Instruction manual to plunger metering pump 1ZLT serious

简 介 General Description

（普通型）

（高压型）

我厂生产的1ZJT系列计量泵是单缸、柱塞式、弹簧偏心轴结构的往复泵，用于石油、化工、医药、轻工、食品、环保等科研和生产部门输送温度在−30～100℃，粘度为0.8～800mm²/s不含固体颗粒的弱腐蚀性或非腐蚀性液体。流量可调，计量精度±1%。

1ZJT系列计量泵按中华人民共和国国家标准GB/T7782−2008计量泵，GB/T7784−2006机动往复泵试验方法进行设计和生产。

柱塞密封采用填料密封，进出口阀采用高精度双层球阀，过流部分均采用1Cr18Ni9Ti优质材料。

The 1ZJT serious of metering pumps produced by our factory are reciprocating pumps with the structure of single cylinder, plunger and spring eccentric axis. They are widely used in such areas as petrochemical, chemical, medical, food, environmental protection and light industry, The pump can be used to transfer weak−corrosive and non−corrosive liquids with the temperature of −30～100℃, viscosity of 0.8−800mm²/s and without solid particles. The capacity can be adjusted. The metering accuracy is±10%..

The 1ZJT serious of metering pumps are designed and produced according to the standard, issued by National standard of the people's Republic of China, Technical Condition of Metering pump GB9236−88, Basic Parameters for Metering Pump GB7782−87 and Method for testing Metering Pump GB7783−87.

The plungers of the pumps are sealed with packing seal. The inlet and outlet valves. have the structure of high−accuracy and double−layer ball valves. Parts passing the liquids are made of 1Cr18Ni9Ti.

结 构 Structure

1.传动部分：主要由电机和泵体6、连轴节5、蜗杆11、蜗轮3、偏心轴4、柱塞推拉杆9、压力弹簧13等组成。

2.泵头部分：主要由柱塞14、填料压盖15、填料20、填料压帽25、锁紧螺母24、缸体18、吸入阀和排出阀19组成。

3.冲程调节部分：主要由冲程调节手柄21、冲程调节尾座10、调节紧固环23、冲程调节顶杆1等组成。

1.DRIVING SYSTEM consists of motor and pump 6, couplings 5, worm 11, worm gear 3, eccentric axes 4, plunger push−pull rod 9 and compression spring 13 etc.

2.PUMP HEADS consists of plunger 14, packing box gland 15, packing 20, packing cover 25, Lock nut 24, cylinder 18, suction and discharge valve 19 etc.

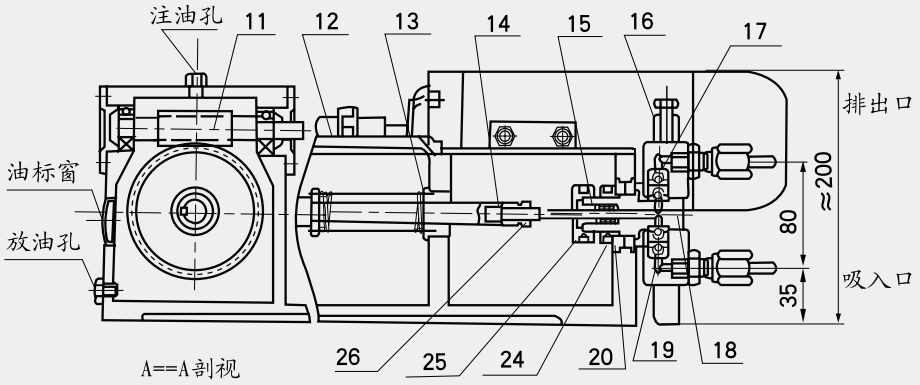
3.STOKE ADJUSTMENT consists of stroke regulating handle 21, stroke regulating seat 10, regulating fixing ring 23 and stroke regulating rod 1etc.

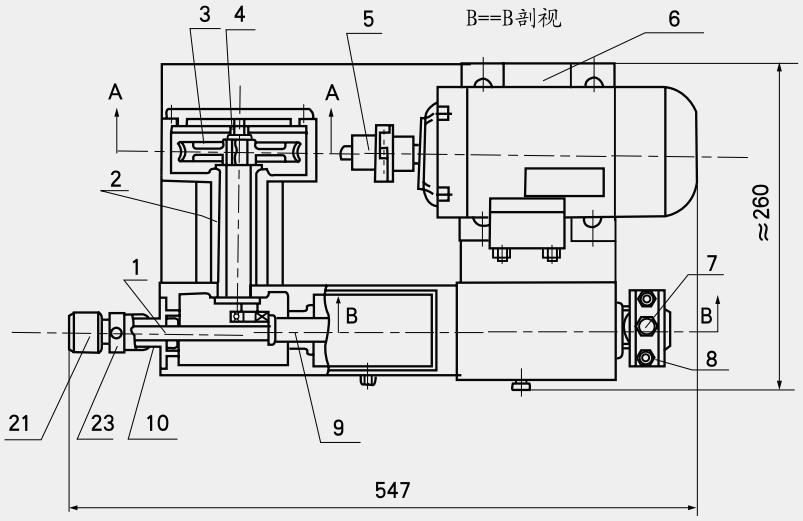
技术参数 Technical Data （普通型 General−purpose pumps）

