

HP On-Line Diagnosis System

An on-line testing instrumentation to back-up diagnosis, to select the most suitable side-flow monitoring devices, to control field trial performances in water systems and to simulate reservoir souring



- 1 – ITEM#421 – EMPTY SAND PACK WITH PTFE INTERNAL JACKET + SCREENS
- 2 – TRANSFER ROD
- 3 – HOLDER TO FIX IN A VICE PRINCIPLE, PROCEDURE, DIFFERENTIATION PARAMETER [SEE PAGE 36](#)

Whenever a very high amount of information is required in a short period of time, the On-Line Diagnosis System is the right instrumentation, it is characterized by a small testing capacity, but it has a variety of sensing elements.

One of the purposes of this testing equipment is to check the sensitiveness to changes of a series of on-line devices, this allows selection of the optimum monitoring units. Its exposure during the commissioning of water systems yields to a full diagnosis of corrosion, scale and bacterial growth on surfaces and porous media. When performing field trials with chemicals, the exposure of this instrumentation during the testing period of each product enables to get valuable data of each type of treatment.

The equipment is presented in a lid cabinet for field installation. The four face lid can be lifted off allowing access to all parts mounted in the two face base. The cabinet can be installed at any location of the system where water can be disposed or recycled into lower pressure locations of the system.

The system consists of three functional assemblies connected in series and in parallel:

- Flow Unit Assembly-2 in series to assess sessile bacteria, solids accumulation and gravimetric or electrochemical corrosion.

-Porous Media Assembly-2 in parallel to simulate microbial induced reservoir souring, to measure microbial accumulation in porous media and flow rates through it.

-Capillary assembly-2 in parallel to determine flow reduction and plugging through capillaries due to mineral scale.

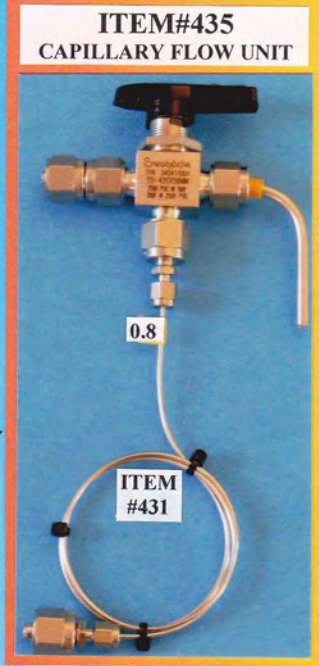
The porous media and capillary assemblies are mounted in parallel in an internal bypass manifold. The standard HP On-Line Diagnosis System is made of connections of 1.4404 (316L, S31603) and tubing of 1.4571 (316Ti, S31635). It withstands pressures up to 200 Bar. If arrays of PEEK (Page 43) are available, it can be used at temperatures up to 150°C.

SEE DETAILS PAGES 31+32+33
 ITEM#416.HP – GRAV. CORR. COUPON ARRAY-3
 ITEM#221.HP – BIOFILM COUPON ARRAY-12
 In between it is always possible
 to measure corrosion electrochemically
 ITEM#131.HP – LPR PROBE 3 CS ELEMENTS

