



# *Primary Valves, Manifolds & Instrument Valves*

*Primary Block Valves*

*Handle/Needle & Gauge Valves*

*Manifold Valves*

*Natural Gas Measurement Valves*

*Sample & Tank Bottom  
Drain Valves*

*Air & Gas Distribution  
Manifolds*

*Power Valves*



To many Upstream, Refining, and Petrochemical professionals, a "Hex Valve" is a generic description for bar stock instrument, gauge, and orifice valves. That didn't happen by accident. These valves were originally developed and marketed by us decades ago as a means to simplify the piping associated with gauge and differential pressure transmitter applications.

Since our acquisition in 1985 by Richards Industries, our product line has expanded to cover almost every conceivable primary and secondary valve application for a variety of automated process industries. From small 1/4" needle valves and patented stabilized instrument platforms for the Natural Gas Industry to high temperature primary valves and hydrocarbon sampling valves for Refineries and Power Plants, to exotic gas distribution manifolds for our Biopharm customers.

Hex does it all with our original, simple objective in mind . . . **"Create value for the customer by simplifying the piping associated with instrumentation, and the distribution of process and utility fluids."**

### **Hex Valve Proposition**

- HEX Valves reduce customer Capex cost by:
  - Reducing installation size, material, weight and installation labor
- HEX Valves reduce customer SH&E Cost by:
  - Reducing number of potential installation leak points
  - Reducing total installation weight and moment arm
- HEX Valves reduce O & M costs by:
  - Creating time saving and unique instrument valve vent and calibration access

## PRIMARY BLOCK VALVES

### Primary Orifice (Root) Valves

- **HG65 Series Orifice Block Valve**

The HG65 orifice block valve is designed for compact side-by-side mounting on standard orifice flanges, condensate chambers, mercury traps and seal traps. Two outlet ports are provided for impulse line connections or for pressure gauge mounting. The HG65 is ideal for light hydrocarbons or utility service.



- **HG12 Series Orifice Block Valve**

The HG12 features a built-in vent or bleed screw on the outlet side of the valve. In process line mounted instrument or signal line tubing, venting or line filling capabilities can be an added feature.



- **HO25 Series Orifice Block Valve**

The HO25 Series features an OS&Y bolted bonnet and two outlet connections. The HO25 is more compact and has a shorter profile than model HG65 to reduce vibration.



## PRIMARY BLOCK VALVES

### Primary Gauge/Orifice Valves

- **HG46 Series Gauge / Block Valve**

The HG46 provides a quick, inexpensive and compact means of installing gauges and static pressure instrumentation on a tough, compact primary isolation platform. The HG46 features an OS&Y bolted bonnet with weld or threaded connections. The HG46 can be supplied with a bleed valve or needle valve threaded into one of the outlets to allow for combined block and bleed functions in a single, compact unit.



- **HG47 Series Gauge / Block Valve**

The HG47 is roddable, hard seated orifice valve that overcomes the drawbacks of conventional globe style, hard seat primary valves. It is ideal for use as a multi-outlet primary block valve on high temperature, viscous services. It provides 3/8" port, unrestricted flow and is completely roddable. The HG47 features an OS&Y bolted bonnet with weld or threaded connections. The accessible hard seat insert and non-rotating tip (NRT) stem are machined for precision fit, yet field-replaceable to allow for long service life.



## PRIMARY BLOCK VALVES

### Block & Bleed and Double Block and Bleed

- **HexBlok Valves**

The Hex Blok is used on Upstream Offshore/Onshore Gas and Oil production and initial processing installations for primary and/or secondary isolation, vent and calibration of gauge pressure instruments and analyzers. It is typically used on liquid hydrocarbon applications to minimize the size and weight of the pipe-valve assemblies. Hex Blok is the double block and bleed valve offering the industry's first 3/8" globe style offering.



