



青岛创梦仪器有限公司

Qingdao ChuangMeng Instrument Co., Ltd.



水泥浆静态滤失仪 Cement Slurry Static Filter Press

型号 Model:1215

使用手册

Instruction Manual

版本 1.0

Version 1.0

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请你仔细阅读《使用手册》，正确掌握本产品的安装和使用方法。阅读后请将本《使用手册》妥善保管，以备今后进行检修和维护时使用。

Carefully read this User Manual to learn how to install and use the product correctly. After reading, properly keep the User Manual as a reference for future maintenance and repair.

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1、概述 Introduction

水泥浆静态滤失仪是测量水泥浆在高温高压条件下滤失量的同时可制取，滤失后形成的滤饼。本仪器整体设计采用加热和控制系统一体，主要部件均采用优质不锈钢，操作方便，移动灵活，表面精制坚固耐用。温度控制系统采用目前国际最先进的电子温控器，具有控温精度高，重复性好，操作简单，测试数据准确等特点。非常适用于各油田、科研院所的实验室使用。

Cement slurry static filter press is used to measure the loss of cement slurry under high temperature and pressure, and to make filter cake after. The whole design of the instrument adopts heating and control system. The main parts are made of high quality stainless steel. It is easy to operate, flexible to move, and its surface is refined, firm and durable. The temperature control system adopts the most advanced electronic temperature controller in the world. It has the characteristics of high temperature control accuracy, good repeatability, simple operation and accurate test data. It is very suitable for laboratory use in oil fields and scientific research institutes.

2、型号和参数 Model and technical parameter

型号 Model	名称 Name	配件 Parts
1215	水泥浆静态滤失仪 Cement slurry static filter press	钻井液杯 Slurry cup



3、仪器结构及原理 Instrument structure and principle

名称 Name	技术参数 Technical parameter
电源 Power	220V \pm 5% 50/60Hz
加热功率 Heating power	1500W
最高工作温度 Maximum working temperature	室温至 232℃
浆杯最大工作压力 Slurry cup 's pressure	8MPa
滤液接收器最大压力 Maximum Pressure of Filter Receiver	4MPa
有效过滤面积 Effective filtration area	22.6cm ²
气源 Air supply	氮气、二氧化碳气体（不含油、水等杂质） Nitrogen, carbon dioxide (free of oil, water and other impurities)

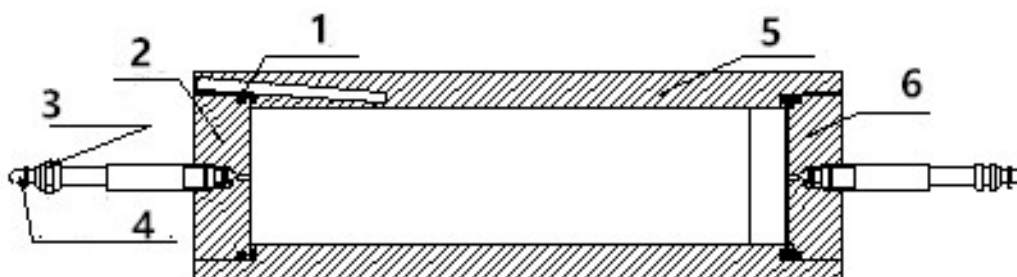
4、仪器结构及原理 Instrument structure and principle

- 1、主机：由底座、立柱、加热系统等组成，是仪器的主体组件。
- 2、三通组件：用来连接输气管和连通阀杆。可放掉管汇系统内余气。
- 3、浆杯：容量为 500ml、耐腐蚀的不锈钢容器。
- 4、回压接收器组件：是用来接收滤液，调节接收器内压力用。

