APPLICATION BRIEFS

- CHEMICAL
- CONSUMER
- CRYOGENIC
- ENERGY
- FOOD & BEVERAGE
- MARINE
- PHARMACEUTICAL
- PULP & PAPER
- REFINING
- STEEL

IMI PBM

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PBMVALVE.COM • 724.863.0550 • 1.800.967.4PBM

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Each Application Brief is broken down by industry, product and media. A brief description is included, as well as the engineering drawing/rendering.

If you have questions regarding an Application Brief, please reach out to your Inside or Regional Sales contact or email info.pbmvalve@imiplc.com.

APPLICATION BRIEF - 05/0805

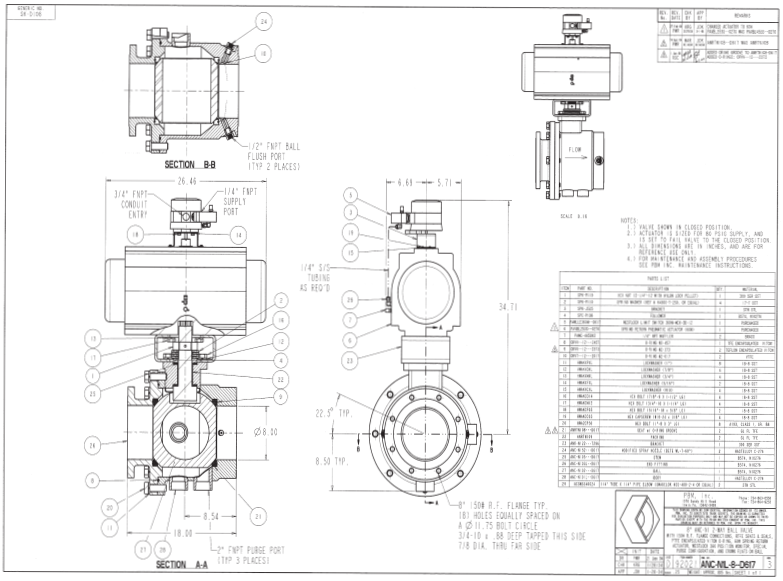
INDUSTRY: CHEMICAL

PRODUCT: 8" ANSI HASTELLOY C-276 FLANGED BALL VALVE WITH (5) PURGE PORTS AND CROWN FLAT BALL

MEDIA: CORROSIVE CHEMICALS AND VAPORS

IMI PBM Solution:

An east coast US Chemical manufacturer required a full port 8-inch ANSI Valve as an inlet and isolation valve to a reactor. The process required the valve to hold vacuum and handle the corrosive vapor fumes that would accumulate during the reaction on the exposed surface of the ball when the valve was in the closed position. To address these challenges, IMI PBM added a crown flat on the exposed surface of the ball that would prevent any accumulated vapor residue from scraping across the seats during valve rotation. Additionally, flush ports in the end fitting were added to facilitate flushing the exposed ball surface. IMI PBM also added three purge ports (2" FNPT) in the body to further flush the valve between batches. All wetted material were Hastelloy C-276 to handle a variety of corrosive reactants.



APPLICATION BRIEF - 08/0805

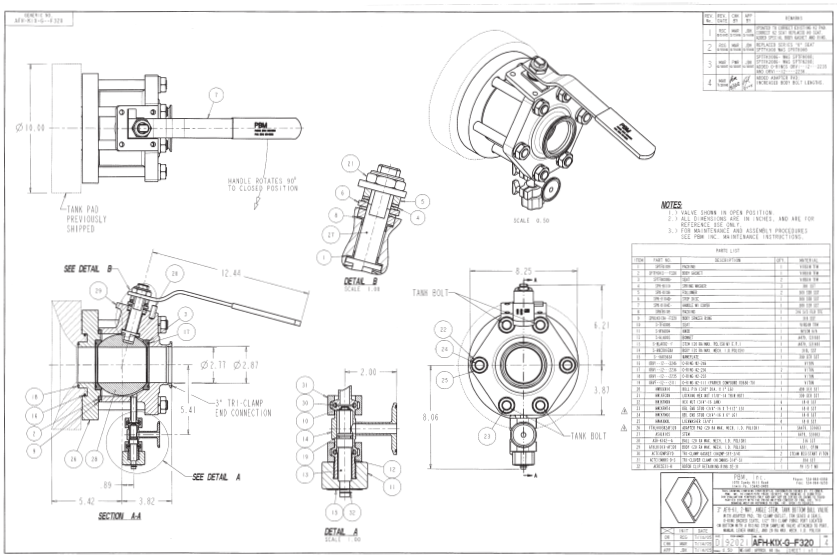
INDUSTRY: CHEMICAL

PRODUCT: ANGLE STEM FLUSH TANK BALL VALVE WITH PURGE PORT AND RISING STEM SAMPLING VALVE

MEDIA: VARIOUS CHEMICALS USED IN PETROLEUM RESEARCH

IMI PBM Solution:

A Canadian chemical and petroleum research firm acquired an old tank that had an existing IMI PBM Flush Tank weld pad installed. The customer needed to refurbish the tank and install a new flush bottom valve that would adapt to the existing weld pad, as well as provide a means of sampling the various products that would drain through the valve. IMI PBM's Angle Stem Flush Tank Ball Valve adapted easily to the existing IMI PBM weld pad. IMI PBM added a purge port that accepted a IMI PBM sanitary Rising Stem Sampling Valve to provide means of sampling product.



APPLICATION BRIEF - 11/0805

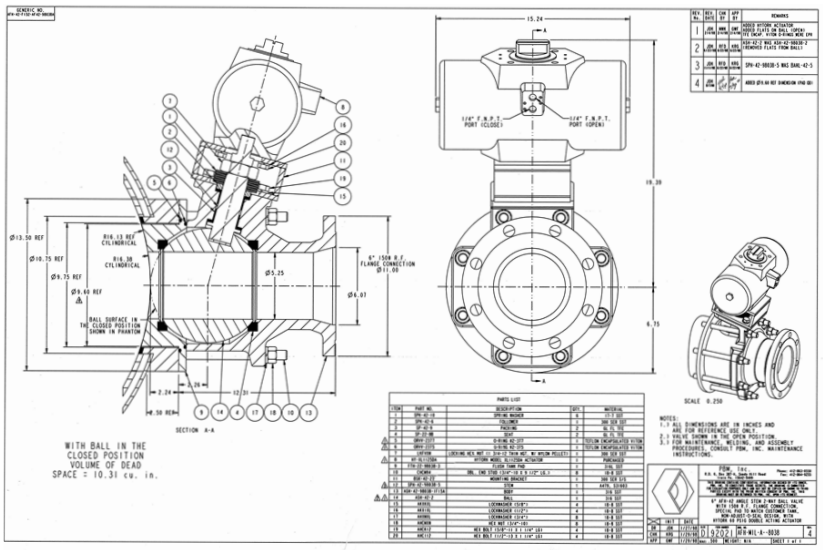
INDUSTRY: CHEMICAL

PRODUCT: ANGLE STEM FLUSH TANK BALL VALVE, AUTOMATED, WITH SPECIAL ADAPTER WELD PAD

MEDIA: CELLULOSE RESINS AND ACETIC ACID

IMI PBM Solution:

An International Chemical company was having problems with originally installed “plunger” style drain valves on their mixing tanks. Product would adhere to the plunger and cut the packing which resulted in leaks and the need for frequent repairs. The customer wanted to replace the plunger valves with a reliable valve that offered better flow rates and minimal “pocket” area that would adapt to the existing connection on the tank. IMI PBM designed an adapter pad that mated to the existing tank flange and replaced the plunger valves with automated Angle Stem Flush Tank Ball Valves. The IMI PBM design offered unrestricted flow, which allowed the tanks to drain faster resulting in improved productivity.



APPLICATION BRIEF - 18/0805

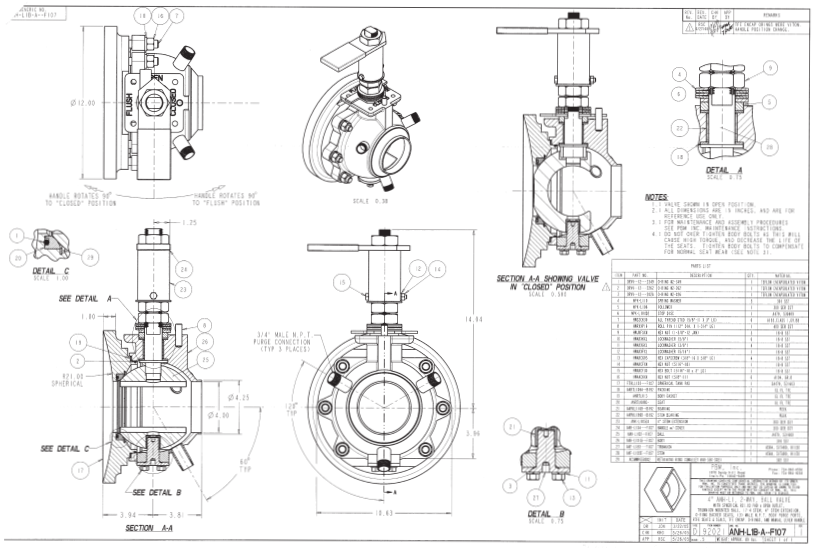
INDUSTRY: CHEMICAL

PRODUCT: FLUSH TANK BALL VALVE WITH SINGLE SEAT, TRUNNION, SEGMENTED BALL, AND PURGE PORTS

MEDIA: RESINS

IMI PBM Solution:

A major chemical manufacturer had problems with fast-setting resins plugging and seizing up drain valves used on their process reactors. IMI PBM provided a valve solution with a low profile assembly that addressed the application issues and fit in the existing space of the problematic valves. The IMI PBM design incorporated a single upstream seat, trunnion mounted segmented ball to facilitate draining, and three purge ports to introduce cleaning media that would remove any residual resin that adhered to the valve internals.



APPLICATION BRIEF - 30/0106

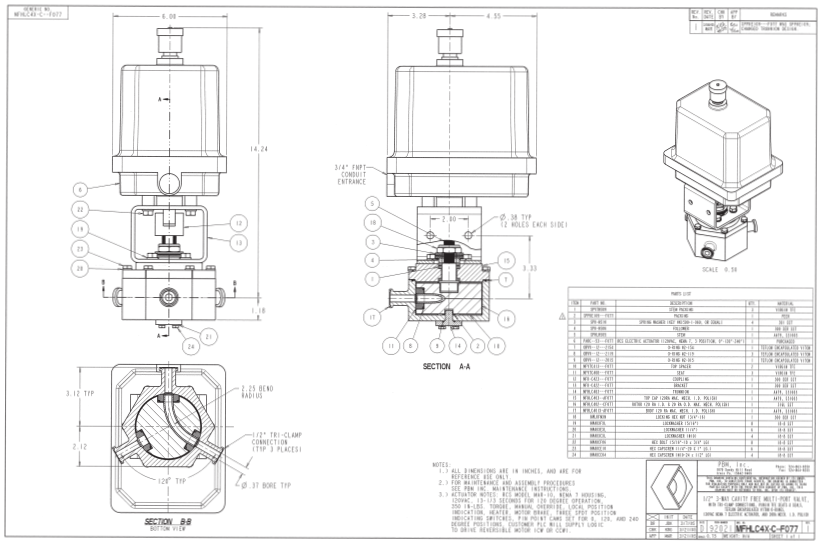
INDUSTRY: CHEMICAL

PRODUCT: PIGGABLE 3-WAY VALVE

MEDIA: AUTOMOTIVE PAINT

IMI PBM Solution:

A major automotive manufacturer required ½ inch 3-way piggable valves for use in a robotic paint spraying system. IMI PBM custom designed and fabricated True Bore® 3-way cavity-free valves with 120° turning radius that easily allowed the pig (for cleaning the line) to pass through the valve. These valves, powered by an electric motor operator, increased productivity and reliability by allowing the manufacturer's robotic paint sprayer to clean and switch colors at a faster rate. Innovation – it's what IMI PBM is all about!



APPLICATION BRIEF - 32/0506

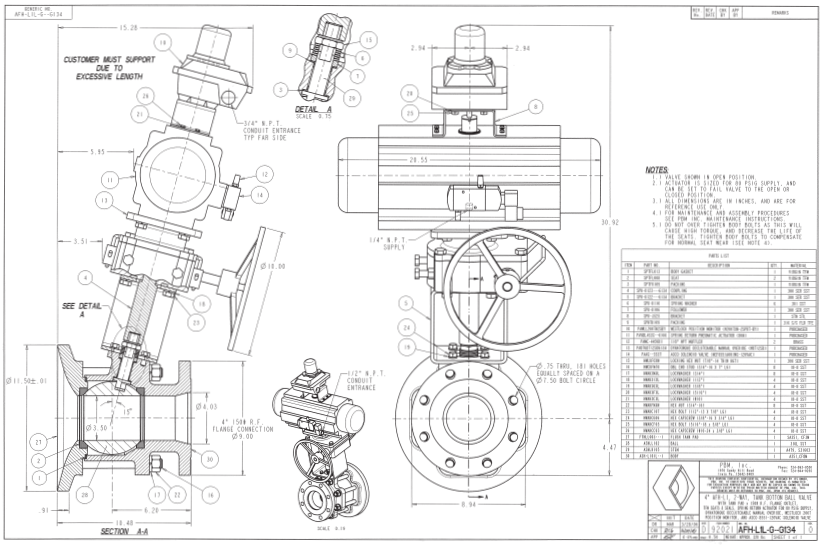
INDUSTRY: CHEMICAL

PRODUCT: 4" ANGLE STEM FLUSH TANK BALL VALVE WITH DECLUTCHABLE MANUAL OVERRIDE

MEDIA: COMMERCIAL ROOF COATING

IMI PBM Solution:

A major southern US manufacturer of roof coatings was looking for a valve to drain a temperature controlled process vessel. IMI PBM supplied a 4-inch Angle Stem Flush Tank Ball Valve that allowed the automation package to clear the process vessel's heating and cooling jackets. Special seating material was used to accommodate the process media. A manual declutchable override was installed in the unlikely event the valve had to be operated by hand.



APPLICATION BRIEF - 39/0908

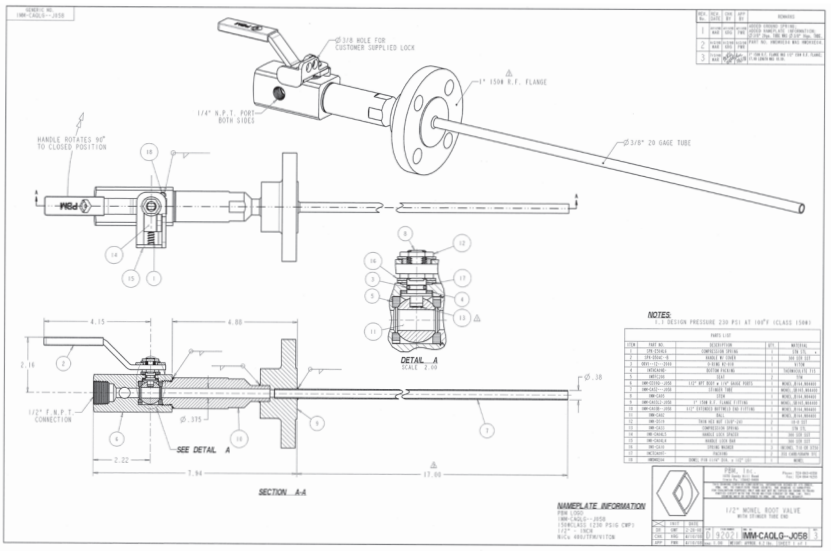
INDUSTRY: CHEMICAL

PRODUCT: SAMPLING ROOT VALVE WITH PROBE

MEDIA: DRY CHLORINE SERVICE

IMI PBM Solution:

A leading North American manufacturer of polyvinyl chloride (PVC) resins, chlorine and caustic soda was replacing a competitive valve with a IMI PBM monel root valve needed for dry chlorine service at less than 100 psi. The root valve is a sampling valve that isolates the process from the analyzer station. When the root valve is opened, the dry chlorine in the process line enters the probe, feeds through the valve down the sampling line to the analyzer. After the anaylzer is finished, they shut off the root valve, and open a nitrogen purge line at the analyzer which purges the dry chlorine back through the sampling line into the valve and out the bleed. The third port on the valve is plugged.



APPLICATION BRIEF - 40/0908

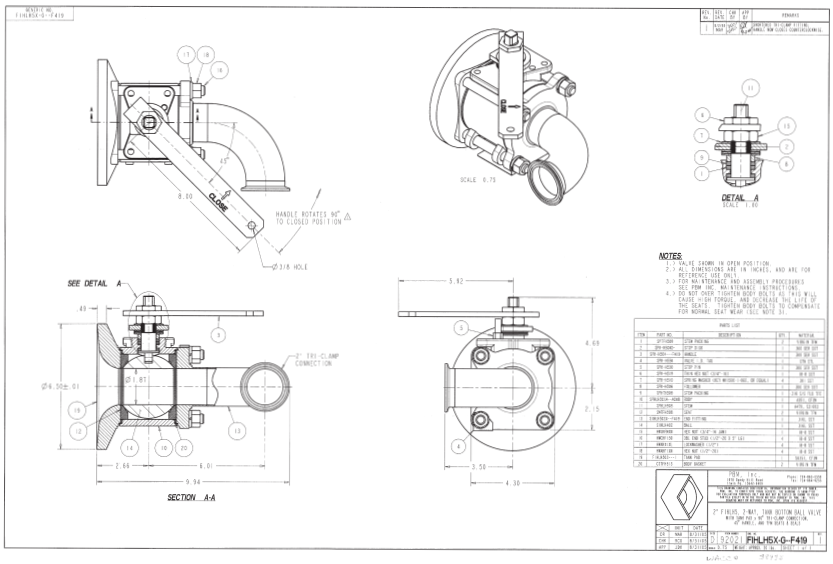
INDUSTRY: CHEMICAL

PRODUCT: 2", 316L STAINLESS, SERIES 5 FLUSH TANK BALL VALVE, WITH A 90 DEGREE TRI-CLAMP OUTLET, TFM® SEATS & SEALS, WITH A SPECIAL HANDLE TO ACCOMMODATE CUSTOMER'S REACH ROD

MEDIA: PAINT

IMI PBM Solution:

Customer was currently using a mixture of IMI PBM Series valves along with some Apollo valves. New 500 gallon tote tanks were being proposed and IMI PBM was the valve of interest. In working with the Plant Engineer, we were able to come up with a design that made the handle operation easier and outfitted the outlet with a 90° Tri-Clamp to allow hose hook-up without various adapters.



APPLICATION BRIEF - 43/0809

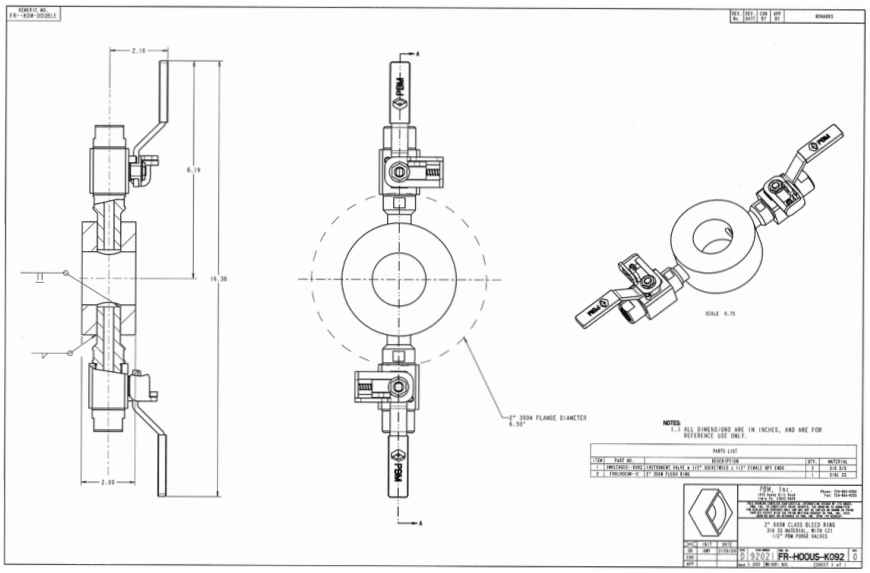
INDUSTRY: CHEMICAL

PRODUCT: BLEED VALVES ON FLUSH RING

MEDIA: HCL TO SULFURIC ACID

IMI PBM Solution:

A leading North American manufacturer of chemicals from HCL to sulfuric acid used this valve to flush out between the valve and the transmitter. The wafer in the middle can be any size. You can use these valves any place you have a tank, transmitter and valve.



APPLICATION BRIEF - 46/0510

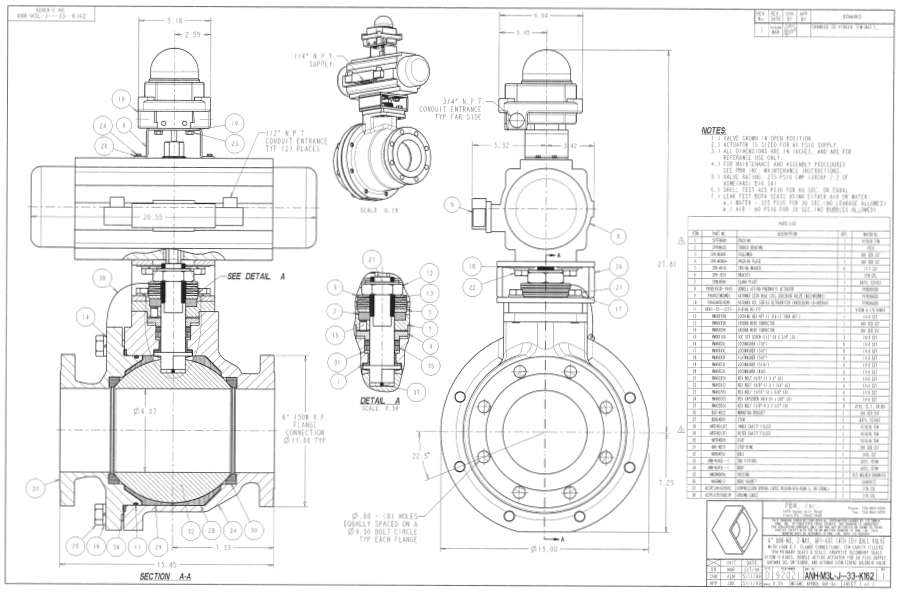
INDUSTRY: PLASTICS MANUFACTURING

PRODUCT: IMI PBM ANSI

MEDIA: STYRENE

IMI PBM Solution:

Manufacturer that uses Styrene had a requirement that included cavity fillers. Styrene reacts with numerous seat and seal materials but not TFMTM material. Valves required all TFM material for seats and seals including cavity fillers.



APPLICATION BRIEF - 49/0610

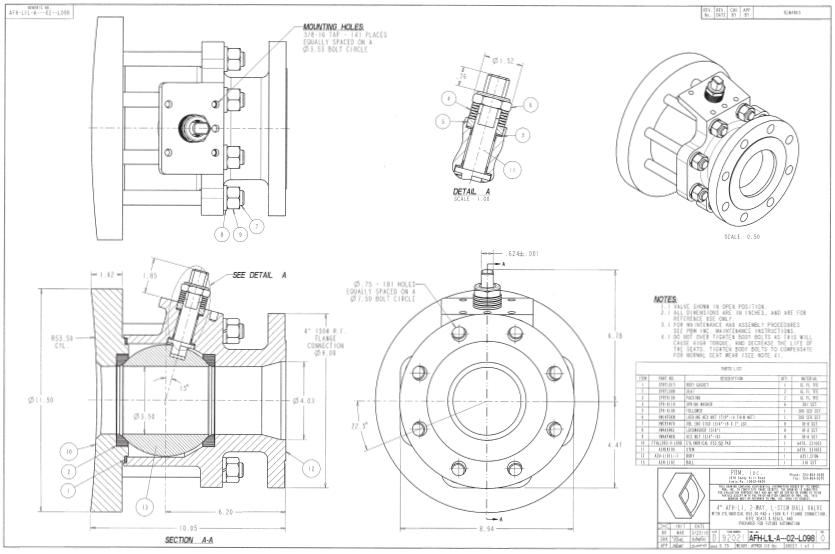
INDUSTRY: CHEMICAL

PRODUCT: IMI PBM ANGLE STEM FLUSH TANK VALVE

MEDIA: SOLVENT

IMI PBM Solution:

Special Cylindrical radius pad to mount on a tank used for solvent distillation, solvent recovery, solvent recycling systems, and Effluent Decontamination Systems. Different cylindrical radius pads are used based on the size of the tanks that are fabricated.



APPLICATION BRIEF - 52/0610

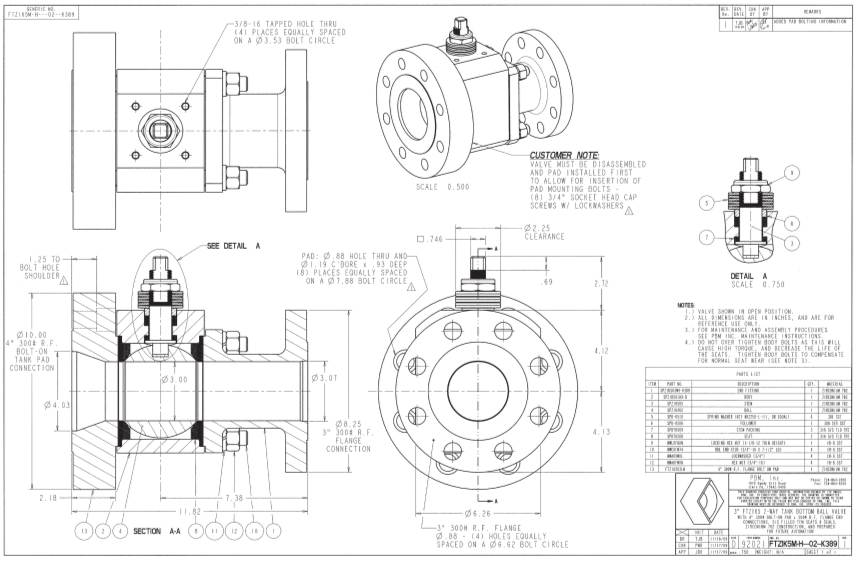
INDUSTRY: AGRICULTURAL CHEMICAL PROCESS

PRODUCT: IMI PBM TANK BOTTOM VALVE

MEDIA: CHEMICALS

IMI PBM Solution:

The customer needed a valve using zirconium as the valve's material of construction for a specific chemistry in a customer's agricultural chemical process. This vessel will have the general condition of high pH and high temperature. The nature of the process had been developed by the customer over time at another location, and we were told that zirconium was the definitive choice of valve material



APPLICATION BRIEF - 57/1010

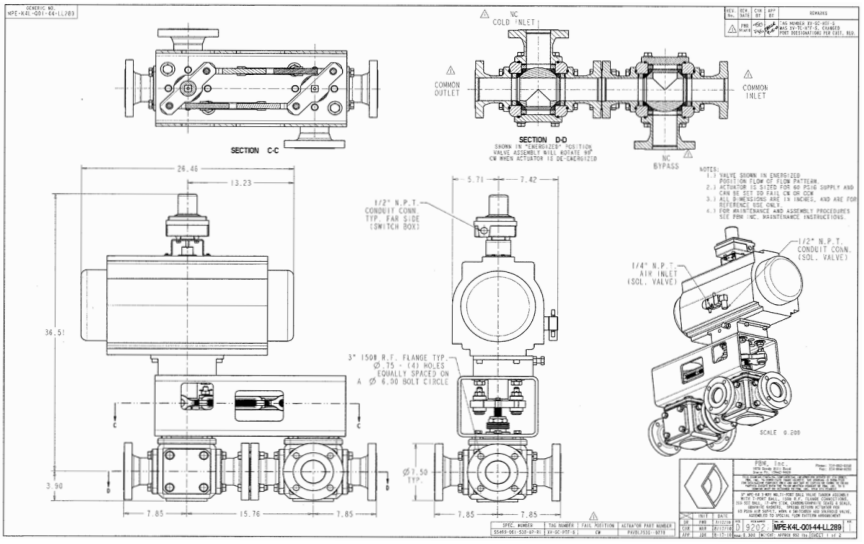
INDUSTRY: CHEMICAL

PRODUCT: 3" MULTI-PORT BALL VALVE IN TANDEM ASSEMBLY FULLY ACTUATED

MEDIA: THERMAL AND COLD TRANSFER FLUID

IMI PBM Solution:

A chemical manufacturer was looking for a multi-port valve which would divert their thermal heat-transfer fluid used in their process. The customer went with IMI PBM because of IMI PBM's proven track record with this particular chemical manufacturer for using innovative designs and for the production of high quality valves. IMI PBM designed two Multi-Port Valves with carbon/ graphite seats and seals that work in tandem and that are driven by a single actuator. The hot transfer fluid diverts into a loop, while the cold fluid is introduced into the main line.



APPLICATION BRIEF - 60/0111

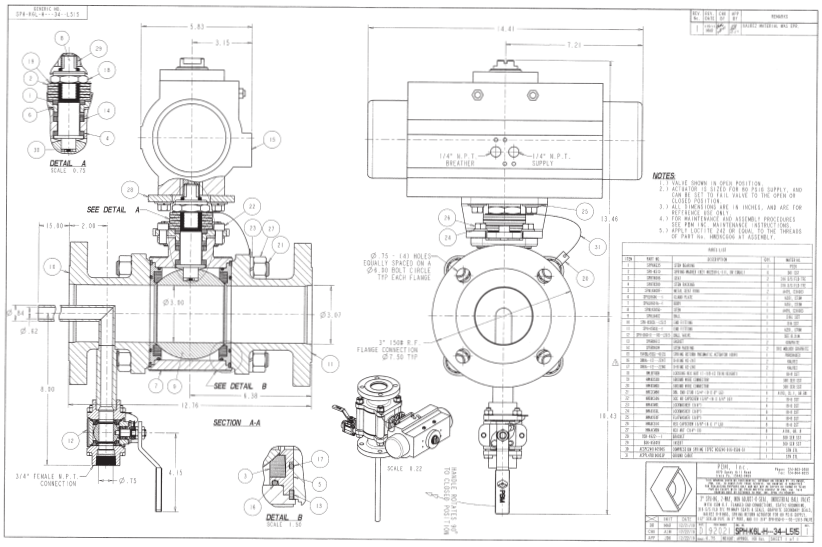
INDUSTRY: CHEMICAL

PRODUCT: IMI PBM 2-WAY FIRE-RATED VALVE

MEDIA: HOT OIL-BASED LIQUID

IMI PBM Solution:

The jacket on an existing reactor made it impossible to use a flush mounted tank bottom valve. IMI PBM was asked to supply a valve with a nitrogen purge port to introduce a hot oil-based liquid into the reactor. The process, which occurs under vacuum, utilizes this unique IMI PBM valve that eliminates leak paths and potential contamination, while improving safety. This IMI PBM valve replaced three 3" process valves and one 3/4" nitrogen valve on a "T" assembly, thus simplifying the process piping.



