



GFT Valves & Pumps
ACE Mender Pty Ltd

Glass Lined Reactor Inline Sampling System

- Products & On-site Service

搪玻璃反應槽在線取樣系統

- 產品及現場服務

ACE MENDER



□ Sampling base unit 取样器基础单元

- One-piece base unit in 304L stainless steel 304不鏽鋼製成的一體式取样器基礎單元
- Lining in virgin PFA 襯新的PFA
- Sight glass in borosilicate DIN 7080 硼硅視鏡玻璃DIN7080
- Sight glass ball seat and hollow ball with TFM (vacuum type) 視鏡玻璃球座和空心球用TFM材料製成（真空式）
- Available with diaphragm or ball valves 可以接隔膜閥或球閥
- Available with EN1092 or ANSI 150 flanges 可以接EN1092或ANSI 150lb 法蘭。
- Engineered by Germany 德國技術

□ Modular Design 模块化设计：

The sampling system extracts the desired sample by vacuum or air drive diaphragm pump. In addition to main part, the remaining sampling sections have a variety of accessory options that can be easily assembled according the given requirements. 取样系統通過真空或氣動隔膜泵提取所需樣品。除主機外，其餘採樣部分均提供多種配件選項，可根據特定需求輕鬆組裝。

□ Application 應用：

- The sampling device GRS, is used for the sampling of corrosive and / or toxic liquids from reactors or tanks in a safe way without interrupting the production process. 取样裝置 GRS 用於以安全的方式從反應器或儲罐中取样腐蝕性和/或有毒液體，而無需中斷生產過程。
- This device extracts the sample required by vacuum or under pressure conditions. 該裝置利用真空或壓力條件提取所需樣品。
- In addition to the basic unit, several accessories and options can be selected for an easy assembly of the system according to the specifications. 除基本單元外，還可以選擇多種配件和選項，以便根據規格輕鬆組裝系統。
- Assembly on top nozzles of reactor. 安裝在反應釜頂管口。

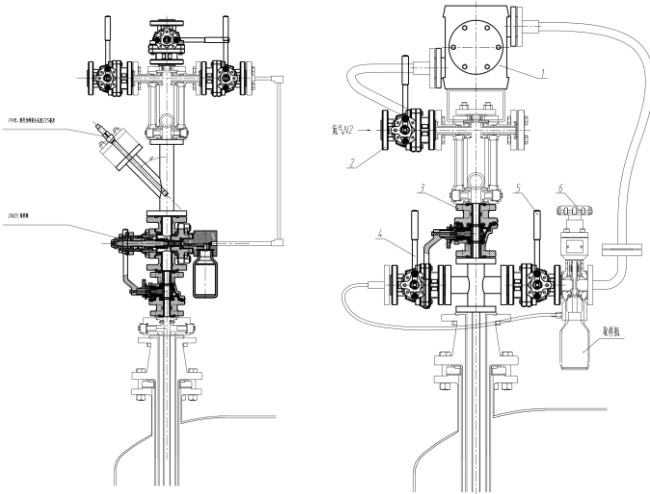
□ Materials 材料:

- 316 L stainless steel 不鏽鋼
- 304 stainless steel lined PFA 不鏽鋼襯PFA



Manual Reactor Sampling System

反應釜循環取樣系統



Sampling system with inline sampling valve 帶在線取樣閥的取樣系統

- Free residue in the system after sampling. 采样后，系统中无残留物。
- It could be plus function such as inline PH probe during circulation. 可在循环过程中添加在线PH探头等附加功能。

Sampling system without inline sampling valve 不帶在線取樣閥的取樣系統

- Basic Design 基本設計。
- GRS-V series vacuum sampling System 系列真空取樣系統
- Higher temperature resistance 耐溫高。
- Simple and cheap 簡單便宜。
- GRS-C series circulation sampling System
- Samples are representative in real time 樣品具有即時代表性。
- Easier to install testing instruments 更易加裝檢測儀錶。