## PRIMARY BLOCK VALVES

### Block & Bleed and Double Block & Bleed

#### • Monoflange Valves

Used on Upstream Offshore/Onshore Gas and Oil production and initial processing installations. Typically used on gas gauge pressure instrument applications to minimize the size and weight of the pipe-valve assemblies used for primary and/or secondary isolation, vent and calibration.



Also used in downstream Oil and Gas Refining and Petrochemical production on flanged processes, primarily on light end gas applications.

#### • HT03 and HT01 Series High Temperature Valves

Hex HT03 and HT01 high temperature globe valves are designed for service to 1500°F at 500 psi working pressure. They are available in sizes up to 1-1/2" with NPT, socket weld, butt weld or flanged end connections.



Hex high temperature valves are used as shutoff or block valves, as well as bleed valves on power plant applications, hydrogen scrubbers, compressors and in hydrocracking units.



## HAND-NEEDLE VALVES

#### • HN29 Series Needle Valve

Targeted to the gas sampling, OEM, and reseller market.

All stainless steel valves are rated to 3000 psig @ 100°F (207 bar @ 38°C) with soft seats, Teflon packing and 1" diameter round knurled handles. Valves are available in 1/4" sizes. All carbon steel valves are rated to 6000 psig @ 100°F (414 bar @ 38°C) with hard seats and 3000 psig @ 100°F (207 bar @ 38°C) with soft seats (Delrin), Teflon packing and either "T" handles or 1" diameter round knurled handles. Valves are available in 1/4" and 1/2" sizes.



#### • HN39 Series Instrument Valve

A compact and economical high-pressure, 316SS instrument valve. Panel manufacturers can use an optional panel nut to secure valves to instrument panels. Valves are available with integral hard seats, 316 stainless steel body and trim and Teflon/Grafoil packing. The HN39 Series is rated to 6000 psig @ 100°F (414 bar @ 38°C); 450°F (232°C) limit for Teflon-packed valves and 1000°F (538°C) limit for Grafoil-packed valves.



#### • HN41 Series Instrument Valve

A straight-thru design with a Delrin seat, which provides bidirectional flow and the ability to "rod-out" the valve for cleaning. These valves are specifically targeted for the oil and gas industry and are available only in 316 Stainless Steel per NACE MR-01-75.



#### • HN49 Series Needle Valve

A heavy duty valve that features an industrial strength stem and bonnet, and enhanced packing arrangement. For corrosive or other volatile applications, the HN49 can be specified in a variety of materials including Monel, Alloy 20, Titanium and Hastelloy. These valves are also available with cryogenic bonnet extensions with temperatures as low as -450°F (-268°C) with proper insulation of piping. Packing temperature in extended bonnet should not be below -200°F (-129°C).



## SECONDARY GAUGE Block & Bleed Valves

### • HG48 Series Gauge / Block Valve

The HG48 gauge / block valve provides three outlet connections to facilitate the mounting of gauges and other static pressure instruments in a variety of positions. The HG48 can be supplied with an integral hard seat which matches the body material, or with a choice of soft seat materials including PPS, KEL-F, TFE or PEEK.



### HG35 Series Gauge / Block Valve

The HG35 gauge valve, with a male inlet and a male outlet, meets the application requirement for a block and bleed valve without the need for a close nipple when connecting to a female port on a gauge pressure transmitter rated to 6980 psi (481 bar).



The HG35 configuration provides one less threaded connection by utilizing a male outlet for direction connection into a gauge pressure transmitter.

### • HB50/51 Series Block & Bleed Valve

The HB50 features a fully packed and backseated block valve along with a bleed valve with directional discharge tube and stem stop. The HB50 can also be threaded into a Hex primary block valve (such as an HG65) to provide secondary block and bleed functions on multiple instrument installation.



The HB51 is similar to the HB50 but utilizes a bleed screw in lieu of a bleed valve.