APPLICATION BRIEF - 63/1111

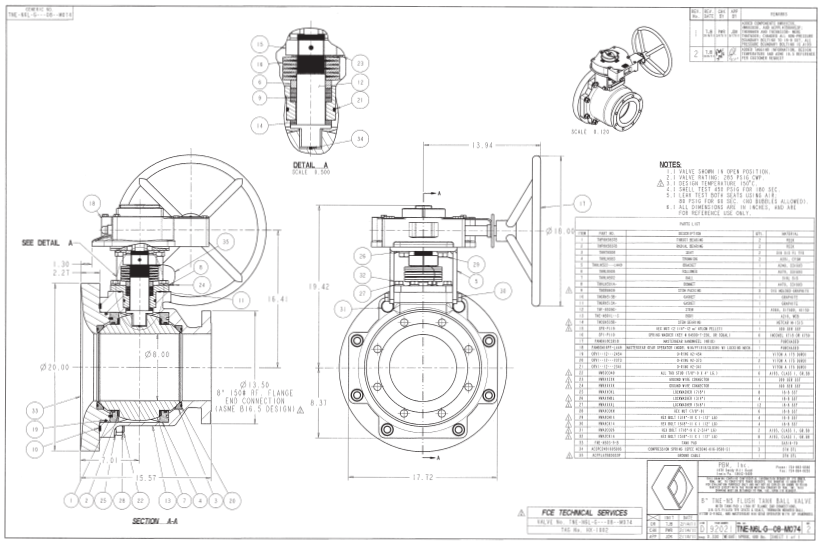
INDUSTRY: CHEMICAL AND CONSUMER PRODUCTS

PRODUCT: 8" TRUNNION FLUSH TANK BALL VALVE

MEDIA: PRODUCTION OF STYRENE RUBBER SOLUTION

IMI PBM Solution:

As part of a petrochemical integrated plan, this company produces general purpose polystrene and high impact polystrene (HIPS), a copolymer of rubber and styrene. HIPS has high impact and flexural strength and is widely used for industrial and consumer products. IMI PBM's 8-inch Trunnion Flush Tank Valve, flange outlet, with S-TEF® seats and seals and manual gear operator has a design temperature of 150°C / 302°F.



APPLICATION BRIEF - 72/1211

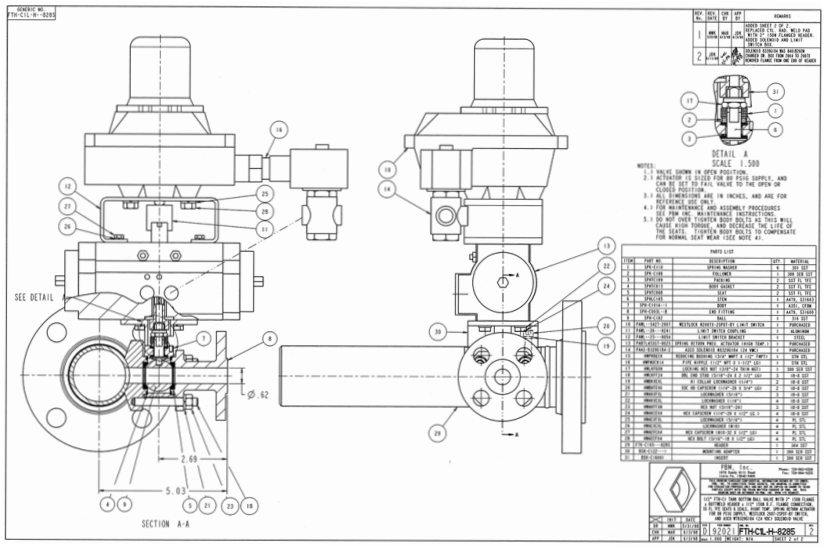
INDUSTRY: CHEMICAL

PRODUCT: FABFLEX® ASSEMBLY

MEDIA: COLORED INK REACTORS

IMI PBM Solution:

A Pacific Northwest manufacturer of replacement solid color ink "crayons" had a requirement for fabricated valve manifolds for use on each color ink reactor. The IMI PBM fabricated valve assembly consisted of a ½" 316 Stainless Steel Flush Tank Valve with cylindrical radius pad welded to a 1.5 inch buttweld by 150 lb., flanged header. The process media is injected into a reactor through the IMI PBM valve and header at ambient temperature; the reactor is brought up to 392°F typical. Pressure at injection is 50 psig. Typical cycling is 10 cycles per shift, two shifts per day. Design and delivery played major roles in this computer/printer firm's choice.



APPLICATION BRIEF - 74/1211

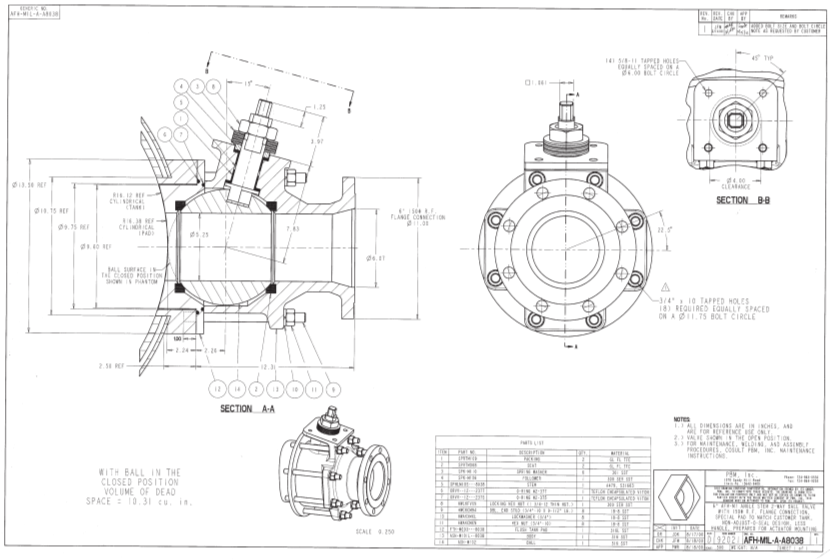
INDUSTRY: CHEMICAL

PRODUCT: ANGLE STEM FLUSH TANK

MEDIA: HIGH QUALITY FILM FOR THE MOTION PICTURE INDUSTRY

IMI PBM Solution:

A mid-Atlantic firm was dissolving "paper" chips in acetic acid to make a cellulose "batter". When chips got stuck in the dead space, they contaminated the product. The solution was to use a modified version of IMI PBM's Angle Stem Valve modified to adapt to the customer's existing tank outlet connection. The IMI PBM valve fit into the tight space envelope; had an increased port diameter that increased drain and increased productivity; and most importantly decreased dead space thus eliminating potential contamination issues.



APPLICATION BRIEF - 81/1211

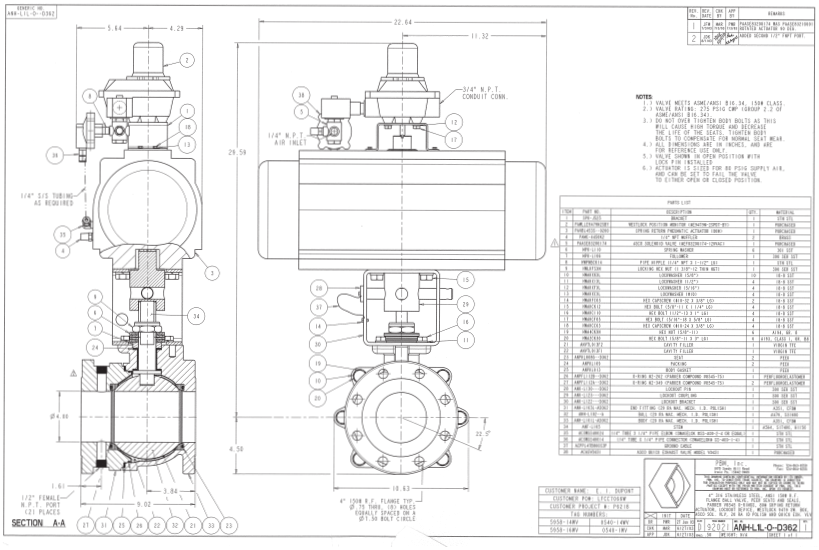
INDUSTRY: CHEMICAL

PRODUCT: ANSI VALVES

MEDIA: SPECIAL FILM USED ON THE BACK OF SOLAR PANELS

IMI PBM Solution:

A major supplier to the photovoltaic industry was looking to add an additional valve mounted in series to existing 4-inch IMI PBM ANSI Valves to create a double block configuration. The existing IMI PBM 4-inch valve in use performed flawlessly over the years, but the supplier, looking to save money added an economical knife gate valve. The knife gate valves had leakage and performance problems that had an adverse affect on the process. All said and done they decided to remove the leaky knife gates and add an additional IMI PBM valve in series to create a double block on the vessel, validating the old adage "you get what you pay for."



APPLICATION BRIEF - 85/1211

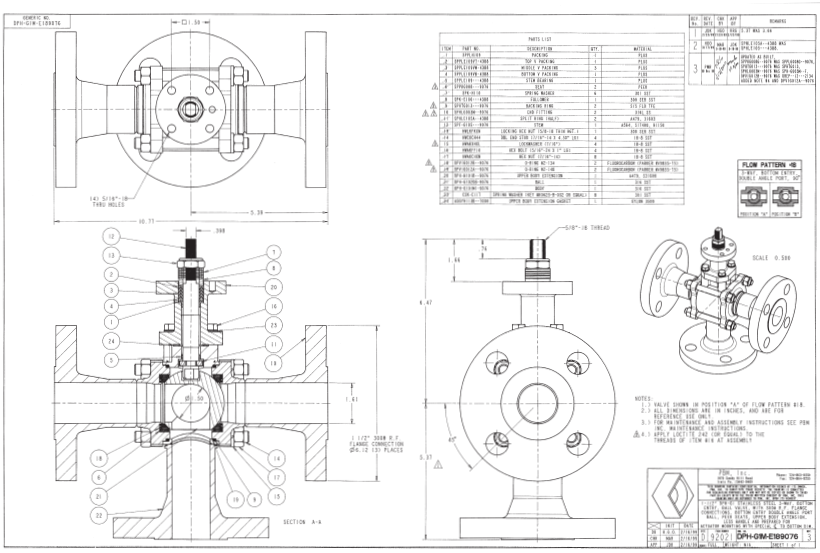
INDUSTRY: CHEMICAL

PRODUCT: DIVERTER PORT BALL VALVES

MEDIA: SYLTHERM

IMI PBM Solution:

A manufacturer of fine chemicals replaced flow-restricting and difficult to automate globe valves with IMI PBM full port diverter ball valves to direct Syltherm (a cooling fluid) though cooling jackets to control process temperature in their reactors.



APPLICATION BRIEF - 86/1211

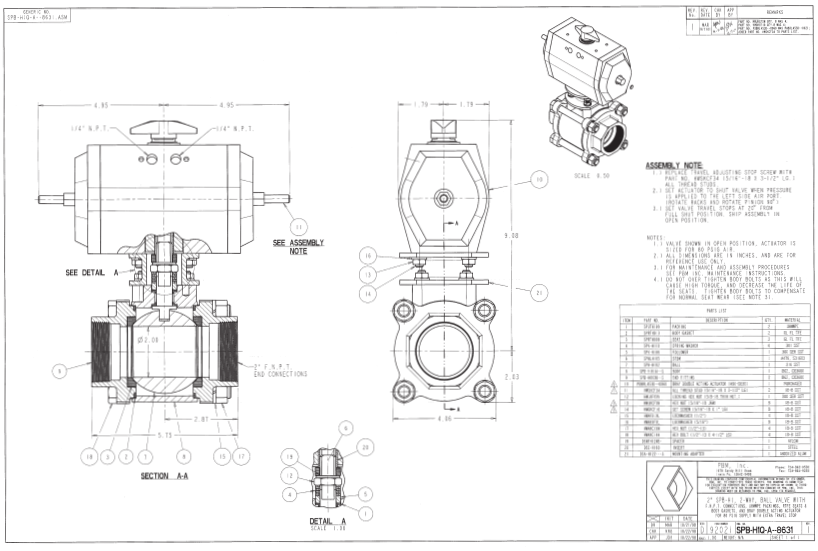
INDUSTRY: CHEMICAL

PRODUCT: 2-WAY BRONZE VALVES

MEDIA: MACHINE COOLANT

IMI PBM Solution:

A new chip filtering system installed at a machining center where metal motorcycle engine parts are produced required valves to control the flow of coolant. IMI PBM valves were durable in high cycle applications meeting the 100-200 cycles per day specification. The 1 and 2" actuated valves made of 836 Bronze controlled the flow of the ambient temperature machine coolant at 30 psi. IMI PBM's adjustable sealing also reduced downtime.



APPLICATION BRIEF - 110/1214

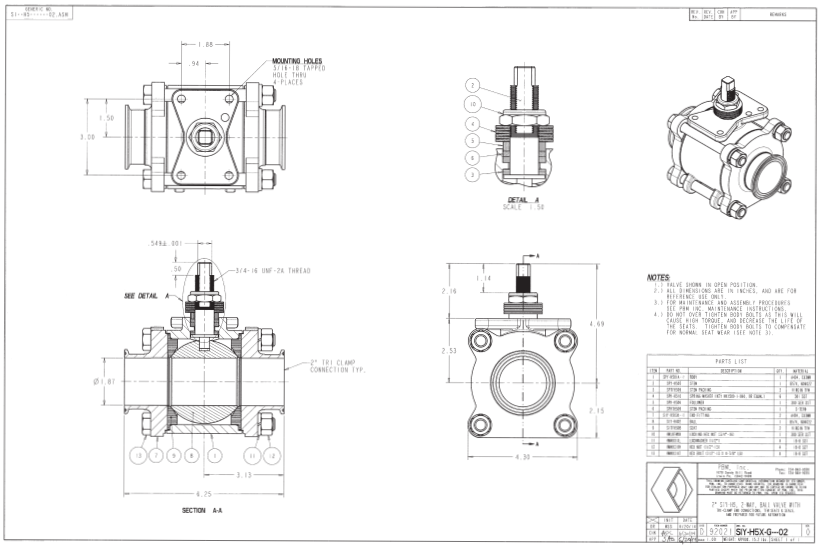
INDUSTRY: CHEMICAL

PRODUCT: 2-WAY HASTELLOY VALVE

MEDIA: SMOKELESS TOBACCO

IMI PBM Solution:

Chemicals used to make Smokeless Tobacco Products required Hastelloy® C22 material for corrosion resistance. Four valves were initially sold as a trial evaluation.



APPLICATION BRIEF - 111/0615

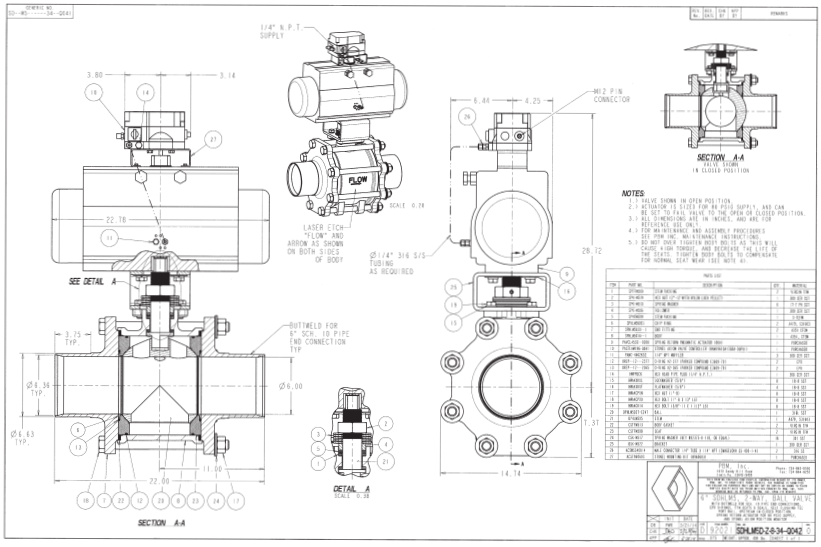
INDUSTRY: BIOFUELS

PRODUCT: 2-WAY SELF FLUSHING VALVE

MEDIA: STERILE FERMENTATION BROTH

IMI PBM Solution:

A major chemical company was building a biofuels plant and needed a valve that would be able to clean without disassembly. The application was designed at 135 psi and 265°F and was for a liquid slurry of sterile fermentation broth that had high solids. The process also called for the ability to be steamed without any effect on the valve performance. They selected the IMI PBM Self-Flushing Ball Valve because of the ease of flushing the cavity and not having any issues with contamination.



APPLICATION BRIEF - 115/0517

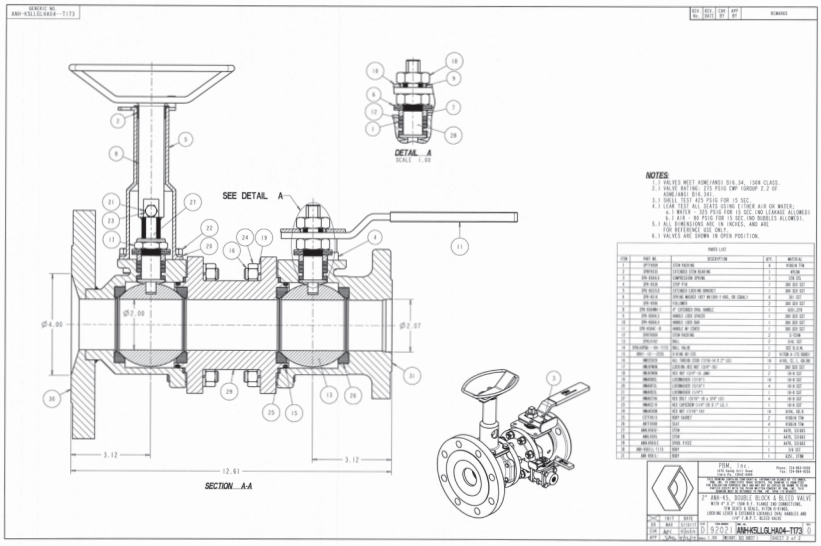
INDUSTRY: CHEMICAL & RESIN MANUFACTURING

PRODUCT: 2" DOUBLE BLOCK & BLEED

MEDIA: DBB ISOLATION OF RESIN INTERMEDIATES

IMI PBM Solution:

A major international chemical company required a double block and bleed valve to isolate level instrumentation on a process vessel. The vessel contained harmful vapors so operational safety was a top priority. IMI PBM was able to provide a full bore 2-inch valve and adapt to an existing 8-inch flange on the process vessel while meeting a tight delivery schedule.



APPLICATION BRIEF - 116/0917

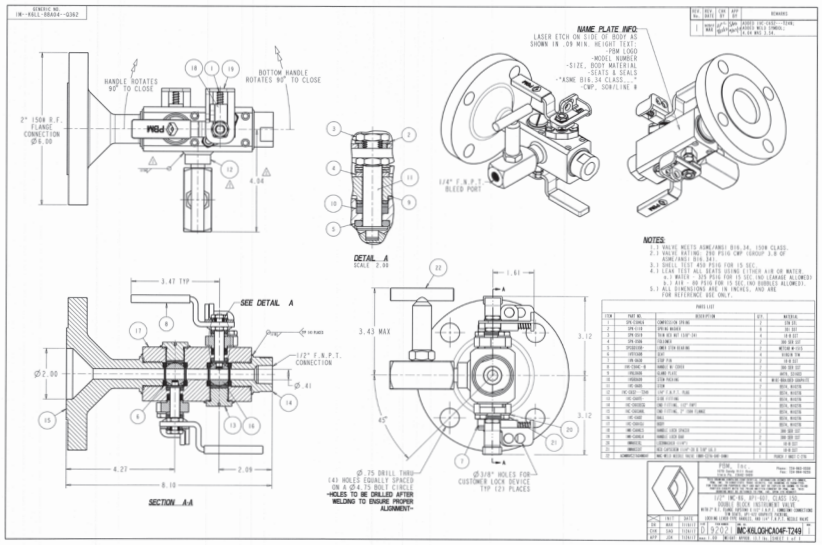
INDUSTRY: CHEMICAL MANUFACTURING

PRODUCT: 1/2" DOUBLE BLOCK & BLEED FIRESAFE

MEDIA: CORROSIVE GASES

IMI PBM Solution:

Existing process system has corrosive gases at various levels in the column. Client needs instrument interface capability and upgraded safety of double positive isolation in Hastelloy 276. Existing flanges on column are 2" 150#RF but reduced porting for the instrument readings is satisfactory. Changing / cutting vessel ports is, as always, undesirable for cost, recertification, downtime, etc. IMI PBM provides effectively a standard IM DBB valve mounted to simple custom flange interface."



APPLICATION BRIEF - 117/0518

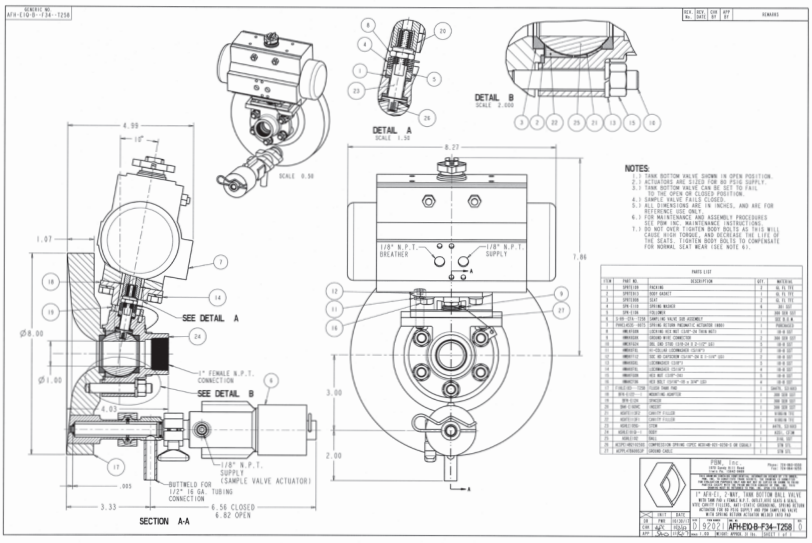
INDUSTRY: CHEMICAL

PRODUCT: FLUSH TANK

MEDIA: COMPOSITE INGREDIENTS

IMI PBM Solution:

Major international composites manufacturer needed to accurately bleed off premixed i ngredients from a small conical pre-mix weigh tank prior to adding the ingredients into the final product mix tank. They had been using an automated tank mounted weir style diaphragm valve with a purge/drain port on the inlet, isolated by another 2-way weir style diaphragm valve. They faced contamination and clogging issues because of the long SS tube dead leg created by porting to the inlet side of the tank valve. They also wanted to automate the bleed valve, which would be difficult to control using their current valve setup. IMI PBM created a larger diameter Flush Tank Pad that could accept integral mounting of an automated, flush mounted IMI PBM S2 Sample Valve, which would be used to bleed product off, as required. This configuration could be welded into the bottom of their new conical tanks without requiring additional outlets or tank connections. This configuration reduced the dead space created by the customer's original valve selection and also provided a way to accurately bleed off product prior to dumping the contents into the final product mix tank.



APPLICATION BRIEF - 120/0420

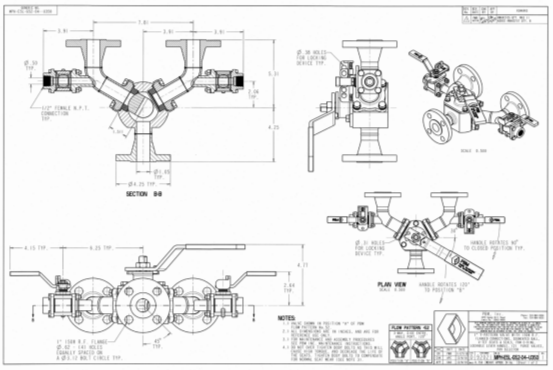
INDUSTRY: CHEMICAL

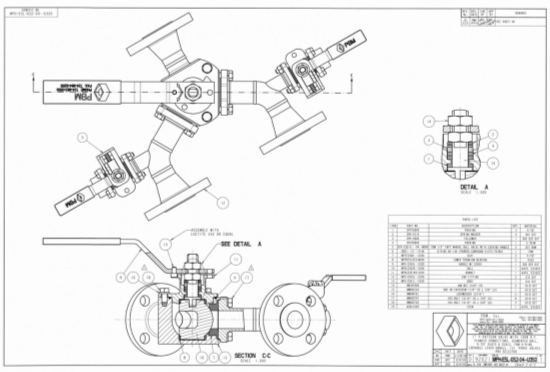
PRODUCT: PRESSURE SAFETY SELECTOR VALVE (PSV)

IMI PBM Solution:

A major chemical producer needed a supply of dual pressure safety valves. PSV selector within tandem/redundant piping operations. The tandem scenario allows PSV maintenance on one side while not sacrificing overpressure protection. IMI PBM supplied a combination of standard DP's and our PSV Selector Valve (a.k.a U350 et.al.) for those purposes. The safety valves are outlet headered to common plant site flare line from various buildings/processes. Our Adjusto-O-Seal® technology was relevant to the DP's not allowing suction across valve internals when the flare is burning, thereby allowing the possibility of multivariate process media's to be drawn into the flare. The common floating ball designs on the market allow this.

The IMI PBM Pressure Safety Selector Valve (PSV) Y-pattern (in both standard and cryogenic) design capitalized on our 120° pigging valve body to take advantage of the low pressure drop required in safety relief valve applications as well as the ease of operation vs industry standard PSV switching valves such as produced by Anderson Greenwood or Schuff. Two-inch and below we are able to duplicate the take dimensions of the An-derson Greenwood units known to be long lead, expensive, and more complex operation (multi-turn, torque seated).





APPLICATION BRIEF - 03/0805

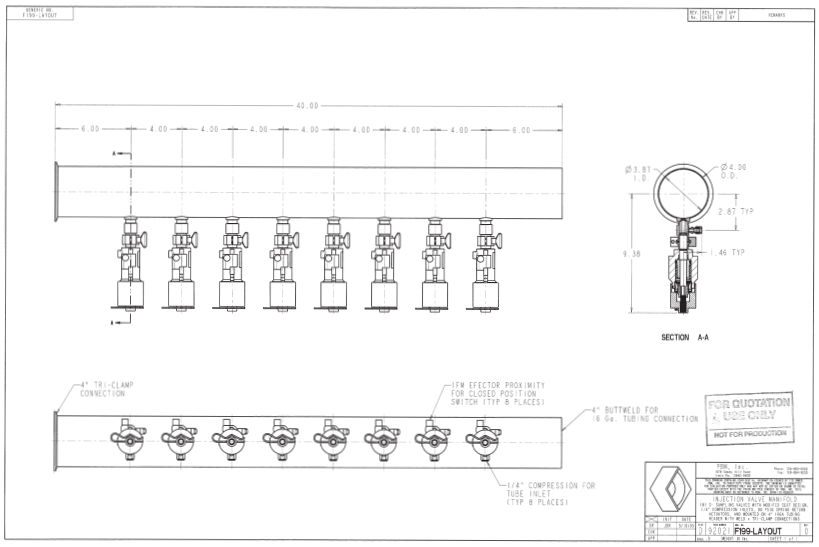
INDUSTRY: CONSUMER PRODUCTS

PRODUCT: FABFLEX® MANIFOLD WITH RISING STEM INJECTOR VALVES

MEDIA: FABRIC SOFTENER DYE

IMI PBM Solution:

A Midwest consumer products manufacturer required eight automated sanitary valves to inject a controlled amount (0.1 Cv max) of dye into a 4-inch size main header containing liquid fabric softener. Each rising stem valve features a single acting actuator and a proximity switch to indicate valve "open" or "closed." IMI PBM's Fablex® assembly also allows the flexibility of adding additional valves to the manifold as future needs arise.



APPLICATION BRIEF - 04/0805

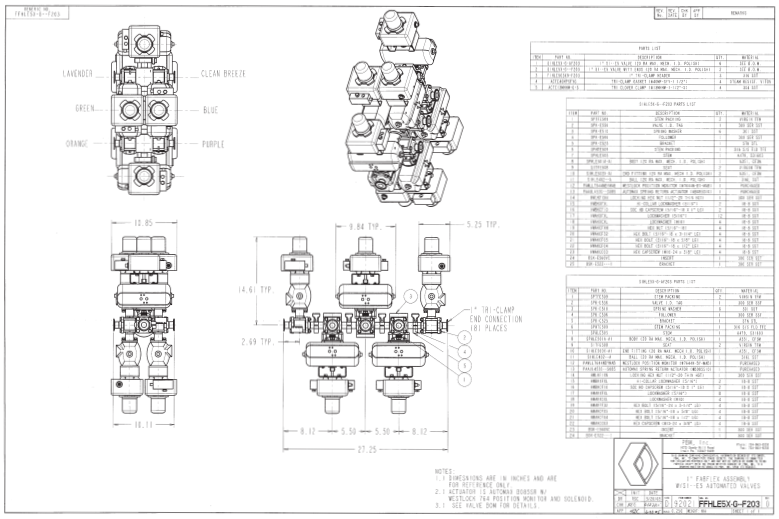
INDUSTRY: CONSUMER PRODUCTS

PRODUCT: FABFLEX® MANIFOLD, OF 8 AUTOMATED VALVES USED FOR FRAGRANCE INJECTION

MEDIA: LIQUID LAUNDRY DETERGENT FRAGRANCES

IMI PBM Solution:

A Midwest consumer products manufacturer required an automated manifold of valves to control the addition of multiple fragrances into liquid laundry detergent. IMI PBM designed a manifold of eight automated ball valves that could accommodate the application and fit in a tight space envelope. This prefabricated Fabflex® Manifold eliminated the need to fabricate the piping in the field and allowed the process to be up and running during only a brief shutdown period. IMI PBM's Fablex® assembly also allows the flexibility of adding additional valves to the manifold as future needs arise.



APPLICATION BRIEF - 06/0805

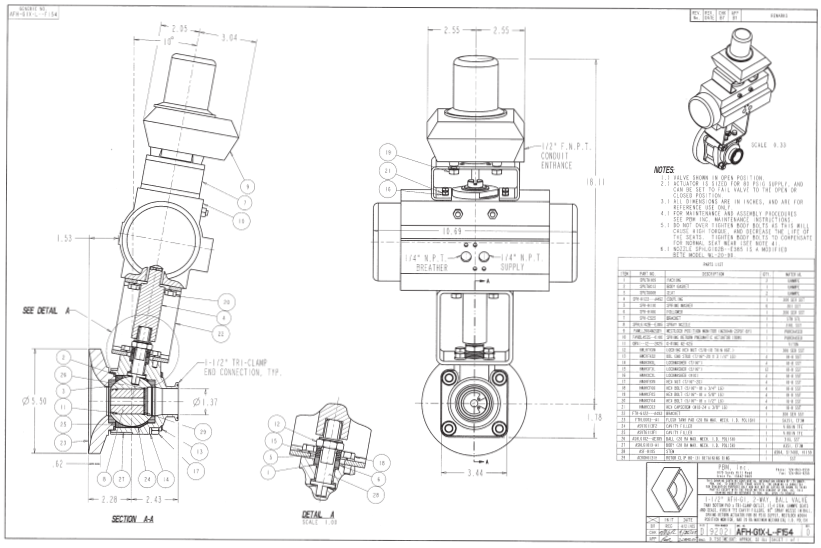
INDUSTRY: CONSUMER PRODUCTS

PRODUCT: ANGLE STEM FLUSH TANK WITH SPRAY NOZZLE BALL, ACTUATOR, LIMIT SWITCH

MEDIA: CIP SOLUTION

IMI PBM Solution:

An International manufacturer of consumer products required a means of cleaning the underside of agitators in a tank that mixed toothpaste and dental products. IMI PBM provided a solution by machining an integral 90° spray nozzle into the ball of an Angle Stem Flush Tank Ball Valve. The valve remains closed during the mixing process; is used between batches to introduce CIP; and rinse solutions through the spray nozzle ball into the tank bottom to completely clean the hard-to-reach undersides of the agitator blades.