GRS-A series 系列:

Automatic reactor sampling system 自動反應釜取樣系統

- Operating by one button, avoid mistake of operating step, more safety design. 一键操作，避免操作步骤错误，更安全的设计。
- Could applied on vacuum type sampling also circulation type sampling, 可以應用於真空取樣也可應用於循環取樣。
- Automatic suction and manual sampling during system with inline sampling valve. 當系統帶在線取樣閥時自動吸入手動取樣。

Manual Reactor Sampling System

反應釜循環取樣系統

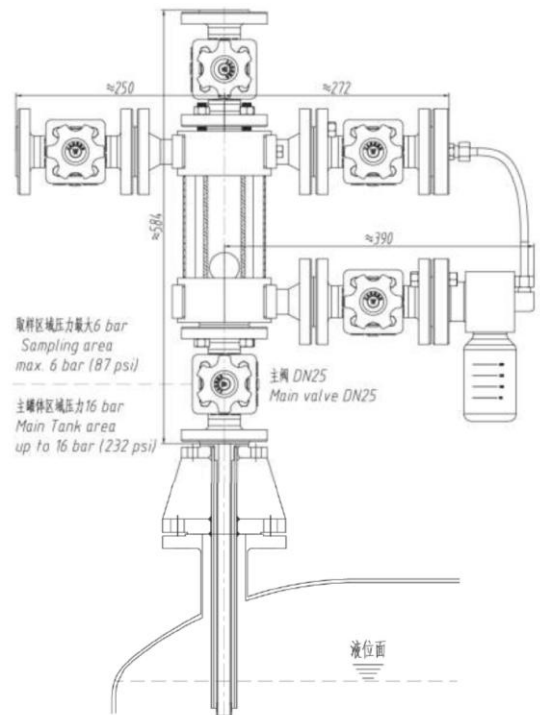


GRS-V Series vacuum sampling system extract the required sample by means of vacuum or under pressurized conditions. Here we only introduce the basic principle structure, and can customize the design and manufacture according to customer needs.

GRS-V系列真空取样系统利用真空或加压的方式提取所需样品。這裡我們儘介紹基本原理結構，可以按客戶需求進行客製化設計製造。

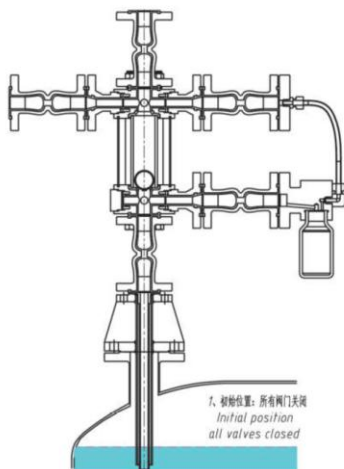
□ Operating Conditions 操作條件:

- Operating pressure inner reactor 反應釜內壓力: 16 bar
- Operating pressure during sampling 取樣時操作壓力: 10 bar
- Operating temperature 操作溫度: -20 ~ 150 °C
- Vacuum supply (suction head approx. 3m) 真空量 (吸取高度大約3m時): 500 mbar
- Sampling bottle 取樣瓶: 150 / 250 ml (or on request 或諮詢)
- Pure PTFE suction hose reach to reactor sampling point. 純PTFE吸入管到達反應釜取樣點。
- Glass Lined or PTFE lined Dip Pipe of reactor to protect the suction hose in reactor. 搪玻璃或襯PTFE的反應釜插入管保護在反應釜內的吸入管