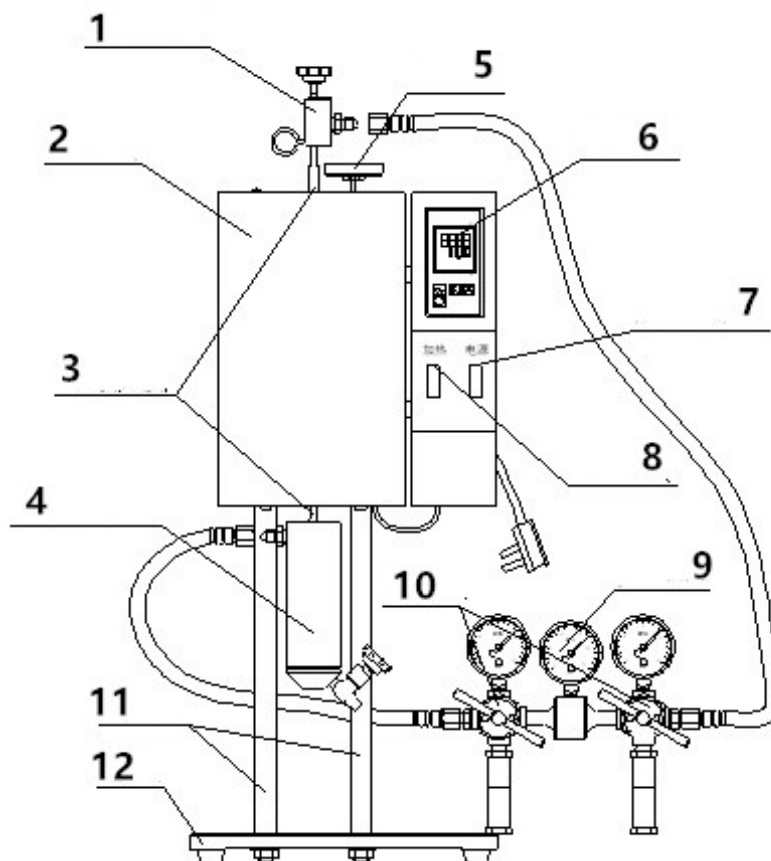
1. Main engine: It is composed of base, pillar, heating system and so on. It is the main component of the instrument.
2. Three-way assembly: used to connect gas pipeline and connecting valve stem. Remaining gas in manifold system can be released.
3. Slurry cup: stainless steel container with capacity of 500 ml and

corrosion resistance.

4. Backpressure Receiver assembly: It is used to receive filtrate and regulate the pressure in the receiver.



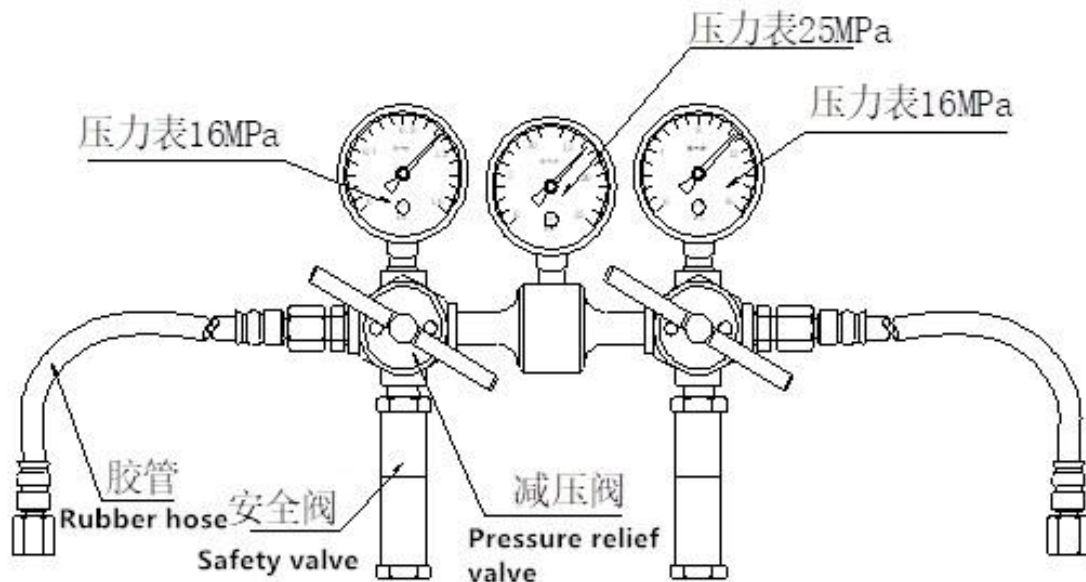
1	“O” 形圈/ “O” -ring	4	连通阀杆/Valve stem
2	杯底/Bottom of cup	5	杯体/Cup body
3	“O” 形圈/ “O” -ring	6	杯盖/Cup cover