APPLICATION BRIEF - 22/0805

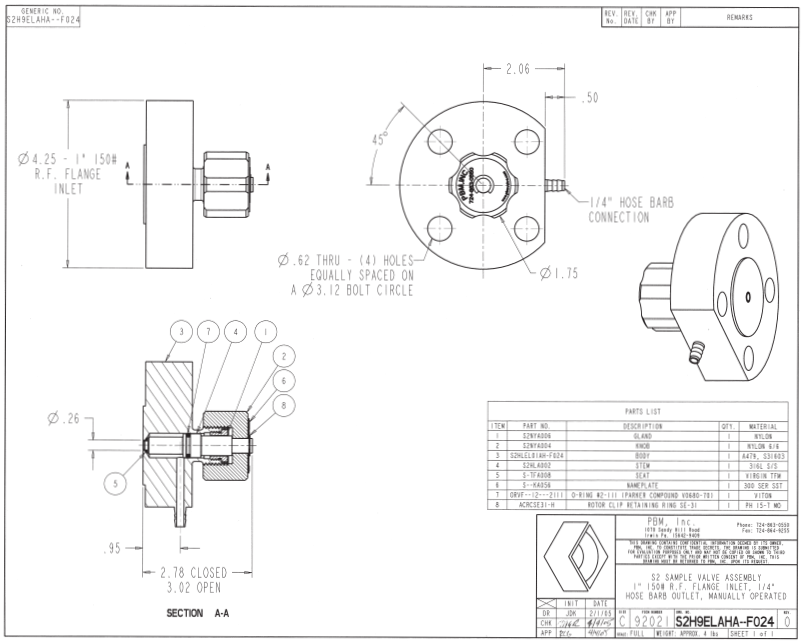
INDUSTRY: CONSUMER PRODUCTS

PRODUCT: RISING STEM SAMPLING VALVE

MEDIA: WATER

IMI PBM Solution:

A major consumer products manufacturer was looking to sample water from a filter housing. IMI PBM integrated it's Rising Stem Sampling Valve design into a 1-inch flange fitting that attached to an existing flange connection on the filter housing. This design allowed the seal of the sampling valve to be flush with the inside facing flange face.



APPLICATION BRIEF - 25/0805

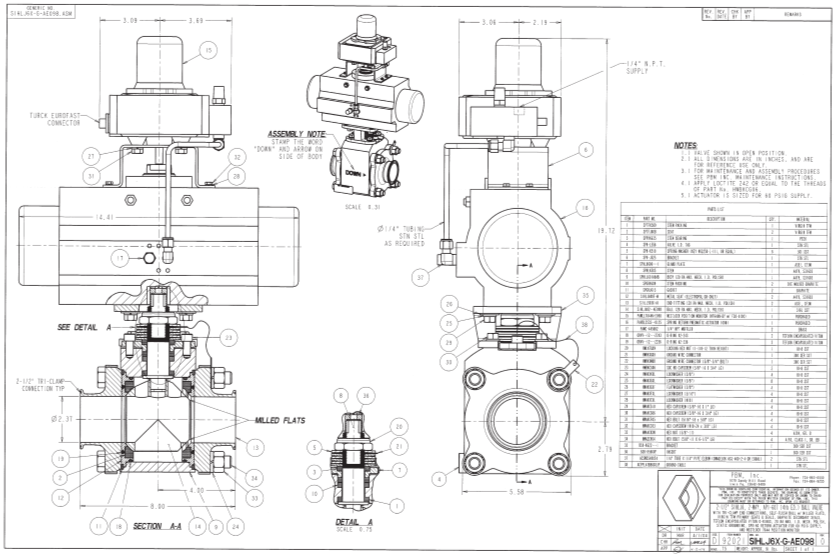
INDUSTRY: CONSUMER PRODUCTS

PRODUCT: SANITARY IGENIX™ FIRE-RATED 2-WAY WITH SELF-FLUSHING BALL

MEDIA: HAND SANITIZER

IMI PBM Solution:

A major US manufacturer of hand cleaners required a sanitary fire-rated ball valve for use on a hand sanitizer process line.The hand sanitizer, made in a sanitary process system, is alcohol based, thus the requirement for both a sanitary and fire-rated valve. In addition, the manufacturer runs multiple products through the same process line and required the lines and valves to be cleaned between batches. IMI PBM's Self-Flushing Ball allows the valve internals to be thoroughly cleaned with line flushes between batches.



APPLICATION BRIEF - 29/0106

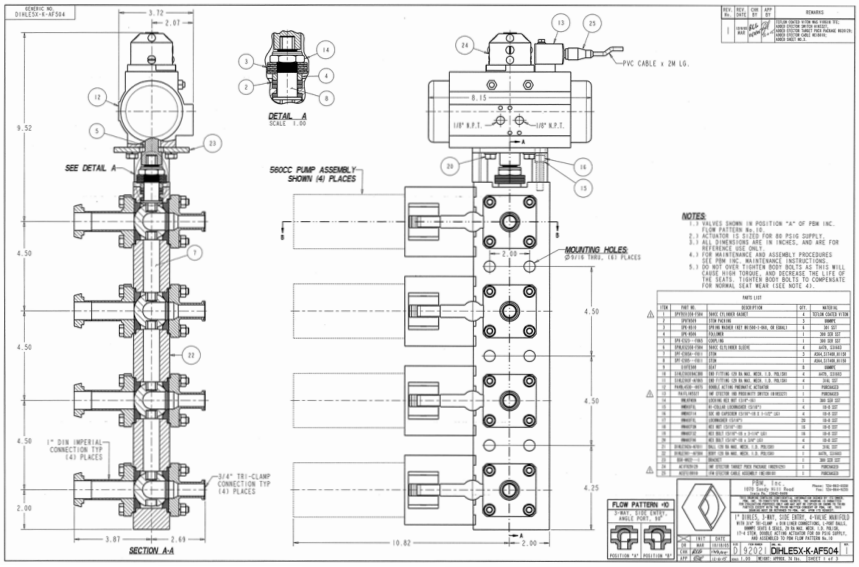
INDUSTRY: CONSUMER PRODCUTS - COSMETICS

PRODUCT: FABFLEX® MANIFOLD ASSEMBLY

MEDIA: COSMETICS

IMI PBM Solution:

A major cosmetic manufacturer was looking for a unique valve manifold that could fill four tubes or containers simultaneously with a specific volume of product. The customer was looking to obtain one million cycles a year to keep up with production requirements. IMI PBM designed a Fabflex® Manifold utilizing four valves operated simultaneously by a single pneumatic actuator. Each valve outlet can accept four different sized cylinders, each of which can fill a specific tube or container with a specific volume of product.



APPLICATION BRIEF - 36/0808

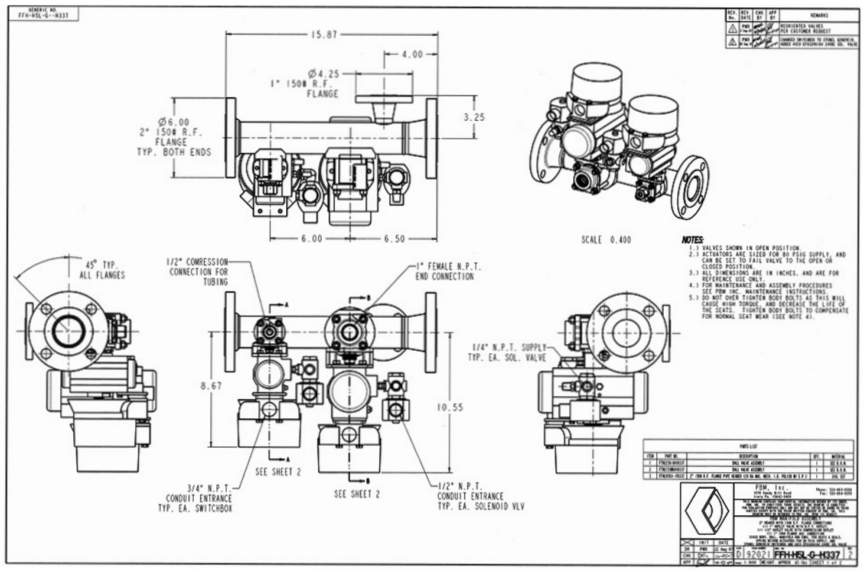
INDUSTRY: CONSUMER PRODUCTS

PRODUCT: INJECTION MANIFOLD

MEDIA: USED IN THE POLISHING OF WATERS

IMI PBM Solution:

The spool piece is in a process line which is a mixture of dimethylformamide (DMF), polyurethane, and an icocyanate. The two injection valves (1" and 1/2") are designed to add the isocyanate into the DMF/ polyurethane mixture; ~ 70% DMF. This was a solution sell. The spool piece was part of a package that contain a PLC and mass flow meter.



APPLICATION BRIEF - 41/0908

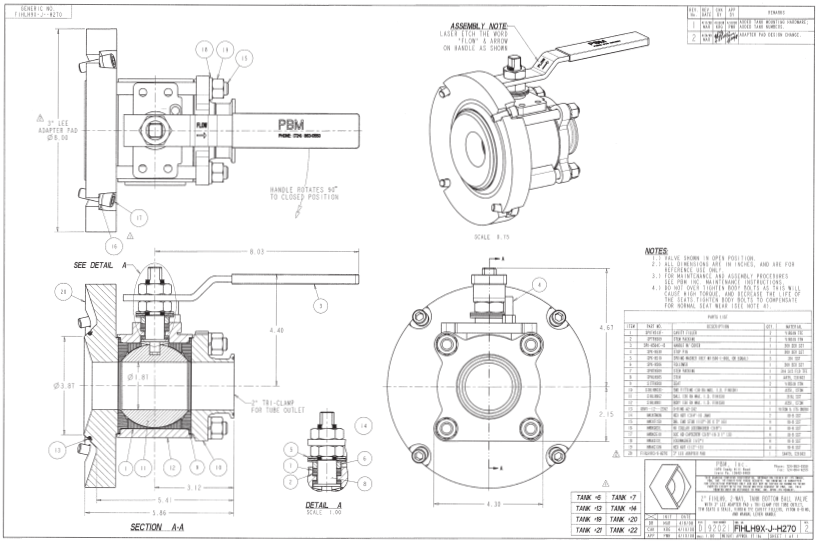
INDUSTRY: CONSUMER PRODCUTS

PRODUCT: 2", 316L STAINLESS, SERIES 9 FLUSH TANK BALL VALVE, WITH AN ADAPTER PAD TO BOLT UP TO A LEE TANK PAD, TRI-CLAMP OUTLET, TFM® SEATS,SEALS AND BODY CAVITY FILLERS,HANDLE MARKED WITH FLOW DIRECTION ARROW.

MEDIA: COSMETICS

IMI PBM Solution:

Customer was having safety concerns with current tank valves. Handle orientation was confusing and operator had trouble identifying whether valve was open or closed. Also, valves were of various sizes and would require additional adapters to hook outlet hoses. IMI PBM offered to standardize on all valves using a 2" valve with a common outlet. Handles were marked with a flow direction arrow. They also had several tanks with Acme Bevel outlets. IMI PBM was able to adapt the same valve series to those allowing the same repair kit for all valves.



APPLICATION BRIEF - 50/0610

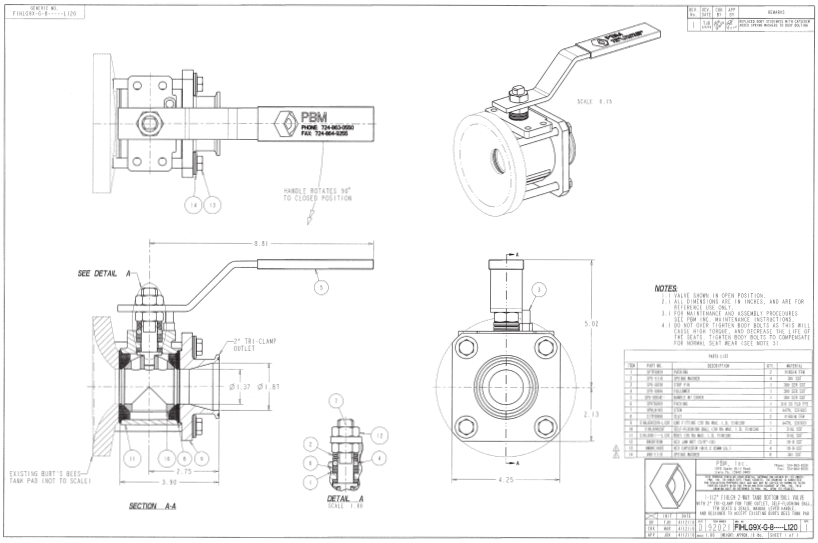
INDUSTRY: CONSUMER PRODUCTS

PRODUCT: SANITARY SELF-FLUSHING VALVE

MEDIA: LIP BALM, HAND CREME, TOOTHPASTE, AND MANY OTHER PRODUCTS

IMI PBM Solution:

These valves are being used on the bottom of their fill tanks, used for nearly all of their products. The base ingredient in all of their formulas is beeswax. They add various oils, fragrances, and other items to make lip balm, hand creme, toothpaste, and many other products. This specific application came from using one of these fill tanks for a lip balm product called "Shimmer," that includes ground mica! This was extremely difficult to clean from the existing Sharpe tank bottom valve. When the mica turned up in a batch of the next product filled into this particular kettle, a hand creme, the batch had to be scrapped. The self-flushing valve performed quite well. With the mica product, NEARLY all of the remnants were cleaned from the valve. When the valve was tested with non-mica products, the valves came completely clean, unlike that of the competitor. This customer looks forward to getting these installed onto the kettles.



APPLICATION BRIEF - 53/0610

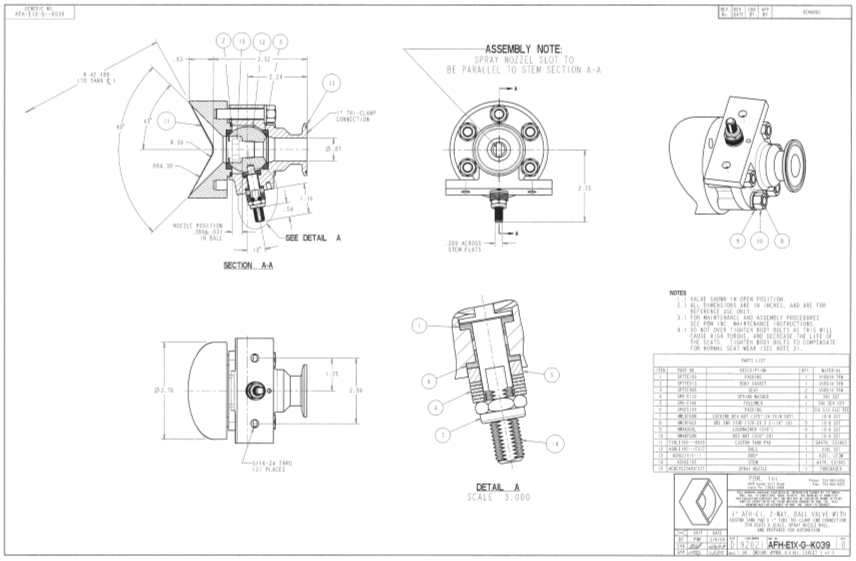
INDUSTRY: CONSUMER PRODUCTS

PRODUCT: SANITARY ANGLE STEM FLUSH TANK

MEDIA: BEAUTY AND PERSONAL CARE PRODUCTS

IMI PBM Solution:

A large manufacturer of beauty care and other personal care products uses angle stem valves with spray nozzle balls and knuckle radius pads in their process application of mixing tanks for the cleaning of the under side of the mixing blades - valves are mounted at a height on the side of tank to accommodate cleaning.



APPLICATION BRIEF - 68/1211

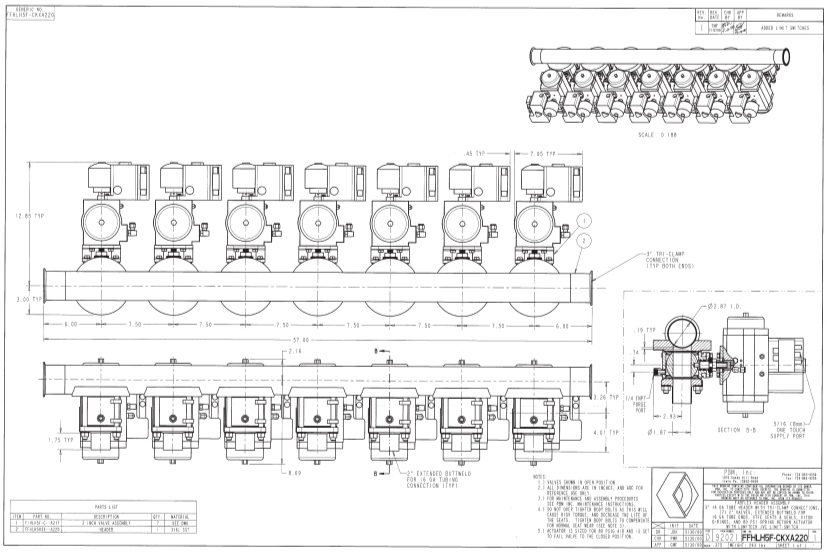
INDUSTRY: CONSUMER PRODUCTS

PRODUCT: MANIFOLD ASSEMBLY

MEDIA: AUTOMOTIVE FINISHES

IMI PBM Solution:

A major provider of automotive finishes needed a system to deliver products to various plant locations using one common header. The system needed to be compact and minimize potential for contamination between the valve seat and header wall and handle 50-100 psi max services with temperatures under 100°.



APPLICATION BRIEF - 71/1211

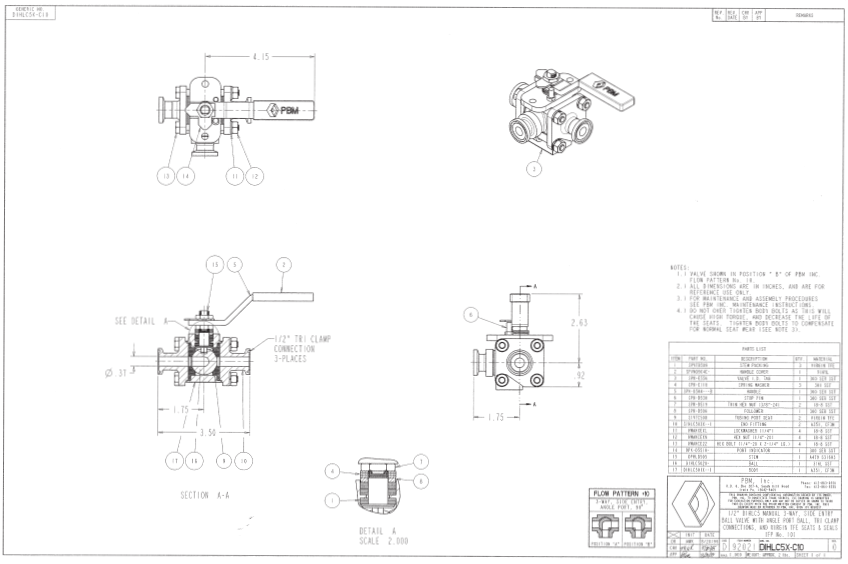
INDUSTRY: CONSUMER PRODUCTS

PRODUCT: DIVERTER PORT SANITARY BALL VALVES

MEDIA: LIQUID SOAP LINE

IMI PBM Solution:

A Cosmetic company often relied on diaphragm valves to handle their sanitary applications. IMI PBM's adjustable sealing not only allowed in-line adjustment for normal valve wear, but also allowed for Clean-in-Place (CIP) without process interruption. They preferred not to use purge ports to assist in valve cleaning, and discovered how milled ball flats on both the upstream and downstream side could accommodate this instead. They also like the benefits of the lift out/ swing out feature and reviewed the various seat and seal material options for steam applications. The valve had to handle the 176°F temperatures of CIP service.



APPLICATION BRIEF - 73/1211

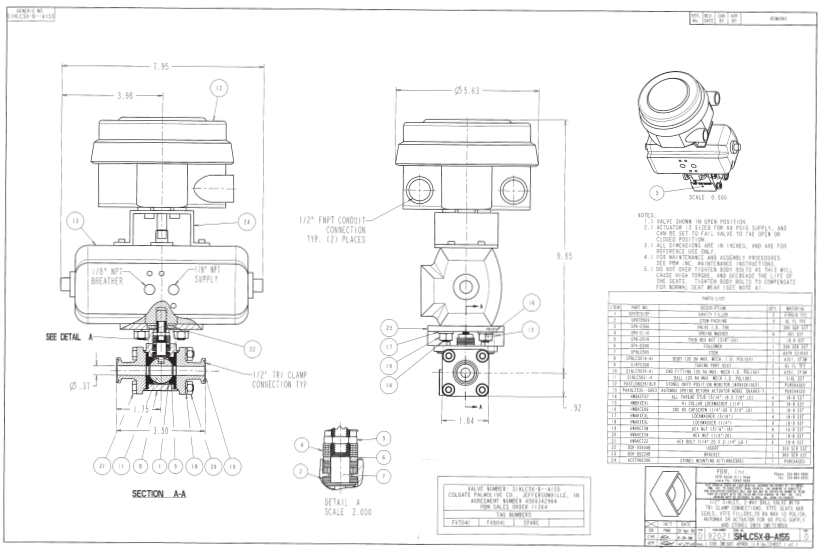
INDUSTRY: CONSUMER PRODUCTS

PRODUCT: IGENIX® 2-WAY BALL VALVES

MEDIA: DI WATER, CAUSTICS, PROPYLENE GLYCOL, GLYCERIN, STEAM, ETC.

IMI PBM Solution:

IMI PBM's Sanitary 2-Way Ball Valves were used on a variety of processes including DI water, caustics, potassium nitrate, propylene, glycol, glycerin, steam, carbowax, and chilled water. The door opened also for IMI PBM's Angle Stem Flush Tank Valves with spray nozzles for tank cleaning on this manufacturer's toothpaste line.



APPLICATION BRIEF - 77/1211

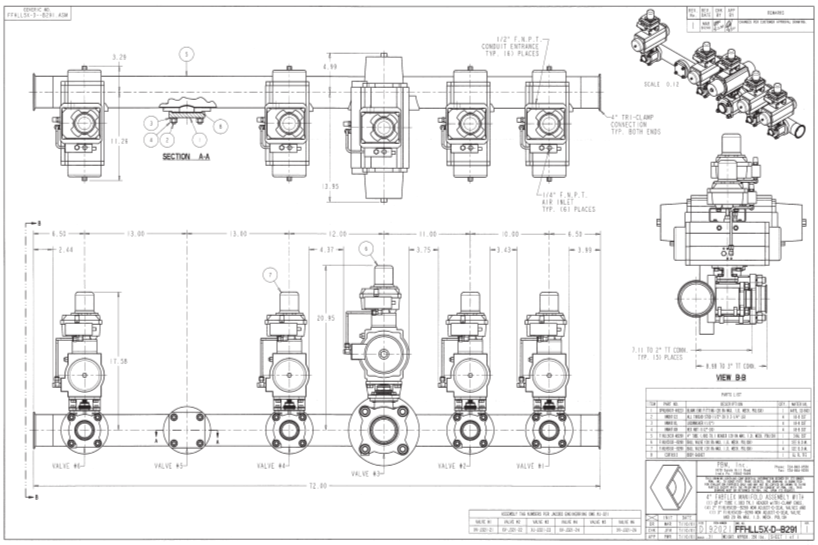
INDUSTRY: CONSUMER PRODUCTS

PRODUCT: FABFLEX® MANIFOLDS

MEDIA: SHAMPOO

IMI PBM Solution:

This home and personal care manufacturer had problems with media buildup using traditional "Ts" and valves. IMI PBM's Fablex® Manifolds for modular skids allowed them to minimize the space between the valve seat and header, and provide an overall compact design. Pressure is 150 psig and temperatures from 0 to 115°F.



APPLICATION BRIEF - 78/1211

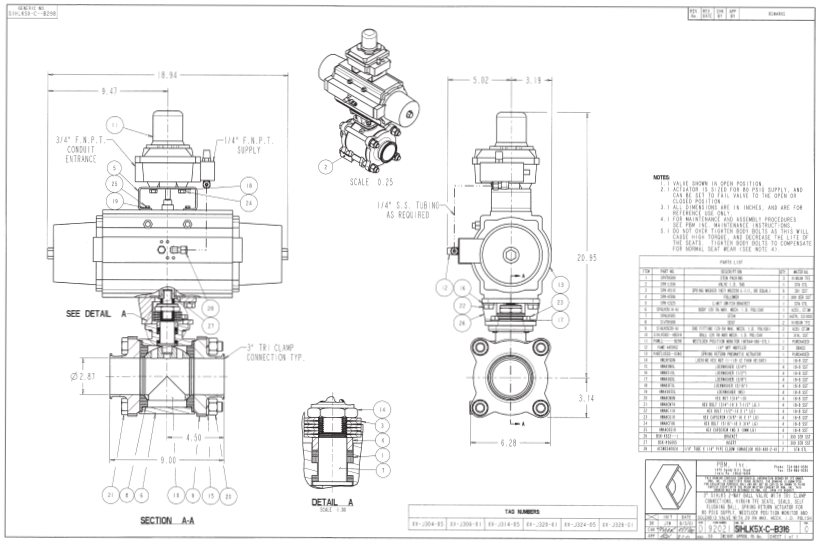
INDUSTRY: CONSUMER PRODUCTS

PRODUCT: 2-WAY SELF FLUSHING VALVES

MEDIA: SHAMPOO

IMI PBM Solution:

A major producer of home and personal care products was having a problem getting enough flow through diaphragm and pinch valves. IMI PBM's Self Cleaning Valves provided full unobstructed flow resulting in no shampoo being trapped in the valve cavity. IMI PBM Self-Cleaning Balls join the cavity of the valve with the piping when the valve is open. The holes allow product to fill the cavity just as it fills the piping. When flushing the lines, the cleaning fluid fills the cavity and displaces the product. The valves remain double seated and seal in either direction when closed.



APPLICATION BRIEF - 89/1211

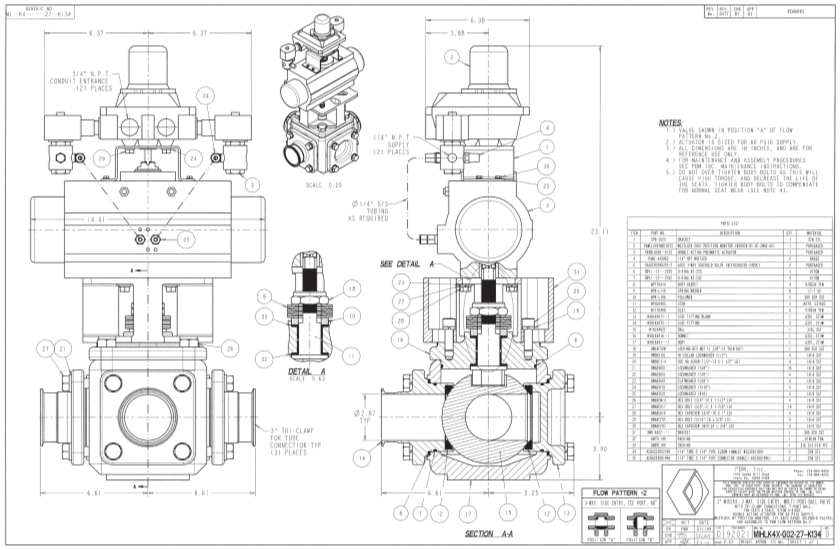
INDUSTRY: CONSUMER PRODUCTS

PRODUCT: IMI PBM MULTI-PORT WITH CAVITY FILLERS

MEDIA: HOT DETERGENT LINES

IMI PBM Solution:

IMI PBM's adjustable sealing provides bubble-tight isolation from port to port in the process pressure range of vacuum to 150 psig. Optional cavity fillers were used to prohibit the collection of 185°F detergent from collecting and solidifying in the valve cavity.



APPLICATION BRIEF - 104/0114

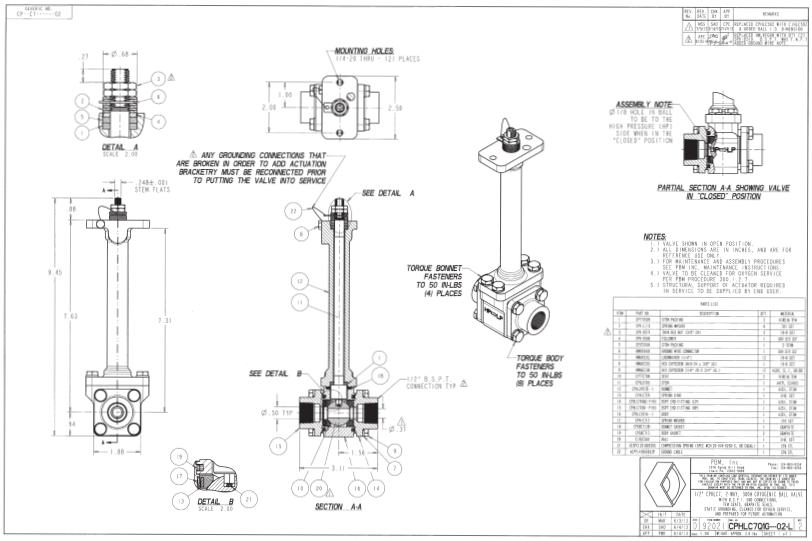
INDUSTRY: AIR SEPARATION

PRODUCT: CRYOGENIC VALVES

MEDIA: LIQUID NITROGEN AND OXYGEN RICH VENT LINES

IMI PBM Solution:

The package consists of the IMI PBM Series 7 Cryogenic Valves fitted with a spring return pneumatic actuator. The assembly has undergone a stringent design review with particular attention paid to areas where condensation could freeze, and the possibility that the valve and actuator could become encrusted in ice. These valves are operating in the gas division of a major company that supply equipment all over the world and sometimes in remote areas where it is difficult to access the valves. During a recent site visit to a country in eastern Europe, engineers where pleased to see the IMI PBM valve is working perfectly well and coved in ice & snow. To date qty: 15 valve assemblies have been supplied with more orders expected. Current rate: 21.6 valves per annum. ($9K) Rate predicted to climb as new ATEX variant, and spares requirements are anticipated.



APPLICATION BRIEF - 119/0420

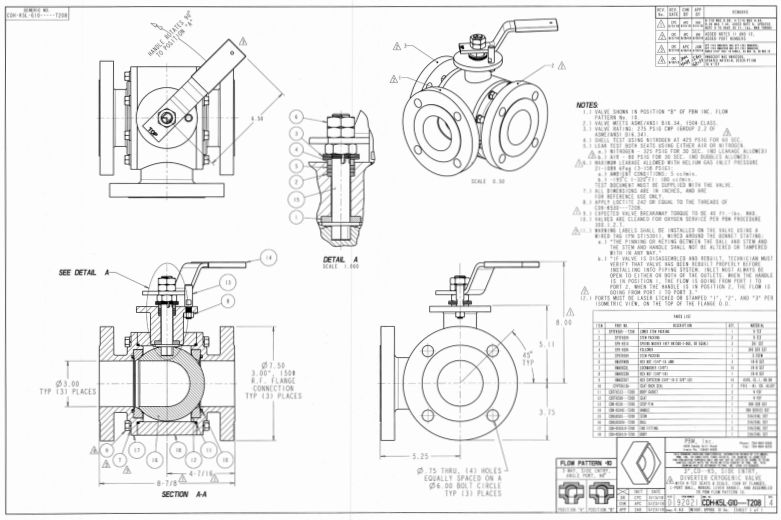
INDUSTRY: CRYOGENIC

PRODUCT: DIVERTER CRYOGENIC VALVE (L-PORT BALL)

MEDIA: LIQUID PHASE TRUCK LOADING

IMI PBM Solution:

Major cryogenic truck trailer supplier for liquid phase truck loading/ transport required a quality Diverter Ball Valve for dual pressure relief switching valve (PRV) for use on cryogenic helium fluid transport truck trailers. Valves were required to address stringent shut off requirements, space envelope, weight, and maintainability.
In addition, the client needed particular torque operation specifications met for the driver/operators.