型 号 Model	额定流量 Rated Flow L/min	额定压力 Rated Pressure MPa	额定功率 Rated Power W	额定电压 Rated Voltage V	额定泵速 RPM r/min	柱塞直径 Plunger dia. mm	接管外径 Connecting tube outer mm	重量 Weight kg
1ZJT0.55/16	0.55	16	250	380	72.5	Φ3	Φ8	23
1ZJT1.54/12	1.54	12	250	380	72.5	Φ5	Φ8	23
1ZJT3.94/8	3.94	8	250	380	72.5	Φ8	Φ8	23
1ZJT6/6	6	6	250	380	72.5	Φ10	Φ8	23
1ZJT9/4	9	4	250	380	72.5	Φ12	Φ8	23
1ZJT14.6/2	14.6	2	250	380	72.5	Φ15	Φ8	23

电话：0523−87891816 传真：0523−87894848 Http://www.txhongyu.com 网络实名：弘宇齿轮油泵

外形尺寸图 Outline Dimension





易损件名称：14.柱塞 17.球 19.吸入阀组、排出阀组 20.填料

普通型结构图（此图仅供参考）

General—pressure pump

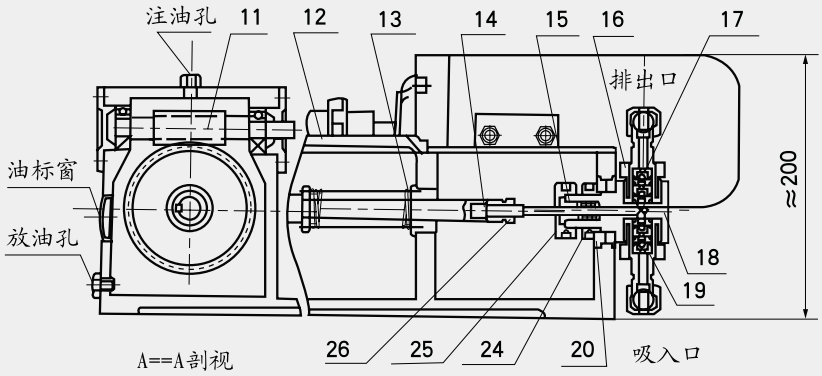
Structure drawing of the metering pump (reference only)

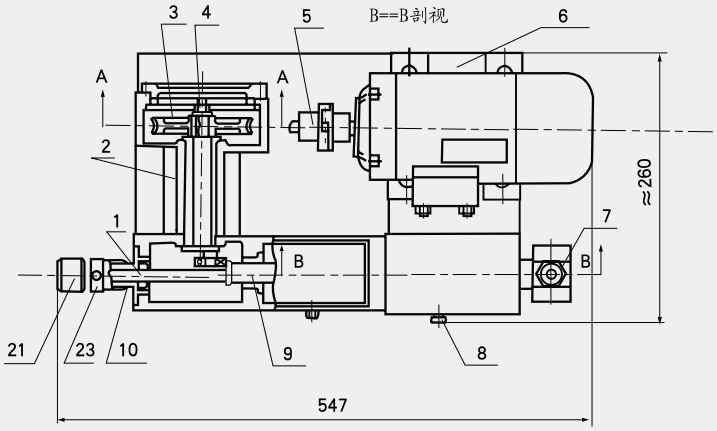
技术参数 Technical Data （高压型 High—pressure pumps）

型 号 Model	额定流量 Rated Flow L/min	额定压力 Rated Pressure MPa	额定功率 Rated Power W	额定电压 Rated Voltage V	额定泵速 RPM r/min	柱塞直径 Plunger dia. mm	接管外径 Connecting tube outer mm	重量 Weight kg
1ZJT0.52/35	0.52	35	370	380	72.5	Φ3	Φ8	28
1ZJT1.45/35	1.45	35	370	380	72.5	Φ5	Φ8	28
1ZJT3.72/35	3.72	35	370	380	72.5	Φ8	Φ8	28
1ZJT5.8/16	5.8	16	370	380	72.5	Φ10	Φ8	28
1ZJT8.4/12	8.4	12	370	380	72.5	Φ12	Φ8	28