1	三通组件/Three-way assembly	7	加热开关/Heating switch
2	加热套/Heating sleeve	8	电源开关/Power switch
3	连通阀杆/Valve stem	9	压力表/Pressure gauge
4	回压接收器/Back pressure receiver	10	调压阀/Pressure regulating valve
5	温度计/Thermometer	11	立柱/Column
6	温控器/Thermostat	12	底座/Base



5、仪器的操作 The operation of the instrument:



警告：设置键“○”非本厂技术人员严禁触碰。

- 1、将加热套和相应电压电源接通，将温度计插入温度计孔。将加热套加热至比选定的测量温度高 10°F (6°C)，在整个测试过程中用恒温器保持温度恒定。
- 2、将样品搅拌 10min。
- 3、将样品装入浆杯，注意样品液面不要超过 405ml，即样品注入量不得多于杯中距顶盖 37mm 处杯刻线。放上滤纸，上好浆杯。
- 4、浆杯的上端和下端气阀关闭，反把浆杯放入加热套。将温度计插入温度计孔中。
- 5、将加压管汇与上、下二气阀连接，并将其销住。在气阀关闭状态下将上、下管汇施加 0.7MPa 和推荐的回压的。打开上端气阀，通入气压，并加温至选定的温度。
- 6、当温度达到设定的温度时，将上端气压加至 950psi (6550kPa)，打开下端气



阀。在 30 min 的整个测量过程中，保持预先设定的温度 ($\pm 3^{\circ}\text{C}$)，收集滤液。在测量过程中使下端压力保持在 450psi (3103kPa)，若下端回压超过 450 psi，泄放一些滤液，以放掉一些回压。记下测量温度和压力下的滤液体积的毫升数。样品在杯中加热的时间不应超过 1h。

7、标准过滤面积为 7.0in^2 ，如过滤面积为 3.5in^2 (22.6cm^2)，将滤液体积乘 2，记入记录。

8、在测量接近结束后，关闭上下二气阀，拔掉“T”型销，释放调压器中的气压。

9、以毫米或 $1/32\text{in}$ 为记录单位，量测泥饼厚度，并描述泥饼质量。

注意：液杯中将有 500 psi (3448kPa) 的气压。要使液杯保持在垂直状态，直至冷却至室温。

Warning: Setting key "○" is strictly forbidden to touch by non-factory technicians.

1. Connect the heating sleeve with the corresponding voltage power supply and insert the thermometer into the thermometer hole. The heating sleeve is heated to 10°F (6°C) higher than the selected measuring temperature, and the temperature is kept constant by a thermostat during the whole testing process.