APPLICATION BRIEF - 01/0805

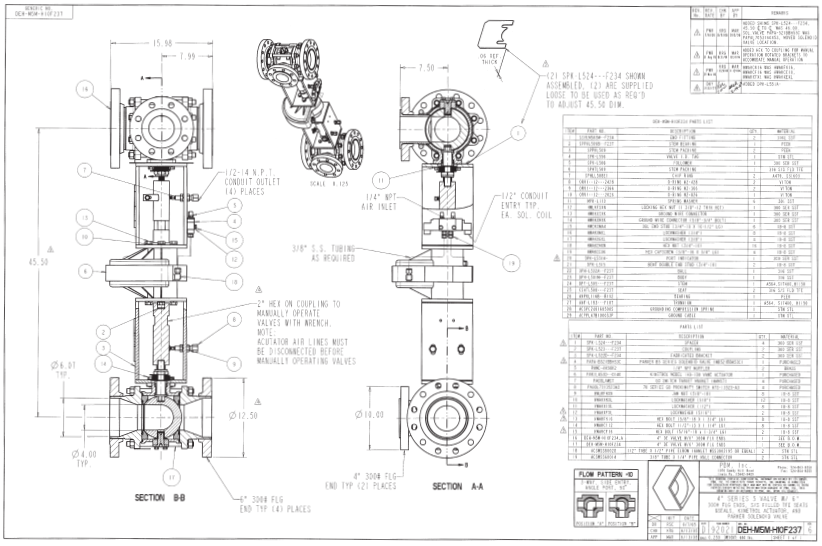
INDUSTRY: POWER

PRODUCT: TANDEM MOUNTED AUTOMATED (DP) DIVERTER PORT BALL VALVES

MEDIA: TURBINE OIL

IMI PBM Solution:

A Midwest US Power Plant replaced high torque plug valves with tandem mounted automated IMI PBM 3-Way Valves, 4-inch port size with 6-inch flanges. These tandem valves, which were mounted inside a cabinet, operate in unison driven by a single pneumatic actuator. This valve assembly, used on the turbine oil filter system, operates at 285 PSI. As one valve "opens", the other valve "closes" to isolate one of two turbine oil filter housings for maintenance, allowing a second filter to continue in operation. Each valve provides "trans-flow" during filter change over to prevent dead-heading. IMI PBM was able to design this assembly to fit the customer's existing piping envelope, eliminating costly piping fabrication changes.



APPLICATION BRIEF - 10/0805

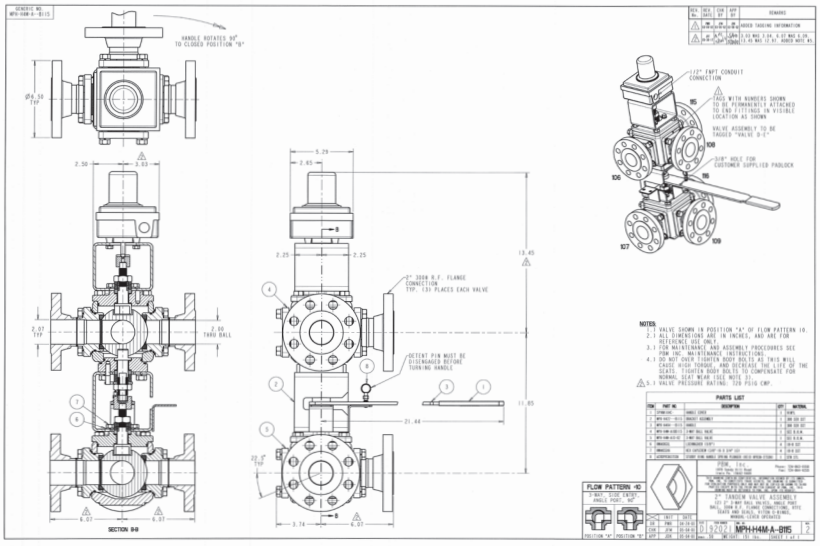
INDUSTRY: POWER

PRODUCT: TANDEM MOUNTED MP MULTI-PORT BALL VALVES

MEDIA: VARIOUS

IMI PBM Solution:

A Canadian hydro-electric provider implemented a program to upgrade valves used on various tandem filter housings by replacing high-torque, reduced bore, and high maintenance plug valves with IMI PBM full-port multi-port soft seated ball valves. The tandem valve assembly allows one filter to be isolated for maintenance while process media flows through the tandem filter, thus eliminating any process flow interruption.



APPLICATION BRIEF - 35/0508

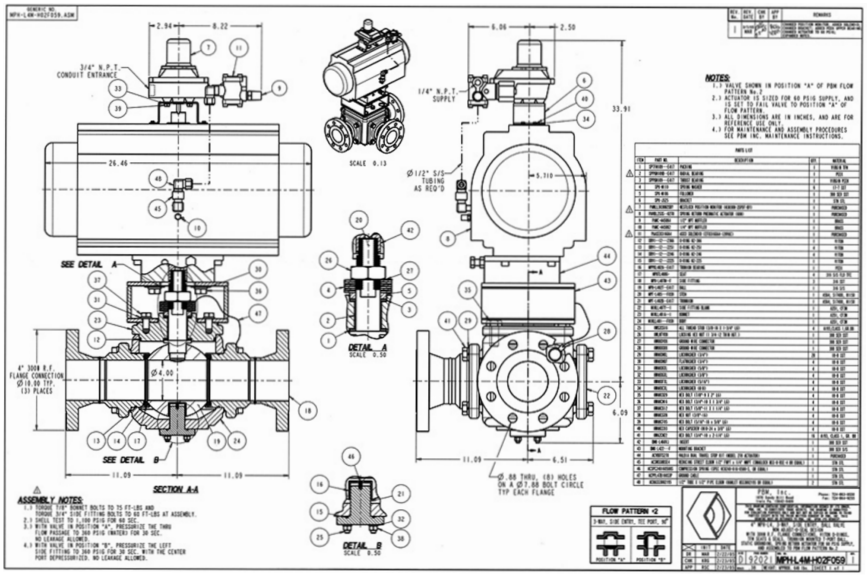
INDUSTRY: POWER

PRODUCT: AUTOMATED MULTI-PORTED BALL VALVES

MEDIA: TURBINE OIL

IMI PBM Solution:

A mid-west US Power plant replaced a problematic plug valve with an automated IMI PBM 4-inch Multi-Port Ball Valve. The application is diversion of turbine oil in the event of a turbine trip. The oil is at near 200°F and about 200 psig. This IMI PBM Multi-Port incorporated a ball supported by a trunnion with PEEK bearings resulting in minimal forces, thus allowing the soft valve seats to remain intact.



APPLICATION BRIEF - 44/0410

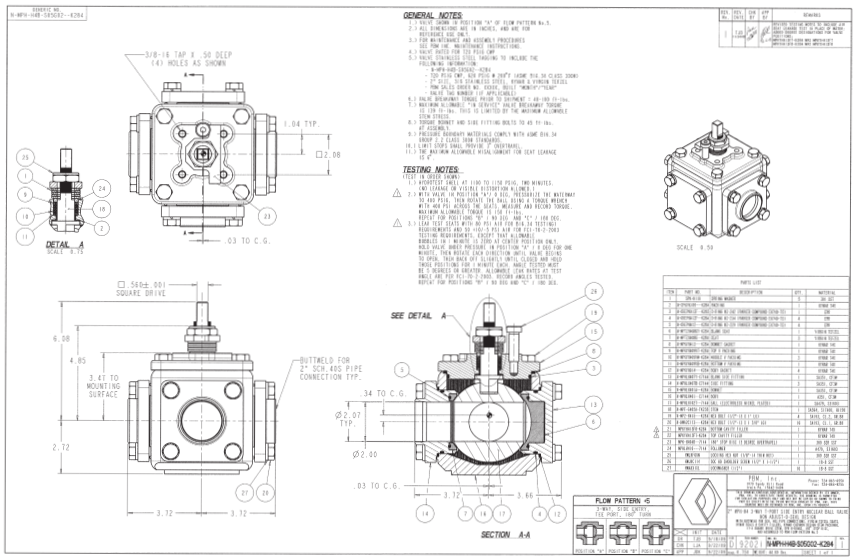
INDUSTRY: NUCLEAR

PRODUCT: MULTI-PORT BALL VALVE

MEDIA: SLUDGE WASTE MATERIAL

IMI PBM Solution:

Used for process transfer of various types of sludge waste material (with varying degrees of radioactivity) from long term storage facilities (50 year design) to a processing plant which intends to vitrify (dry, reduce, and encase in glass) the waste for extremely long term storage.



APPLICATION BRIEF - 51/0610

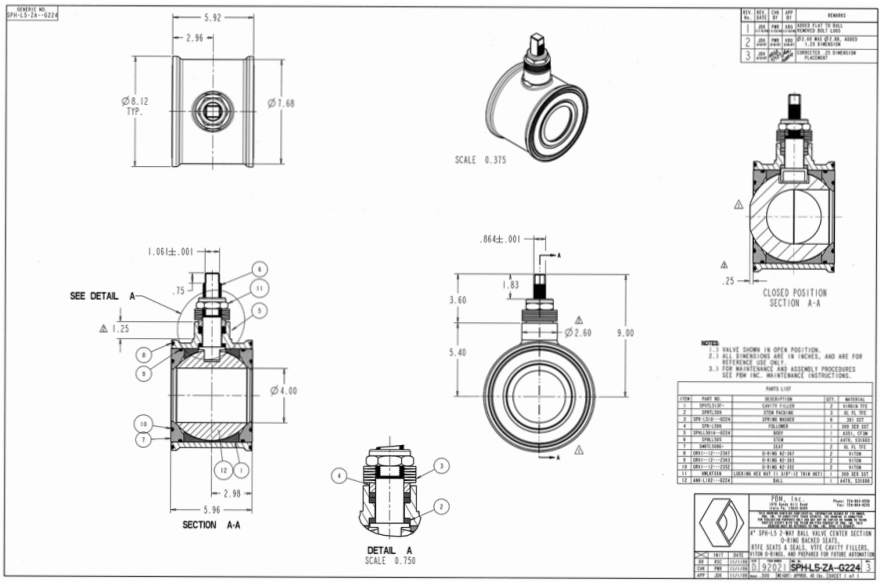
INDUSTRY: ENERGY

PRODUCT: IMI PBM CENTER SECTIONS

MEDIA: ROCKET FUEL

IMI PBM Solution:

Baker Perkins center sections to replace obsolete Contramatic valves by using IMI PBM product placed between Contramatic ends.



APPLICATION BRIEF - 100/0812

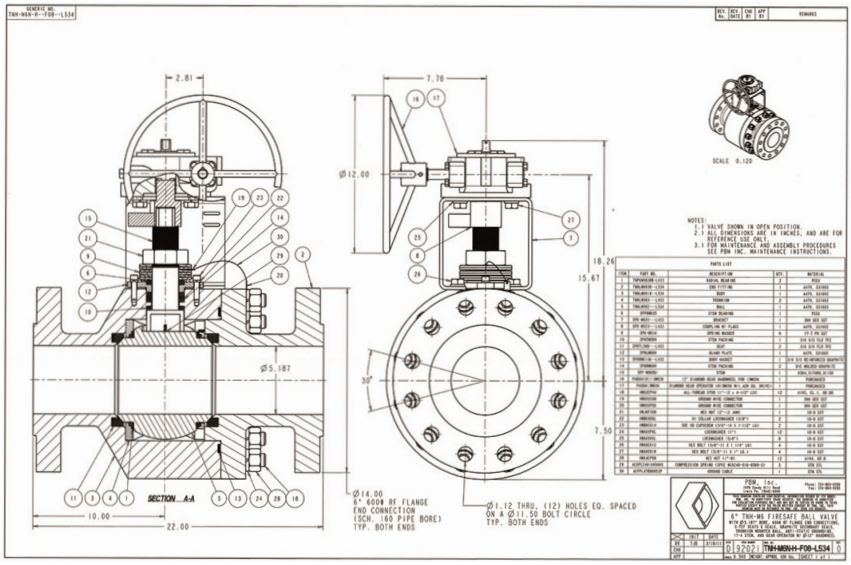
INDUSTRY: POWER

PRODUCT: IMI PBM ANSI TRUNNION VALVES

MEDIA: PULVERIZED COAL

IMI PBM Solution:

A major energy producer with an abrasive slurry application tested and specified a valve which allowed for truly laminar flow. IMI PBM True Bore Valves were able to match the ID of the ball, seats and end connection to the appropriate heavy wall piping schedule; ensuring the liquid boundary layer is maintained on the ID of the valve and piping during normally open operations to maximize reliability and minimize internal valve wear when the valve is not actually cycling.



APPLICATION BRIEF - 02/0805

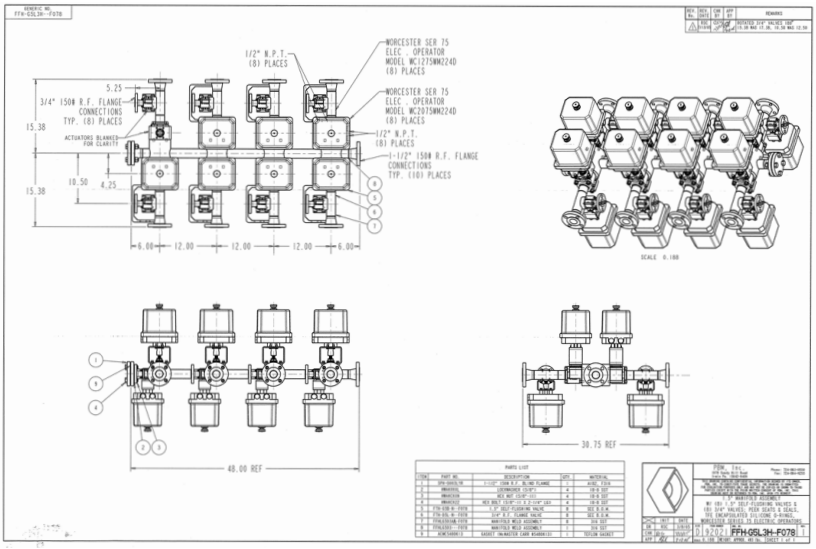
INDUSTRY: FOOD

PRODUCT: FABFLEX® MANIFOLD, CLOSE COUPLED VALVES WITH PURGE PORTS AND ELECTRIC ACTUATORS

MEDIA: FOOD ADDITIVE - EMULSIFIER

IMI PBM Solution:

A Midwest food manufacturer required an automated PLC controlled valve manifold to fit in an area with limited space that could be installed during a brief shutdown time period. The application called for automated valves to handle a food emulsifier that approached 500°F and has a tendency to build up a coating in valves. IMI PBM's solution was to provide a compact manifold of valves with "close-coupled" weld pads on the header to reduce "dead space", and add ¾" nitrogen purge valves. The IMI PBM supplied Fabflex® assembly allowed the end user the flexibility of installing one complete manifold as opposed to site fabrication, which not only saved money by eliminating field fabrication, but saved valuable time so the process could be up and running within a narrow shut-down period. The IMI PBM valves have PEEK™ seats installed as well as silicone coated o-rings.



APPLICATION BRIEF - 09/0805

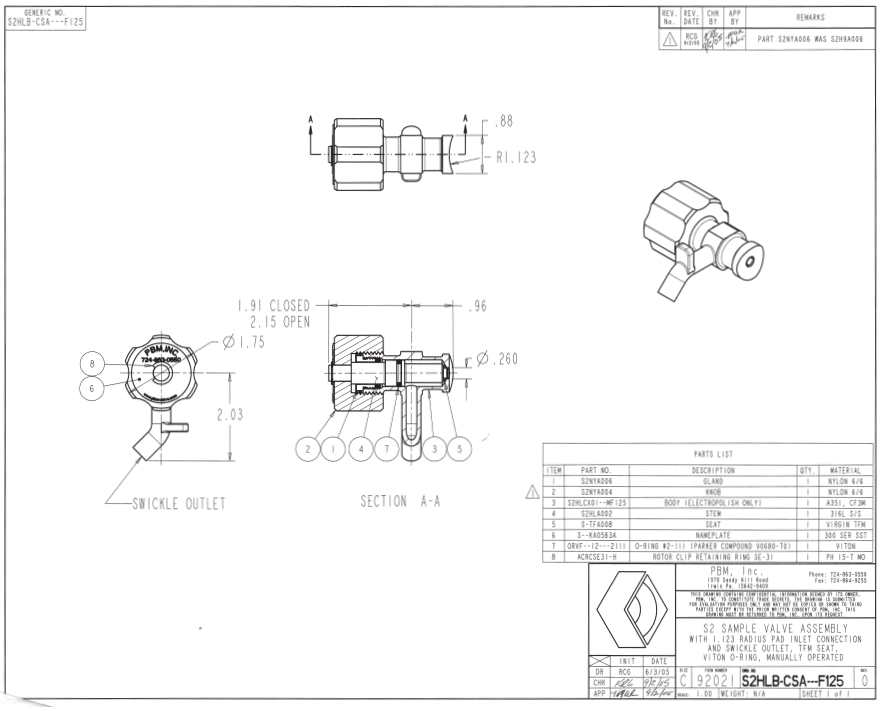
INDUSTRY: FOOD & BEVERAGE

PRODUCT: RISING STEM SAMPLING VALVE

MEDIA: BEER

IMI PBM Solution:

A major western US brewery was looking for an innovative means of sampling product in various phases of the brewery process. The customer was looking for slight modifications of IMI PBM's standard brewery sampling valve. IMI PBM was able to meet their needs by adding a cylindrical radius weld inlet connection that gave the brewer the flexibility of welding the sampling valve at various points along the process lines.



APPLICATION BRIEF - 13/0805

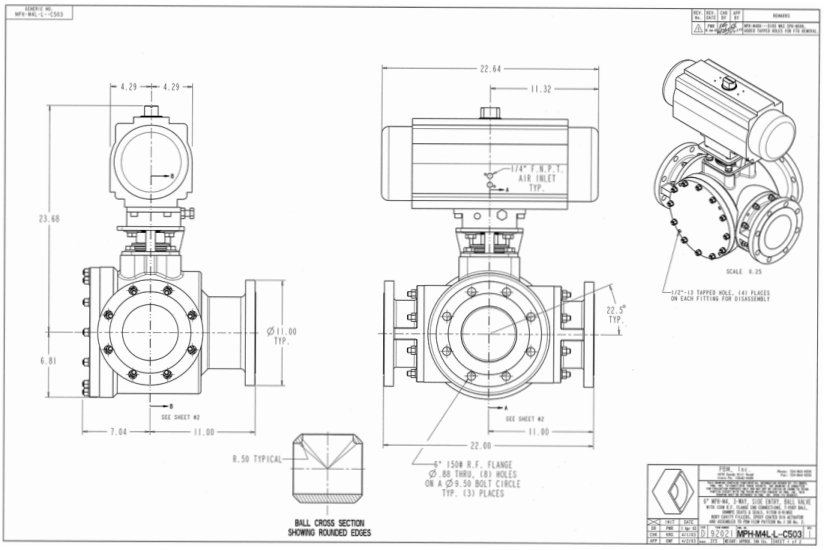
INDUSTRY: FOOD & BEVERAGE

PRODUCT: MULTI-PORT BALL VALVE

MEDIA: MUST (GRAPES, SKINS, SEED, STEMS)

IMI PBM Solution:

A major California winery was looking for a valve to handle the flow of must, which would flow through a main header and into one of 24 fermenters in a tank farm. The primary concern was to maintain the integrity of the grape by having a valve that allowed full unobstructed flow, no sharp edges, and limited voids. IMI PBM provided 24 automated True Bore® 3-way Multi-Port Ball Valves with smooth ball edges to minimize damage to the grapes, body cavity fillers to eliminate void areas in the body where product might collect, and metal encapsulated ultra-high molecular weight polyethylene seats to handle the abrasive grape stems and seeds. IMI PBM's ability to design a valve to meet the application along with on-time delivery resulted in a satisfied customer who was able to have the process up and running prior to the next grape harvest.



APPLICATION BRIEF - 31/0506

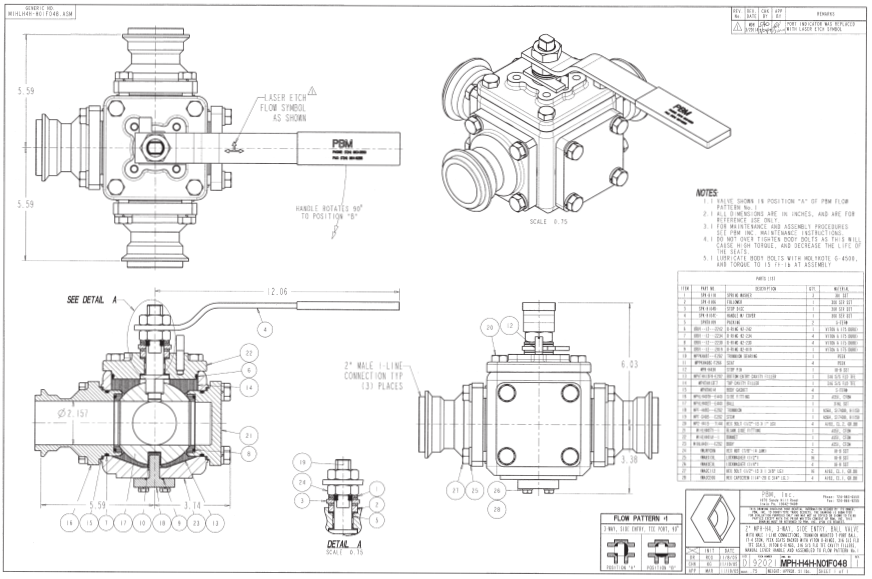
INDUSTRY: FOOD - ANIMAL FEED STOCK

PRODUCT: 2" 3-WAY 316 STAINLESS STEEL TRUNNION-MOUNTED MULTI-PORT BALL VALVE

MEDIA: HYDRATED GRAIN MEAL SLURRY

IMI PBM Solution:

A major Midwest animal feed producer required a 2-inch 3-way T-ported valve with male I-line end connections to handle hydrated grain meal slurry at 1000 PSI and 300°F. IMI PBM supplied a true Multi-Port Valve with PEEK seats and S-TEF™ (316 Stainless Steel filled PTFE) body cavity fillers to handle the sanitary high pressure media. In addition, a trunnion mounted ball was used to accommodate the high pressure.



APPLICATION BRIEF - 42/1008

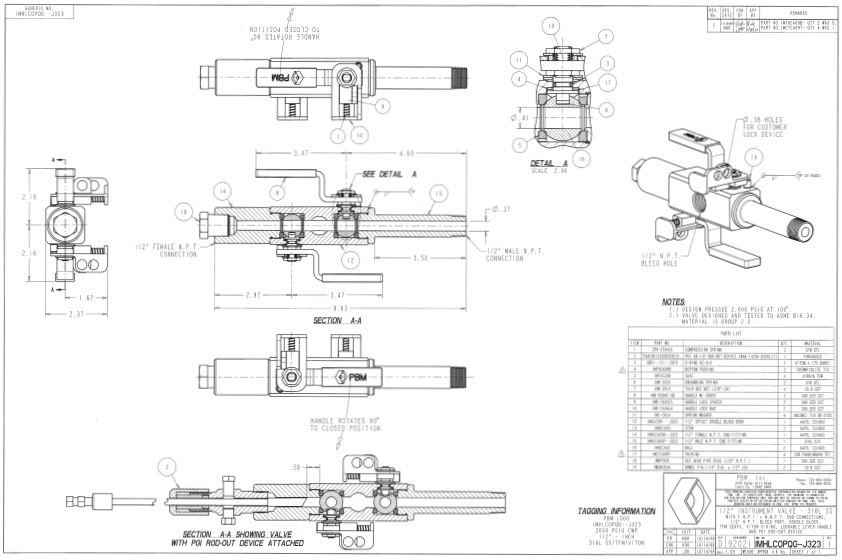
INDUSTRY: FOOD & BEVERAGE

PRODUCT: DOUBLE BLOCK AND BLEED VALVE

MEDIA: ALCOHOL

IMI PBM Solution:

A large distiller of alcoholic beverages needed Double Block and Bleed Valves with roddable hot tap to address plugged pressure taps on the 250 steam line.



APPLICATION BRIEF - 64/1111

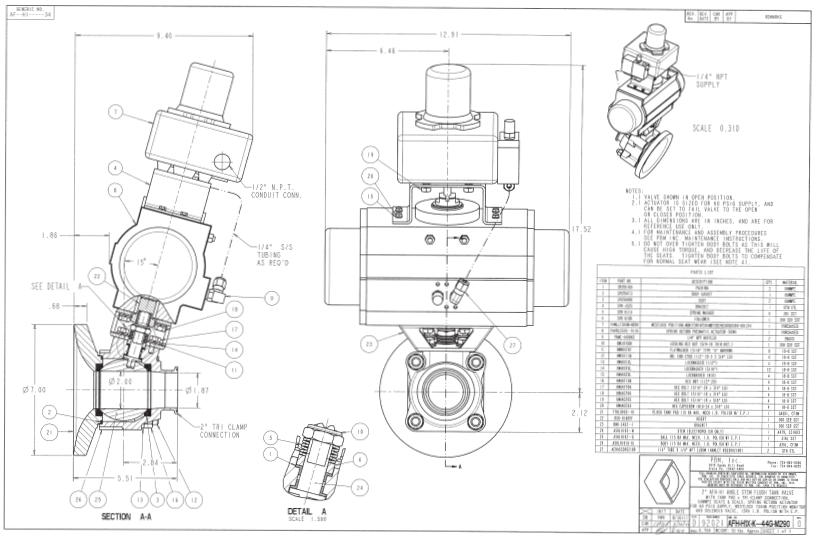
INDUSTRY: TOBACCO

PRODUCT: ANGLE STEM FLUSH TANK VALVE

MEDIA: SMOKELESS TOBACCO

IMI PBM Solution:

An American smokeless tobacco company uses IMI PBM Angle Stem Flush Tank Ball Valves on their mixing tanks. This IMI PBM valve with a WL 7304 Fieldbus controller is used at 60-80 psig and a temperature of 165-185°F.



APPLICATION BRIEF - 69/1211

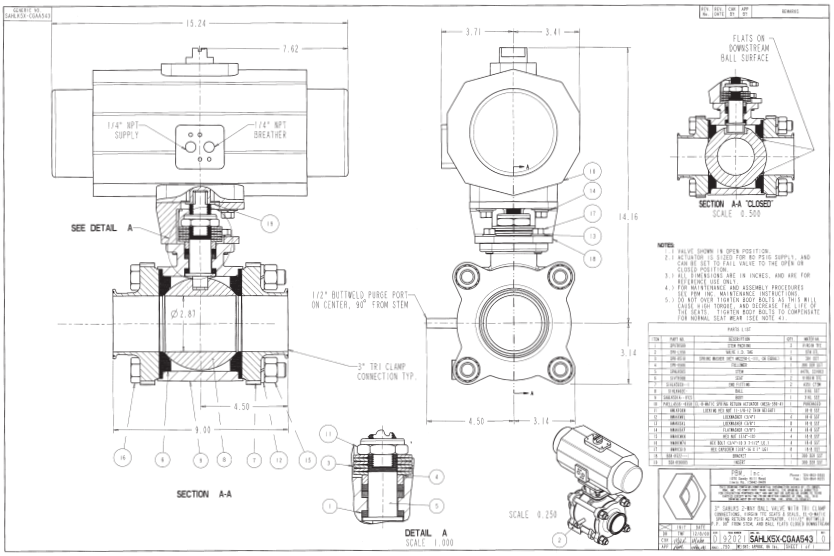
INDUSTRY: FOOD & BEVERAGE

PRODUCT: ASCEPTIC 2-WAY VALVE

MEDIA: STARCH SLURRY / COCOA SLURRY

IMI PBM Solution:

2-Way IMI PBM ball valves were fitted below a gravity fed funnel feeding ambient temperature starch and cocoa slurries used in the food processing production of puddings. Customer was looking for clean-in-place with milled flat ball for cleaning the downstream pipe as well as the body cavity.



APPLICATION BRIEF - 82/1211

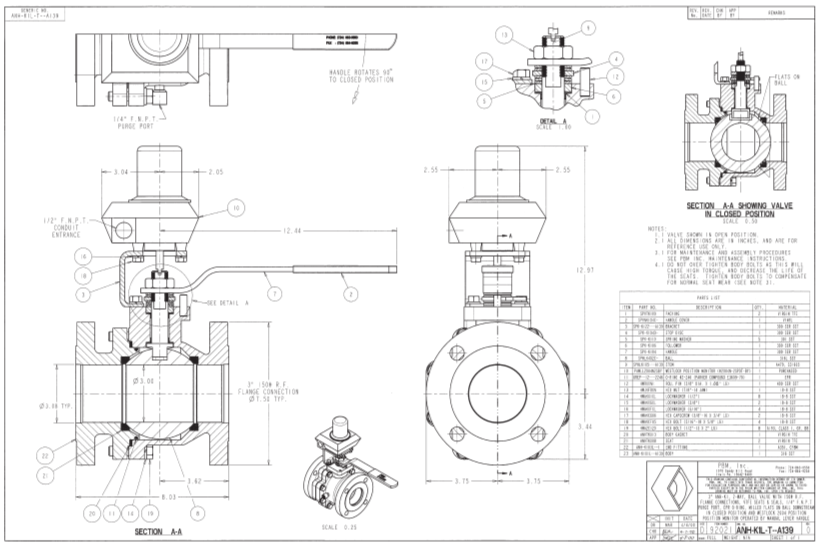
INDUSTRY: FOOD & BEVERAGE

PRODUCT: ANSI FULL PORT

MEDIA: CARAMEL

IMI PBM Solution:

A major food processer required a 2-Way 3-inch flanged valve to introduce into a batch process vessel. Isolation during process vessel is extremely critical, IMI PBM's tight shut off, along with Adjust-O-Seal® played a critical role in this critical process. This manually operated valve also had a position indicator showing both local and remote valve position.



APPLICATION BRIEF - 84/1211

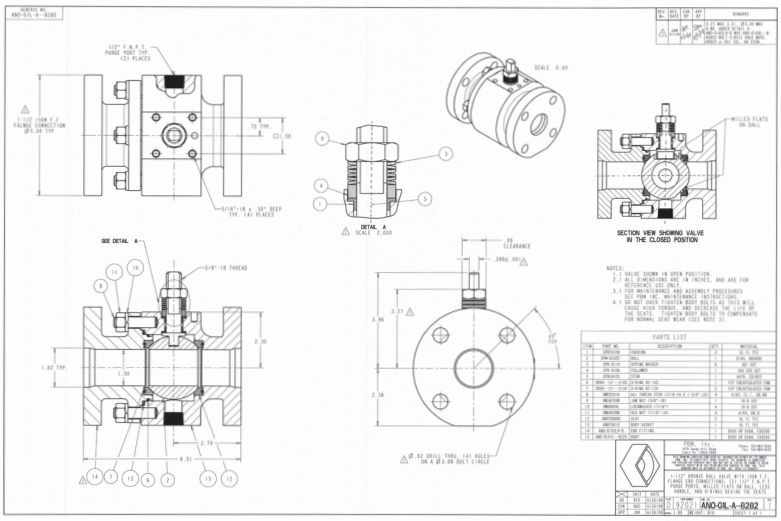
INDUSTRY: FOOD & BEVERAGE

PRODUCT: ANSI

MEDIA: STEAM AND WATER FOR MANUFACTURE OF XANTHAN GUM

IMI PBM Solution:

A manufacturer of xanthan gum uses a critical multi-state fermentation process followed by a number of processes to sterilize, remove excess alcohol, and package the final product. IMI PBM has a number of utility valves located in steam and water lines on the seed and batch fermenters. IMI PBM's valve durability and in-line adjustability contributed to a drastic decrease in downtime compared with previously used ball valves.



