

Gear metering pump

Use and maintenance instructions



Gear metering pump principle:

齿轮计量泵是通过一对相互啮合的齿轮, 其中一个为主动齿轮, 另外一个为被动齿轮, 由主动齿轮带动啮合旋转。壳体留有较小的间隙, 当齿轮旋转时, 在轮齿逐渐脱离啮合的吸液腔中, 齿间密闭容积增大, 形成局部真空, 液体在压差作用下吸入吸液室, 随着齿轮旋转, 液体分两路在齿轮与壳体之间被齿轮推动前进, 送到排液腔, 在排液腔中两齿轮逐渐啮合, 容积减少, 齿轮间的液体被挤压至排液口。齿轮每旋转一圈, 排出的液体的体积是一定的, 通过测算齿轮计量泵的转速, 从而得到齿轮计量泵的流量。

环境温度在-10℃+40℃

海拔 1000 米以下

腐蚀性或无爆炸性气体

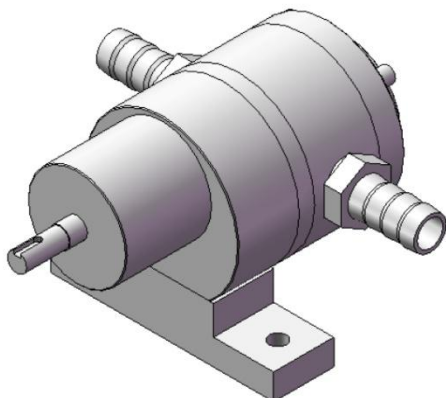
The gear metering pump is a pair of intermeshing gears, one of which is a driving gear and the other is a driven gear that is driven to rotate by the driving gear. The housing has a small gap. When the gear rotates, in the liquid suction chamber where the gear teeth gradually disengage, the sealed volume between the teeth increases, forming a partial vacuum, and the liquid is sucked into the liquid suction chamber under the pressure difference. The gear rotates, and the liquid is driven by the gear between the gear and the casing to be sent to the discharge chamber. In the discharge chamber, the two gears gradually mesh, the volume is reduced, and the liquid between the gears is squeezed to the liquid discharge port. Each time the gear rotates, the volume of the discharged liquid is constant, and the flow rate of the gear metering pump is obtained by measuring the rotation speed of the gear metering pump.

Ambient temperature is -10 ° C + 40 ° C

Below 1000 meters above sea level

Corrosive or non-explosive gas

High speed stainless steel gear pump::



转数: 100~1000r/min

主要材质: 304SS, 316SS, 316LSS, 2205, 440

齿轮结构: 齿轮和轴为一体式

密封: 氟胶油封+氟胶 O 型圈+440 轴承, 瓷轴承, PEEK 轴套, (低温低压, 高温高压 25bar)

使用压力: 0-2.5MPa

介质粘度: ≤2 万 CP

最高温度: 常用温度: ≤100℃, 最高温度 315℃

泵体精度: ±0.5%

可配套电机: 伺服电机, 变频电机, 步进电机, 无刷

优点: 适合测水, 适合测酸碱性介质, 属于轻载高转速, 黏度不能高于 20000CP, 最高使用转速可以达到 1000 转/分钟, 转速可从 100 瞬间提高到 1000 转。

缺点: 不适合高黏度, 不适合低转速, 低转速时吸力不够

Number of revolutions: 100~1000r/min

Main material: 304SS, 316SS, 316LSS, 2205, 440

Gear structure: gear and shaft are integrated

Seal: fluorine rubber seal + fluorine rubber O-ring +440 bearing, porcelain bearing, PEEK bushing,
(low temperature and low pressure, high temperature and high pressure 25bar)

Working pressure: 0-2.5MPa

Medium viscosity: $\leq 20,000$ CP

Maximum temperature: common temperature: $\leq 100^{\circ}\text{C}$, maximum temperature 315°C

Pump accuracy: $\pm 0.5\%$

Can be matched with electrodes: servo motor, variable frequency motor, stepper motor, brushless

Advantages: suitable for water measurement, suitable for measuring acid and alkaline medium, belonging to light load and high speed, viscosity can not be higher than 20000CP, the maximum use speed can reach 1000 rev / min, the speed can be increased from 100 to 1000 rpm.

