



青岛创梦仪器有限公司

Qingdao Chuangmeng Instrument Co., Ltd



中压滤失仪

LPLT Filter Press

型号 Model: 1202/1200/1230/1204/1205

使用手册

Instruction Manual

版本.1.0

Ver. 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。

Please read the Instruction Manual carefully, for correctly grasping the installation and using method of this product. Please keep properly this Instruction Manual after reading, for the usage during troubleshooting and maintenance in the future.

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I . 概述 Summary

钻井液的过滤性能和造壁性的测量和控制钻井液的处理是根本，滤液如油、水的各种特性，或乳液离子含量。钻井液中固体的种类和数量以及它们之间产生的物理和化学作用会影响到钻井液的这些特性。这些物理和化学作用也会受到温度和压力的影响。因此，必须在低压/低温和高压/高温环境下分别进行试验。满足每一个测试条件都需要不同的设备和技术。

LPLT 压滤机是模拟低压/低温环境，测试钻井泥浆和水泥浆的过滤性能的最有效的设备。

工作压力为 0.69MPa(100 psig)和滤失面积是 45.6cm²(7.1-in²)，作为美国石油协会规定，“API 推荐实践 13b-1 和 13b-2”。

该仪器是将一定量的钻井液，注入直径为 76.2mm (3in) 筒状钻井液杯中，上紧杯盖，接通气源将压力调至 0.69MPa 打开放气阀，气源进入钻井液杯中。仪器的过滤面积为 45.6±0.6cm²(7.1±0.1in²)。压力是由经过调节器的气体提供。记下滤失时的时间、滤失量和留取滤饼。

Measuring filtration behavior and wall-cake building characteristics of a mud is essential to drilling fluid control and treatment. The types and quantities of solids in the fluid and their physical and chemical interactions affect these characteristics. Temperature and pressure in turn affect the physical and chemical interactions. It is therefore necessary to run tests at both low-pressure/low-temperature and high-pressure/high-temperature. Each of these testing conditions requires different equipment and techniques.

LPLT filter press is the most effective device to simulate the filtration performance of drilling mud and cement slurry in low pressure / low temperature environment.

Working pressure is 0.69MPa(100 psig) and the filtering area is 45.6cm²(7.1-in²), as specified in the American Petroleum Institute, “API Recommended Practice 13B-1 and 13B-2” .

The instrument is a certain amount of drilling fluid into a cylinder like drilling fluid cup with a diameter of 76.2mm (3in). It tightens the cup cover and connects the gas source to the 0.69MPa opening valve and the gas source enters the drilling fluid cup. The filtration area of the instrument is 45.6 + 0.6cm² (7.1 + 0.1in²). Pressure is provided by the gas that passes through the regulator. Filtration time, write down the time filter loss and take the cake.

