High Pressure Access Systems (HP™ & MH™)

2-Inch Nominal Bore Under-Pressure Access Fittings, Plugs & Retrieval Equipment up to 6,000 PSI

As an authorized Metal Samples distributor, Imotron supplies High Pressure Access Systems engineered for internal access to production vessels and process piping under full operating conditions up to 6,000 PSI (414 bar). Based on the industry-standard 2-inch nominal bore design, these systems permit safe installation and retrieval of corrosion monitoring coupons, ER/LPR probes, thermowells, anodes, chemical injection quills, and sampling devices without process shutdown or depressurization.

1. System Architecture & Core Components

A complete high-pressure access installation consists of a permanently mounted Access Fitting Assembly (Body, Plug Assembly, and Protective Cover) serviced by a portable Retrieval Tool and Service Valve.

Component	Configurations	Design & Functional Specifications
Access Fitting Body	**Non-Tee & Side-Tee (1/4" to 1" FNPT)**	Specialized 2" bore pipe fitting permanently attached via Flareweld, Socketweld, Buttweld, NPT thread, or API / ANSI (RF / RJ) flange. Features a 3" external ACME thread for Service Valve attachment and conforms to NACE MR0175 for sour service. Side-tee bodies add an integral port for chemical injection, sampling, or sand monitoring.
Plug Assembly	**Solid Plug & Hollow Plug**	Retrievable pressure-retaining carrier (factory tested to 6,000 PSI) that seals the fitting bore. **Solid Plugs** carry coupon holders, injection/sampling quills, sand probes, and bioprobes. **Hollow Plugs** house ER, LPR, and hydrogen probes with top-entry electrical access. Left-hand device threads prevent loosening during retrieval.
Protective Cover	**Heavy-Duty (6,000 PSI) & Non-Pressure Rated**	Internally threaded cover protecting external fitting threads and Service Valve sealing surfaces. Heavy-duty AISI 1018 covers (6,000 PSI rated) are available solid, with a 1-3/8" hole (hydrogen probes), or with a 1/2" NPT port (continuous electrical monitoring) plus optional bleed valve and pressure gauge. Economy plastic/metal covers are also available.

Component	Configurations	Design & Functional Specifications
Retrieval Tool & Service Valve	**Compatible with both HP™ & MH™ Systems**	Used together to equalize pressure, isolate line pressure during plug removal, and install or retrieve the Plug Assembly under full operating pressure. One Retrieval Tool and Service Valve can service multiple access fitting locations across a facility.

2. HP™ vs. MH™ System Comparison & Material Specifications

Metal Samples manufactures two mechanical high-pressure access designs: the industry-interchangeable **HP™ System** and the proprietary **MH™ System** featuring enhanced anti-galling and alignment engineering.

Parameter	HP™ System (Generic Standard)	MH™ System (Proprietary Design)
Interchangeability	Compatible and interchangeable with standard 2" high-pressure access fittings and plugs from other major manufacturers.	Proprietary Metal Samples plug interface (not interchangeable with HP™ plugs); uses the same Retrieval Tool & Service Valve.
Plug Thread & Retrieval Interface	Standard fine plug threads; solid plug nut is replaced by the installed device; hollow plug uses removable seal nut.	Coarse ACME plug threads minimize galling and fouling; quick-stab collet speeds attachment to the Retrieval Tool.
Alignment & Sealing	Standard elastomeric/primary seal configuration; manual alignment filing required for directional orientation.	Positive keyway alignment grooves on solid plugs for repeatable coupon/nozzle orientation, plus a metal-to-metal back-up seal.
Pressure & Temperature Rating	**Working Pressure:** Up to 6,000 PSI (414 bar) or per flange class rating (individually pressure tested). **Operating Temperature:** Standard bodies down to -20 °F (-29 °C); low-temperature bodies below -20 °F. Standard plug seals: -50 °F to +350 °F (-45 °C to +176 °C), extendable with specialty seals.	
Standard Materials (NACE MR0175)	**Welded / NPT Bodies:** AISI 1018 (standard temp.) or ASTM A350 LF2 (low temp.). **Flanged Bodies:** ASTM A105 or ASTM A350 LF2. **Plugs:** 316 Stainless Steel (Nitronic 60 recommended when paired with stainless steel or duplex bodies to prevent galling). Custom alloys available on request.	

Complete Access Point Integration: Whether deploying weight-loss coupons, high-resolution ER/LPR probes, or side-tee chemical injection quills, Imotron supplies matched Access Fitting Bodies, Solid/Hollow Plugs, Probe Adapters, and Retrieval Tools tailored to your piping code and process metallurgy.

Specify the Right High Pressure Access System for Your Plant
Contact Imotron Instruments for technical datasheets, material selection guidance (NACE MR0175), and complete HP™ or MH™ system configurations.