## SECONDARY GAUGE Block & Bleed Valves

### • HB59 Series Integral Block & Bleed Valve

The HB59 is ideal for critical services and combines a fully packed back-seated block valve and a fully packed bleed valve into a single, streamlined assembly that minimizes threaded connections. With its 1/2" vent the HB59 is typically used on applications where vent waste must be contained, as is common with hazardous media or EPA-targeted hydrocarbons.



## Bleed Valves

### • HB24/25/26/27 Series Bleed Valve

Available individually, or optionally threaded into an unused outlet port on a variety of Hex Valve models. Used for bleeding off high pressure media, the HB 24 & 25 incorporate backout stops to prevent inadvertent removal of the stem; the HB26 allows for stem removal to facilitate calibration through the valve; and the HB27 is a bleed valve that uses a mini bonnet, and is the only one with stem packing.

### • HB52 Series Bleed Tee

The HB52 bleed tee is ideal for modernizing outdated, non-bleed gauge installations. During instrument maintenance, simply thread the HB52 into the outlet of an existing block valve. An instrument is then threaded into the HB52 outlet to complete the installation. A second 1/2" side outlet accommodates a gauge or tube fitting for a remote auxiliary instrument.



## Gauge Syphons

### • HGSY & HGVS Series Gauge Syphons

The Hex gauge syphons act as thermal and liquid seal barriers between hot process vapors (such as steam and heat transfer fluids) and the gauge pressure instrument. It is designed to replace the large installation space requirements of the traditional "pigtail" syphon, providing maximum instrument protection in half the space. The HGVS, on Hex gauge valve syphon includes an integral shutoff valve.



## MANIFOLD VALVES

### Gauge/Absolute Pressure Manifolds Single Instrument

- **HM50 Series Static Pressure Manifold**

A single flanged static pressure manifold that incorporates a primary block valve, a secondary shutoff valve and a bleed valve into a single valve assembly. The secondary shutoff and bleed valve also allows the gauge and transmitter to be vented and/or removed without requiring additional valving. This feature provides a separate instrument vent and calibration entry port facilitating fast, accessible, zero and calibration of gauge pressure transmitters. The HM50 features a threaded inlet and flanged outlet, allowing the transmitter to bolt directly to the manifold.



- **HM59 Series Static Pressure Manifold**

The HM59 is a line-mounted two valve manifold that functions as a shutoff and vent valve for static pressure instrumentation. The HM59 Series provides a low cost, easy-to-install unit that performs the same functions traditionally performed by a number of piping components. The HM59 provides separate instrument bleed and a calibration entry port to allow for fast, accessible zeroing and calibration of gauge pressure transmitters. The use of the HM59 Series also reduces the number of threaded connections, resulting in fewer potential leak points.



- **HM20 Series Instru-Mount Manifold**

The HM20 Series manifold combines shutoff and vent functions, along with separate calibration access into one compact, well supported unit that can be mounted on a 2" pipe stand. Emissions are reduced because all valves are integral to the barstock body, thereby eliminating externally threaded vent valves as supplied on other manifold designs.



## MANIFOLD VALVES

### Gauge/Absolute Pressure Manifolds Dual Instrument

- **HM40 Series Instru-Mount Manifold**

The HM40 Series is a double instrument-mount manifold that allows two GP instruments to be mounted on one assembly. The HM40 reduces the number of components and leak points associated with conventional static pressure instrument valve assemblies. The piping configuration is simplified by combining the functions of block and vent, as well as providing vent/calibration access in a single, remote mounted block style manifold.



## MANIFOLD VALVES

### Differential Pressure/Flow Manifolds Equalizing Manifolds

- **HE30 Series Equalizing Valve**

A three-valve equalizing manifold that is a compact and cost effective alternative to the more costly five-valve manifold. Use the HE30 Series if the meter is closely mounted to the primary element. Delrin or Teflon soft seated valves insure equalizer isolation, eliminating the possibility of costly leaks there, or through the vent/calibrate valve.