APPLICATION BRIEF - 87/1211

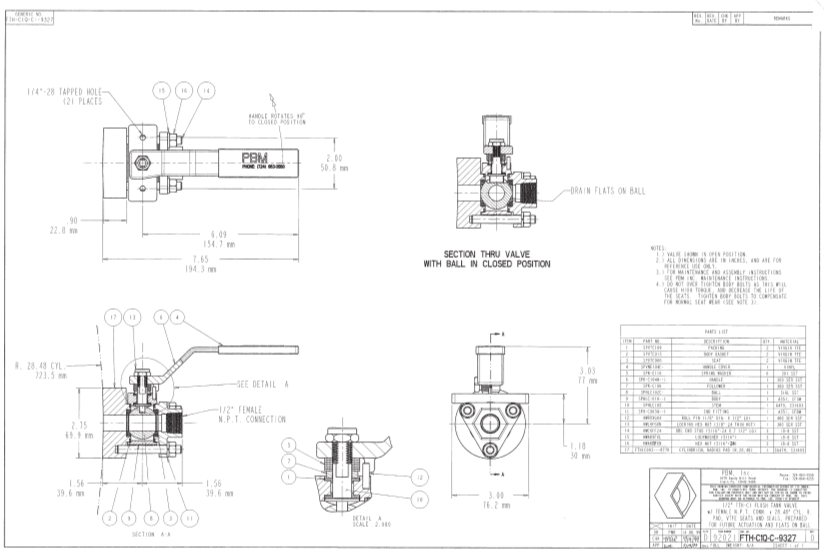
INDUSTRY: FOOD & BEVERAGE

PRODUCT: FLUSH TANK VALVES

MEDIA: COFFEE LIQUOR SAMPLING

IMI PBM Solution:

A major producer of confectioneries and coffee in the Unnited Kingdom needed ½ inch and 2-inch valves for coffee liquor sampling on large tanks and 2-inch diameter pipelines. Minimum dead leg was needed to ensure a true sample.



APPLICATION BRIEF - 88/1211

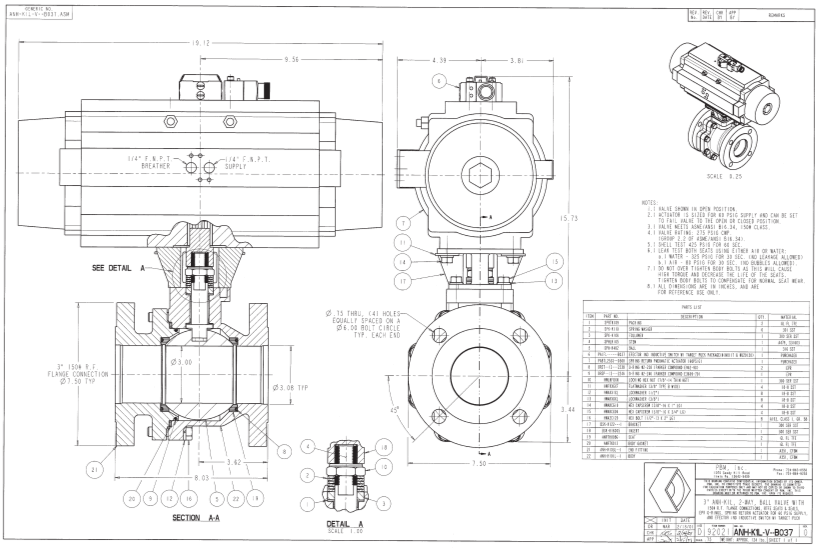
INDUSTRY: FOOD & BEVERAGE

PRODUCT: AUTOMATED ANSI FULL PORT

MEDIA: CITY WATER

IMI PBM Solution:

After installation of a new degassifier unit which purifies city water during the brewing process, this major brewer needed to maintain a vacuum during processing. The degassifier removes chlorine and other impurities in gaseous form from city water. It is subjected to 120 to 150 pounds of steam to complete the sanitation process. IMI PBM solved the problem because IMI PBM's adjustable sealing does not rely on pressure or vacuum to seal. These valves can maintain proper vacuum even if installed vertically.



APPLICATION BRIEF - 109/1214

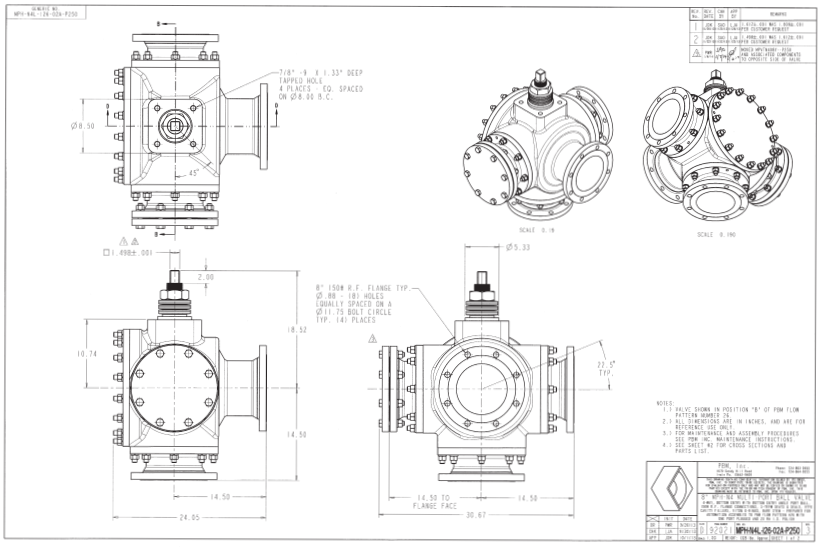
INDUSTRY: BEVERAGE

PRODUCT: IMI PBM MULTI-PORT VALVES

MEDIA: GRAPES

IMI PBM Solution:

A major wine producer wanted a "bore to match pipe" (BTMP) valve to reliably and gently divert large quantities of grapes in multiple directions for processing while minimizing damage to the fruit. While maintaining room for expansion and minimizing weight. A valve was designed with an extra port for expansion. The ID of the valve was mechanically polished and soft "edge breaks" were machined onto the internal edges and on the ball to minimize fruit damage during valve directional transition.



APPLICATION BRIEF - 113/1016

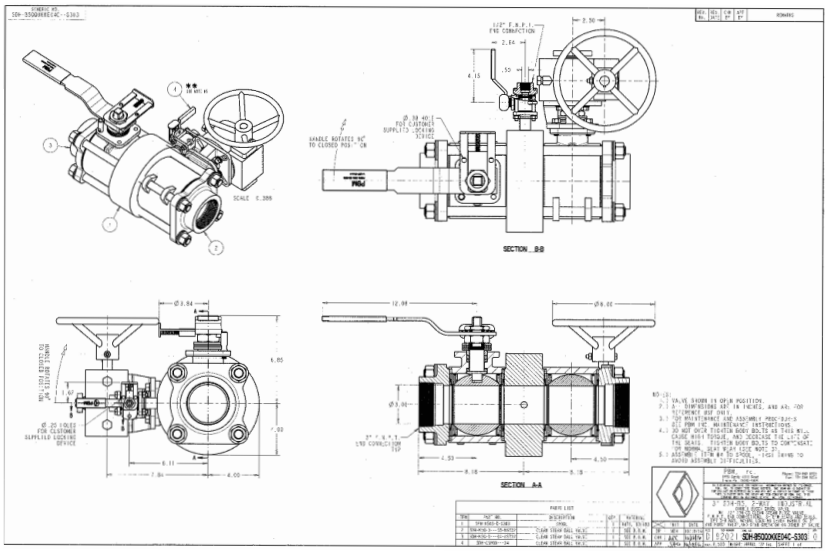
INDUSTRY: FOOD

PRODUCT: DOUBLE BLOCK AND BLEED STEAM ASSEMBLIES

MEDIA: STEAM DISTRIBUTION

IMI PBM Solution:

Replace gate valves, tighter envelope, and 1/4 turn, inline maintain, worm gears on upstream to allow a gradual turn on of steam when coming back into service to avoid system shock. Valve assemblies can take the other guys out of the game, DBB assembly is under one 'asset' designation in their CMMS system. Theoretically, less packing leaks for the 1/4 turn projects. Size depends on plant steam distribution, so then might use large for a 'wing' or suite, smaller for an equipment 'cluster' where the skids are interdependent and are taken down as a whole, or smaller where independent pieces consuming steam can still operate if others are down. Advocacy is for a survey of such with maintenance planners, etc. Safety and lock out of course.



APPLICATION BRIEF - 07/0805

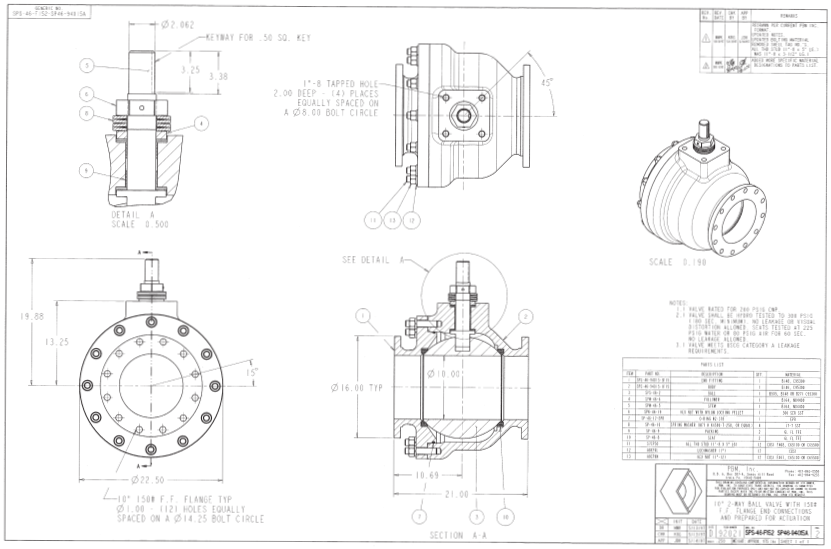
INDUSTRY: MARINE & OFFSHORE

PRODUCT: 10" ANSI ALLOY 953 ALUMINUM BRONZE FULL PORT FLANGED BALL VALVE

MEDIA: SEA WATER

IMI PBM Solution:

A gulf coast US petroleum company required full port 10 inch ANSI Valves to control the flow of seawater in and out of ballast tanks used to stabilize offshore tension leg drilling and production platforms. Due the corrosive seawater environment, the valves wetted internals were constructed of aluminum bronze alloy 953. External hardware was constructed of silicone-copper. These valves met the American Bureau of Shipbuilding (ABS) Category A shutoff requirements.



APPLICATION BRIEF - 16/0805

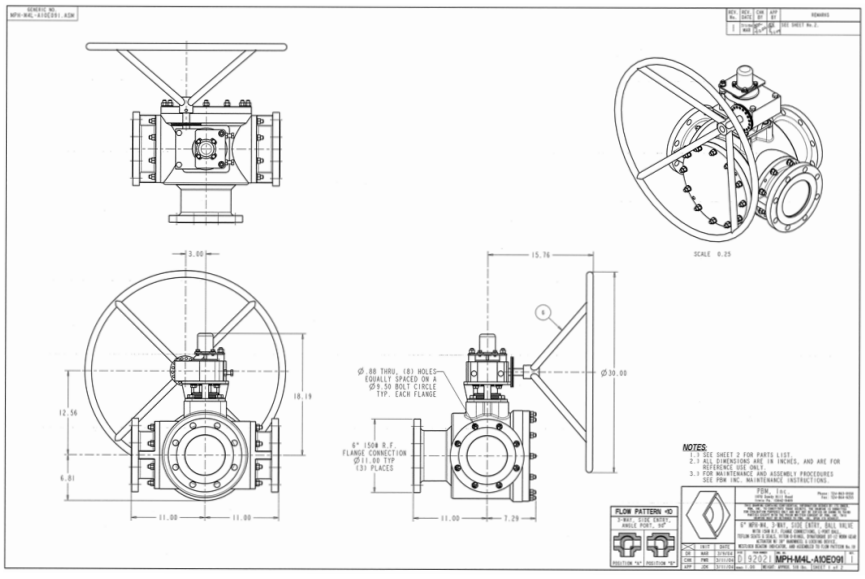
INDUSTRY: MARINE (SHIPBUILIDING)

PRODUCT: MULTI-PORT BALL VALVE

MEDIA: GREY WATER

IMI PBM Solution:

A major US shipbuilder required a full port 6 inch valve to divert shipboard grey water to a holding tank while in port. Environmental regulations no longer permit the dumping of grey water within so many miles of US coastline. When the ship is at sea, the valve is rotated to allow grey water to freely flow overboard. IMI PBM's unique 6 inch full port Multi-Port provided bubble tight isolation from port to port and full unobstructed flow.



APPLICATION BRIEF - 47/0510

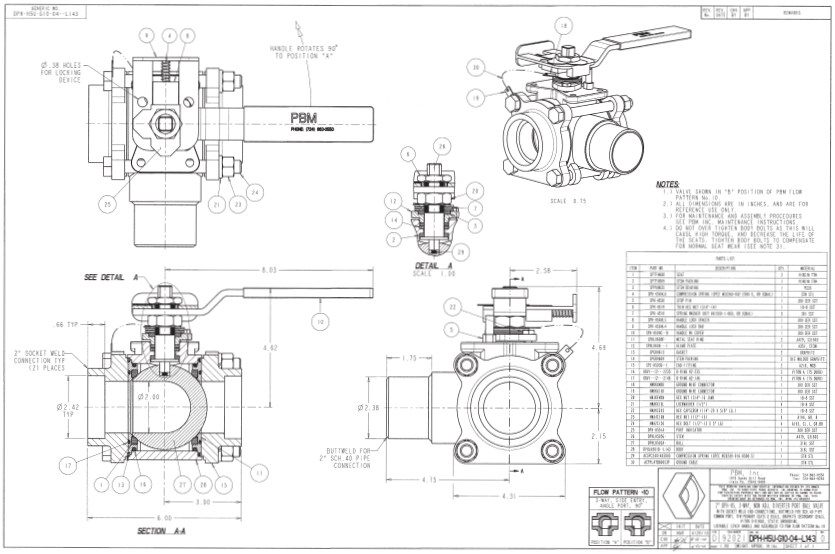
INDUSTRY: MARINE (SHIPBUILDING)

PRODUCT: DIVERTER PORT BALL VALVE

MEDIA: FUEL SYSTEM

IMI PBM Solution:

This two-inch Diverter Port Valve was built to firesafe design but with an extended common port. When welding the common port, the heat does not affect the seats and stem packings and does not necessitate the complete disassembly of the valve when welding.



APPLICATION BRIEF - 48/0610

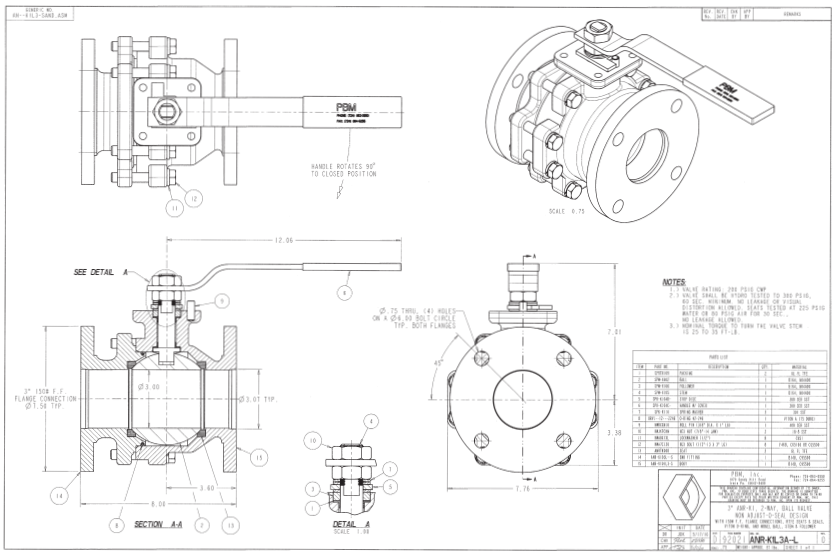
INDUSTRY: MARINE

PRODUCT: ANSI

MEDIA: SEAWATER, COOLING OF ENGINES

IMI PBM Solution:

Valve is used in a Marine application. The Coast Guard has designed a new, standard 45' Response Boat - Medium to replace an assortment of boats at all coast guard stations that require this size of boat. Two valves were required to divert water from the sea chest to cool the engines and is then returned to the ocean. The valves also needed to be usable with seawater.



APPLICATION BRIEF - 62/0411

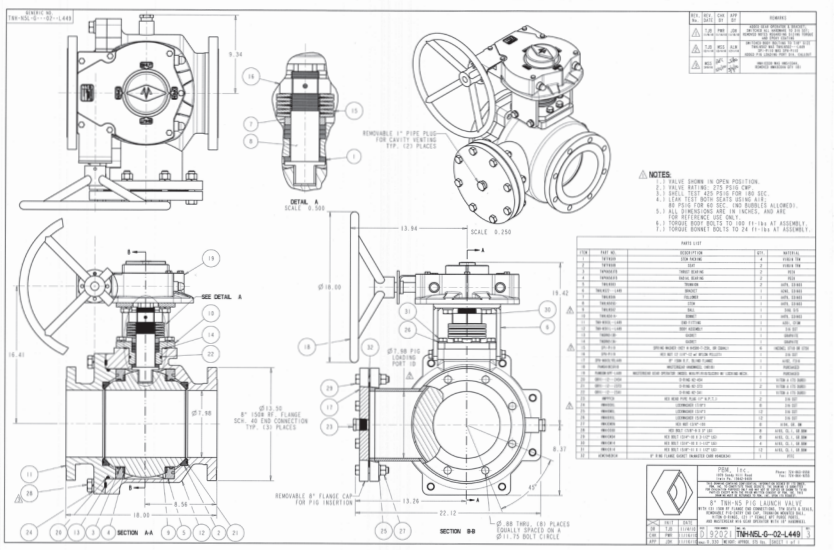
INDUSTRY: MARINE

PRODUCT: PIGGING VALVE

MEDIA: 8" SEAWATER RECIRCULATION LINE

IMI PBM Solution:

The valve is on an 8-inch sea water recirculation line which feeds several very large aquariums within a Newfoundland Research Facility. Each quarter they will pig these lines to remove salt scale and mineral deposits which forms on the walls of the pipe. Our valve is used for the launching and receiving of the pig. Other pig valve manufactures were unable to supply a 316L Stainless Valve and within the timeframe of the project schedule. IMI PBM stepped up and not only designed, but delivered this valve in a 10 week timeframe.



APPLICATION BRIEF - 79/1211

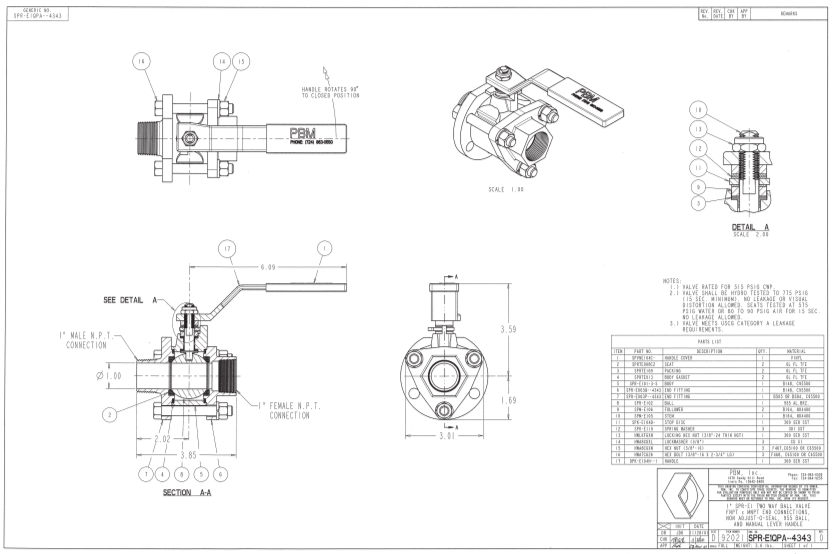
INDUSTRY: MARINE & OFFSHORE

PRODUCT: 2-WAY AI-BRONZE

MEDIA: SEAWATER

IMI PBM Solution:

IMI PBM's 2-Way valves were used on an offshore platform at 515 psig and ambient temperature. These valves meet USCG Category A shutoff and can stand up to seawater environments.



APPLICATION BRIEF - 103/0314

INDUSTRY: MARINE

PRODUCT: DIVERTER PORT BALL VALVE

MEDIA: FLARE GAS

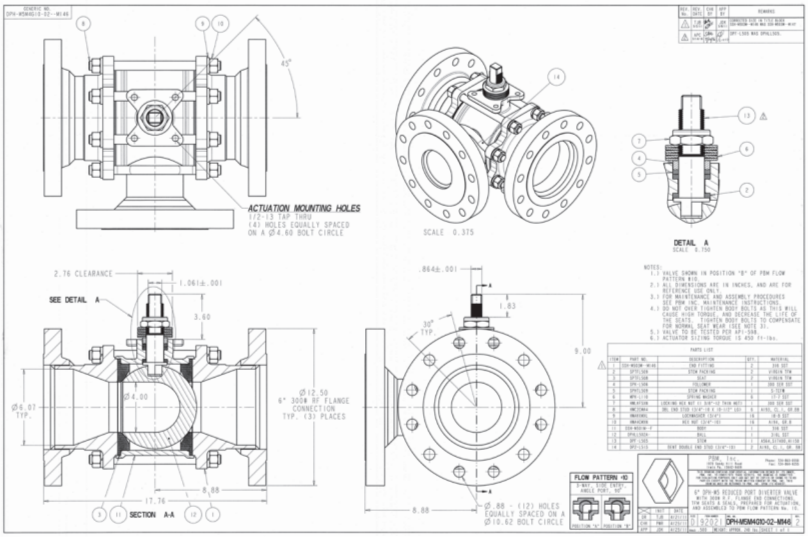
IMI PBM Solution:

Process:
Offshore platform compressor and vapor recovery unit diversion of flare gas from flare to atmosphere to facilitate maintenance of flare unit.

Problems:
- Limited space
- Complicated sequencing of two, 2-way Valves for diversion of flow
- Cost of equipment, inventory cost and field installation cost
- Tight construction schedule

IMI PBM Product Description:
6, 8 and 12-inch, CL150 and CL300, side-entry, 3-Way, diverter valves with manual gear operators. L-port, 90° flow pattern.

Advantages of using IMI PBM product:
- Saves Space: Diverter Valve saves space when compared to two, 2-Way Valves.
- Ease of operation: Single valve and actuator for simple operation. No sequencing required.
- Cost Improvement: One valve and actuator vs two. Less valves to inventory. Less field installation cost.
- Availability: IMI PBM is able to deliver six valves in the short time required to meet the construction schedule.



APPLICATION BRIEF - 103/0613

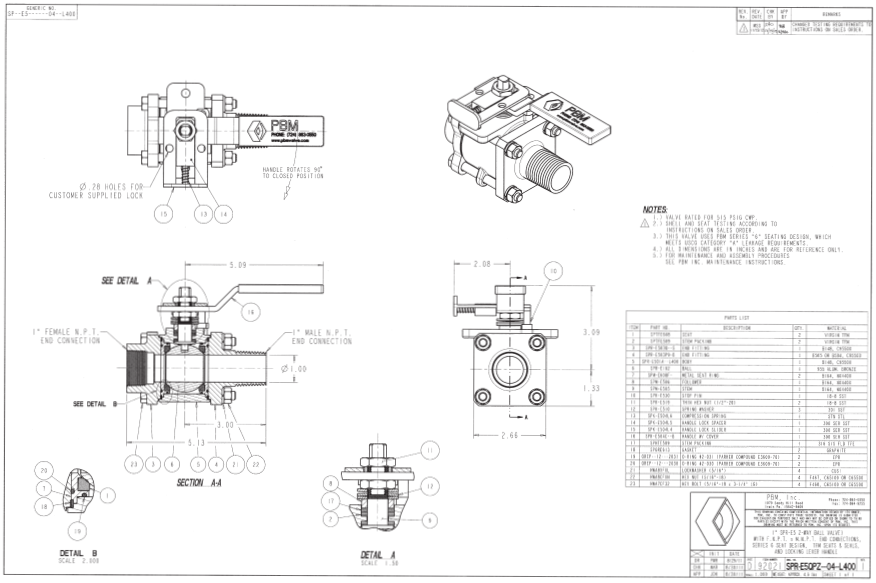
INDUSTRY: OFFSHORE PLATFORMS AND FPSOs

PRODUCT: 2-WAY NICKEL ALUMINUM BRONZE VALVES

MEDIA: SEAWATER, FIRE WATER SYSTEMS

IMI PBM Solution:

Valve is provided as ½ inch through 2-inch sizes for use on Offshore Platforms and FPSOs for major Oil and Gas exploration companies. Valves are used on Firewater systems.



APPLICATION BRIEF - 14/0805

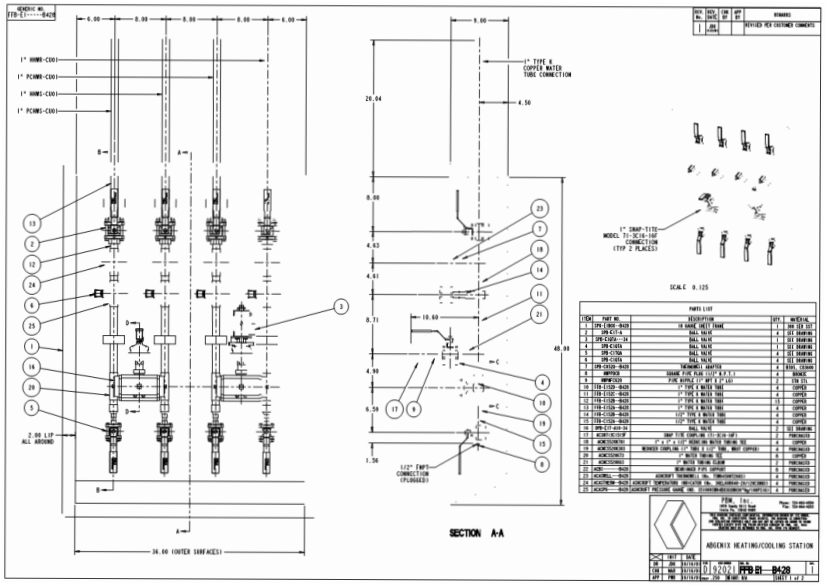
INDUSTRY: PHARMACEUTICAL

PRODUCT: FABFLEX® MANIFOLDS MOUNTED IN CABINETS

MEDIA: WATER USED FOR TEMPERATURE CONTROL

IMI PBM Solution:

A western US Pharmaceutical and Biotech company requested a wall mounted tap-in to their hot and cold water lines where they could mix hot and cold DI water to a specific temperature, and distribute through an automated on-off valve. Temperature and pressure gauges were included, as well as a custom stainless steel recessed cabinet, all constructed by IMI PBM per customer's P&ID and architectural drawings.



APPLICATION BRIEF - 15/0805

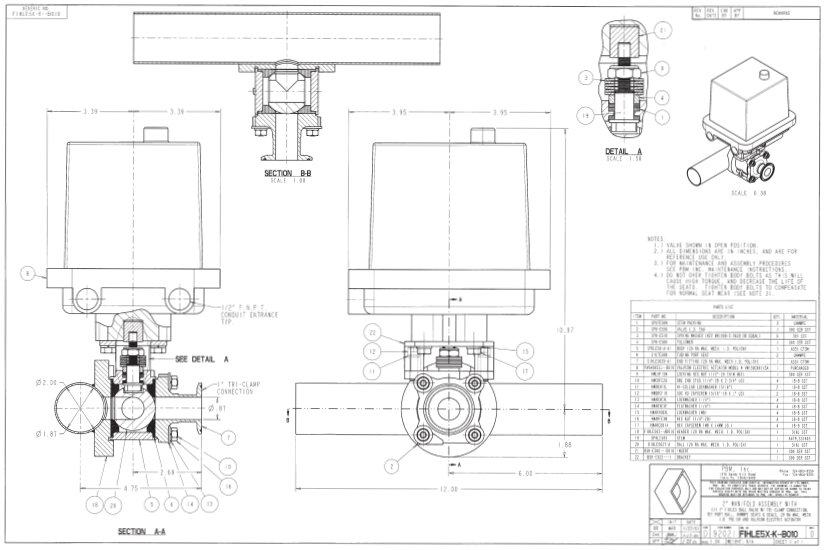
INDUSTRY: PHARMACEUTICAL

PRODUCT: FLUSH TANK BALL VALVE, REDUCED POCKET

MEDIA: DEIONIZED (DI) WATER

IMI PBM Solution:

A west coast US Pharmaceutical company added an additional DI water loop to their facility. They were looking for clean and reliable automated valves that would deliver consistent DI water to each point of use in the loop. IMI PBM designed a Fabflex® assembly consisting of a sanitary Igenix™ flush tank ball valve with a reduced pocket weld pad and unique ball configuration. To ease installation, IMI PBM welded the flush tank pad to a piece of sanitary tubing, which could be orbitally weld in-place at the installation site. After installation and operation, tests were performed to measure and monitor the quality of the DI water. The water quality in the loop containing IMI PBM valves was equal to or better than the quality of water in loops using diaphragm and butterfly valves.



APPLICATION BRIEF - 17/0805

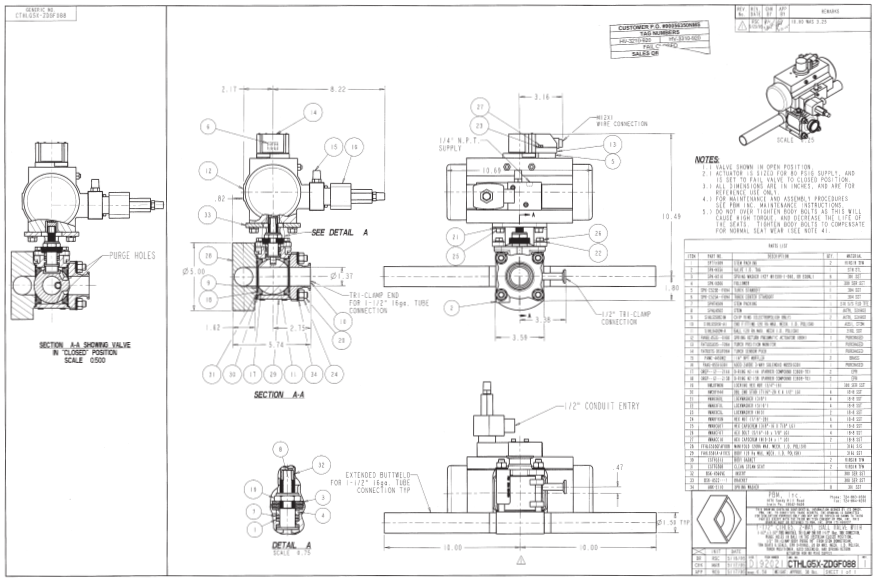
INDUSTRY: PHARMACEUTICAL

PRODUCT: WFI (WATER FOR INJECTION) STERILE BARRIER CLEAN STEAM BALL VALVE

MEDIA: CLEAN STEAM

IMI PBM Solution:

A major pharmaceutical company was looking for a valve to replace the traditional diaphragm valve coupled with a ball valve used as a sterile barrier for a WFI loop. IMI PBM's valve design incorporates adjustable seats (Adjust-O-Seal®) resulting in both an upstream and downstream seal. IMI PBM's ability to seal at the upstream seat provided the ability to provide bubble-tight isolation with zero dead-leg at the WFI header, thus maintaining a sterile barrier. When the system is sterilized, the IMI PBM valve is opened to introduce clean steam into the process loop. A purge port in the valve body drains any resultant condensate that may accumulate during the cleaning cycle. IMI PBM's ability to provide an ultra-sanitary process valve that seals on the upstream seat and performs flawlessly in this application resulted in saving thousands of dollars compared to traditional methods of using a combination diaphragm valve coupled with a ball valve.