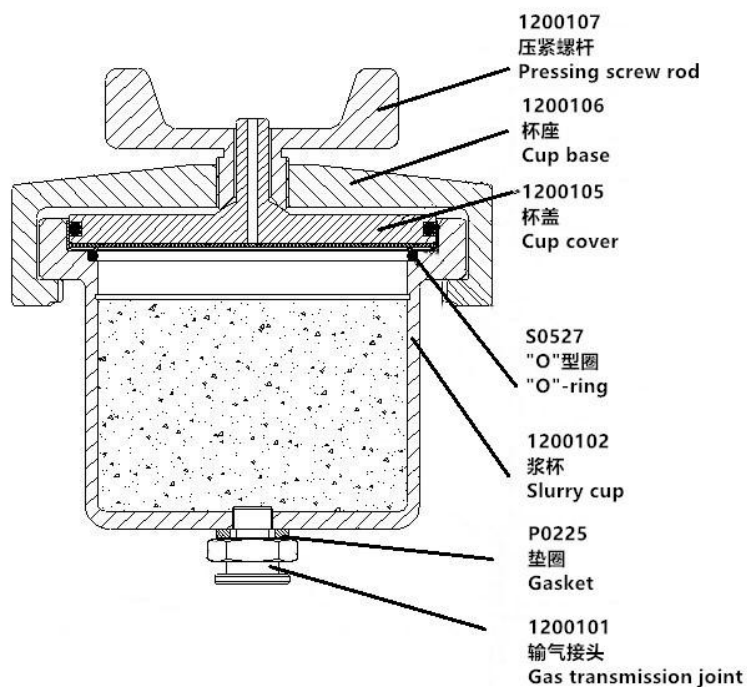
II. 型号及规格 Model and Specifications

型号 Model	名称 Name	特征 Feature
1202	中压滤失仪 LPLT Filter Press	铝杯 Aluminum cup
1200	中压滤失仪 LPLT Filter Press	不锈钢杯 Stainless steel cup
1230	中压滤失仪 LPLT Filter Press	不锈钢杯、气弹 Stainless steel cup、CO2 Cartridges
1203	中压滤失仪 LPLT Filter Press	不锈钢杯、三联 Stainless steel cup、3-UNIT
1204	中压滤失仪 LPLT Filter Press	不锈钢杯、四联 Stainless steel cup、4-UNIT
1205	中压滤失仪 LPLT Filter Press	不锈钢杯、六联 Stainless steel cup、6-UNIT

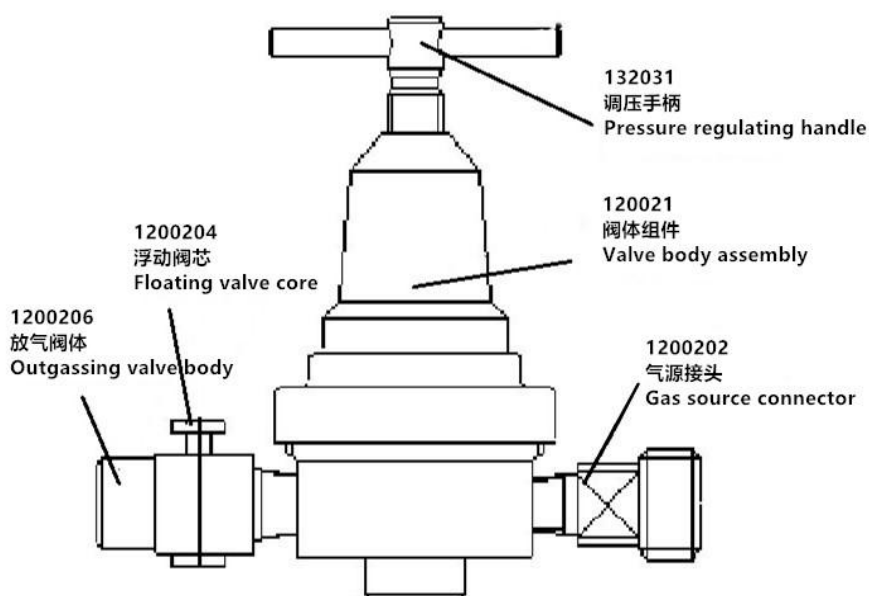
III. 参数 Parameter

名称 Name	参数 Parameter
滤失面积 Filtering area	45.6cm ² (7.1-in ²)
工作压力 Working pressure	0.69MPa(100 psig)
浆杯容量 The capacity of the slurry cup	240ml