- **HE40 Series Equalizing Manifold**

Hex equalizing manifolds provide an easy method to zero transmitters for users with separate, primary valves close by. The HE40 allows for a horizontal handle orientation with 1/2" FNPT or tube nut connections.



- **HE44 Series Equalizing Manifold**

The HE44 Series has a streamlined body to mount between the transmitter and the futbol flanges that are normally supplied with the transmitter. It features a backseated, inside rising stem with a choice of a needle or non-rotating tip. The smaller body and use of transmitter futbol flanges make this a very economical selection.



## MANIFOLD VALVES

### Differential Pressure/Flow Three Valve Manifolds

- **HM45 Series In-Line Manifold**

The HM45 is a general purpose instrument manifold designed for connecting differential pressure transmitters to impulse line tubing. Connectors are 1/2" NPT on industry standard 2-1/8" center-to-center dimensions (models for 2-3/16" & 2-1/4" center-to-center dimensions are also available).



- **HM46 Series In-Line Manifold with Vent**

The same design as the HM45, but also incorporating a vent valve allowing a technician to perform instrument bleed or blowdown procedures. Both models provide one compact valve assembly to perform the block and equalizing functions required to calibrate your instruments. They feature backseated, inside rising stem construction to prevent accidental stem removal and to isolate the packing from the process. For added protection, the bonnets are pinned to prevent inadvertent removal.



- **HM53 Series Single Flanged Manifold**

The HM53 is a three valve manifold used to perform the block, equalizing and vent requirements of differential pressure transmitter applications. The single mounting flange allows the transmitter to bolt directly to the manifold, eliminating the piping of excess tubing and nipples. A mounting kit may also be specified to allow for installation to a pipe stand.



- **HM54 Series Double Flanged Manifold**

The HM54 is a double flanged instrument manifold that is used to perform the block, equalizing and vent requirements of differential pressure transmitters. For compact, close-coupled installations, the manifold bolts directly to the instrument and can be mated directly to the orifice flange using futbol flanges and short nipples. For remote installation, tube adaptors are used with futbols making the installation similar to the HM53.



## MANIFOLD VALVES

### Differential Pressure/Flow Five Valve Blowdown Manifolds

- **HM56 Series Blowdown Manifold**

The HM56 Series performs the block and equalizing functions of a standard three valve manifold and provides two additional block valves to be used for impulse line blowdown purposes. The design of the HM56 allows the user to install just one compact assembly that eliminates eight nipples, four tees, and two shutoff valves that are required for a conventional blowdown valve installation. In addition, the HM56 incorporates a single flange, which enables the installer to mount the transmitter directly to the mounting flange.



- **HM55 Series Blowdown Manifold**

The HM55 Series performs the block and equalizing functions of a standard three valve manifold and provides two additional block valves to be used for impulse line blowdown purposes. The HM55 is identical to the HM56 except both the process and instrument connections are threaded for in-line installations.



## MANIFOLD VALVES

### Five Valve Manifolds (Double Equalizer with Vent/Test)

- **HM57 Series Metering Manifold**

The HM57 Series combines two shutoff valves, two equalizing valves, and a vent/calibration valve into a single, compact assembly. The double equalizing arrangement insures against measurement error than can occur from equalizer leakage between high and low pressure connections, making the HM57 ideal for custody transfer applications.



## MANIFOLD VALVES

### Differential Pressure/Flow

#### • HM77 Series Metering Manifolds

The HM77 Series is similar to the HM57 except for the use of a larger 3/8" bore and with soft seats. This larger bore reduces pulsation induced spikes to the transmitter.

Note: ratings are 1500 psig @ 100°F (103 bar @ 38°C) and

500 psig @ 200°F (34,5 bar @ 93°C).



## MANIFOLD VALVES

### Differential Pressure/Level

#### • HM58 Series Level Manifold

The HM58 Series manifolds are simplified, lower cost alternatives to traditional manifolds used on D/P level installations. The HM58 allows the user to construct a level installation with minimum components. This method eliminates the need for tubing, fittings, instrument pipe stands and their associated installation costs. With a universal design, the HM58 can be used for vented or closed tank, bottom or top side-mounted installations or for tank top mounted bubbler installations.