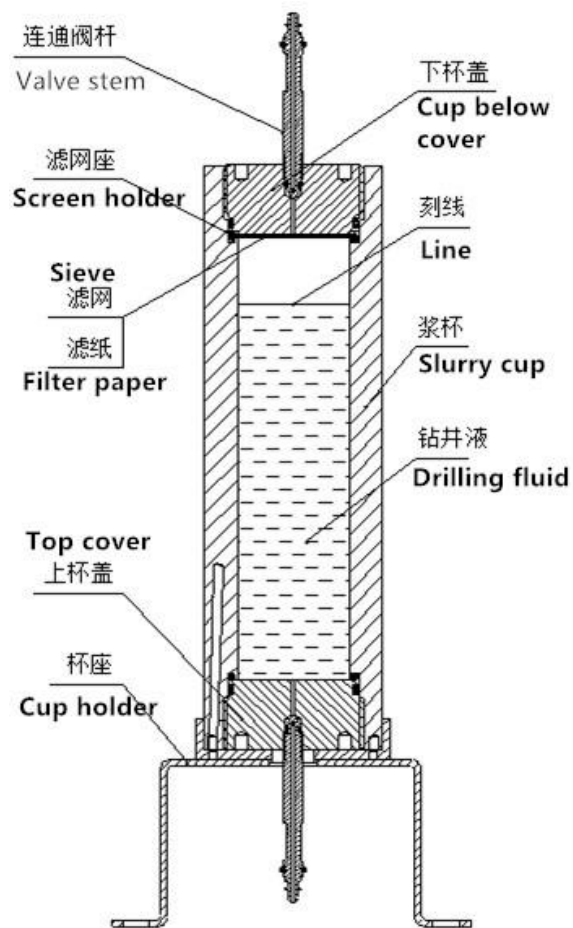
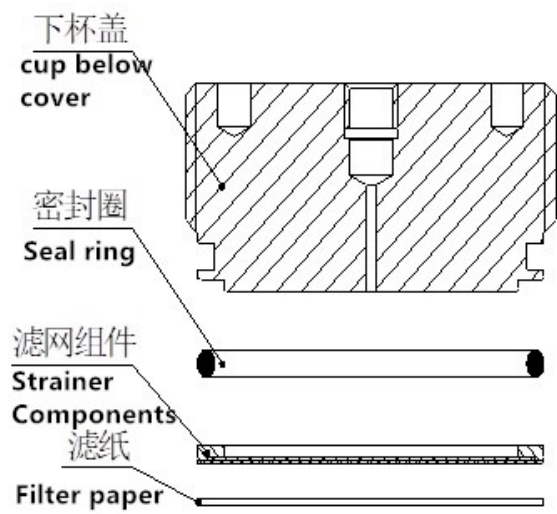
2. Stir the sample for 10 minutes.

3. Put the sample into the slurry cup and note that the liquid level of the sample should not exceed 405 ml, that is to say, the injection amount of the sample should not exceed the calibration mark of the cup at 37 mm from the middle of the cup to the top. Put on the filter paper and put on the slurry cup.



4. The upper and lower valves of the slurry cup are closed, and the slurry cup is put into the heating sleeve in the opposite direction. Insert the thermometer into the thermometer hole.
5. Connect the pressure manifold with the upper and lower two-valve and pin it. When the valve is closed, the upper and lower manifolds are applied with 0.7 MPa and recommended backpressure. Open the upper end valve, let in the air pressure, and heat to the selected temperature.
6. When the temperature reaches the set temperature, add the upper air pressure to 950 psi (6550 kPa) and open the lower air valve. During the whole measurement process for 30 minutes, the filtrate was collected at a pre-set temperature ($\pm 3^{\circ}\text{C}$). During the measurement, the lower pressure is kept at 450psi (3103kPa). If the lower pressure exceeds 450psi, some filtrate is released to release some of the back pressure. Note the milliliters of filtrate volume measured at temperature and pressure. The sample should not be heated in the cup for more than 1 hour.
7. The standard filtration area is 7.0in². If the filtration area is 3.5 in² (22.6cm²), the volume of filtrate is multiplied by 2 and recorded.
8. Close the upper and lower gas valves, pull out the "T" pins and release the pressure in the regulator after the measurement is close.
9. The mud cake thickness was measured and the mud cake quality was described in millimeter or 1/32in.

Note: There will still be 500 psi (3448 kPa) pressure in the liquid cup. Keep the cup in a vertical position until it is cooled to room temperature.





6、维护与保养 Maintenance

- 1、清洗各部件并干燥待用，仪器置于干燥环境中。确保通气孔内清洁。“O”型圈和滤网未变形、无破损，密封面无损伤。
- 2、移动或保养仪器时。要轻拿、轻放，以免造成部件变形影响精度和使用。
- 3、放置时要将调压手柄处于自由状态。调压手柄螺栓处，应定期旋下涂抹润滑脂，以免生锈，造成调压失灵。
- 4、调节压力时不能将压力调至超过压力表总量程的 $2/3$ ，逐渐加压，不得敲击压力表。
- 5、仪器使用结束后，应将各部件内的压力、气体释放干净。泄压后方可打开浆杯清洗干燥。
- 6、输气管禁止与腐蚀性介质接触，不得敲击和划伤。
- 7、气源严禁使用氧气。

1. Clean the parts and dry them for use. The instrument is placed in a dry environment. Make sure the ventilation holes are clean. "O"-rings and filters are not deformed and damaged, and the sealing surface is not damaged.

