



## Product Specification

### Q/C Dual Stream Capillary Connection Kit

#### Summary

The Hiden HPR-20 with quartz inlet capillary (QIC) is a versatile and powerful research instrument. For certain applications, gas bottle sampling for example; its usefulness is expanded by the integration of the dual stream capillary connection kit to simplify analysis of two gas streams or a single gas stream and a calibration gas.

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## Introduction

Hidden Analytical offers a range of accessories, which can enhance the power and versatility of the standard analysis systems. The Dual Stream Capillary Connection kit is a prime example.

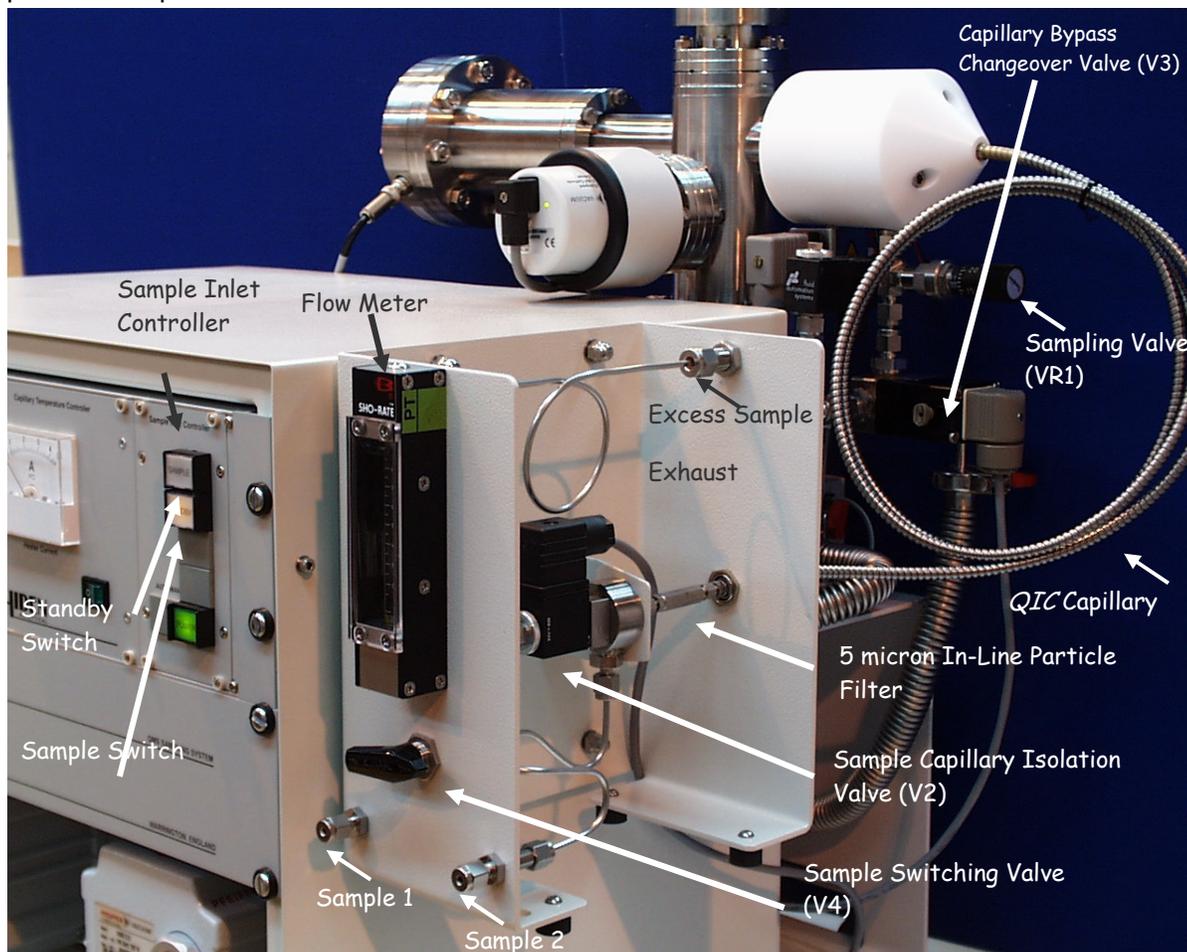
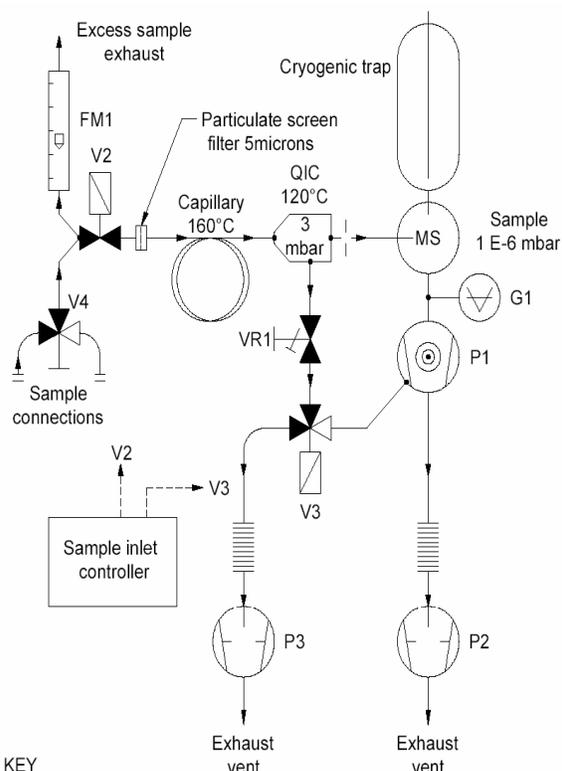