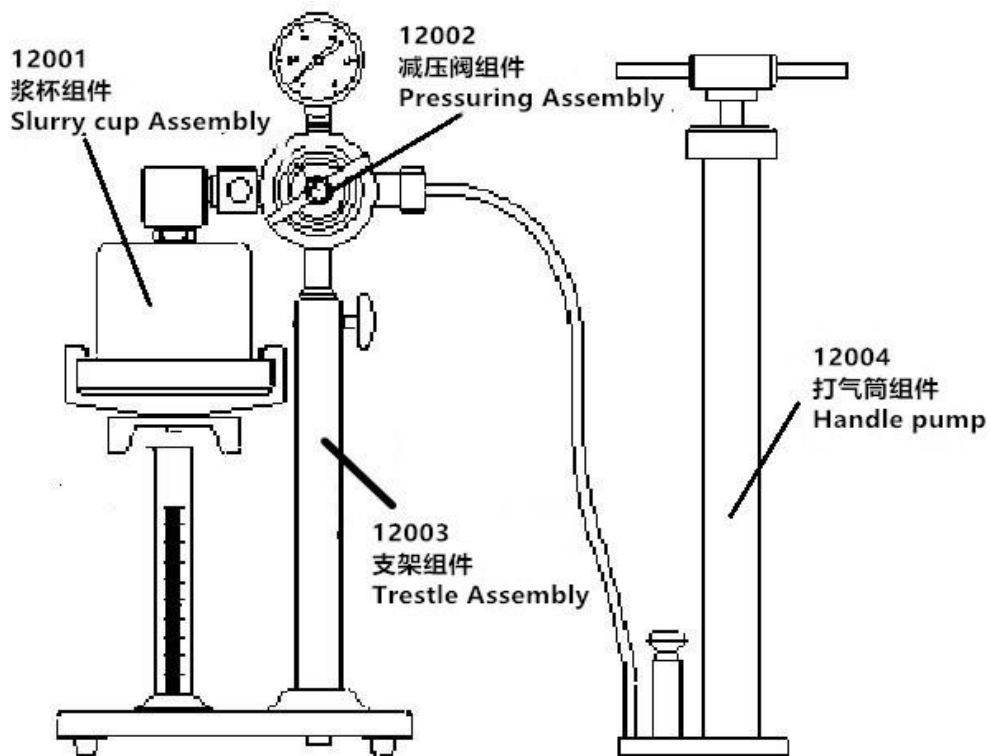
IV. 组件 Assembly



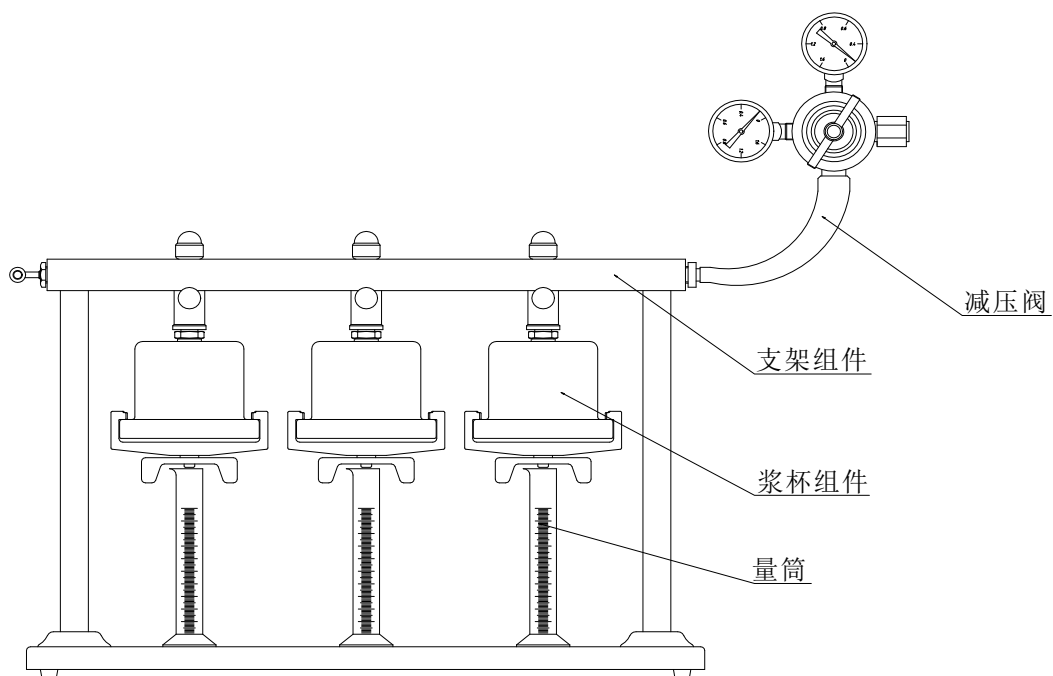
12001 浆杯组件
12001 Slurry cup Assembly



12002 减压阀组件
Pressuring Assembly



中压滤失仪
LPLT Filter Press



V. 操作 Operation:

- 1) 仔细阅读说明书，检查仪器是否完好，根据装箱单认真检查备件等。
 - 2) 取出仪器支架部分，将其放平。
 - 3) 检查气源接头内“O”形密封圈是否完好。将气源输气管的连接螺母接在减压阀气源接头上旋紧，调压手柄处于自由位置。将浮动阀芯螺帽推至关闭状态。
 - 4) 取出钻井液杯组件。要确保钻井液杯各部件，尤其是滤网清洁干燥，也要确保密封圈未变形或损坏。用手堵住钻井液杯输气接头小孔处，注入一定量的（240ml）钻井液至杯内刻线处。依次放入“O”型密封圈、滤纸、杯盖、杯座，拧紧压紧螺杆。
 - 5) 检查放气阀体内“O”形密封圈是否完好。将注入钻井液并安装完后的钻井液杯倒置，输气接头端向上装入放气阀体内使其旋转 90°。确保安装到位。
 - 6) 将干燥的量筒放在钻井液杯盖下方用来接收滤液。
 - 7) 迅速加压并计时。所加压力为 (690 ± 35) kPa，气源为压缩空气、氮气、二氧化碳，禁用氧气。
 - 8) 按“进气”箭头方向，推动浮动阀芯，待压力进入钻井液杯后启动秒表记录滤失时间，30min 后读出收集的滤液体积。以毫升为单位记录滤液的体积（精确到 0.1 毫升）并作为 API 滤失量，同时记录钻井液样品的初始温度 $^{\circ}\text{C}$ ($^{\circ}\text{F}$)，保留滤液用作化学分析。
 - 9) 实验结束关闭气源，泄掉浆杯中的压力，取下浆杯，小心取出滤纸，用水冲洗泥饼上的钻井液和浮泥，测量并记录滤饼厚度(以 mm 为单位)，观察滤饼质量的好坏(硬、软、韧、松、致密、坚固等)。
 - 10) 擦净仪器，浆杯、密封圈等清洗干净并烘干存放。
- 1) Read the instructions carefully, check the instrument is intact, check the spare parts according to the packing list carefully.
 - 2) Remove the support part of the instrument and flat out.
 - 3) Check whether the "O"-ring is in good condition. The connecting nut of the gas source pipeline is screwed on the air inlet joint of the pressure reducing valve, and the pressure regulating handle is at a free position. Push the floating valve nut to the closed state.
 - 4) Remove the drilling fluid cup assembly. To ensure that all parts of the drilling fluid cup, especially the filter screen are clean and dry, it is also necessary to ensure that the seal ring is not deformed or damaged. We use hand to block the small hole of the gas transmission joint of the drilling fluid, and pour a certain amount of (240ml) drilling fluid into the inner line of the cup. In turn, put in the "O"-ring, filter paper,

cup cover and cup base, and tighten the Pressing screw rod.