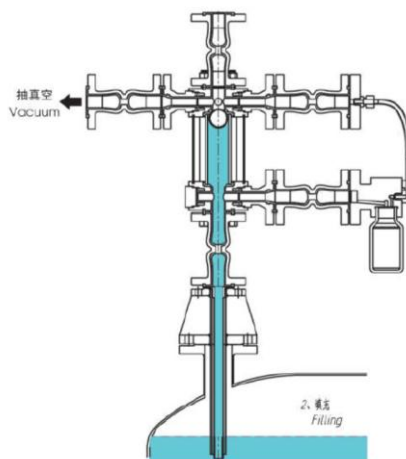
Circulation Reactor Sampling System

反應釜循環取樣系統



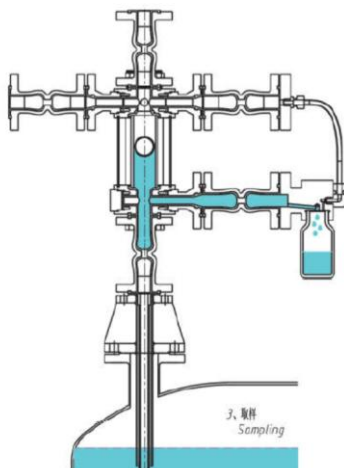
Start 初始狀態

All valves closed
所有閥門關閉



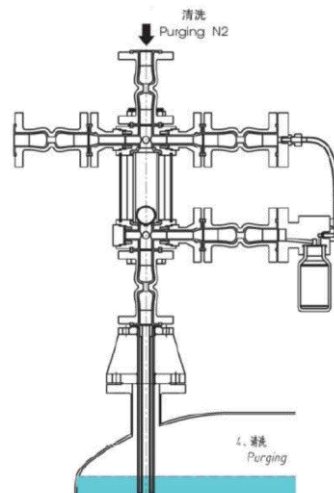
Suction 吸入

- Open suction valve 開吸入閥
- Open vacuum valve 開真空閥
- (Also vent valve if use reactor pressure to suction) 如果用反應釜壓力取樣則是排空閥



Sampling 取樣

- Close suction valve 關吸入閥
- Close vacuum valve 關真空閥
- Open sampling valve 開取樣閥
- Open sampling vent valve 開取樣排空閥



Purging 排空

- Open suction valve 開吸入閥
- Close vacuum valve 關真空閥
- Open N₂ valve 開氮氣閥

* Normally should repeat a few times both suction and purging step before sampling step, to ensure the sample is really reaction sample not which sample stay in suction tube. * 通常在取樣步驟之前應重復幾次吸入和吹掃步驟，以確保樣品确实是反應樣品，而不是留在吸入管中的樣品。