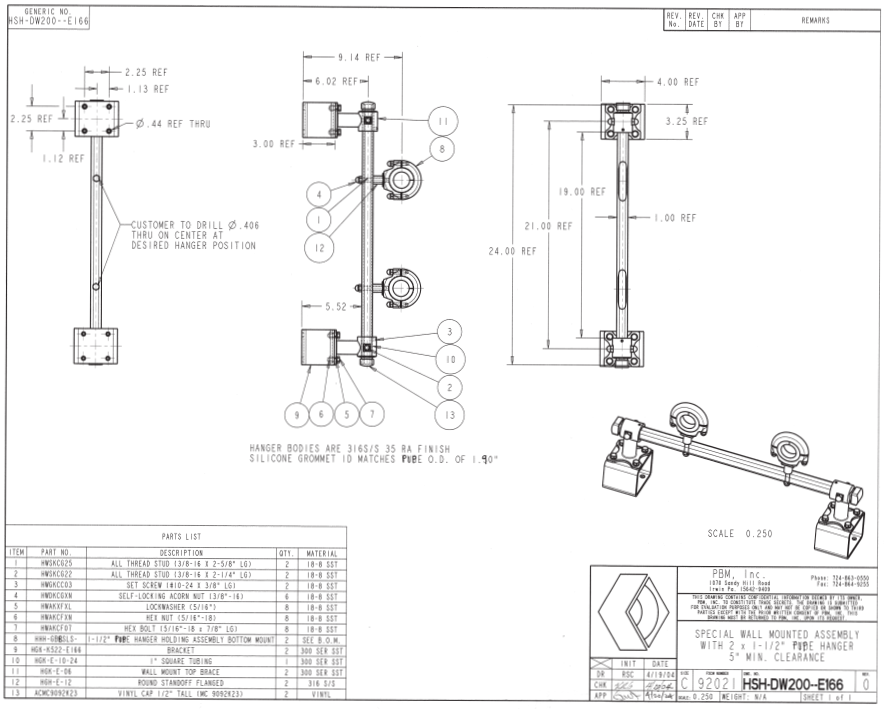
APPLICATION BRIEF - 20/0805

INDUSTRY: PHARMACEUTICAL

PRODUCT: PIPE AND TUBING HANGERS

IMI PBM Solution:

A major University was constructing a laboratory area for research purposes. Maintaining a sterile and aesthetic environment was extremely important. IMI PBM provided wall mount assemblies to support tubing runs that were installed around the perimeter of the lab. IMI PBM's pipe and tubing hangers followed the design principals of BPE-2002, thus providing both a clean and aesthetic assembly.



APPLICATION BRIEF - 24/0805

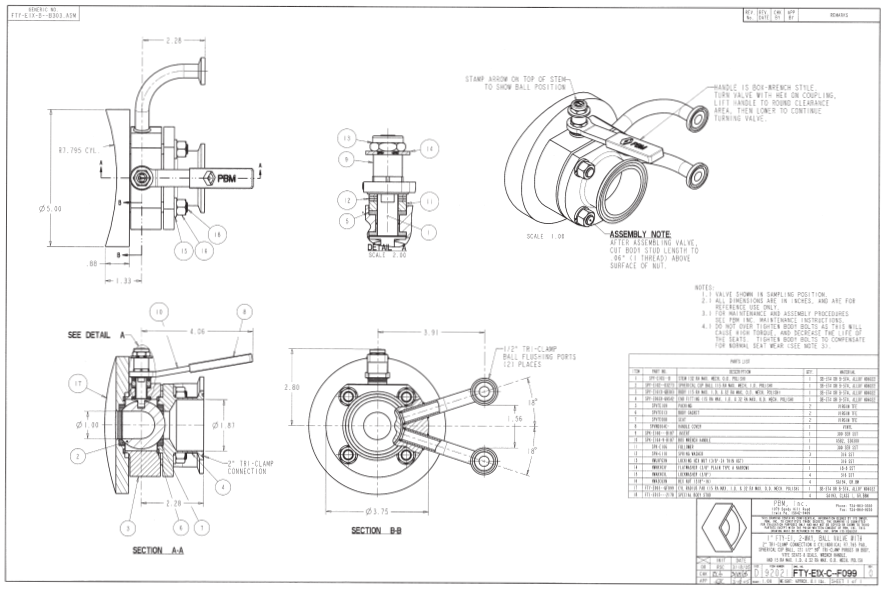
INDUSTRY: PHARMACEUTICAL

PRODUCT: FT FLUSH TANK BALL VALVE, HASTELLOY C-22 MATERIAL, WITH SAMPLE CUP BALL AND PURGE PORTS

MEDIA: PHARMACEUTICAL PREPARATIONS

IMI PBM Solution:

A major pharmaceutical company required a sampling valve to mount on the side of a process mixing tank. The valve was made from Hastelloy C-22 material to handle a vast array of pharmaceutical preparations. The weld pad was machined to a cylindrical radius to match the inside radius of the mixing tank. The "cup" was machined in the ball so when facing the inside of the vessel would fill with a specific volume of the process media that could be extracted for testing without breaking the sterile barrier. The handle rotates 180 degrees to expose the ball to the downstream fitting and allow a sample to be "scooped" out of the ball. Purge ports allow the valve internals to be cleaned and sterilized between sampling.



APPLICATION BRIEF - 27/0905

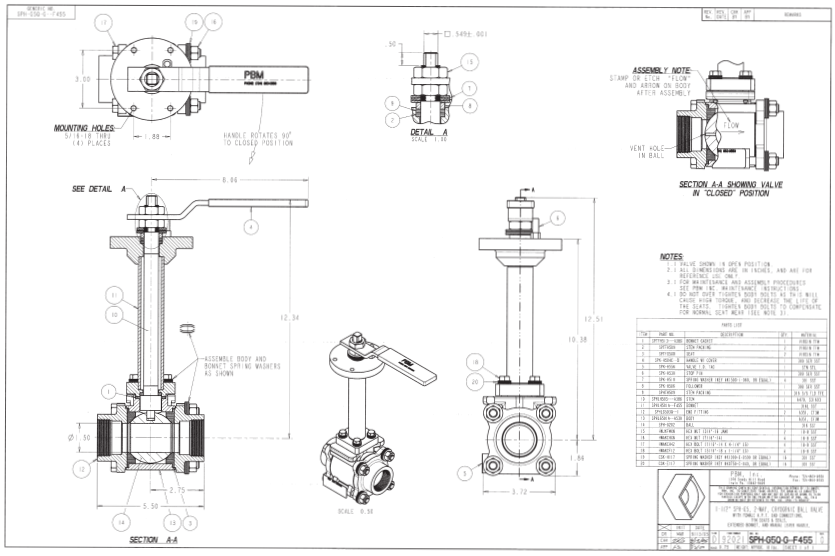
INDUSTRY: NUTRACEUTICAL

PRODUCT: 2-WAY BALL VALVE FOR CRYOGENIC SERVICE

MEDIA: LIQUID CARBON DIOXIDE (CO2)

IMI PBM Solution:

A major manufacturer of livestock feed nutritional supplements required a valve to handle a process line containing liquid Carbon Dioxide (CO2). Due to the low temperature of liquid CO2, a thick layer of ice forms on process piping and valves. IMI PBM supplied a valve with an upstream vent hole, extended stem and handle assembly, and seats and gaskets that will ensure trouble-free operation in this low temperature application.



APPLICATION BRIEF - 28/0905

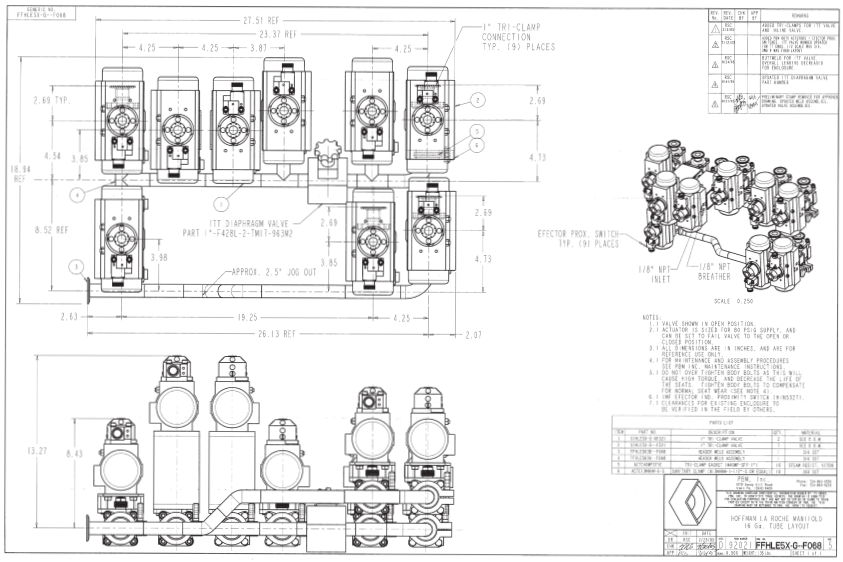
INDUSTRY: PHARMACEUTICAL

PRODUCT: FABFLEX® MANIFOLD WITH AUTOMATED SANITARY BALL VALVES AND MANUAL DIAPHRAGM VALVE

MEDIA: CIP (CLEAN-IN-PLACE) SOLUTION

IMI PBM Solution:

A major pharmaceutical manufacturer required a sanitary valve manifold designed to fit in an pre-existing cabinet enclosure. The sanitary valve manifold, consisting of automated sanitary ball valves and a manual sanitary diaphragm valve is used to supply and re-circulate CIP solution to a granulator. IMI PBM manufactured the sanitary Fabflex® manifold assembly in four weeks so installation could take place during a scheduled shut-down. The manifold was manufactured and shipped in three sections (connected using a sanitary clamp and gasket) which allowed for easy on-site assembly.



APPLICATION BRIEF - 37/0908

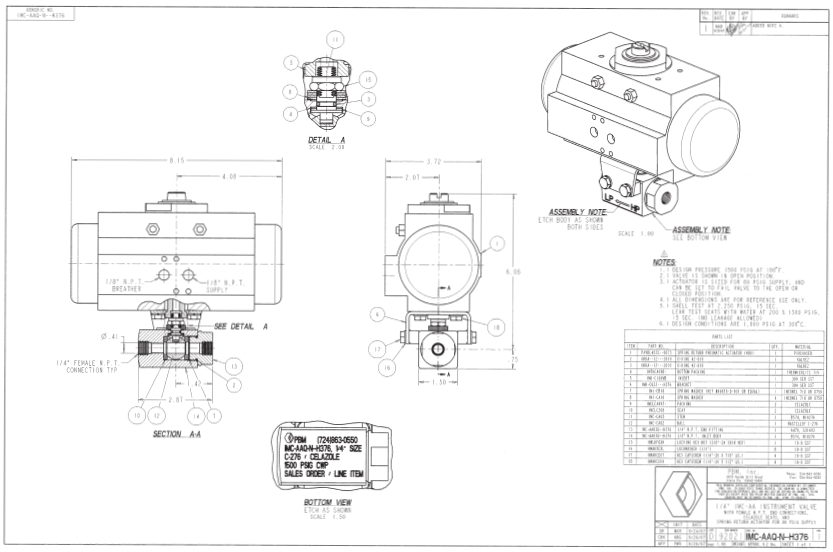
INDUSTRY: PHARMACEUTICAL RESEARCH

PRODUCT: INSTRUMENT ROOT VALVES

MEDIA: NITROGEN MIXED WITH SOLVENT

IMI PBM Solution:

A major pharmaceutical manufacturer required these valves for critical instrument isolation, 1000 PSIG at 300°C. The environment was corrosive due to the vapors produced from the mixture of nitrogen with solvent. The customer purchased IMI PBM's instrument valves due to their success with IMI PBM's Self Cleaning Ball Valves.



APPLICATION BRIEF - 66/1111

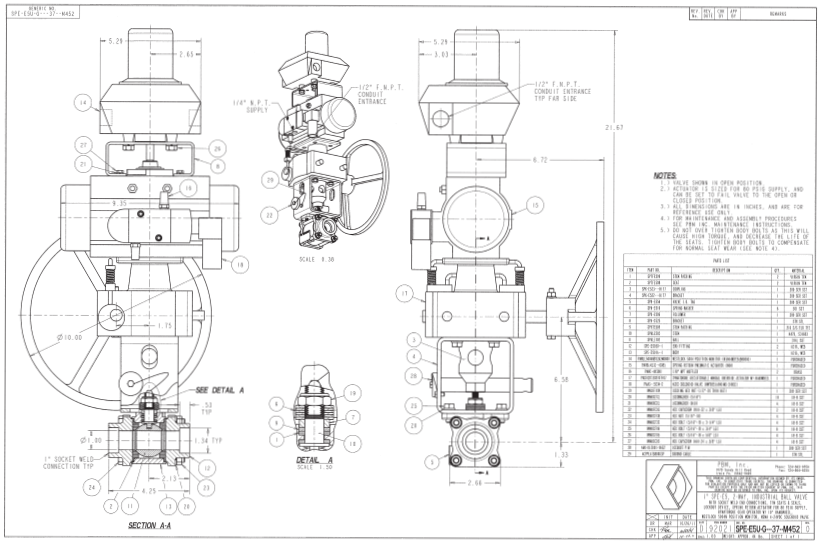
INDUSTRY: PHARMACEUTICAL

PRODUCT: 2-WAY BALL VALVE

MEDIA: USP PURIFIED WATER SUB-LOOPS

IMI PBM Solution:

A pharmaceutical giant used IMI PBM 2-Way Industrial Valves with 5004 proximity switch, actuator lock-out pin and manual over-ride for 80 psig supply. The use is in USP purified water sub-loops (maintenance pharmaceuticals).



APPLICATION BRIEF - 70/1211

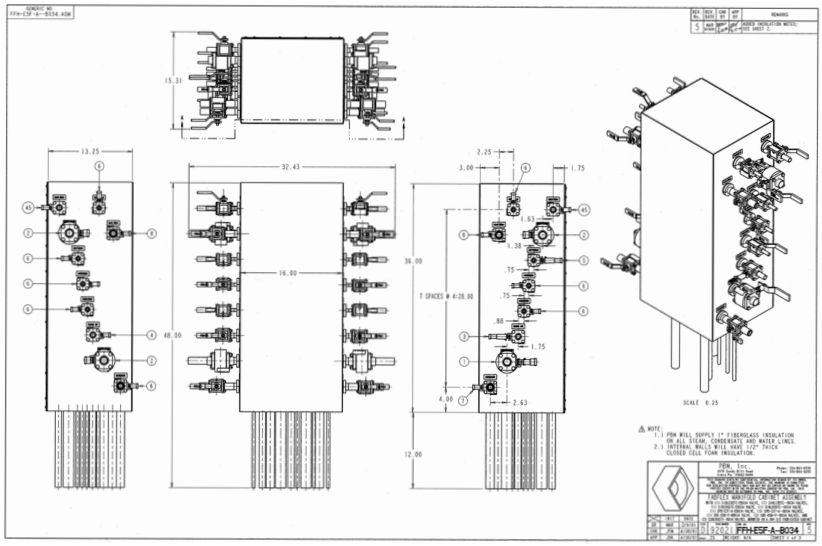
INDUSTRY: PHARMACEUTICAL

PRODUCT: FABFLEX® CABINETS, CSH, SI, SP

MEDIA: INJECTABLE PROTEIN

IMI PBM Solution:

A biopharmaceutical company develops and sells antibody therapeutic products for the treatment of a variety of disease conditions. It requested a mock facility or a sample production area with a central hub supplying steam and oxygen for visitors to get a first-hand glimpse of how antibody products are manufactured. The capability to fabricate and test before shipment was a key factor in their decision to purchase IMI PBM valves. This creative application utilized IMI PBM's Clean Steam and Fabflex® valves, along with the Igenix® design.



APPLICATION BRIEF - 76/1211

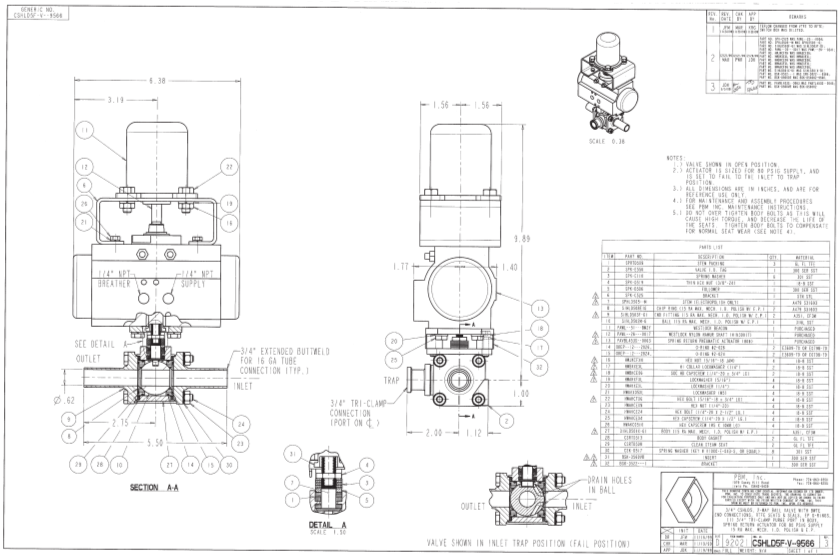
INDUSTRY: PHARMACEUTICAL

PRODUCT: CLEAN STEAM VALVES

MEDIA: CLEAN STEAM, CLEAN AIR, CONDENSATION, GLYCOL

IMI PBM Solution:

A major pharmaceutical company needed a valve solution that maintained the temperature of their steam, eliminated external leakage and increased production. IMI PBM's Clean Steam and Clean Steam Trap Valves were the valves of choice.



APPLICATION BRIEF - 114/1016

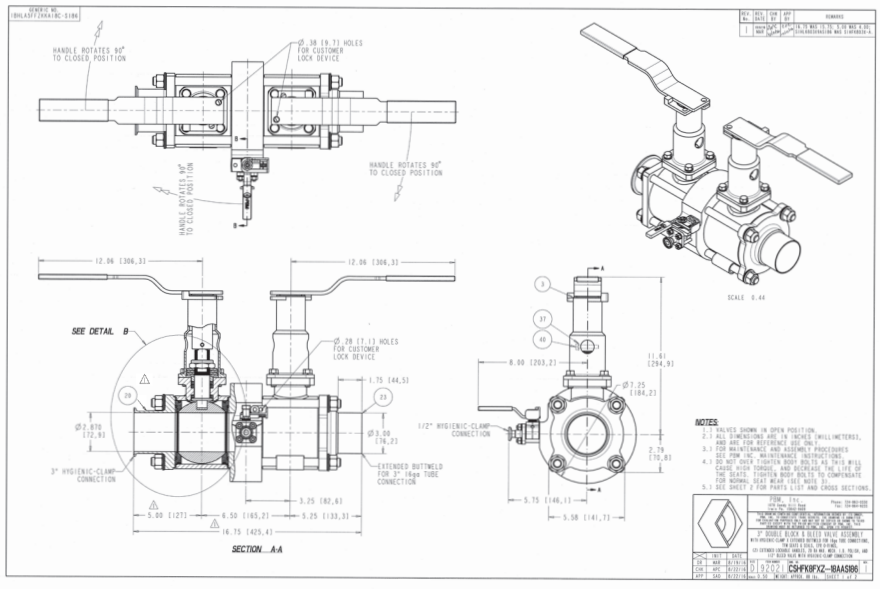
INDUSTRY: PHARMACEUTICAL

PRODUCT: CLEAN STEAM DOUBLE BLOCK AND BLEED VALVES

MEDIA: PURE STEAM FEED

IMI PBM Solution:

A major pharmaceutical company needed forged three and four-inch Double Block and Bleed Clean Steam Valves.



APPLICATION BRIEF - 118/0518

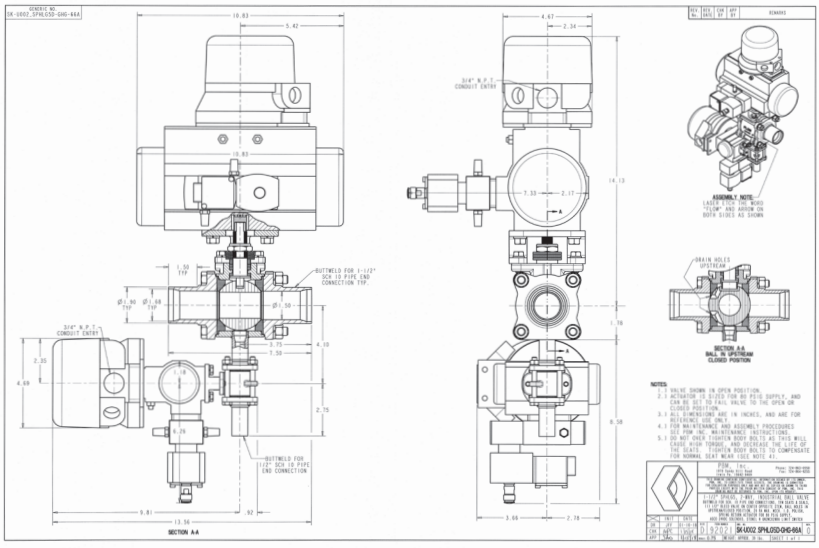
INDUSTRY: PHARMACEUTICAL

PRODUCT: CLEAN STEAM TRAP VALVE

MEDIA: PURIFIED WATER SYSTEM

IMI PBM Solution:

Engineering firm working for major Midwest manufacture of pharmaceuticals was looking for a unique solution in a purified water system. They wanted to have their purified water ready at their point of use without deadheading the system (when shut off) which would cause the water to become stagnant, increasing the chances of microbial growth within their process. IMI PBM suggested applying our IMI PBM Clean Steam Trap Valve, which allows a small amount of flow to flow around the upstream seat to the drain, while maintaining shut off at the downstream seat. The drain valve is opened at this point, and closes to ensure the system is completely closed off to atmosphere when the system is flowing purified water to their point of use.



APPLICATION BRIEF - 21/0805

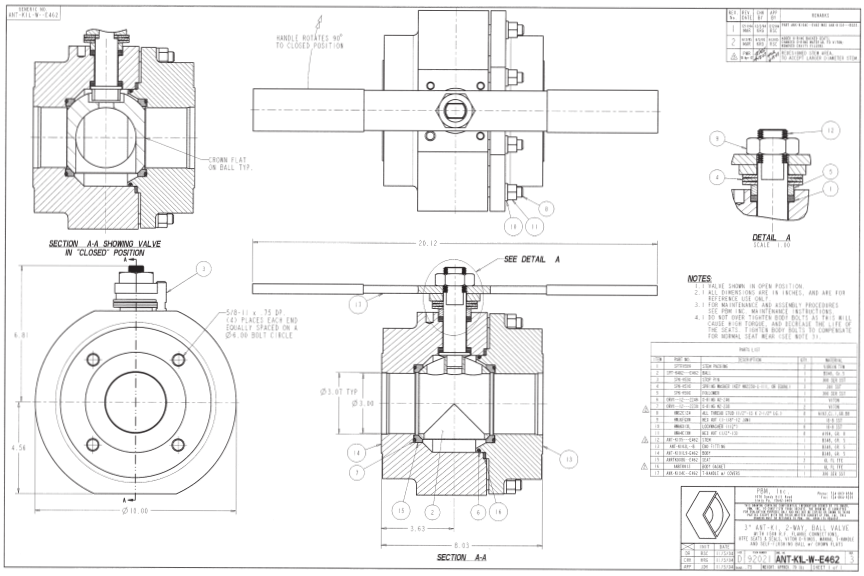
INDUSTRY: PULP AND PAPER

PRODUCT: ANSI VALVE, TITANIUM MATERIAL

MEDIA: CHLORINE DIOXIDE, SODIUM CHLORATE, METHANOL, SULFURIC ACID

IMI PBM Solution:

A major Pulp and Paper Mill required 2-way valves for a process that produces chlorine dioxide used for paper bleaching. A by-product of the process, sodium sesquisulfate, is an abrasive and acidic substance that plays havoc on valves. IMI PBM's fabricated a valve made with Grade 5 titanium wetted parts to handle the corrosive by-products. The body was machined with minimal dead space where product might collect. A flushing ball was added to flush the ball of any residual and o-ring backed seats provided tight shut-off performance in this tough application.



APPLICATION BRIEF - 26/0805

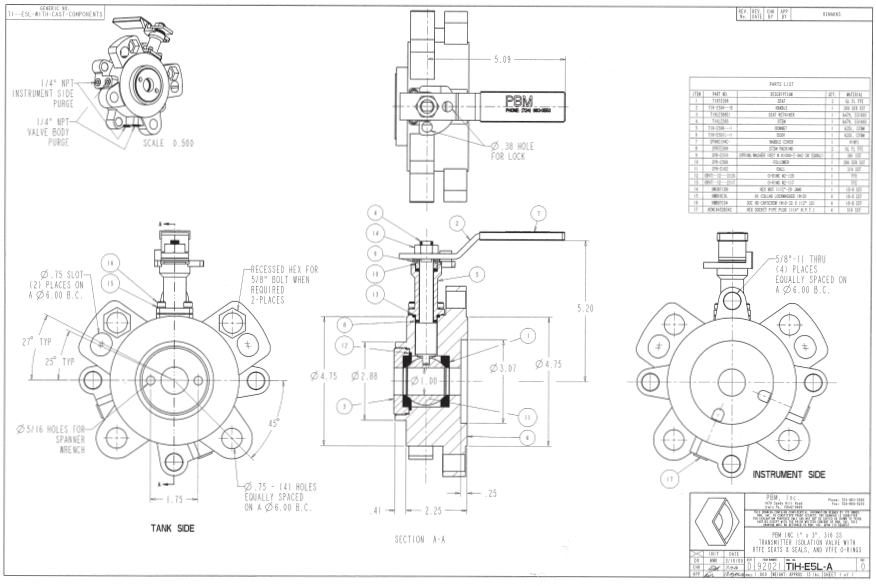
INDUSTRY: PULP AND PAPER

PRODUCT: TRANSMITTER ISOLATION VALVE

MEDIA: WEAK BLACK LIQUOR AND PULP STOCK

IMI PBM Solution:

A major Pulp and Paper manufacturer replaced linear knife gate valves with IMI PBM's Transmitter Isolation Valve (TIV). IMI PBM's TIV valve with easy ¼ turn operation eliminated problems with multi-stroke rachet handles and leaky packing that was experienced with the knife gate valves. IMI PBM's versatile flange mounting configuration adapted to both the offset flange used to accommodate knife gates, as well as standard flange connections. With IMI PBM's reliable Transmitter Isolation Valve, level transmitters are more accessible and easier to calibrate.



APPLICATION BRIEF - 38/0708

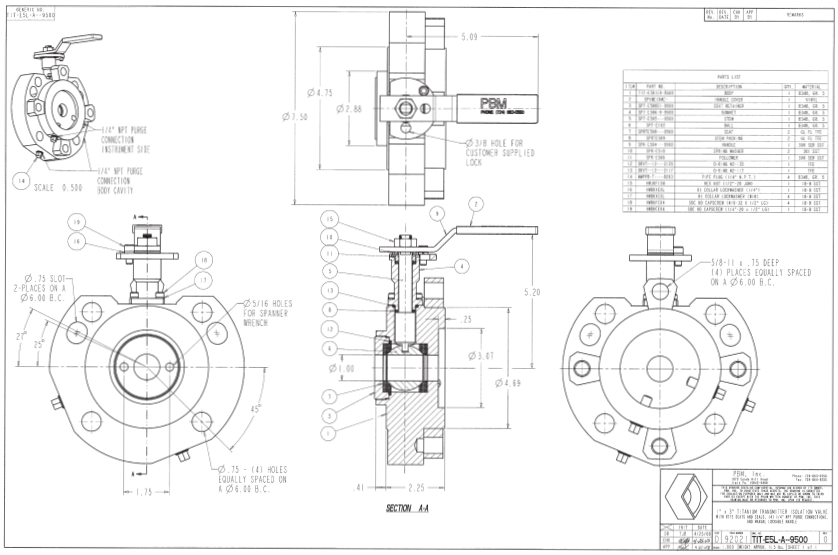
INDUSTRY: PULP AND PAPER

PRODUCT: TRANSMITTER ISOLATION VALVE

MEDIA: CHLORINE DIOXIDE BLEACHED PULP STOCK

IMI PBM Solution:

A major Pulp and Paper mill required Transmitter Isolation Valves for a process that produces chlorine dioxide used for paper bleaching. The two compatible alloys that would work for this process were either Hastelloy C-22 or Titanium. IMI PBM was able to provide our isolation valves in titanium with a delivery schedule to meet installation requirements for start up. Also, with IMI PBM's reliable Transmitter Isolation Valve, level transmitters are more accessible and easier to calibrate.



APPLICATION BRIEF - 80/1211

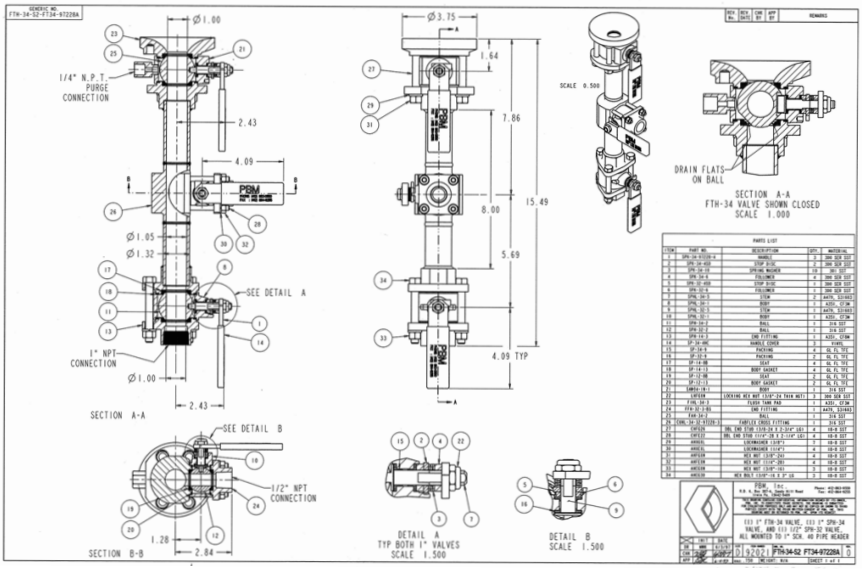
INDUSTRY: PULP & PAPER

PRODUCT: FABFLEX® VALVE, FLUSH TANK VALVE, 2-WAY

MEDIA: STOCK LINES RANGING FROM 1/2% TO 12% PULP STOCK

IMI PBM Solution:

Clean-in-place and sampling were two objectives in this application. The procedure would include the capability of cleaning the valve in place, opening the valve, taking a sample, closing the valve, and cleaning in place again. The testing included placing a sensor inside of the Fabflex header measure the pulses in the paper stock. The pressure wave in the pulp needed to be measured at all times, and a pressure gauge was the best solution. The flush valve at the top of the whole configuration also had a purge port and milled flats to accommodate clean in place.



