

Product information

ALS power solenoid pump

The ALS power solenoid pump is great for critical components and for all general applications.

Features:

- high lubricant ejection pressure
- defined lubricant quantity
- maintenance free
- easy handling and installation
- long service life

Scope of delivery:

- reservoir made of non-ageing and shock-resistant plastic for oil and grease
- dust guard cover, filler-hole and venting
- aluminium block with pump element
- electric magnet, working voltage 24 V DC
- plug-in connector according to DIN 43650



Functional description:

During the suction phase the piston glides back by means of spring pressure. Thereby the borehole at the pump element is set free. The lubricant flows into the pump element. With each stroke the lubricant is pushed through the piston. An integrated check valve prevents the back flow of the discharged lubricant.

Type	ALS power solenoid pump
Reservoir made of	transparent, shock-resistant plastic
Reservoir diameter	115 mm
Reservoir height	150 mm
Connection, internal thread M 10x1	1 outlet or up to 8 outlets with progressive distributor
Reservoir capacity	460 ml for oil and grease (reservoir with piston and spring)
Pressure	50 bar (with pump element PE 50 and test oil according to ISO VG 68)
Output quantity per respective pump element	0,005 / 0,010 / 0,015 / 0,025 / 0,05 ml per stroke
Ambient temperature magnetic pump	-10° C to +40° C
Viscosity for oil	5 – 1900 cP (mm ² /s)
NLGI class for grease	000 to 3 (dependent on penetration of grease)
Protection type	solenoid IP / plug IP 54
Voltage (standard type)	24 V DC
Rated current	5 A
Relative on-time	25%

General information

- **Installation**
Pump should be mounted in a way that the reservoir stands upright and a venting of the system is possible.
NOTE: Pump with reservoir should be mounted in a way that filling through filling hole is possible.
- **Piping installation**
Pipes i.e. Hoses should be installed free of tension and tested for leaks.
- **Electric connection**
The magnet coil must only be operated with according voltage (see respective type description).
When installing magnet coil to sensitive controls one should install a free-wheeling diode.
Installation only through technical personal.
- **Allocation**
1 = A1 (+)
2 = A2 (-)
3 = PE
- **Potential equalization**
In case of static, a potential equalization has to be affixed to the solenoid pump. Preferably on one of the free M5 threads. Cross section has to have a min. of 1,5mm².
- **Maintenance**
The ALS power solenoid pump is maintenance free.
- **Options:**
 - **level control:** sensor on reservoir
 - **function control:** sensor on pump element
 - **on request:** reservoir with piston and pressure spring for greases
- **Accessories**
Control, either time dependent or on demand with digital timer or PLC.
Mounting and installation accessories, standard or on demand

ALS solenoid pump: Interim data sheet

Solenoid:

Operating voltage	24 V DC voltage - +6% to -10 %
Current consumption	4,6 A at 24 V - 23°C surface temperature
Current consumption	4,2 A at 24 V - 35°C surface temperature
Current consumption	3,8 A at 24 V - 60°C surface temperature
Operating temperature	max. 100°C, measured on surface
On time	25% on-time (S3)
Internal temperature rise	+35°C above ambient temperature at nominal power Cooling via quiescent ambient air
Mounting position	any
Protection type	IP 54 with plug-in connection according to DIN 43650

NOTE: the magnetism decreases with rising surface temperature of the solenoid, which leads to a decrease in pump pressure.

Technical data, test conditions:

Ambient temperature	23°C ± 2°C
Medium to be pumped	Hydraulic oil according to ISO VG 68
Medium temperature	23°C ± 2°C
Pump element	0,05 ml per stroke (impulse)

	Pressure	Surface temperature
Max.	70 bar	23°C
Standard	50 bar	35°C to ca. 50°C
Minimum	40 bar	> 50°C to ca. 70°C

Ways of fastening: Thread M5
 Depth of thread max. 12 mm

 optional fastening bracket
 customised – on request

Connection – Operation instructions

- The solenoid should be connected with an appropriate plug-in connection according to DIN 43650.
- When connecting the solenoid, adequate spark extinguisher equipment and/or over-voltage conductors should be provided in order to limit the induction voltage which is produced when turning off the solenoid. That way the upstream control (provided by the customer) is sure to be protected.
- The solenoid's protective conductor equipment is **only** connected to the solenoid-casing. Anchor and pump body are thereof separated.
- In order to deflect a potential electrostatic charging, the solenoid as well as the pump body should receive a potential equalization, sectional view min. 1,5²
- On-time – off-time S3
- The relative on-time of the solenoid averages 25%, based on 300 s (5 min.) i.e. In a period of 300 s the solenoid must only be operated a max. of 75 s.
- Conclusion: 75 s on, 300 s cooling off
- Cooling via quiescent ambient air.

Warning:

The solenoid's internal temperature rise is transmitted via the heat conduction of the pump element. This leads to a rise in temperature of the medium to be delivered.

If the installation conditions allow for contact with people a visible warning sign has to clearly caution against dangerous surface temperature, provided that the constant temperature exceeds +35°C.

Application – operation – setting

- The medium to be delivered takes a certain time to fill the pump i.e. the pump element.
- The pump is not self-priming.
- High viscosity media should be stressed by the pressure of about ca. 0,5 bar.
- The duration of the lubrication impulses has to be tuned to the deliver medium i.e. its viscosity.
- Pulse times of less than 1 s should be avoided as the pump mechanics might be overstrained which might lead to early wear.

Operation - setting

Practical trials have resulted in pulse times between 1 s and 5 s

Example for pulse times, based on 25% on-time pulse-/break ratio 1:1

Umgebungstemperatur 25°C ± 2°C

pulse (on/off)	number of pulses	duration	pause (min)
1 s/1 s	75	150 s (2 ½ min)	5 min
1 s/1 s	150	300 s (5 min)	10 min
2 s/2 s	75	300 s (5 min)	20 min
3 s/3 s	75	450 s (7,5 min)	40 min

Allowing for a max. surface temperature of +100°C, the on-time can be extended. However, this happens on individual responsibility of the customer. Herefrom resulting malfunctions or damages are not in the field of responsibility of the manufacturer of this ALS power solenoid pump.

Safety guidelines – operation

The ALS solenoid must not be used for delivery or dosing of following substances :

**Edibles and allied substances
Chemical aggressive liquids
Combustibles and explosives
Pesticides
Acids and bases
Laquers and paints
Gas**

The pump must not be used in explosive environments !

The ALS power solenoid pump is only to be used according to regulations !

Delivery and dosing of lubricants

**Oils in viscosity range of
ISO VG 5 to ISO VG 1900**

Greases with NLGI class 000 to NLGI 3

**Surface temperature of solenoid max. 100°C !
Temperature above 100°C lead to destruction of the solenoid !**

Please take notice of country specific regulations as well as safety guidelines for electric connection.

Connections and startup should always be done through qualified personnel.