5) Check whether the "O"-ring in the vent valve is intact. The drilling fluid cup after drilling and installation is inverted, and the Gas transmission joint is loaded into the vent valve body to rotate 90 degrees. Ensure that the installation is in place.

6) The drying cylinder is put in the cup cover is used for receiving the drilling fluid filtrate.

7) Fast pressure and time. The added pressure is $(690 + 35)$ kPa, and the gas source is compressed air, nitrogen and carbon dioxide, and oxygen is banned.

8) Press the "intake" arrow direction to push the floating valve core. After the pressure enters the drilling fluid cup, the stopwatch is started to record the loss time, and the collected filtrate volume is read after 30min. The volume of the filtrate was recorded in milliliter (accurate to 0.1 milliliters) and used as the API filter loss, and the initial temperature of the drilling fluid was recorded at the same time, and the retained filtrate was used as a chemical analysis.

9) At the end of the experiment, the pressure in the slurry cup is removed, the slurry cup is removed, the filter paper is taken out carefully, the drilling fluid and the floating mud on the mud cake are washed with water, and the thickness of the filter cake (in mm) is measured and recorded, and the quality of the filter cake is observed (hard, soft, tough, loose, compact and solid, etc.).

10) Wipe up the instrument, the slurry cup, the sealing ring and so on, clean it up and dry it up.

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	零件号 Part Number	名称 Name	数量 Qty	备注
1	1200	主机 Main body	1	
2	12001	浆杯 Slurry cup		
3	12004	气筒 Handle pump		
4	S0501	“0”型圈 “0”-ring ($\phi 6 \times 1.8$)		
5	S0513	“0”型圈 “0”-ring ($\phi 11 \times 1.8$)		
6	S0527	“0”型圈 “0”-ring ($\phi 81 \times 3.1$)		
7	P0312	PH试纸 PH test paper	3	
8	P0301	987滤纸 Filter paper ($\phi 90$)	1	
9	G0106	量筒 (25ml) Cylinder (25ml)		
10	G0308	塑料量杯 (700ml) Plastic counting cup (700ml)		
11		使用手册 Instruction Manual	1	
12		合格证 Certificate	1	
13		装箱单 Packing list	1	