APPLICATION BRIEF - 19/0805

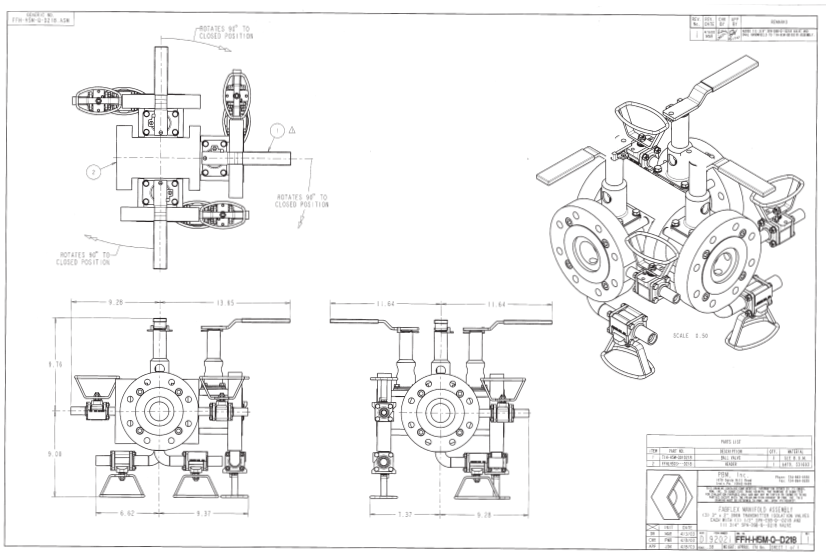
INDUSTRY: PETROCHEMICAL

PRODUCT: TRANSMITTER ISOLATION VALVE

MEDIA: PETROCHEMICALS

IMI PBM Solution:

A major international petrochemical company was looking for a triple redundant method of isolating transmitters used to provide vital feedback on petrochemicals stored in tanks. The valves required to insolate transmitters had to be fire rated and capable of providing a tight shutoff against corrosive and high temperature petrochemicals. Each assembly contained three Transmitter Isolation Valves, each with two Fire-Rated Valves on the purge connections to facilitate cleaning the valve bodies and calibrating the transmitters.



APPLICATION BRIEF - 33/0906

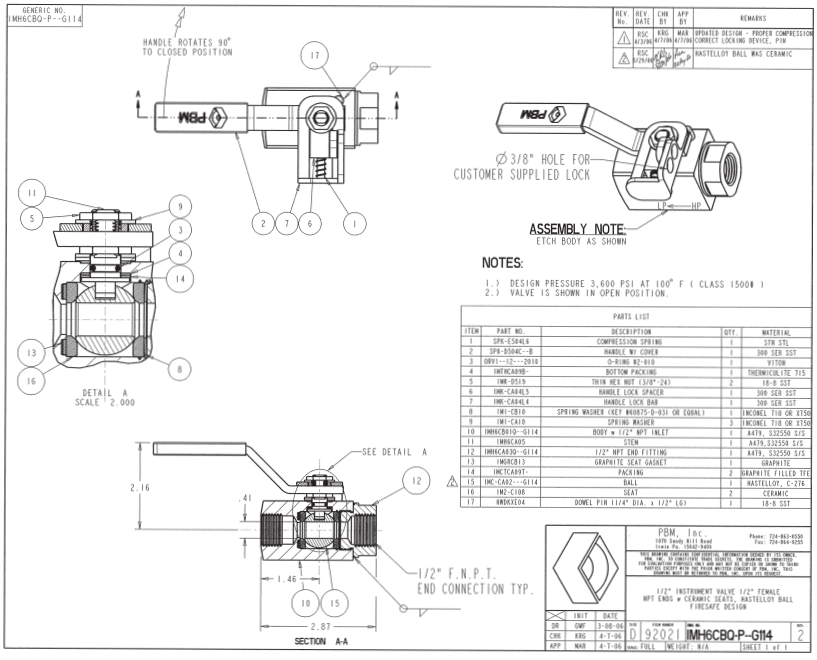
INDUSTRY: PETROCHEMICAL

PRODUCT: INSTRUMENT ISOLATION - ROOT VLAVE

MEDIA: OIL, SAND, SALTWATER

IMI PBM Solution:

A major petroleum company required an instrument root valve for use on an offshore platform. Over 600 valves were required to isolate critical instruments and gauges from process flows containing a mixture of oil, sand, and seawater. IMI PBM designed and supplied valves with stellite seats to handle the abrasive, erosive, and corrosive environment.



APPLICATION BRIEF - 34/0408

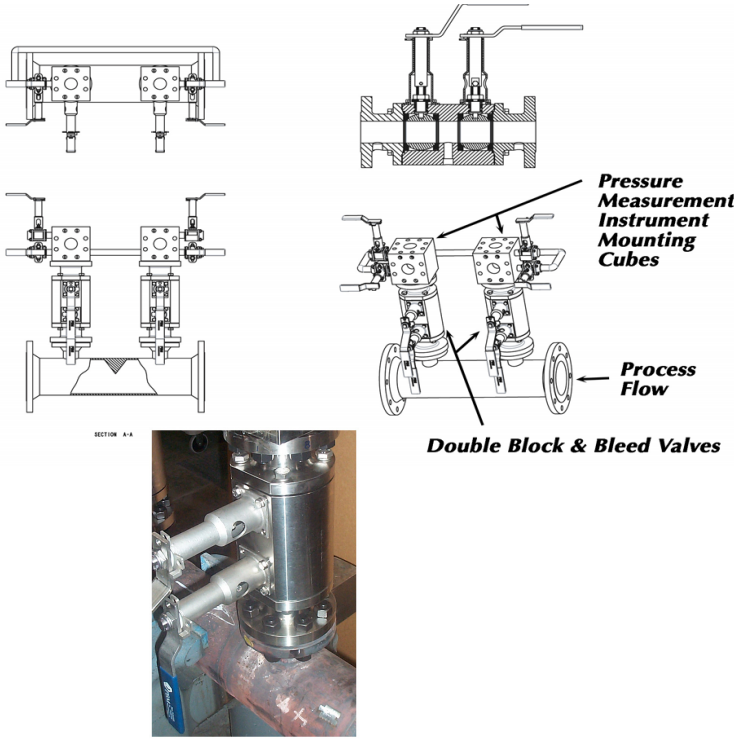
INDUSTRY: PETROLEUM

PRODUCT: DOUBLE BLOCK AND BLEED BALL VALVES

MEDIA: PETROCHEMICALS

IMI PBM Solution:

A major oil refinery was looking to optimize isolation of process flow measurement instrumentation on a coker unit. The flow measurement design used a solid wedge meter. Tight shut off is critical to safety when the need arises to isolate instruments for repair or replacement from a high temperature process flow stream. IMI PBM offered a fast operating quarter turn double block and bleed ball valve. IMI PBM's two-inch full bore 300# flanged valves were installed on each side of the weir and could handle the abrasive produces fluid at elevated temperatures and provide a tight shut-off. These single bodied valves contained two ball valves in a single body with a bleed port to permit release trapped process fluid between the two balls. The use of the two valves in a single body provided a redundant safety feature. In the event one valve failed, the other would continue sealing against the process flow. With both valves closed, the bleed permits dissipation of process fluid trapped in the small cavity between valves. Extended locking lever handles were used to allow for insulation clearance.



APPLICATION BRIEF - 45/0510

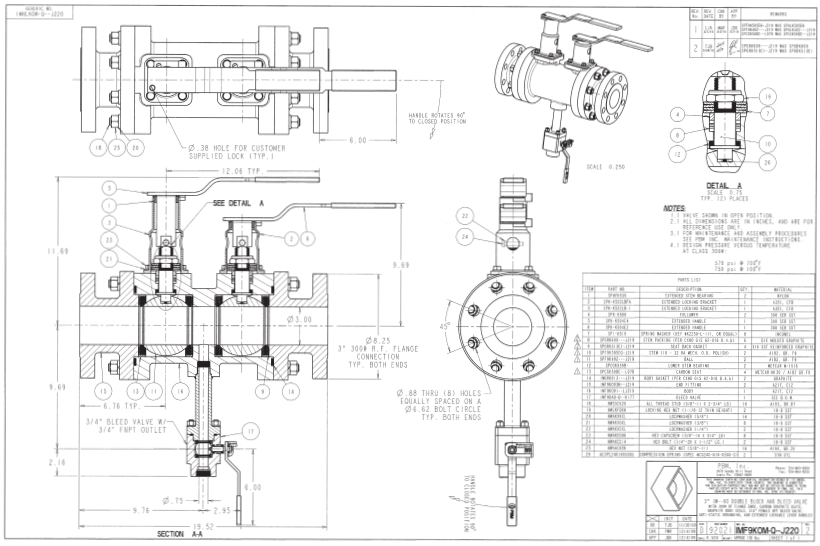
INDUSTRY: PETROCHEMICAL

PRODUCT: 3-INCH FULL PORT CLASS 300 DOUBLE BLOCK AND BLEED VALVES

MEDIA: PRODUCTION OF CRUDE OIL FOR CONVERSION TO DIFFERENT PRODUCTS

IMI PBM Solution:

A major engineering company needing valves for refinery coker lines chose IMI PBM over the competitors because the valve bodies are one piece, there was less leak paths, a shorter face-to-face and less weight than the current design that was used in the past. This was critical because the valves were mounted on columns and weight was a concern. An additional savings on the length was a savings in space which brought the valves much closer to the vessel.



APPLICATION BRIEF - 54/1010

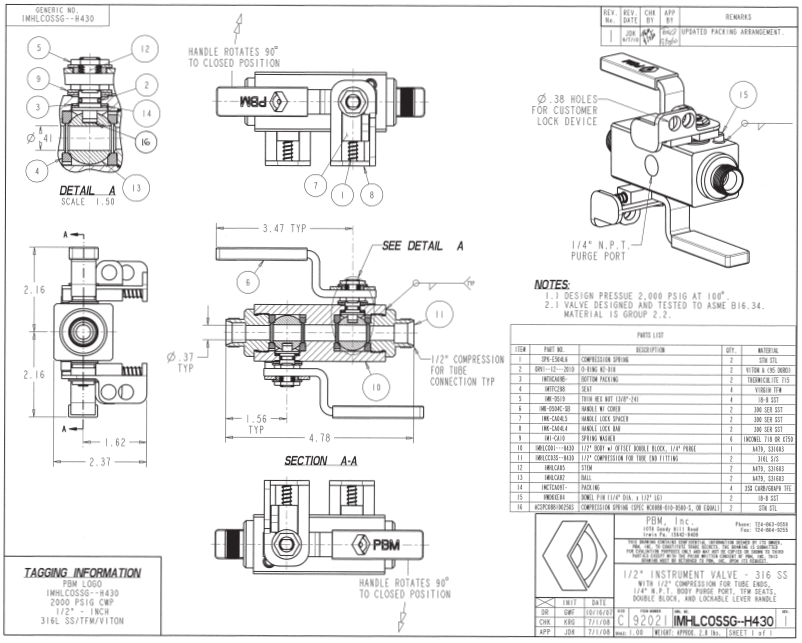
INDUSTRY: REFINERY

PRODUCT: DOUBLE BLOCK & BLEED INSTRUMENT VALVE

MEDIA: GASES AND STEAM

IMI PBM Solution:

A major petroleum company had a need for isolation valves used on wedge meters. They selected IMI PBM Double Block and Bleed Valves for their safety and reliability; tight shut-off for isolating gauges; and ability to fit inside the pre-existing envelop dimensions of their instrument panel.



APPLICATION BRIEF - 55/1010

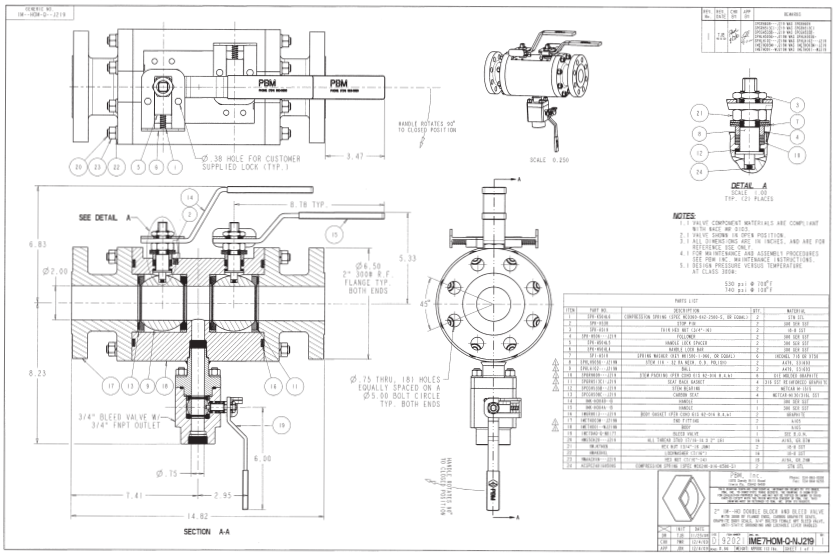
INDUSTRY: REFINING

PRODUCT: 2-INCH FULL PORT CLASS 300 DOUBLE BLOCK AND BLEED VALVE

MEDIA: HYDROCARBONS (TEMPERATURES UNDER 400) - OIL SANDS CRUDE

IMI PBM Solution:

A major petroleum company required a valve for isolating high pressure media from the sensitive gauges used to monitor process conditions. IMI PBM's Double Block and Bleed valve with carbon graphite seats and seals provided a safe and reliable tight shut-off for isolation of the gauges for maintenance. The IMI PBM Double Block and Bleed Valve was also half the length, half the weight, and half the cost versus a traditional gate valve configuration.



APPLICATION BRIEF - 56/1010

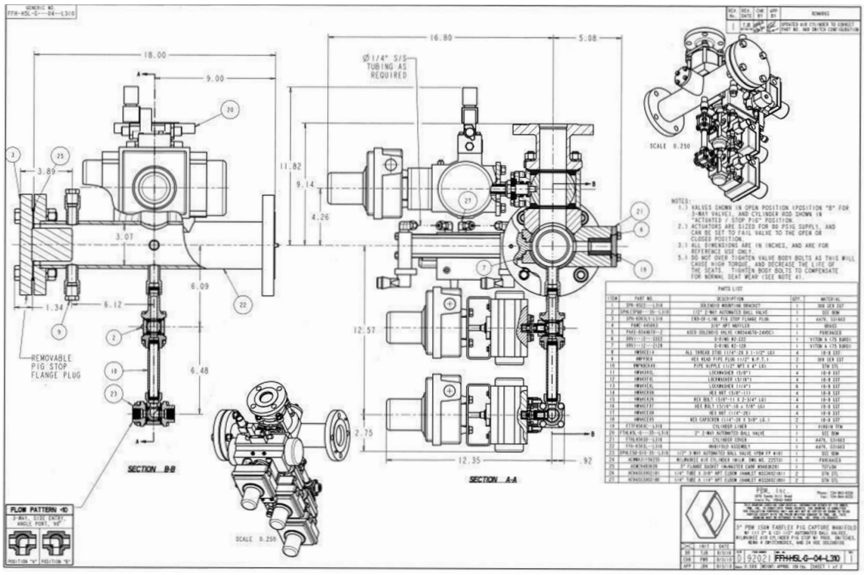
INDUSTRY: PETROLEUM

PRODUCT: FABFLEX® PIG CAPTURE MANIFOLD

MEDIA: VARIOUS GRADES OF LUBE OIL

IMI PBM Solution:

A major petroleum company requested a unique manifold design that allowed for capture and launch of line "PIGS." This Fabflex® Pig Capture Manifold allows for PIG capture or launch at either end or at any point between on a process line. The manifold also allows for process fluid draining, end of line PIG removal, and compressed air inlet for PIG launch. These features were incorporated into an assembly which only occupies 18" of the main process line.



APPLICATION BRIEF - 58/1010

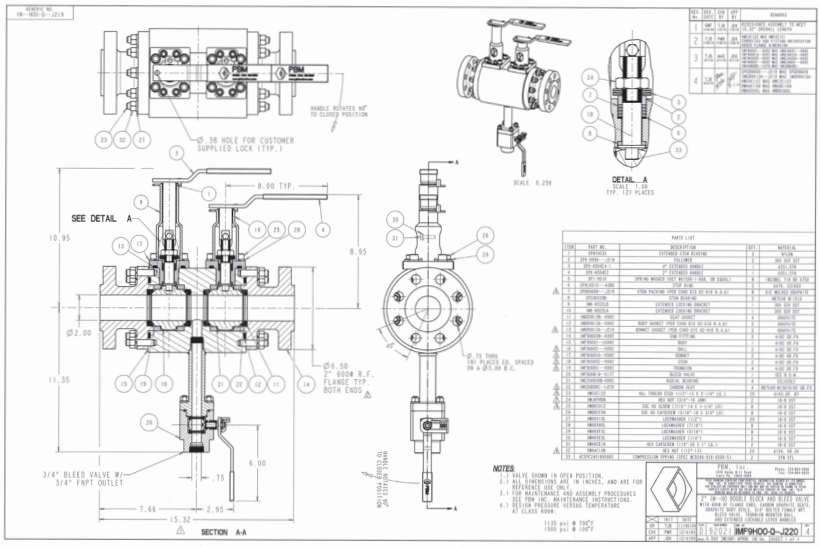
INDUSTRY: REFINING

PRODUCT: 2-INCH FULL PORT 600# CLASS DOUBLE BLOCK AND BLEED VALVE

MEDIA: HYDROCARBONS - OIL SANDS CRUDE

IMI PBM Solution:

A major petroleum company specified IMI PBM Double Block and Bleed Valves for isolating high pressure coker hydrocarbons from sensitive instrument gauges. IMI PBM's Double Block and Bleed Valves with 600# flanges and carbon graphite seats and seals provided safe and reliable isolation of high pressure media in a smaller envelope compared with competitive gate valve designs.



APPLICATION BRIEF - 59/1010

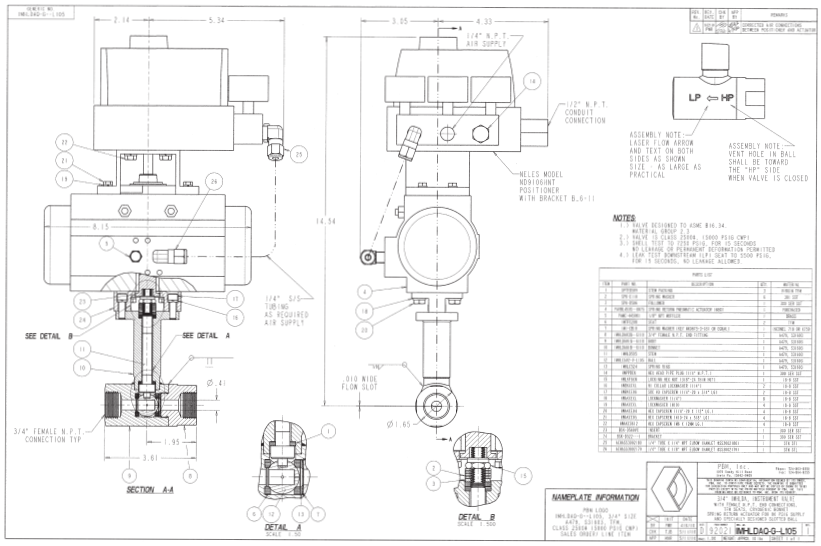
INDUSTRY: PETROLEUM

PRODUCT: 3/4-INCH INSTRUMENT VALVE WITH SLOTTED BALL AND CRYOGENIC BONNET

MEDIA: NITROGEN GAS

IMI PBM Solution:

A major petroleum company required a instrument valve to control the flow of nitrogen gas injected into wells to force oil to the surface. The application required a cryogenic design capable of handling extreme temperature and pressure ratings, a slotted ball for flow control, and an automation and controls package that provided the safety and reliability of a tight shut off.



APPLICATION BRIEF - 61/0111

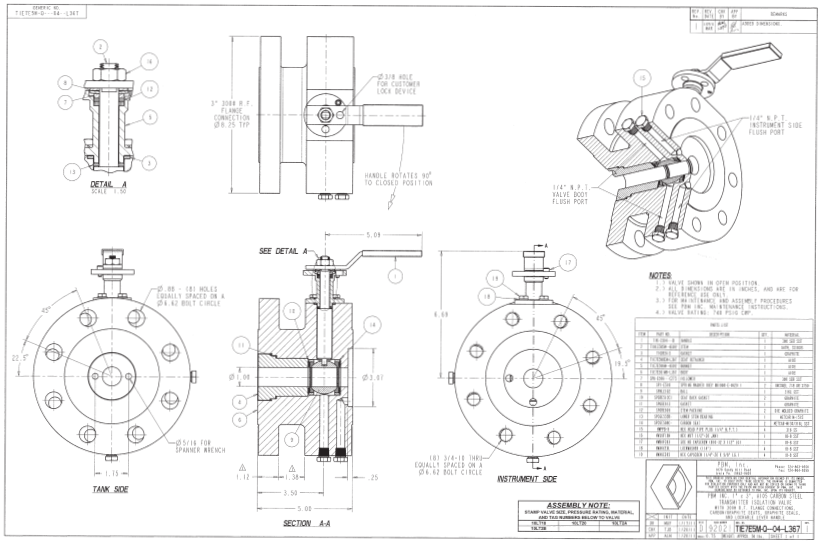
INDUSTRY: REFINING

PRODUCT: TRANSMITTER ISOLATION VALVE

MEDIA: ISOLATION OF ELECTRONIC TRANSMITTERS

IMI PBM Solution:

A major Northwestern US refinery producing various grades of gasoline, jet fuel, and diesel fuel required quality and dependable valves for isolation of electronic transmitters (differential pressure). IMI PBM supplied its Transmitter Isolation Valves rated to ANSI Class 300# and 600# with carbon graphite seats for higher temperature applications to 650°F and with TFM seats for lower temperature applications between 150°F to 325°F.



APPLICATION BRIEF - 67/0111

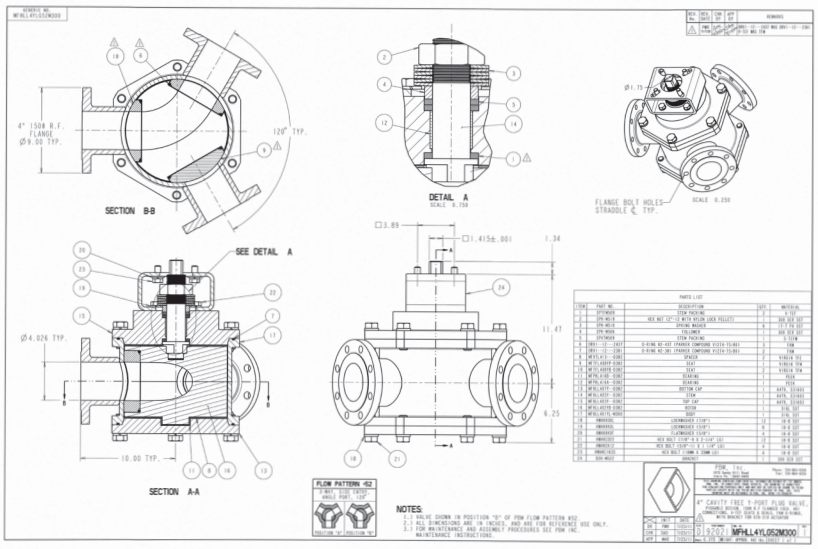
INDUSTRY: REFINING

PRODUCT: CLASS 150 4" CAVITY FREE PIGGABLE VALVE

END USE: CONVEYANCE OF GREASE / WASH-DOWN OIL

IMI PBM Solution:

IMI PBM 4-Way cavity free pigging valves are used in Australia at a facility housing bitumen and specialty products, fuel storage including LPG, lubricants and grease manufacturing facility, and several warehouses. These valves operate at 60-100°C / 140-212°F, 600kPa / 87psi.



APPLICATION BRIEF - 90/0712

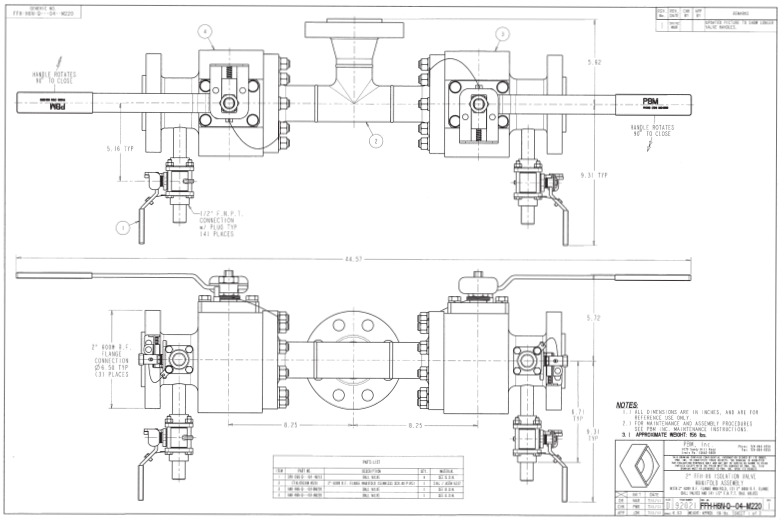
INDUSTRY: REFINING

PRODUCT: IMI PBM FABFLEX® MANIFOLDS WITH TRANSMITTER ISOLATION VALVES

MEDIA: HYDROCARBONS

IMI PBM Solution:

Major refinery needed a way to reduce space, control the fabrication process, reduce emissions and simplify field installation while providing for redundant level transmitter mounts at the separator absorber. IMI PBM provided a Fabflex® fabricated manifold to solve the problems. The Fabflex® Manifold is factory fabricated in a controlled manufacturing environment, ensuring high quality welds and allowing for optimal space utilization. By replacing the old system of multiple flanges and individual valves with valves fabricated "into" the manifold, many emission leak paths were eliminated to improve the overall EPA rating of the system. Field installation was simplified into bolting up one flange and installing the transmitters.



APPLICATION BRIEF - 91/0712

INDUSTRY: REFINING

PRODUCT: DIVERTER PORT BALL VALVE

MEDIA: OIL, GAS, AND WATER

IMI PBM Solution:

- Process – Multiple oil/gas wells are piped into one production battery and fed into one of two separators to separate oil, gas and water. Test separator: small unit that separates oil, gas and water to determine the mix for billing purposes.
- Production separator – large unit that separates the oil, gas and water for distribution to downstream processing facilities.
- Typically 10-40 automated valves per battery.
- Multi-phase oil/gas media.

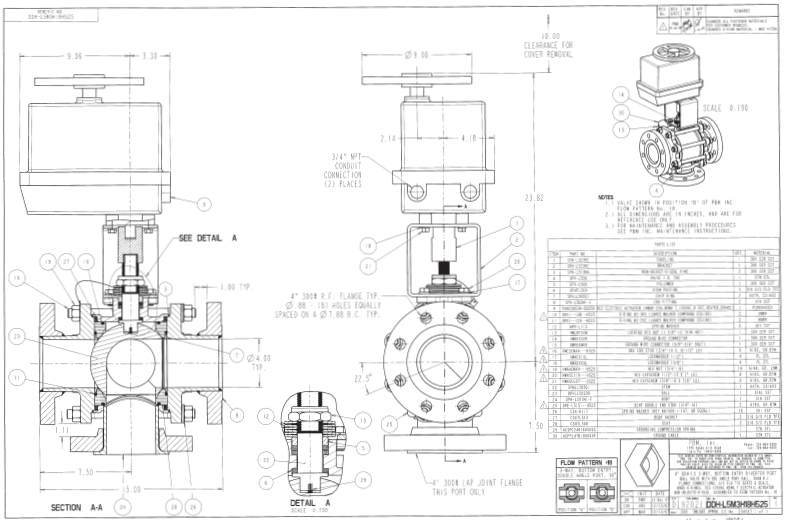
Problems:

- Space to efficiently configure piping to either the production or test header.
- Automation of old manual systems.
- Control system complexity to synchronize two automated 2-way valves.
- Inherent problems of horizontally mounting electric actuators (cantilever loads on the valve, water egress into unit).

IMI PBM Product – 3-Way, Multi-Port, bottom entry valve allows for well pipe to enter into the bottom of the valve (instead of the traditional side entry) and then flow to either a production header in one direction or a test header in the opposite direction.

Advantages of the IMI PBM Solution:

- Bottom entry allows well pipe coming out of the ground to enter vertically into the valve to optimize space utilization and piping configuration.
- System automation.
- Top mounted electric actuator optimizes space and eliminates horizontal mount issues such as water egress, cantilever loads on the valve stem and packing, etc.
- Cost improvement – one automated 3-Way valve eliminates two 2-way automated block valves.
- Control scheme simplicity – automating one 3-way valve is much simpler than synchronizing the automation of two 2-way block valves.



APPLICATION BRIEF - 92/0712

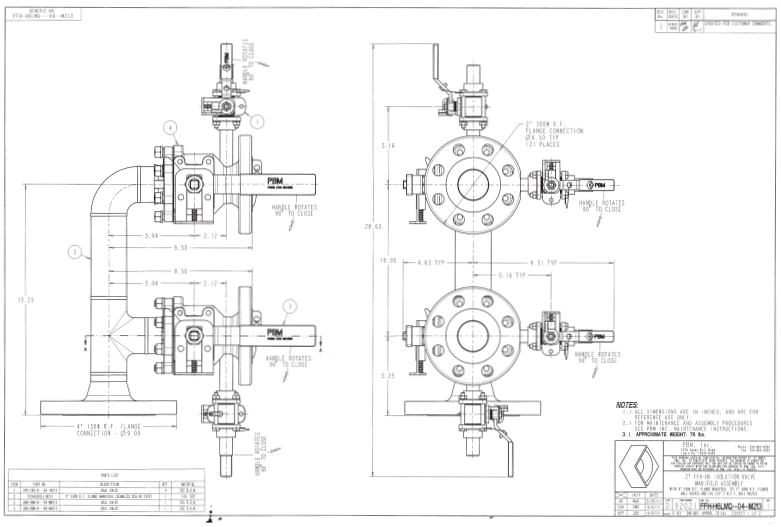
INDUSTRY: REFINING

PRODUCT: IMI PBM FABFLEX® MANIFOLDS WITH TRANSMITTER ISOLATION VALVES

MEDIA: DEGASIFER DRUM INSTRUMENT TAP MANIFOLD

IMI PBM Solution:

Major refinery needed a way to reduce space, control the fabrication process, reduce emissions and simplify field installation while providing for redundant level transmitter mounts at the bottom of their degassifer drums. IMI PBM provided a Fabflex® fabricated manifold to solve the problems. The Fabflex® Manifold is factory fabricated in a controlled manufacturing environment, ensuring high quality welds and allowing for optimal space utilization. By replacing the old system of multiple flanges and individual valves with valves fabricated “into” the manifold, many emission leak paths were eliminated to improve the overall EPA rating of the system. Field installation was simplified into bolting up one flange and installing the transmitters.



APPLICATION BRIEF - 93/0712

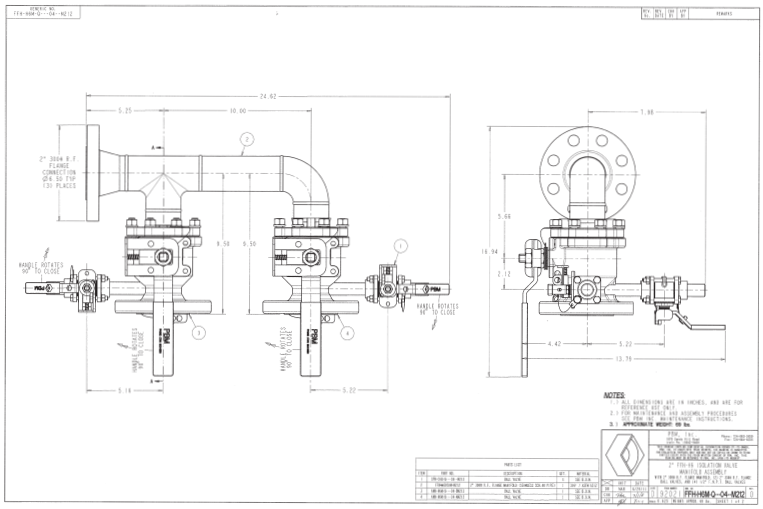
INDUSTRY: REFINING

PRODUCT: IMI PBM FABFLEX® MANIFOLDS WITH TRANSMITTER ISOLATION VALVES

MEDIA: HYDROCARBONS

IMI PBM Solution:

Major refinery needed a way to reduce space, control the fabrication process, reduce emissions and simplify field installation while providing for redundant level transmitter mounts at the top of their degasifer drums. IMI PBM provided a Fabflex® fabricated manifold to solve the problems. The Fabflex® Manifold is factory fabricated in a controlled manufacturing environment, ensuring high quality welds and allowing for optimal space utilization. By replacing the old system of multiple flanges and individual valves with valves fabricated "into" the manifold, many emission leak paths were eliminated to improve the overall EPA rating of the system. Field installation was simplified into bolting up one flange and installing the transmitters.