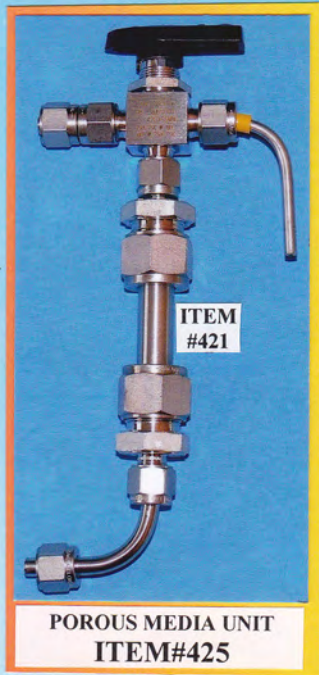
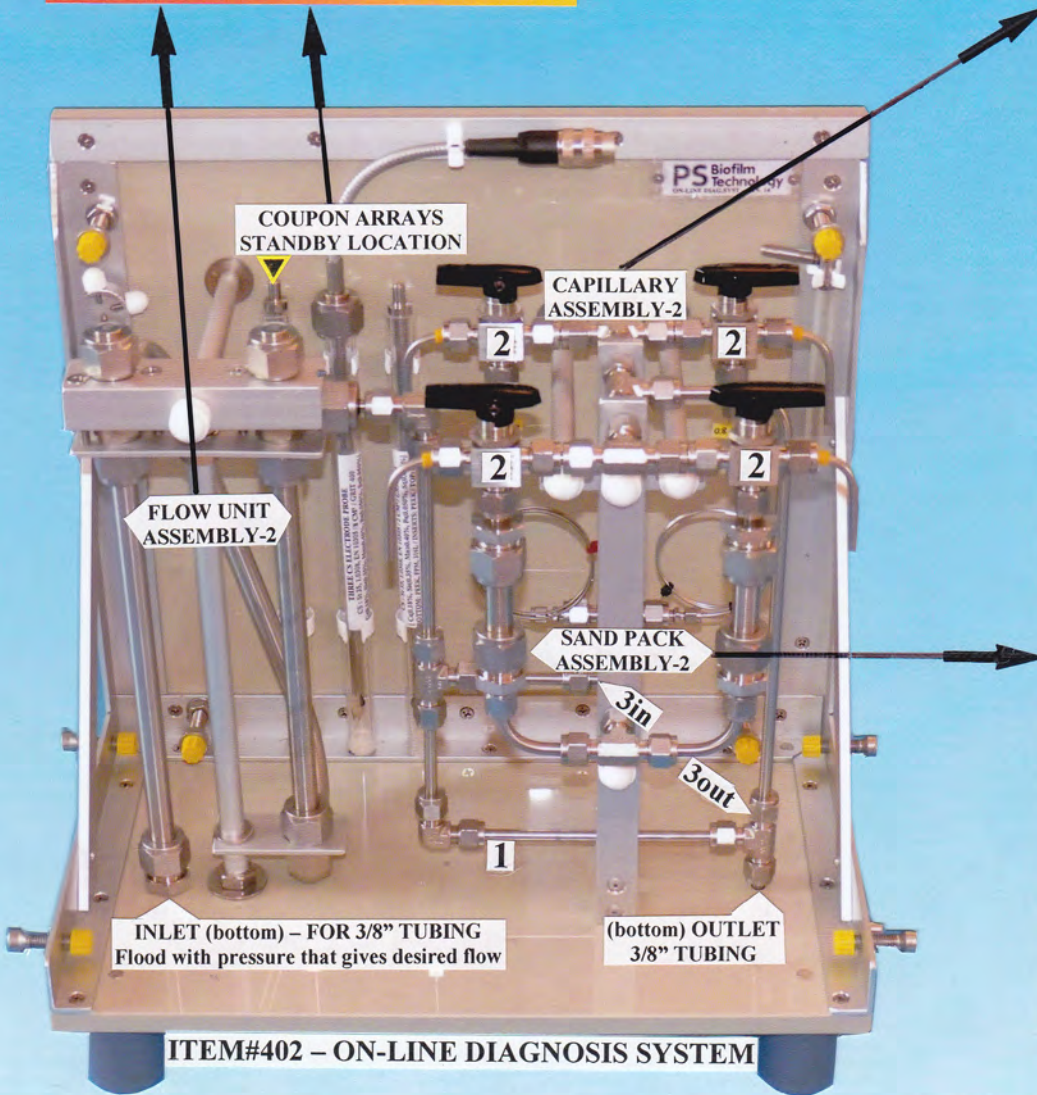


TOTAL FLEXIBILITY
 by use of
SENSORS or FLOW UNITS

**JUST BY PULLING OUT
 OR SLIDING IN**
 In the top of the two
 flow units a variety
 of arrays can be used



Depending upon the specific
 problem 4 capillary units,
 4 sand pack units or combina-
 tions of them can be used



POROUS MEDIA UNIT
 ITEM#425

1 – FLOW CONTROLLING SECTION: This tube with an ID of 2 mm acts as a valve generating the back pressure required to squeeze the fluid through the capillary and sand pack assemblies. A tube restricts the flow by pressure drop and not punctually as a valve, thus plugging is unlikely to occur.

2 – FOUR 3-WAY VALVES installed at the outlet of the capillaries and sand packs enable to individually flood each pack or capillary, to stop flow or measure the flow rates with a volume cylinder and a stop watch.

3 – 3in and 3out are the inlet and outlet of the INTERNAL BYPASS on which the two assemblies are mounted in parallel. At location 3in the INTERNAL BYPASS MANIFOLD distributes the fluid to the four units mounted in parallel. At location 3out the fluid coming out from the assemblies is reinjected at the lower pressure point downstream of the FLOW CONTROLLING SECTION (1).