Disadvantages: not suitable for high viscosity, not suitable for low speed, insufficient suction at low speed

应用行业:

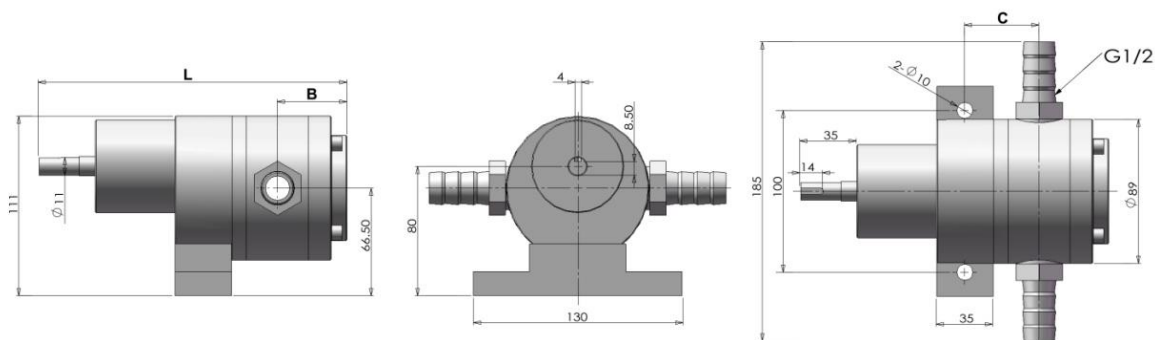
水泥助磨剂, 造纸助剂, 消泡剂, 乳化剂, 水玻璃, 阻燃剂, 催化剂, 双氧水, 中药浸膏, 纺织染料, 化工助剂, 表面活性剂, 氧化剂, 阻垢剂, 硬脂酸, 三乙醇胺, 酵母, 乳酸, 固化剂, 酸性溶液, 碱性溶液, 涂布机胶黏剂, 盐水, 脱硫剂, 纸浆, 薄膜, 胶带, 铝铂复合机, 胶水, 涂胶, 食品灌装, 输送, 计量, 可测 0-14PH 范围内的绝大多数流体介质等……

Application industry:

Cement grinding aid, papermaking auxiliary, defoamer, emulsifier, water glass, flame retardant, catalyst, hydrogen peroxide, traditional Chinese medicine extract, textile dye, chemical auxiliary, surfactant, oxidant, scale inhibitor, hard fat Acid, triethanolamine, yeast, lactic acid, curing agent, acidic solution, alkaline solution, coater adhesive, brine, desulfurizer, pulp, film, tape, aluminum-platinum laminating machine, glue, glue, food filling, transport, metering, measuring most fluid media in the range of 0-14PH, etc...

高速泵系列外形尺寸图:

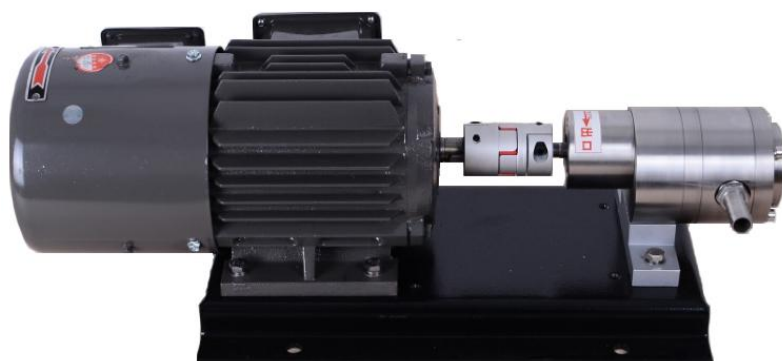
High-speed pump series dimensions:



常规泵技术参数表 Standard pump technical data sheet

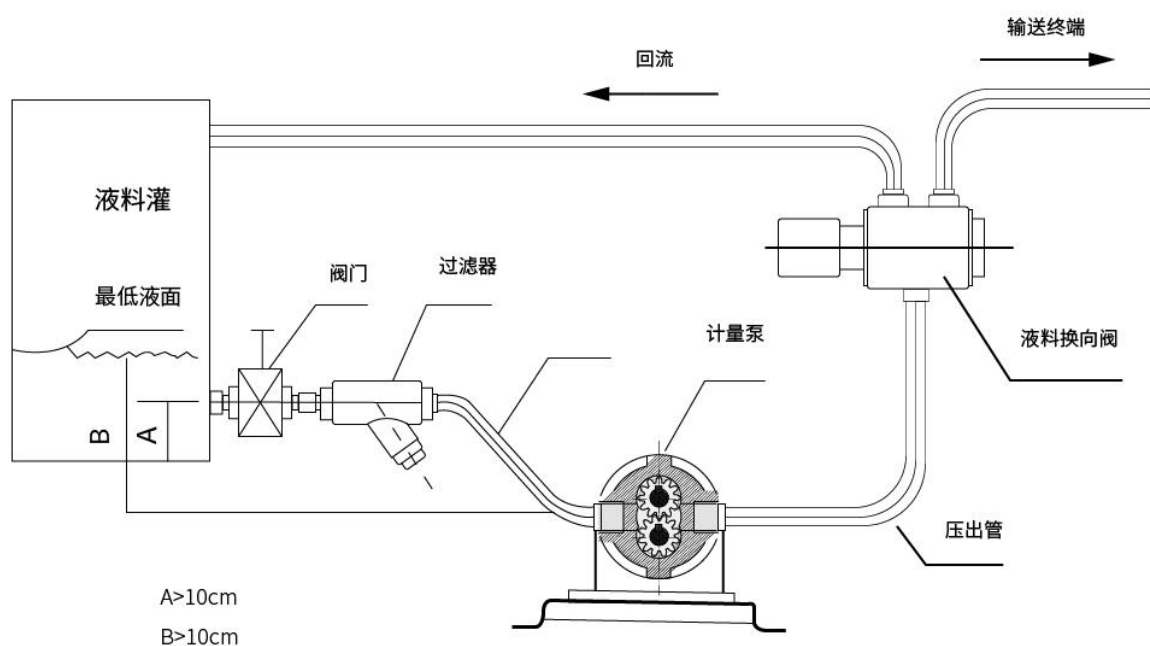
Model	Flow L/H	Inlet	Pump size L (mm)	Pump Size B (mm)	Pump size C (mm)	KW、REV r/min	Pressure MPa	Material
HS-5	120	G1/2	191.60	43.25	46.25	0.55、910	0.6	304 316 316L 2205
						0.75、925	1.0	
						1.1、930	1.6	
HS-8	210	G1/2	195.60	43.25	52.25	0.55、910	0.6	
						0.75、925	1.0	
						1.1、930	1.6	
HS-15	300	G1/2	199.60	43.25	54.25	0.55、910	0.6	
						0.75、925	1.0	
						1.1、930	1.6	
HS-20	420	G1/2	207.60	43.25	62.25	0.55、910	0.6	
						0.75、925	1.0	
						1.1、930	1.6	
HS-30-1	540	G1/2	212.60	43.25	67.25	0.55、910	0.6	
						0.75、925	1.0	
						1.1、930	1.6	
HS-30-2	600	G3/4	217.10	79.50	35.50	0.75、925	1.0	
						1.1、930	1.6	
HS-30-L	900	G3/4	232.10	87	43	0.75、925	1.0	
						1.1、930	1.6	
HS-40	1200	G3/4	/	/	/	1.1、930	1.0	
						1.5、940	1.6	

测量数据常压条件下进行, 介质粘度不超过 200cps, 超出选型范围, 需要单独定制
The measurement data is carried out under normal pressure, and the viscosity of the medium does not exceed 200cps, which exceeds the selection range and needs to be customized separately.



泵安装示意图

Pump installation diagram



(阀门: valve; 过滤器: filter; 计量泵: Metering pumps; 压出管: Press out the tube;
液料换向阀: Liquid material directional valve; 回流: Reflow; 输送终端: Conveying terminal
最低液面: Minimum liquid level)

一般故障及排除

General faults and troubleshooting

Fault phenomenon	Faults and troubleshooting
Reduced efficiency	1. The inlet pipeline is blocked, and foreign objects are removed; 2. The outlet pipe is blocked and cleans up foreign objects; 3. The pump body bolts are loose, adjust the fastening bolts behind the pump; 4. Excessive load, adjust the speed of the pump; 5. The gap is too large, adjust the gap; 6. The gear is worn normally, replace the gear;
Machine seal	1. The pump direction is opposite to the mark; 2. The output pressure exceeds the bearing capacity of the mechanical seal; 3. The return valve is not opened or the spring is damaged, open the return valve or replace the spring; 4. The mechanical seal is damaged, replace the mechanical seal 5. The oil seal is damaged, replace the oil seal 6. PTFE sealing ring is damaged, replace the sealing ring
Unstable flow	1. Intake air into the suction port and reseal the pipeline; 2. The motor power is unstable, increase the motor power; 3. There is foreign matter in the pipeline, clean the pipeline;
noise	1. The bearing or shaft sleeve is damaged; 2. The mechanical seal is damaged or enters the air, replace the mechanical seal; 3. Loose base bolts and tighten bolts; 4. The pump shaft and the motor shaft are not concentric, adjust the concentricity; 5. The normal friction of the coupling, lubricate and replace;
Pump stuck	1. The bearing is damaged, replace the bearing; 2. The liquid in the pump body solidifies and is heated for cleaning or disassembly for cleaning; 3. The gear shaft is deformed, replace the gear shaft; 4. Foreign matter enters the pump body, disassemble and clean the foreign matter;