APPLICATION BRIEF - 94/0712

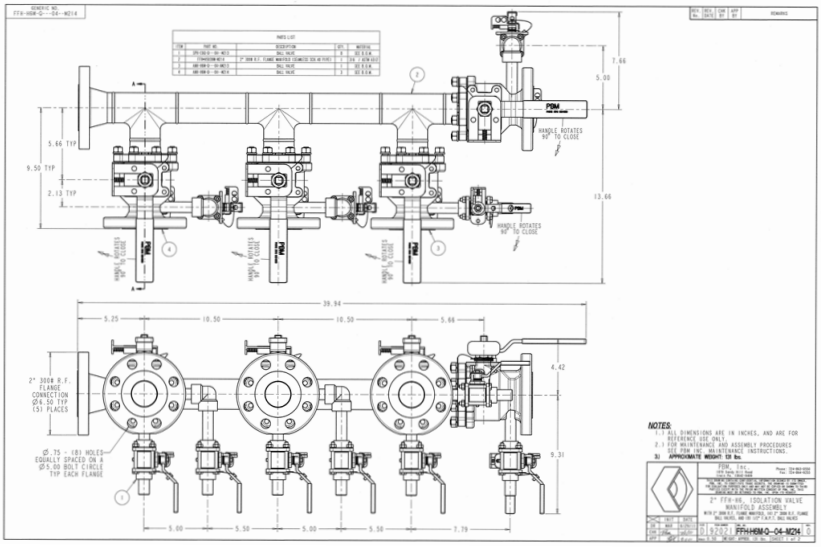
INDUSTRY: REFINING

PRODUCT: IMI PBM FABFLEX® MANIFOLDS WITH TRANSMITTER ISOLATION VALVES

MEDIA: HYDROCARBONS

IMI PBM Solution:

Major refinery needed a way to reduce space, control the fabrication process, reduce emissions and simplify field installation while providing for redundant level transmitter mounts at the overhead accumulator. IMI PBM provided a Fabflex® fabricated manifold to solve the problems. The Fabflex® Manifold is factory fabricated in a controlled manufacturing environment, ensuring high quality welds and allowing for optimal space utilization. By replacing the old system of multiple flanges and individual valves with valves fabricated "into" the manifold, many emission leak paths were eliminated to improve the overall EPA rating of the system. Field installation was simplified into bolting up one flange and installing the transmitters.



APPLICATION BRIEF - 95/0712

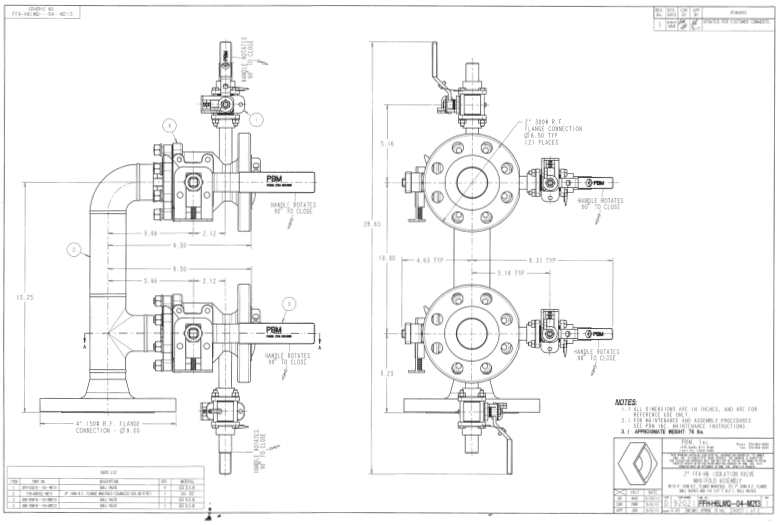
INDUSTRY: REFINING

PRODUCT: IMI PBM FABFLEX® MANIFOLDS WITH TRANSMITTER ISOLATION VALVES

MEDIA: HYDROCARBONS

IMI PBM Solution:

Major refinery needed a way to reduce space, control the fabrication process, reduce emissions and simplify field installation while providing for redundant level transmitter mounts at the top of their stripper columns. IMI PBM provided a Fabflex® fabricated manifold to solve the problems. The Fabflex® Manifold is factory fabricated in a controlled manufacturing environment, ensuring high quality welds and allowing for optimal space utilization. By replacing the old system of multiple flanges and individual valves with valves fabricated “into” the manifold, many emission leak paths were eliminated to improve the overall EPA rating of the system. Field installation was simplified into bolting up one flange and installing the transmitters.



APPLICATION BRIEF - 96/0712

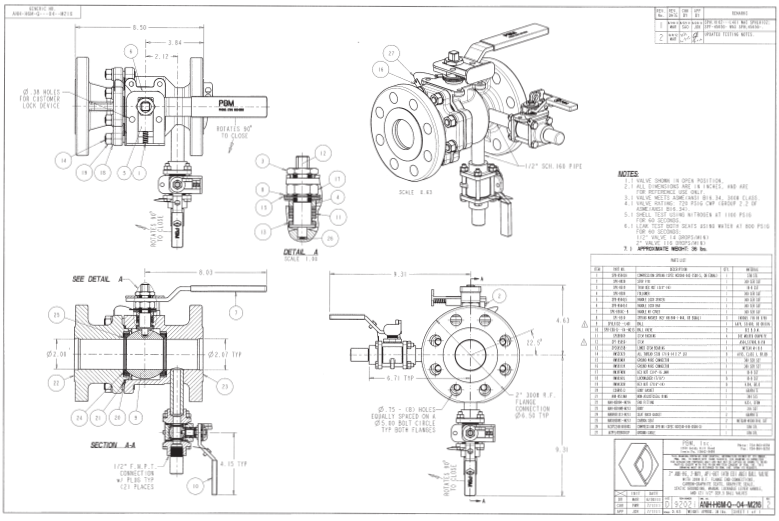
INDUSTRY: REFINING

PRODUCT: IMI PBM FABFLEX® MANIFOLDS WITH PORTED ANSI VALVES

MEDIA: HYDROCARBONS

IMI PBM Solution:

Major refinery needed a way to reduce space, control the fabrication process, reduce emissions and simplify field installation while providing for redundant level transmitter mounts at the overhead accumulator. IMI PBM provided a Fabflex® fabricated manifold to solve the problems. The Fabflex® Manifold is factory fabricated in a controlled manufacturing environment, ensuring high quality welds and allowing for optimal space utilization. By replacing the old system of multiple flanges and individual valves with valves fabricated “into” the manifold, many emission leak paths were eliminated to improve the overall EPA rating of the system. Field installation was simplified into bolting up one flange and installing the transmitters.



APPLICATION BRIEF - 97/0712

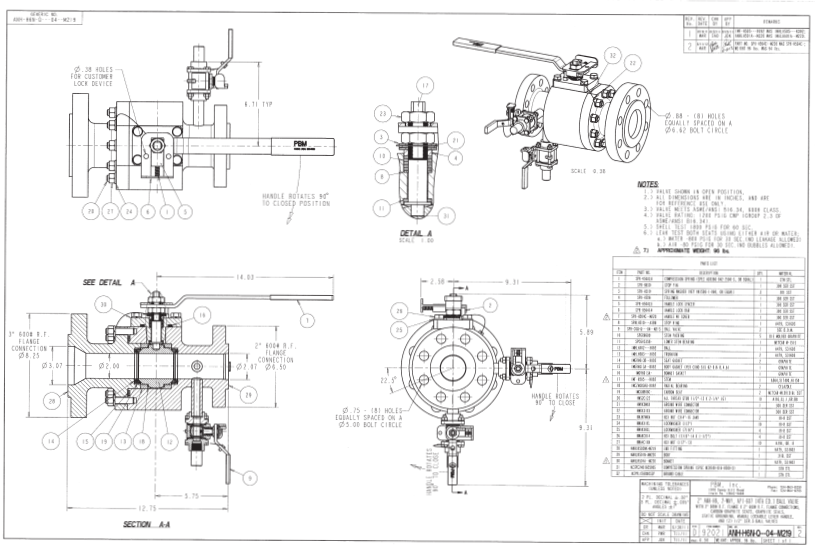
INDUSTRY: REFINING

PRODUCT: IMI PBM FABFLEX® MANIFOLDS WITH ANSI VALVES

MEDIA: HYDROCARBONS

IMI PBM Solution:

Major refinery needed a way to reduce space, control the fabrication process, reduce emissions and simplify field installation while providing for redundant level transmitter mounts at the bottom of their H2 Scrubber columns. IMI PBM provided a Fabflex® fabricated manifold to solve the problems. The Fabflex® Manifold is factory fabricated in a controlled manufacturing environment, ensuring high quality welds and allowing for optimal space utilization. By replacing the old system of multiple flanges and individual valves with valves fabricated "into" the manifold, many emission leak paths were eliminated to improve the overall EPA rating of the system. Field installation was simplified into bolting up one flange and installing the transmitters.



APPLICATION BRIEF - 98/0714

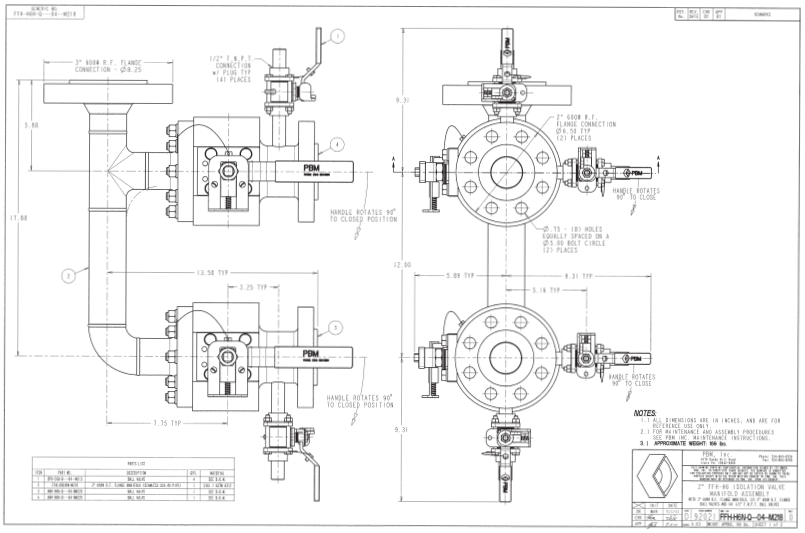
INDUSTRY: REFINING

PRODUCT: IMI PBM FABFLEX® MANIFOLDS WITH TRANSMITTER ISOLATION VALVES

MEDIA: HYDROCARBONS

IMI PBM Solution:

Major refinery needed a way to reduce space, control the fabrication process, reduce emissions and simplify field installation while providing for redundant level transmitter mounts at the top of their H2 scrubber columns. IMI PBM provided a Fabflex® fabricated manifold to solve the problems. The Fabflex® Manifold is factory fabricated in a controlled manufacturing environment, ensuring high quality welds and allowing for optimal space utilization. By replacing the old system of multiple flanges and individual valves with valves fabricated "into" the manifold, many emission leak paths were eliminated to improve the overall EPA rating of the system. Field installation was simplified into bolting up one flange and installing the transmitters.



APPLICATION BRIEF - 99/0715

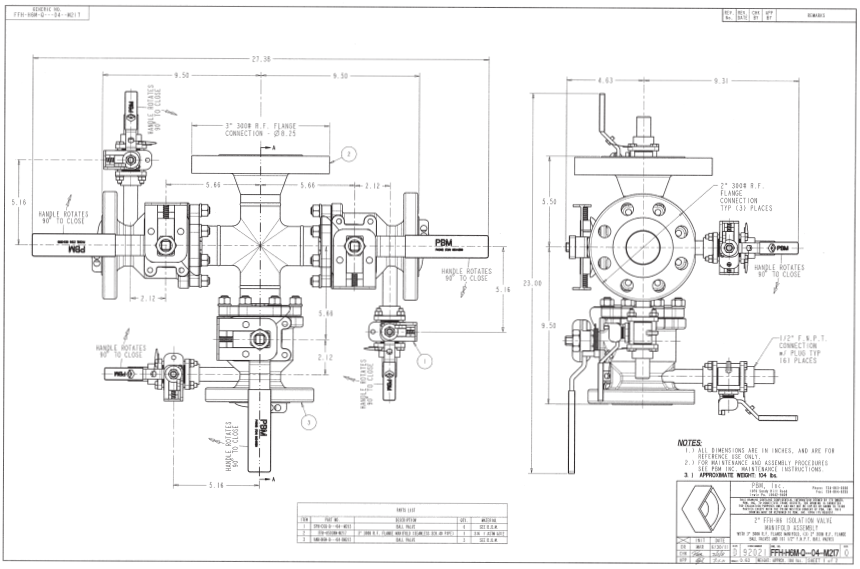
INDUSTRY: REFINING

PRODUCT: IMI PBM FABFLEX® MANIFOLDS WITH TRANSMITTER ISOLATION VALVES

MEDIA: HYDROCARBONS

IMI PBM Solution:

Major refinery needed a way to reduce space, control the fabrication process, reduce emissions and simplify field installation while providing for redundant level transmitter mounts at the knock-out drums. IMI PBM provided a Fabflex® fabricated manifold to solve the problems. The Fabflex® manifold is factory fabricated in a controlled manufacturing environment, ensuring high quality welds and allowing for optimal space utilization. By replacing the old system of multiple flanges and individual valves with valves fabricated "into" the manifold, many emission leak paths were eliminated to improve the overall EPA rating of the system. Field installation was simplified into bolting up one flange and installing the transmitters.



APPLICATION BRIEF - 101/0613

INDUSTRY: OIL PRODUCTION

PRODUCT: DIVERTER PORT BALL VALVE

MEDIA: OIL, GAS AND WATER

IMI PBM Solution:

Problems:

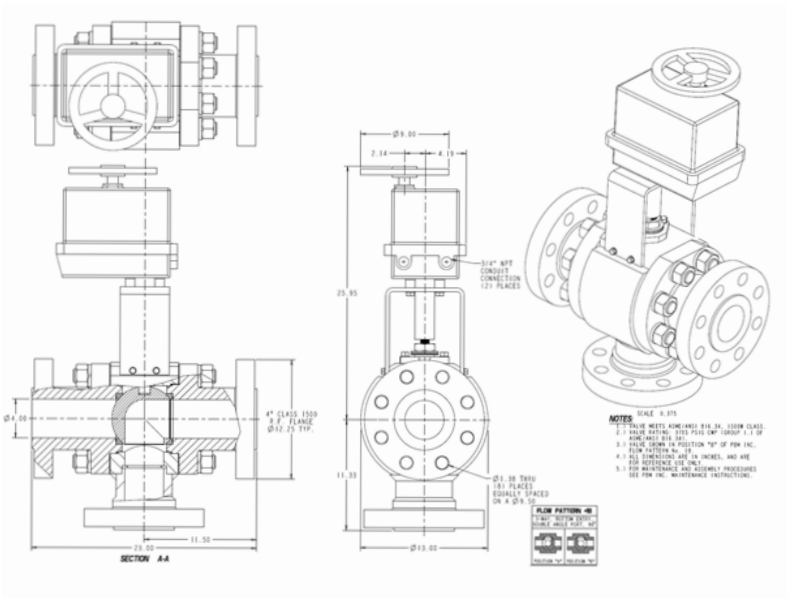
- Space to efficiently configure piping to either the production or test header.
- Automation of old manual systems.
- Control system complexity to synchronize two automated 2-way valves.
- Inherent problems of horizontally mounting electric actuators (cantilever loads on the valve, water egress into unit).

IMI PBM Product – 3-Way, Diverter Port, bottom entry valve allows for well pipe to enter into the bottom of the valve (instead of the traditional side entry) and then flow to either a production header in one direction or a test header in the opposite direction.

- Available in Class 150, through 1,500.

Advantages of the IMI PBM Solution

- Bottom entry allows well pipe coming out of the ground to enter vertically into the valve to optimize space utilization and piping configuration.
- System automation.
- Top mounted electric actuator optimizes space and eliminates horizontal mount issues such as water egress, cantilever loads on the valve stem and packing, etc.
- Cost improvement – one automated 3-Way valve eliminates two 2-way automated block valves.
- Control scheme simplicity – automating one 3-Way valve is much simpler than synchronizing the automation of two 2-way block valves.
- US Manufactured product.
- Automation: Electric or Pneumatic, 90 or 180° operation available.



APPLICATION BRIEF - 102/0613

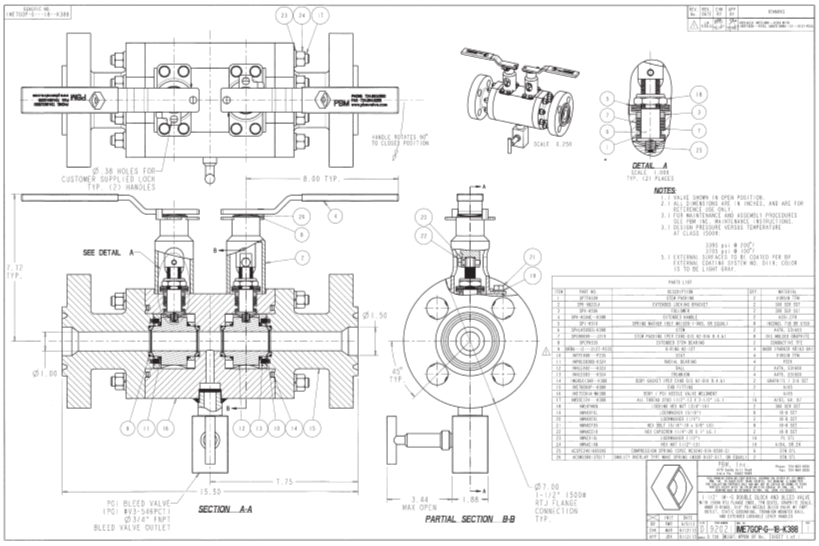
INDUSTRY: REFINERY

PRODUCT: 1 1/2-INCH 1500# CLASS DOUBLE BLOCK & BLEED INSTRUMENT VALVE

MEDIA: GASES AND HYDROCARBONS

IMI PBM Solution:

A major petroleum company selected IMI PBM Double Block and Bleed valves for their safety and reliability, tight shut-off for isolating instrumentation on their Gas Oil Hydrotreater Units.



APPLICATION BRIEF - 106/1214

INDUSTRY: OIL & GAS

PRODUCT: DIVERTER PORT BALL VALVE

MEDIA: MULTI-PHASE OIL/WATER/GAS

IMI PBM Solution:

Process - Switching multiple oil/gas wells at a production collection battery from the production header and separator to the test header and separator. Typically 10-50 automated switching valves per battery. 1000psig WOG design at ambient temperature.

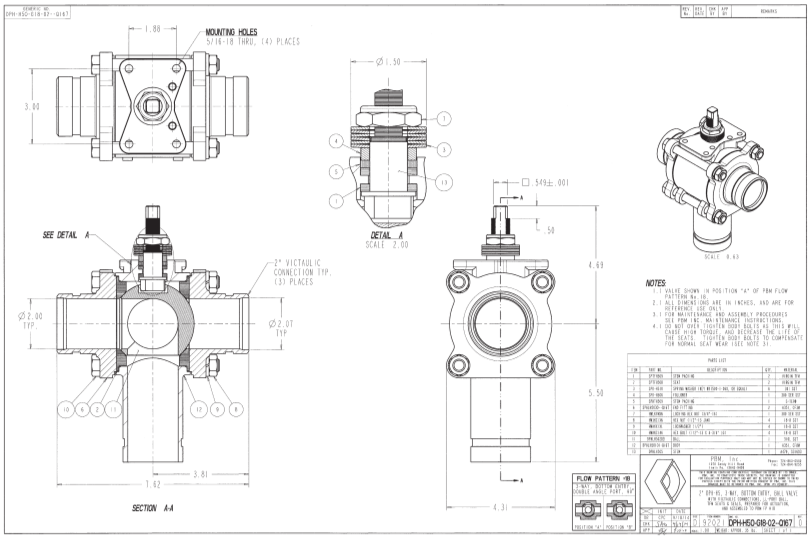
Problems:

- Existing valves are obsolete and and not
- available.
- No direct replacement available.
- Repair parts not available.

IMI PBM Product Description: 2 inch, 3-Way, bottom entry, Diverter Port Valve designed to directly replace the obsolete diverter valve currently in service. Designed with clamped end connections and actuator mount to direct mount existing actuators.

Advantages of using IMI PBM Products:

- No re-piping required – Direct replacement of existing obsolete valves.
- System automation – Direct mount of existing electric actuators.
- Ease of Repair – PBM valve uses readily available standard repair parts.



APPLICATION BRIEF - 107/1214

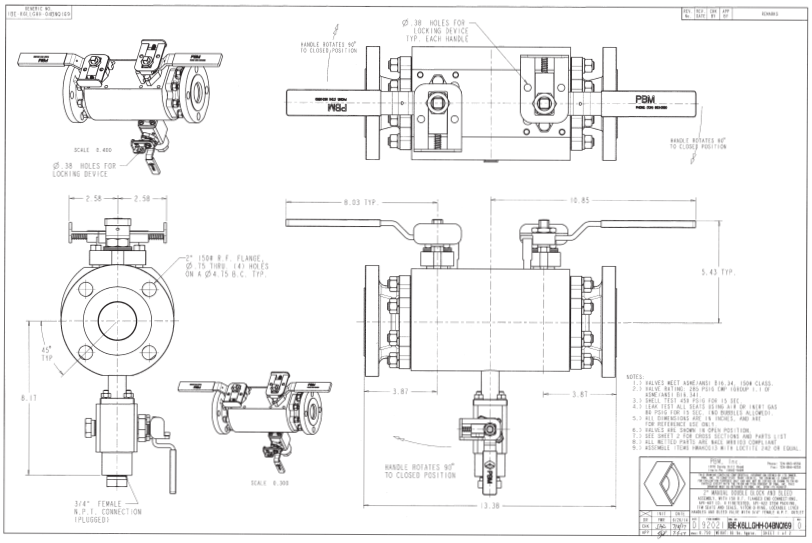
INDUSTRY: REFINING

PRODUCT: DBB-IB, CARBON STEAL/NACE TRIM 2", CLISO

MEDIA: SOUR WATER

IMI PBM Solution:

A major oil refinery needed to convert a site level gauge on a vessel to a magnetic level gauge and two remote transmitters. The isolation requirement was for a double positive isolation arrangement. The IMI PBM solution provided a fire tested, double positive isolation valve that fit their space requirements and met all their safety, reliability, emissions and operating requirements.



APPLICATION BRIEF - 108/1214

INDUSTRY: PETRO-CHEMICAL PLANT

PRODUCT: ANSI STYLE TRANSMITTER ISOLATION VALVE

MEDIA: POLY-ISOBUTYLENE AND STEAM

IMI PBM Solution:

Process - Poly-Isobutylene polymerization process. Transmitter Isolation and Calibration with Upstream Steam Purge Capability.
Max Temp = 300°F. Max Pressure = 150psig.

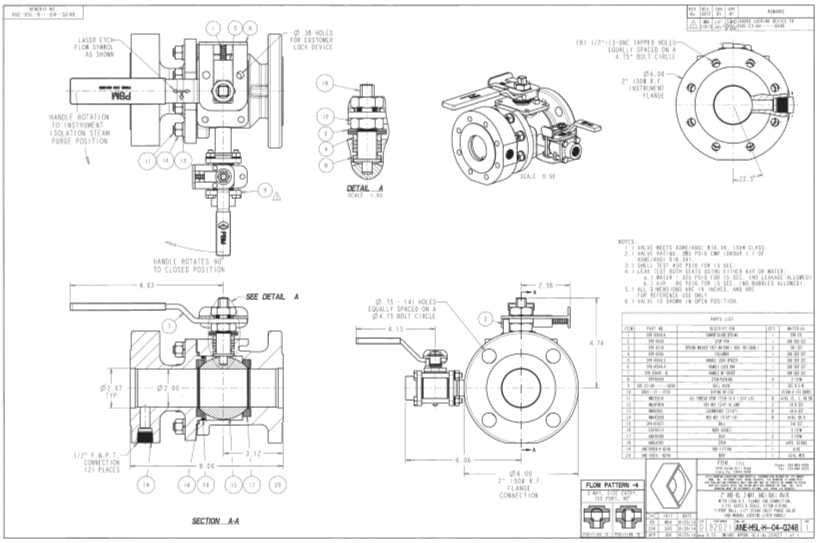
Problems:

- Ability to introduce steam purge into upstream system.
- Ability to isolate the remote diaphragm seal from the system steam purge heat.
- Ability to purge, flush and calibrate remote diaphragm seal face without removing it from the system.

IMI PBM Product Description: – CL150, ANSI Style 2" x 2" full port Transmitter Isolation Valve (TIV) with Tee Port Ball.

Advantages of using IMI PBM Products:

- Space/Cost Savings – Valve, Steam Purge, Flush/Cal Ring and Transmitter Mount all in one product.
- Fugitive Emissions – Less flange connections = Less potential for fugitive emissions.
- Reliability – Ability to protect the remote seal from heat and ability to isolate, flush and calibrate the remote seal and transmitter without removing the instrumentation from the system.



APPLICATION BRIEF - 112/0815

INDUSTRY: OIL & GAS

PRODUCT: ANSI STYLE TRANSMITTER ISOLATION VALVE

MEDIA: COKING UNIT

IMI PBM Solution:

Process - Coking Unit Wedge Meter Transmitter Isolation. Max Temp = 500°F Max Pressure = 588 psig.

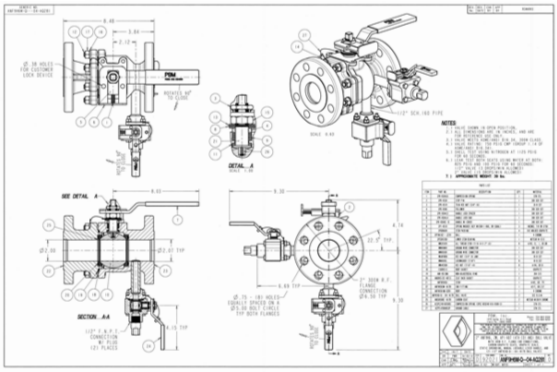
Problems:

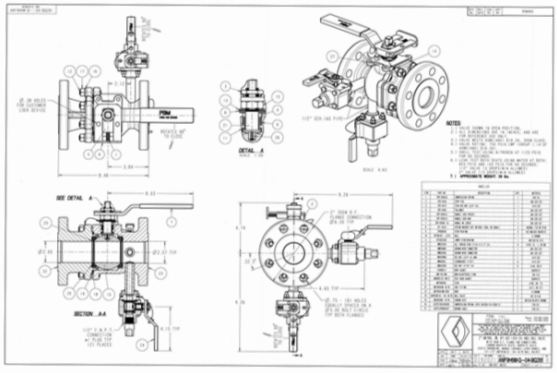
- Plugging – Heavy crude begins to solidify at 250°F.
- Space – Process requires four each, two-inch instrument taps on each end of a 4 inch wedge meter.
- Reliable Measurement – Measurement as close to the process is critical for reliable process control.

IMI PBM Product Description
CL300, 2" x 2", Full Port, ANSI Style Transmitter Isolation Valve (TIV) with Carbon Graphite Seats and Seals.

Advantages of using IMI PBM Products:

- Minimum Space – IMI PBM TIV saves 20-60% over traditional gate valve configurations. Ability to mount four remote seals on each end of the wedge flow meter for two out of three voting and an additional set of instrument ports. Not possible with traditional gate valve configuration.
- Maximum Reliability – Remote diaphragm seal is mounted very close to the wedge flow path for reliable measurements. Calibration taps on the IMI PBM TIV are close to the remote diaphragm seal for precise calibration.
- Minimum Emissions – Elimination of two flange connections (potential leak paths).
- Minimum Installed Costs – one piece of equipment versus three.





APPLICATION BRIEF - 12/0805

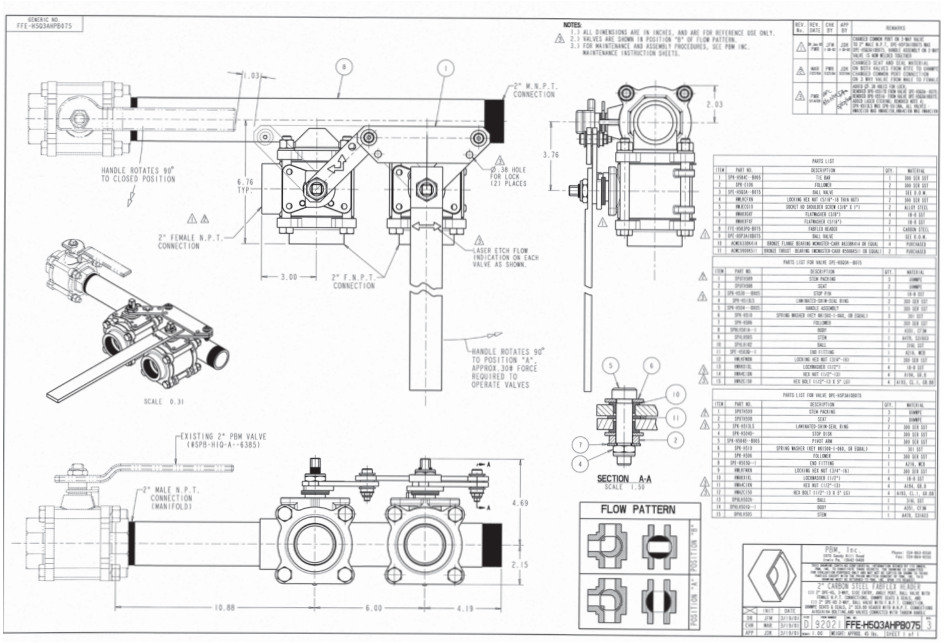
INDUSTRY: STEEL PRODUCTION

PRODUCT: TANDEM MOUNTED DP DIVERTER VALVE AND SP 2-WAY VALVE

MEDIA: COOLING WATER FOR BLAST FURNACE

IMI PBM Solution:

A major steel producer required a fool-proof assembly that would permit diversion of cooling water to tuyeres in a blast furnace while providing simultaneous isolation of a process flow-stream by linking both the 3-way and 2-way valve handles.



APPLICATION BRIEF - 23/0805

INDUSTRY: STEEL PRODUCTION

PRODUCT: ANSI CONTROL VALVE WITH V-BALL

MEDIA: RIVER WATER

IMI PBM Solution:

A major steel rolling mill used a 3-inch automated IMI PBM V-ball Control Valve to control the flow of water taken from a near-by river to a heat exchanger in order to control the temperature of bearing lube oil in a rolling mill. The lubricating oil needs to be maintained at a temperature of 130° F to prolong the life of costly bearings.