Circulation Reactor Sampling System

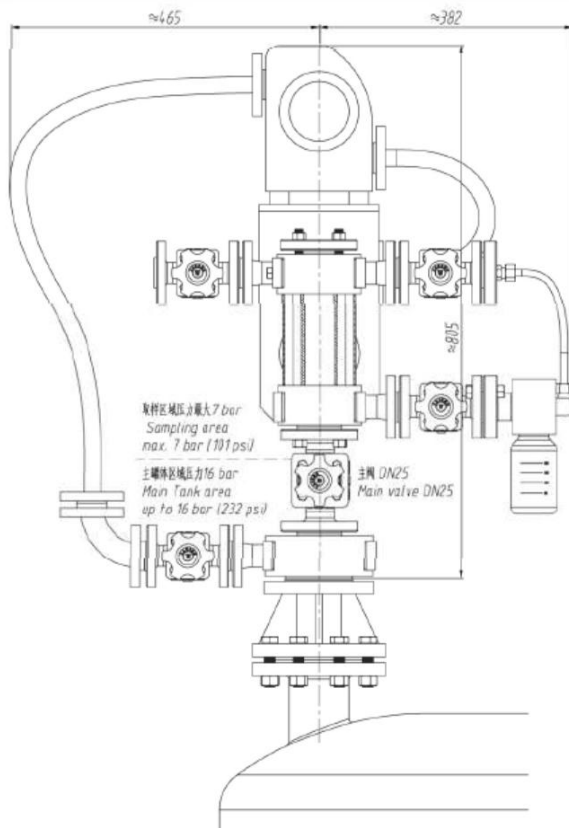
反應釜循環取樣系統



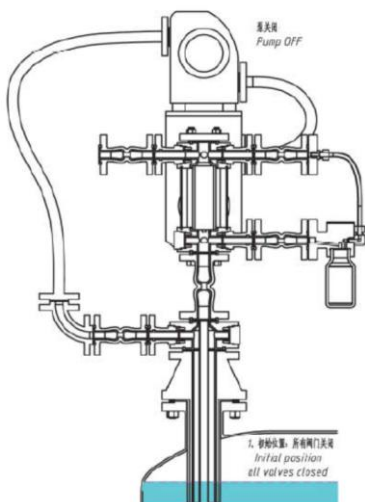
The GRS-C series circulating sampling system uses a diaphragm pump to suck in samples and return them to the reactor in a circulating manner, extracting the required samples in the circulating line. Here we only introduce the basic principle structure, and can customize the design and manufacture according to customer needs. GRS-C 系列循環取樣系統利用隔膜泵吸入樣品且送回反應釜的循環方式，在循環線路商提取所需樣品。這裡我們儘介紹基本原理結構，可以按客戶需求進行客製化設計製造。

□ Operating Conditions 操作條件:

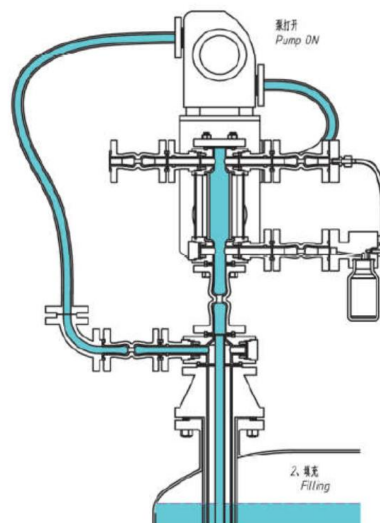
- Operating pressure inner reactor 反應釜內壓力: 16 bar
- Operating pressure during sampling 取樣時操作壓力: 7 bar
- Operating temperature 操作溫度: -20 ~ 120 °C
- Pressure air supply 壓縮空氣接入: 6 bar
- Sampling bottle 取樣瓶: 150 / 250 ml (or on request 或諮詢)
- Pure PTFE suction hose reach to reactor sampling point. 純PTFE吸入管到達反應釜取樣點。
- Glass Lined or PTFE lined Dip Pipe of reactor to protect the suction hose in reactor. 搪玻璃或襯PTFE的反應釜插入管保護在反應釜內的吸入管



Circulation Reactor Sampling System 反應釜循環取樣系統

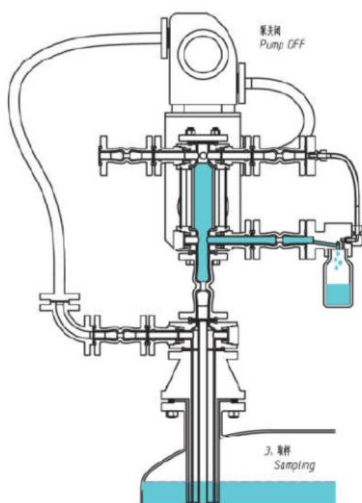


Start 初始狀態
 All valves closed
 所有閥門關閉



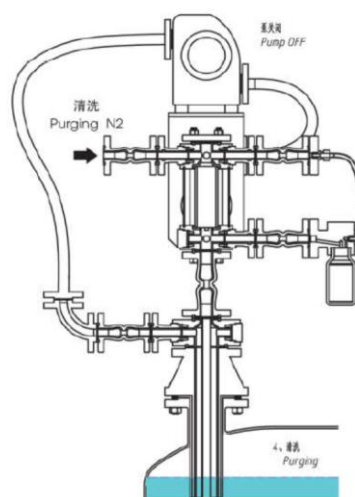
Suction 吸入

- Open suction valve 開吸入閥
- Take on pump 看隔膜泵
- Open return valve 開回流閥
- Build a circulation to ensure the sample is really reaction sample. 建立起循環，保證樣品是實時物料。