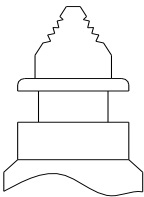
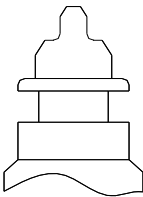
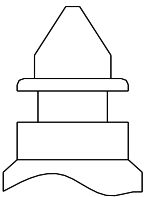
2. When moving, repairing or maintaining instruments. It should be handled and handled lightly so as not to cause parts to deform and affect accuracy and use.

3. Place the pressure regulating handle in a free state. At the bolt of the pressure regulating handle, the grease should be screwed off regularly to avoid rusting and pressure regulating failure.



4. When adjusting the pressure, the pressure should not be adjusted to $\frac{2}{3}$ of the total range of the pressure gauge. Gradually, the pressure should be increased and the pressure gauge should not be tapped.
5. After the use of the instrument, the pressure and gas in each component should be released clean. After pressure relief, the slurry cup can be opened for cleaning and drying.
6. Gas pipelines shall not be exposed to corrosive media and shall not be knocked or scratched.
7. The use of oxygen is strictly prohibited.

7、故障的判定与排除 Diagnosis and Elimination of Faults

故障 Fault	原因 Reason	维修方法 Maintenance method
滤失实验时,样品从连通阀杆滴口处溢出 During the filtration test, the sample overflows from the droplet of the connecting valve stem.	滤网破损 Filter screen damage	更换双层滤网 Replace double-layer filter screen
加热套达到实验温度,放入浆杯后套内发出声响,并伴有金属撞击声是因液体从盖端渗漏造成 When the heating sleeve reaches the experimental temperature, the sound is emitted in the back sleeve of the slurry cup, accompanied by metal impact, which is caused by the leakage of liquid from the cover end.	1. 杯盖安装不妥.使杯盖没达到完全密封. 2. 连通阀杆“O”型圈老化或破损 3. 杯内“O”型圈老化或破损. 1. Installation of cup cap is inappropriate. Make the cup cover not completely sealed. 2. Aging or Damage of Connected Stem Type "O" Ring 3. Aging or Damage of "O" Ring in Cup	1. 重新安装杯盖调整紧定螺钉.达到端面密封效果。 2. 更换“O”型圈 3. 更换“O”型圈 1. Re-install the adjusting and tightening screw of the cup cover. To achieve the end sealing effect. 2. Replace "O" -ring 3. Replace "O" -ring
打开电源开关指示灯不亮 Turn on the power switch and the indicator does not turn on	1. 电源插座未插好 2. 熔断丝烧断 1. The power outlet is not plugged in properly. 2. fuse break.	1. 重新按装电源插座使其接触良好 2. 更换熔断丝 1. Re-press the power outlet to make it in good contact. 2. Replace fuse.
按启动按钮,无指示信号 Press start button, no indication signal	1. 线路开路 2. 继电器损坏 1. Open circuit 2. Relay damage	1. 找出断线点重新接入 2. 更换同型号继电器 1. Find out the breakpoint and re-access it. 2. Replacement of the same type of relay
升温太慢 Heating too slowly	加热棒有烧坏现象 Burn-out of heating rod	打开加热壳底盖,取出保温层,更换已烧坏的加热棒。 Open the bottom cover of the heating shell, remove the insulation layer and replace the burnt heating rod.
如何鉴别连通阀杆的好坏 How to Identify Connected Stem	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>不好 尖端有凹槽</p> <p>Bad</p> </div> <div style="text-align: center;">  <p>不好 尖端有凹陷</p> <p>Bad</p> </div> <div style="text-align: center;">  <p>好</p> <p>Good</p> </div> </div>	



8、一年备件（选购） One year spare parts (selected)