注：以上产品配置的电机为三相380伏4级防暴型电机。也可以根据用户需要配置其它电机。

外形尺寸图 Outline Dimension





易损件名称：14.柱塞 17.球
19.吸入阀组、排出阀组 20.填料

高压型结构图（此图仅供参考）
High—pressure pump
Structure drawing of the metering pump (reference only)

传动系统及工作原理 Operating principle of the pumps

电机通过联轴节5、蜗杆11、蜗轮3，把旋转运动传到偏心轴4，偏心轴偏心距为10mm，当偏心轴自后边极限位置向前旋转时，克服压缩弹簧13的力量，推动柱塞推拉杆9及柱塞14向前移动，柱塞被推到前顶点后偏心轴继续旋转，柱塞推拉杆9在弹簧力作用下，带动柱塞一起向后移动，回到原来的位置。这样偏心轴每转一周，柱塞往复运动一次。

当柱塞14自前向后移动时，缸体内容积由小变大，压力很快下降，排出阀关闭。当缸内压力降到低于吸入阀口外液体压力时，吸入阀打开，液体被吸入缸内完成吸入过程。当柱塞自后顶点向前移动时，缸内容积由大变小压力猛增，吸入阀关闭。当压力超过排出阀口外压力时，排出阀打开，液体排出，完成排液过程。

The motor's rotational movement is transmitted into the eccentric axis through coupling 5, worm 11 and worm gear 3. The eccentric distance of the eccentric axis is 10 mm. When eccentric axis moves forward from the rear limit position, it overcomes the force from the compression spring and pushes the plunger push—pull rod 9 and plunger 14 to move forward. When the plunger moves to the front position, the eccentric axis rotates continuously. Whit the help of spring force the plunger push—pull rod and the plunger move backward and return to original position. So when the eccentric axis rotates one revolution, yhe plungre moves nforward and backward one time.

When the plunger 14 moves backward, the internal volume of the cylinder changes from small to big, which makes the pressure decrease rapidly and discharge valve close. When the pressure inside the cylinder decreases off the liquld pressure outside of the suction valve, suction valve is opened. The liquid flows into the cylinder and the suction process completes When the plunger moves forward from the rear position, the intemal volume of the cylinder changes from big to small, which makes the pressure increase greatly and suction valve close. When the pressure inside the cylinder increases above the liquid pressure outside of the discharge valve, discharge valve is opened. The liquid is discharged and the discharge process compleres.

流量调节 Flow capacity adjustment

此泵是通过改变柱塞冲程长度的大小来改变流量的，柱塞最大冲程为20mm，根据使用对流量的要求，冲程可在4—20mm之间自由选择，冲程在0—4mm之间也有流量，但精度较低。

使用时，旋转冲程调节手柄21，使冲程调节顶杆1沿冲程调节尾座10作轴向前后移动，达到调节柱塞冲程，改变流量的目的。当调到所需冲程后，须逆时针旋 紧调节紧固环23，以免工作过程中冲程改变，流量不稳。

Flow capacity can be adjusted by changing the stroke lengrh of the plunger.The max stroke length of the plunger is 20 mm. According to the requirement for the capacity, the capacity, the stroke length can be adjusted between 4 and 20 mm. The pump has flow if the stroke length is 0～4 mm, but the accuracy is low.

The stroke of the plunger can be adjusted by rotating the steoke regulating handle 21, which makes the stroke regulating rod 1 move backward and forward along the stroke regulating seat and the capacity adjusted. If the required stroke length is reached, rotate the regulating fixing ring 23 counter—clockwise in case the stroke length is changed, which in turn makes the capacity instable while pumo works.

安 装 Installation

1）泵在安装使用前必须对缸体、吸入阀、排出阀等过流部分，用清洗剂清洗干净，一般液体应在吸入端加过滤器。
2）安装可根据使用条件放在工作台上或地面上，不需要其他固定。
3）进出口采用高压卡套式接头，应采用适合的不锈钢管进行连接。严禁焊接，否则会破坏泵头的密封，造成泄漏与进气。
4）管路设计要合理，尽量减少接头和管路弯曲，防止管路内产生气囊。靠近泵的管路要支撑好，其重量不得压在泵头上。
5）吸入液位应低于排出液位。
6）为保证泵头内总是充满流体，泵在安装高度应低于吸入液位。

◆The cylinder, suction and discharge valve etc. should be cleaned with cleaner before pump is installed. A filter should be installed insuction portion for general liquids.
◆The pump can be installed on the worktable or ground. No fixing is needed.
◆The high—pressure clip connecting is used in the inler and outlet portion of the pump. the stainless steel plpe should be used to connect the connecting.Welding is prohibited, otherwise the seal of the pump head may be damaged,which makes air leak and air inler.
◆The pipeline should be designed reasonably The connecting and bending portion or the pipe should be as little as possible,which can prevent air cell to be formed.The pipe near the pump should be supported reasonably.The weight of the pipeline can not be borne by the pump head.
◆The Inlet liquid level should be lower then the outlet liquid level.
◆The installation position of the pump should be lower than the Inlet liquid level,which makes sure that the pump head is always filled with liquid.

