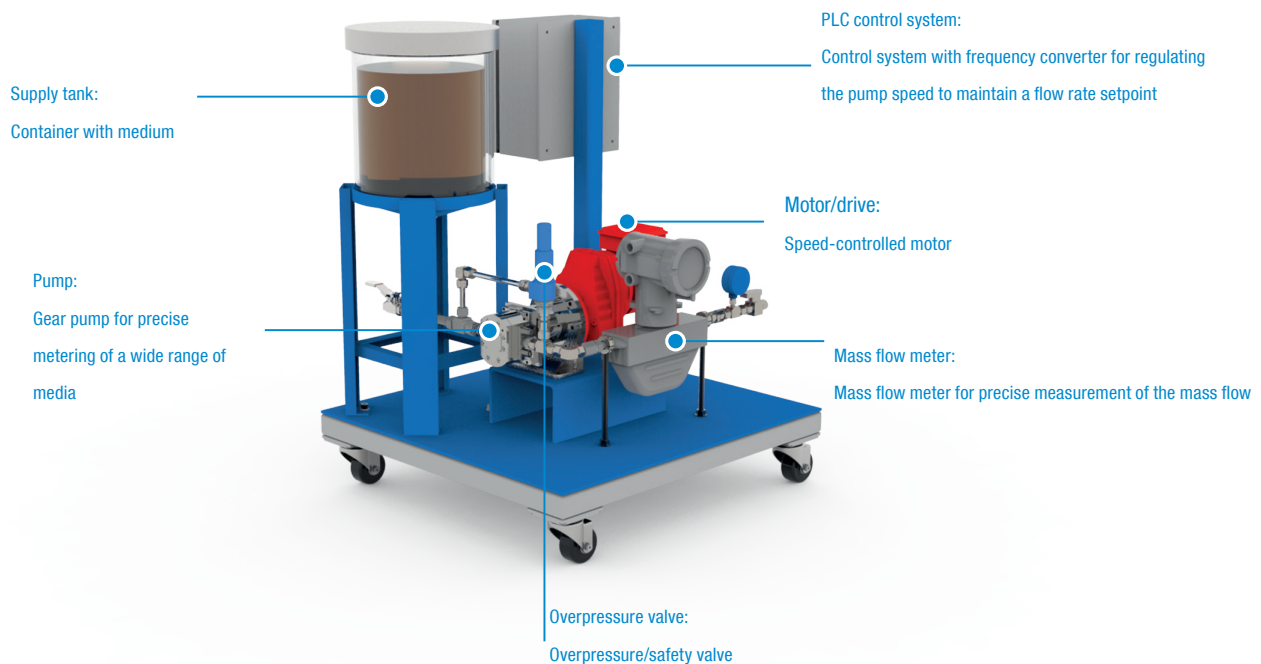
PUMP SIZE	SPECIFIC VOLUME (CC/REV)
CHEM SP 0.16	0.16
CHEM SP 0.3	0.3
CHEM SP 0.6	0.6
CHEM SP 1.2	1.2
CHEM SP 2.4	2.4
CHEM SP 3.6	3.6

Benefits

- High Accuracy
- Minimum pulsation
- High efficiency
- Corrosion resistance



Metering systems



Sample design of a metering system



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