维护和故障

Maintenance and failure

泵应定期检查和清扫有无漏液现象。

经常检查泵上的固件是否松动脱落。

久未使用的泵，在启动前应看轴端是否转动。

The pump should be regularly inspected and cleaned for leaks.

Always check whether the firmware on the pump is loose or off.

Before starting a pump that has not been used for a long time, check whether the shaft end rotates.

保证期

Warranty date

用户按使用维护说明书的规定，在正确使用与存放的情况下，我公司保证在一年的时间内能正常运行，如在此规定时间内因制造质量不良而发生的损坏或不能正常工作时，我公司将为用户保修.包退.包换。

凡擅自拆.装.修理的泵，我公司不予保修。

用户未按说明书正确操作，所造成的直接或间接损失，我公司均不付责任。

除上述内容外，有关解释及规定按照国经贸（1995）485号文件（部分商品修理.更换.退换责任规定）执行。

The user guarantees normal operation within one year under the conditions of correct use and storage according to the provisions of the use and maintenance manual. If damage or failure to work normally occurs due to poor manufacturing quality within this specified time, I The company will provide warranty, return and replacement for users.

Our company will not guarantee any unauthorized disassembly, installation and repair of the pump.

Our company does not pay any responsibility for the direct or indirect losses caused by the user not operating according to the instructions.

In addition to the above, the relevant interpretations and regulations shall be implemented in accordance with Guoshang Economic and Trade (1995) No. 485 (Repair, Replacement, and Replacement Responsibility Provisions for Some Commodities).

工况分析:

Condition analysis:

中性介质高粘度行业: 工具钢壳体, 工具钢齿轮, 复合密封

高粘度弱酸碱行业: 9cr18 壳体, 9cr18 齿轮, 复合密封

高粘度强酸碱行业: 司太立壳体, 司太立齿轮, 全氟醚机械密封

中性介质低粘度行业: 壳体 304SS, 轴和齿轮 2205, 不锈钢 (NSK 或 SKF) 440 轴承

强酸性行业: 消泡剂, 双氧水, 乳酸, 固化剂, 酸性溶液, 涂布机胶黏剂, 脱硫剂; 硝酸, 氢氟酸, 选择 316L 或 2205 泵体, 2205 齿轮, PEEK 轴套;

食品行业: 提纯用, 中药浸膏, 酵母, 蜂蜜, 糖浆等卫生等级高, 首选 316SS, 轴和齿轮 2205, 氧化锆陶瓷轴承

根据排量及介质粘性选用电机数比。

Neutral medium high viscosity industry: tool steel shell, tool steel gear, composite seal

High viscosity weak acid and alkali industry: 9cr18 shell, 9cr18 gear, compound seal

High viscosity and strong acid-base industry: Stellite housing, Stellite gear, perfluoroether mechanical seal

Neutral medium low viscosity industry: housing 304SS, shaft and gear 2205, stainless steel (NSK or SKF) 440 bearing

Strong acid industry: defoamer, hydrogen peroxide, lactic acid, curing agent, acid solution, coating machine adhesive, desulfurizer; nitric acid, hydrofluoric acid, choose 316L or 2205 pump body, 2205 gear, PEEK bushing;

Food industry: for purification, Chinese medicine extract, yeast, honey, syrup and other high hygiene grades, preferred 316SS, shaft and gear 2205, zirconia ceramic bearing

The motor ratio is selected according to the displacement and the viscosity of the medium.

齿轮泵最忌讳用的介质:

The most taboo media for gear pumps:

含有碳粉, 铁粉, 碳纤维, 石英砂的介质

Medium containing carbon powder, iron powder, carbon fiber, quartz sand

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