使 用 Usage

1）使用前，传动箱内（包括柱塞推拉杆箱和蜗轮蜗杆箱）应加32#机械油，使油面在油标窗中线位置，根据使用情况和油的污秽程度更换新油。
2）开泵前先把泵出口打开，用手盘联轴器5确定各运动件正常后在开泵。
3）开泵后不应有强烈的震动和特殊的噪音，发现这种现象应停泵检查并排除。
4）开泵运转一定时间后，待泵头中气体全部排除后，再正常使用。
5）填料的松紧程度要适当，不能过松，也不能过紧。过松会泄漏或进气，影响流量稳定：过紧柱塞磨损快，功率消耗增加。

◆Before starting the pump, the transmission case,including plunger push—pull rod case and worm and worm gear case, should be filled with engine oil 32,and the oil level should near the middle line of the oil leveler window.The oil should be change timely according to the usage and desecrated degree of the oil.

◆The outlet of the pump should be opened before starting the pump, then couplings 5 should be rotated by hand. If everything is ok, pump can be started.

◆After starting the pump, there should not be intense vibration and special noise,and if there is,stop the pump at once and troubleshooting

◆After the pump runs for a while and all air in pump head is pressed out,the pump can work normally.

◆Packing should be packed with the teasonable tight.It could not be too tight or too loose. If packing is too loose,leakage and air inlet occur, which affects the stability of the flow.If packing is too tight,plunger will be wom rapidly and the power consumption will be high.

注意事项 Attentions

1.更换柱塞或填料时，先将填料压帽25和锁紧螺母24用专用扳手松开，将泵头拆下来，将柱塞压帽26松开，取下已损坏的柱塞，从缸体中取出填料压环、填料（1个上填料3个中填料）填料底环。注意各零件前后顺序及方向，并对零件进行清洗。将填料底环、填料、填料压环装人缸体中，将柱塞装入柱塞推拉杆中并拧入柱塞压帽（注意：不要拧紧），将泵头装入泵体后再将锁紧螺母24锁紧，转动联轴器5将柱塞全部进入缸体后、旋旋紧柱塞压帽26。

2.更换新泵头时，为了保证柱塞与泵头的同轴度，在柱塞与柱塞推拉杆的结合处留了一定的间隙，因此在安装柱塞和泵头时，一定先把泵头固定，再把填料压帽压紧，用填料确定柱塞中心后再紧柱塞压帽26，否则将使柱塞与泵头的不同轴度增大，造成柱塞与填料过快磨损，影响使用。

◆When changing plunger or packing,dismount the packing cover25 and lock nut 24 with special wrench first,then dismount pump head and plunger cover,Take off the damaged plunger, and take off the packing ring, packing and pack bottom ring from the cylinder.Be attention to the sequence and direction of the parts while doing this.Allparts should be cleaned.After assembling the packing bottom ring, packing and packing ring to the cylinder,assembling the plunger into the plunger push—pull rod and fixing the plungercover. Then assembling the pump head into pump body and locking the lock nut 24, rotating the couplings 5 to make all the plunger come into the cylinder, and fixing the plunger cover 26.

◆When changing pump head,there are a little clearance between the plunger and plunger push—pull rod in order ro ensure rhe coaxiality requirement between the plunger and the pump head.So before assembling the plunger and pump head, fixing the pump head first,then fixing the packing cover. After the center of the plunger is determined with the packing,the plunger cover 26 should be fixed, otherwise the coaxiality between the plunger and the pump head can not be ensured, which makes plunger and packing worn rapidly.

易 损 件 Easily damaged parts

14 柱塞，17 不锈钢球，19 吸入阀组、排击阀组，20 填料组、四氟垫片，密封环
Plunger 14,stainless steel ball 17,inletand discharge valve 19,packing group,washers and seal ring 20.

随机附件 Accessories

专 用 板 手	1 份	Special wrench	1
使 用 说 明 书	1 份	Instruction Manual	1
产 品 合 格 证	1 份	Certificate	1

电话：0523—87891816 传真：0523—87894848 Http://www.txhongyu.com 网络实名：弘宇齿轮油泵