## Natural Gas Measurement Valves

#### • HE30 Series Equalizing Valve

A three-valve equalizing manifold that is a compact and cost effective alternative to the more costly five-valve manifold. Delrin or Teflon soft seats valves insure redundant equalizer isolation, eliminating the possibility of costly leaks there, or through the vent/calibrate valve.



#### • HM57 Series Metering Manifold

The HM57 Series combines two shutoff valves, two equalizing valves, and a vent/calibration valve into a single, compact assembly. The double equalizing arrangement insures against measurement error than can occur from equalizer leakage between high and low pressure connections, making the HM57 ideal for custody transfer applications.



#### • HN41 Series Instrument Valve

A straight-thru design with a Delrin seat, which provides bidirectional flow and the ability to "rod-out" the valve for cleaning. These valves are specifically targeted for the oil and gas industry and are available only in 316 Stainless Steel per NACE MR-01-75.





## Natural Gas Measurement Valves

### • SpringTite™ Stabilized Mounting System

The SpringTite™ Stabilized Mounting System represents the next generation of close-coupled, DP flow systems. It offers three distinct advantages over traditional stabilized direct mount support platforms:



1. Fixed, easy torque loading: When installing traditional stabilized systems, the stabilizer load torque is regulated by the installer with a torque wrench following guidelines from the installation manual. SpringTite™ Systems come with the patent pending SpringTite Torque Ring System to insure consistent stabilizer loading torque, without the need for a torque wrench. After tightening the stabilizer in the orifice tap, simply raise the stabilizer pad (or bracket) with a wrench until it "Springs Tite" against the stabilized connector. When you can make no further turns your stabilizers are secure, with identical torque loads on each.
2. Independent stabilizer height adjustment: Conventional stabilized mounting systems require the installer to tighten each stabilizer in order to: a) seal the threaded tap, b) insure mounting flange parallelism, and c) to adjust flange height. Getting all three accomplished by adjusting the height of a threaded connector takes a lot of trial and error which can stress the stabilizer and orifice tap threads, increasing the probability of galling and resultant leaks. This is especially true with difficult to align orifice flange union installations. Hex Measurement's SpringTite™ system eliminates this problem. Our patent pending two piece o-ring stabilizer option provides a unique feature that allows users to level the connector flange without disturbing the threaded connector. See an illustrated detail on page 3.
3. Higher Safety Load Factors: The broad foot print, and the load dispersion technique employed by the SpringTite™ system provide the design with a superior load carrying capacity, able to absorb loads creating bending movements of 175 ft-lbs.. This is more than enough to support any isolation manifold, multiple adaptor plates, and all manifold and meter arrangements, irrespective of orientation. Competitive design load descriptions are confusing and are typically only rated to handle a maximum of 150 foot pounds.

## Sample & Tank Bottom Drain Valves

### • HS31 Series Steam Jacketed Sample Valve

The steam jacketed HS31 sample valve is a solution to routine or difficult sampling problems. It is used to extract a fresh sample while providing tight shutoff, high pressure and temperature capabilities, and a reciprocating stem that unplugs the sample section as it opens.



The steam-jacketed option is typically used on viscous liquids, slurries and products that tend to solidify when cooled or exposed to normal ambient conditions.

## Air and Gas Distribution Manifolds

### • HA Series Distribution Manifold

The HA Series is a soft seated multi-valve manifold that allows you to connect one air/gas source to the inlet for distribution up to twelve separate work stations. If additional work stations are required, simply attach another HA06 with nipples. The HA Series is used in place of conventional methods for the distribution of plain air and purge gases and feature o-ring seals and backseated bonnets to insure against stem leakage when the valves are fully open.