Sampling 取樣

- Close suction valve 關吸入閥
- Take off pump 關隔膜泵
- Open sampling valve 開取樣閥
- Open sampling vent valve 開取樣排空閥

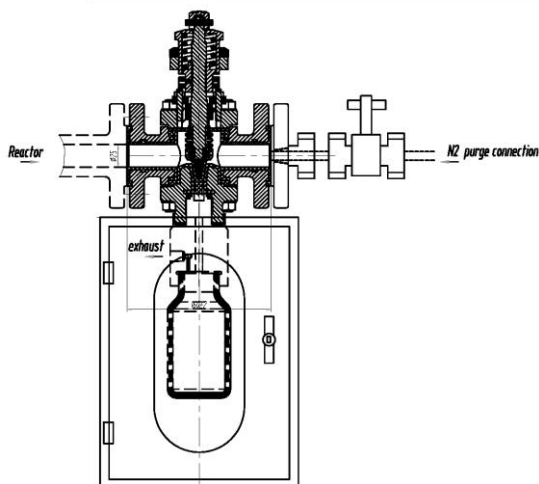


Purging 排空

- Open suction valve 開吸入閥
- Open return valve 開回流閥
- Open N₂ valve 開氮氣閥

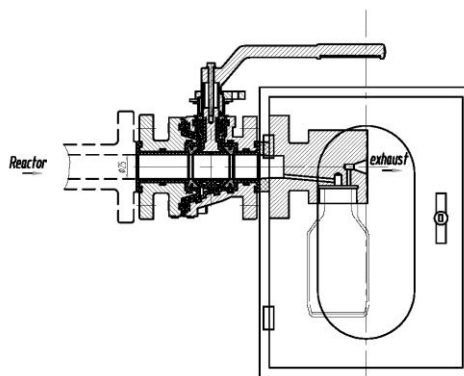
Sampling from reactor side nozzle 從反應釜側孔系統

□ Proposal with Sampling valve (Recommend) 帶取樣閥方案（推荐）



- Installed WCB/PFA lined sampling valve with on the nozzle of reactor cylinder. 在反應釜筒體管口上安裝WCB/PFA內襯取樣閥。
- With PTFE bottle adapter, the bottle connection GL 45. within have a gas vent hole G 1/2" on the adapter. 配備PTFE瓶接頭，瓶體介面為GL 45，接頭上有一個G 1/2英寸的排氣孔。
- PTFE adapter GL45 / GL28 for use different size bottle. PTFE接頭GL45/GL28可用於連接不同尺寸的瓶體。
- With Stainless steel 304 safety box. 配備不銹鋼304安全箱。
- With a PTFE ball valve for connection with Nitrogen. Could blow the Nitrogen to reactor before sampling then close Nitrogen to refresh the medium in the nozzle and sampling valve. To ensure that is right reaction medium. 配備PTFE球閥用於連接氮氣。取樣前，可向反應器吹入氮氣，然後關閉氮氣以更新噴嘴和取樣閥中的介質，確保反應介質正確。

□ Proposal with Ball valve 帶球閥方案



- Installed WCB/PFA lined ball valve with on the nozzle of reactor cylinder. 在反應釜筒體管口上安裝WCB/PFA內襯球閥
- With PTFE bottle adapter, the bottle connection GL 45. within have a gas vent hole G 1/2" on the adapter. 配備PTFE瓶接頭，瓶體介面為GL 45，接頭上有一個G 1/2英寸的排氣孔。
- PTFE adapter GL45 / GL28 for use different size bottle. PTFE 接頭 GL45/GL28可用於連接不同尺寸的瓶體。
- With Stainless steel 304 safety box. 配備不銹鋼304安全箱。
- **Please note that sampling the medium which stayed in nozzle and ball valve first, That is not right reaction medium. 請注意，請先對噴嘴和球閥中殘留的介質進行取樣，因為這些介質並非正確的反應介質。**