Figure 1: QIC Dual Stream Capillary Connection Kit mounted on HPR-20 QIC system.

The standard HPR-20 is a research grade gas analysis system incorporating the *QIC* sampling inlet analysis of gases near atmospheric pressure. The *QIC* dual stream capillary connection kit adds a significant flexibility to this instrument, particularly for those applications where sample gas is regularly checked and calibrated against a standard. Sample 1 connection would typically be used for sample gas connection with Sample 2 connection being connected to the calibration gas. Users should note that the inlet pipe work, valve and flow meter are unheated. The inlet is only suitable for clean, dry gas samples, not for corrosive gases.



KEY

FM1 Flow meter 0 - 1 litre/minute  
G1 Penning gauge

VR1 QIC inlet bypass control valve  
V2 Sample capillary isolation solenoid valve  
V3 Capillary bypass changeover solenoid valve  
V4 Manual sample select valve

P1 Turbo drag pump  
P2,P3 2.5 m<sup>3</sup>/hr rotary pump

Schematic HPR20 System with QIC Inlet, manual dual sample select valve & standby inlet isolation valves. System depicted in active sampling mode. PAJ/QICHPR20M



Figure 2: Schematic of QIC Dual Stream Capillary Connection Kit

The Dual Stream connection kit incorporates:

- Low dead volume switching valve, V4, for switching between calibration and sample gas streams
- Flow meter (0-850 ml.min<sup>-1</sup>)
- High transmission particle filter, 5µm user cleanable removable cartridge
- Automated capillary isolation valve controlled via sample inlet controller

**Sample mode:** Valve V2 is open, valve V3 is open to the backing pump P3 (closed to the turbo pump P1)

This allows sample gas flow into the capillary and mass spectrometer.

**Standby mode:** Valve V2 is closed, valve V3 is open to the turbo pump P1 (closed to the backing pump P3)

This ensures that there is no back streaming of oil from the backing pump P3 to the turbo pump P1. Also the capillary is shut, keeping background low.

The Inlet Assembly is detachable from the frame and may be mounted up to 2 metres away from the mass spectrometer. Note minimum sample inlet pressure is 0.1 barg.

## Conclusions

This is a powerful system that can be used for a variety of applications. In combination with Hiden Quantal software, this provides a fully automated analysis system to track process and sampling analysis and obtain quantitative data against a standard calibrating gas.