编号 Numbered	名称及规格 Name and specification	数量 Quantity	备注 Remarks
S0191	内六角锥端紧定螺钉 Hexagon socket set screws with cone point	30	
121002	连通阀杆 Valve stem	10	
P0302	988 滤纸 Filter paper	5	
P0314	双金属温度计 Bimetallic thermometer	1	
S0501	“O” 型圈 ($\phi 6 \times 1.8$) O-ring ($\phi 6 \times 1.8$)	50	
S0502	“O” 型圈 ($\phi 8 \times 1.8$) O-ring ($\phi 8 \times 1.8$)	50	
S0551	“O” 型圈 ($\phi 37 \times 1.8$) O-ring ($\phi 37 \times 1.8$)	50	
S0508	“O” 型圈 ($\phi 64 \times 3.5$) O-ring ($\phi 64 \times 3.5$)	50	
	保险丝 Fuse	30	
G0106	量筒 (25ml) Measuring cylinder (25ml)	10	

对不同实验温度推荐的始压和回压

Initial and backpressure recommended for different experimental temperatures

温 度 Temperature		始 压 (样品室压力) Initial pressure (sample chamber pressure)			回 压 (接收室压力) Backpressure (Receiver Chamber Pressure)		
°C	°F	MPa	Kg•f/cm ²	磅/吋 ²	MPa	Kg•f/cm ²	磅/吋 ²
<94	<200	3.15	35.15	500	0	0	0
94~149	200~300	4.14	42.18	600	0.67	7.0	100
149~177	301~350	4.48	45.70	650	1.03	10.5	150
177~190.5	351~375	4.82	49.20	700	1.37	14.0	200
191~204.5	376~400	5.17	52.73	750	1.73	17.6	250
205~218	401~425	5.86	59.75	850	2.40	24.6	350
218.9~232	426~450	6.55	66.80	950	3.10	31.6	450
232.8~246	451~475	7.24	73.80	1050	3.80	38.7	550
246.7~260	476~500	8.27	84.36	1200	4.82	49.2	700



青岛创梦仪器有限公司 装箱单

Qingdao Chuangmeng Instrument Co., Ltd. Packing list

生产企业：青岛创梦仪器有限公司

Manufacturing enterprise: Qingdao Chuangmeng Instrument Co.,Ltd.

生产地址：青岛市城阳区流亭街道兴海路 3 号

Production address: No. 3 Xinghai Road, Liuting Street, Chengyang District, Qingdao

主机型号：

Model of the main motor:

出厂编号：

Manufacturing No:

序号 No	编号	名称及规格 Name and specification	数量 Quantity	备注 Remarks
1		主机 Main engine	1	
2		管汇 Mainifold	1	
3		高温高压滤纸 HTHP filter paper	1	
4		回压接收器 Backpressure receiver	1	
5		浆杯 Slurry cup	1	
6		连通阀杆 Valve stem	2	
7		三通阀 Three-way valve	1	
8		杯座 Cup base	1	
9		量筒 Measuring cylinder (25ml)	1	
10		温度表 Thermometer (0~250℃)	1	
11		专用扳手 Special spanner	1	
12		内六角扳手 Inner hexagon spanner (4mm)	1	
13		呆扳手 Wrench (14-17mm)	1	
14		呆扳手 Wrench (7mm)	1	
15		双层滤网 Double screen	1	
16		“O” 型圈 O-ring ($\phi 8 \times 1.8$)	10	
17		“O” 型圈 O-ring ($\phi 37 \times 1.8$)	1	
18		“O” 型圈 O-ring ($\phi 64 \times 3.5$)	5	
19		电源线 Power cord	1	
20		使用手册 Manual Instruction	1	
21		合格证 Certificate	1	



产品合格证
Product Quality Certificate

出厂编号：
Manufacturing No:

产品名称： Description:	
产品型号： Model:	
检验标准： Standard:	
生产日期： Date of Manufacture:	
产品编号： Product Code:	
结论：Conclusion:	
经检验，青岛创梦仪器有限公司生产的产品符合上述标准的要求。准予出厂。 After inspection, Qingdao Chuangmeng Instrument Co., Ltd The products produced meet the requirements of the above standards. Approved for delivery.	
本企业通过： IS0014004 环境管理体系认证； IS09001:2015 质量管理体系认证； IS018000 职业健康安全管理体系认证质检科； QC Department:	