## **POWER VALVES** (Valves and manifolds in accordance with ANSI B31/B31.3) **Manifolds**

### • **PM45/46/51/53/54 Series Differential Pressure**

Hex Valve produces a complete line of three valve instrument manifolds which combines two block valves and one equalizing valve in a single compact assembly.



PM45/46 for in-line, thread-by-thread, installations

PM53 single flanged for mounting to a remotely located differential pressure transmitter

PM54 double flanged for direct mounting to the orifice flange or for remote transmitter locations

PM51 direct mounted compact wafer valve

### • **PM50 Series Two Static Pressure**

The PM50 combines a primary block valve, a bleed valve, and a secondary shutoff valve into one small unit. With the integral secondary shutoff valve and a bleed valve (not integral), the gauge and transmitter can be removed or bled without requiring additional valving. The PM50 features a threaded inlet and flanged outlet, allowing the transmitter to bolt directly to the manifold.



### • **PM75 Series Differential Pressure**

The PM75 is designed for remote mounting of differential pressure transmitters and includes two isolation valves, one test valve, and two test/purge valves. The manifold can be mounted via pipe stand or instrument rack. The 1/2" process connection is located on bottom of manifold and instrument connection is located on back.



## **POWER VALVES** (Valves and manifolds in accordance with ANSI B31/B31.3) **Manifolds**

### • **PM76 Series Differential Pressure**

The PM76 is similar to the PM75 but is designed for direct mounting to transmitter by unique design. The compact design eliminates the requirements for additional tubing or piping from manifold to transmitter.



### • **PM13 & 16 Series Rigid Mount**

The PM13 (3 Valve) and PM16 (5 Valve) mount directly to the pipe stand securing the impulse lines so the transmitter can be installed or removed independently of the piping.



On new installations, all the piping can be completed prior to the arrival of the instruments. Installation and removal is fast and easy, taking less time than with conventional transmitter mounting. When the transmitter is removed, tubing and manifold remain rigidly in place.

**POWER VALVES** (Valves and manifolds in accordance with ANSI B31/B31.3)  
**Primary, Gauge, Block & Bleed, Needle**

• **PG65 Series Orifice Block Valve**

The PG65 Series block valve is designed for compact side-by-side mounting on orifice flanges and orifice settings, as well as for use with condensate chambers, mercury traps, and seal traps. The slim design enables side-by-side mounting on 2-1/8" centers without staggering the valves with unequal length nipples as required with other valves. This valve provides two outlet ports for use as impulse line connections, pressure gauge mounting or level gauge mounting.



• **PG46/47/48 Series Gauge/Block Valves**

The PG46 Series features the back-seated OS&Y bolted bonnet, while the PG48 is supplied with a backseated screwed bonnet.

The PG47 provides a full port and unrestricted flow, which allows the use of a rod-out tool. Note: there is a pressure limitation of 1500 psi @ -20°F to 100°F (103 bar @ 29°C to 38°C) regardless of material.



**POWER VALVES** (Valves and manifolds in accordance with ANSI B31/B31.3)  
**Primary, Gauge, Block & Bleed, Needle**

• **PN49/PB59 Series Needle/Bleed Valve**

The PN49 Series is a fully packed needle valve for high pressure and high temperature applications. Produced in a wide variety of inlet and outlet sizes.

For critical services, the PB59 block and bleed valve features a fully packed and backseated block valve along with a fully packed integral bleed valve.



To learn more about Hex Valve products and to find the name of a local representative visit: [www.hexvalve.com](http://www.hexvalve.com)



A Division of Richards Industries  
3170 Wasson Road  
Cincinnati, OH 45209

toll free. 800.543.7311  
local. 513.533.5600  
fax. 513.871.0105

email. [hex@richardsind.com](mailto:hex@richardsind.com)  
website. [www.hexvalve.com](http://www.hexvalve.com)

Key markets include: chemical, petrochemical, water resources, oil & gas, refining and power. Other sectors include: paper products, tire and rubber, machinery and electrical equipment, transportation equipment and power generation.