



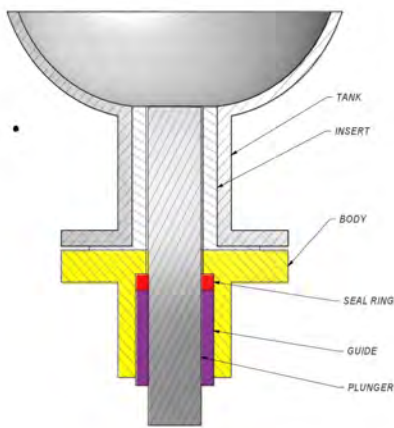
Tretter Manufacturing Company



**Custom Fabrication for your
Process needs**

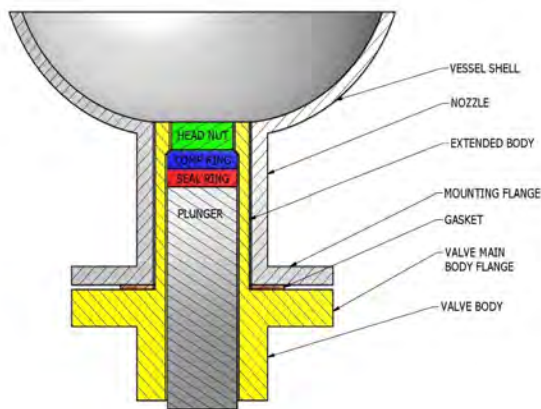
Plunger Style Drain Valves

The primary purpose of a plunger valve is to fill the opening or nozzle to minimize or eliminate Pocketing or Bridging that interfere with the ability to drain the vessel. The way you fill that opening can be different depending on the application. The below illustrations show two answers on how to accomplish that purpose.



The simplest and most traditional way is to extend the plunger of the valve up into the nozzle to approximately fill the opening. This design employs seals in the body (Body Seal Valve) that compress against a uniform diameter plunger to create the seal. The plunger when retracted automatically creates an opening through the media to allow drainage. For many applications this is perfect solution to plugging or blockages that you would experience if you simply put a ball or gate valve on the bottom of the nozzle flange. Note in the illustration that there is a space, or annulus between the plung-

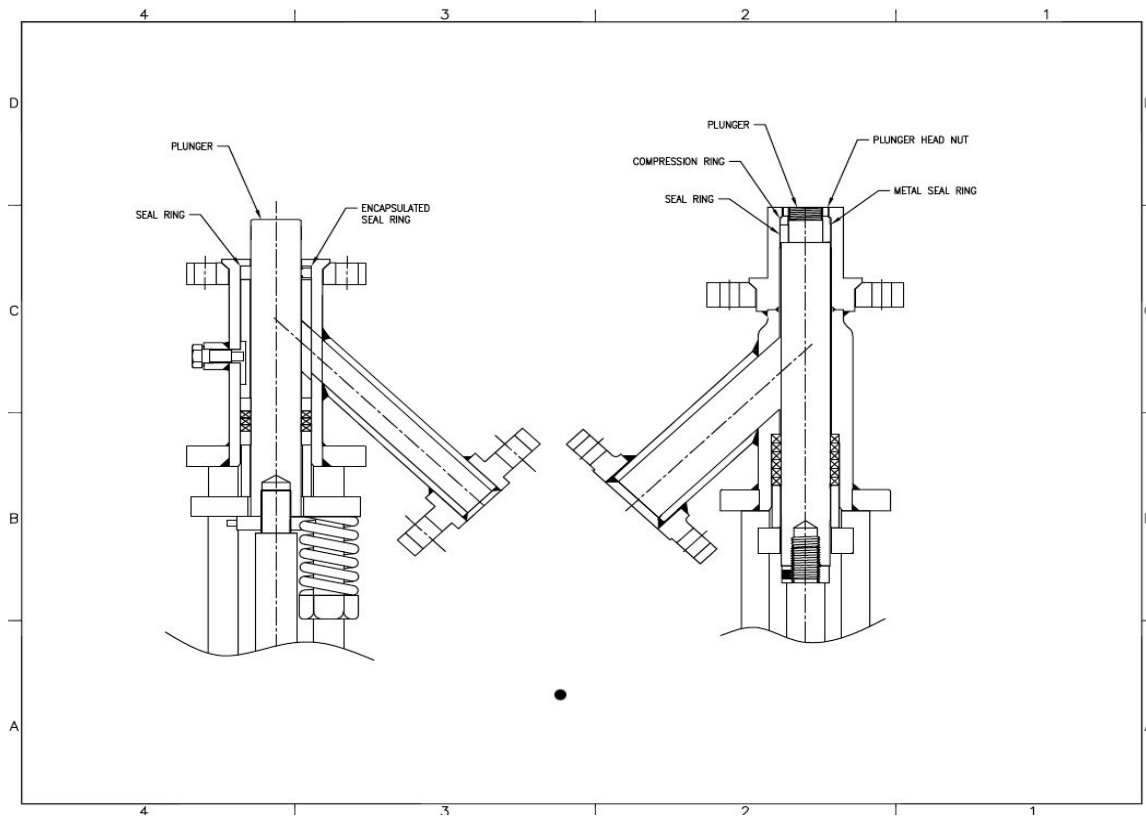
er and the I.D. of the nozzle. This dimension will vary with every pipe schedule /nozzle combination, and can be address in larger cases with a TFE nozzle adapter or Tophat (shown).



Another answer to the problem is to place an extended body design valve into the nozzle. This design is built to fit the individual nozzle or Stud pad with a much tighter fit. The extended body valve also has the advantage of placing the primary seal of the valve at the top of the extension in close proximity to the I.D of the Vessel. This reduces the pocketable area down to an absolute minimum. Since the Primary seal is on the plunger (Plunger Seal Valve) it retracts out of the flow, so the seal components will last longer. The Plunger Seal Valve is also a better choice for applications that need re-

verse flow such as fill or injection service., since the flow of the additive does not impact on the upper seal ring. The plunger seal design also separates the process seal load from the packing seal load, helping each to function better.

Questions Call610-507-7783



Body Seal / Plunger Seal Comparison

Body Seal Design

- Larger Plunger sizes
- Full Bore Opening
- Rodding Applications
- Dry Powder applications
- Pharmaceutical applications

Plunger Seal Design

- higher pressure applications
- Higher temperature applications
- Injection
- Closer fit
- Fire Safe Design

Either design could work well for your service. Talk to our sales personnel to determine which is best for your specific needs. We will be glad to design one for you.

Tank bottom Valves

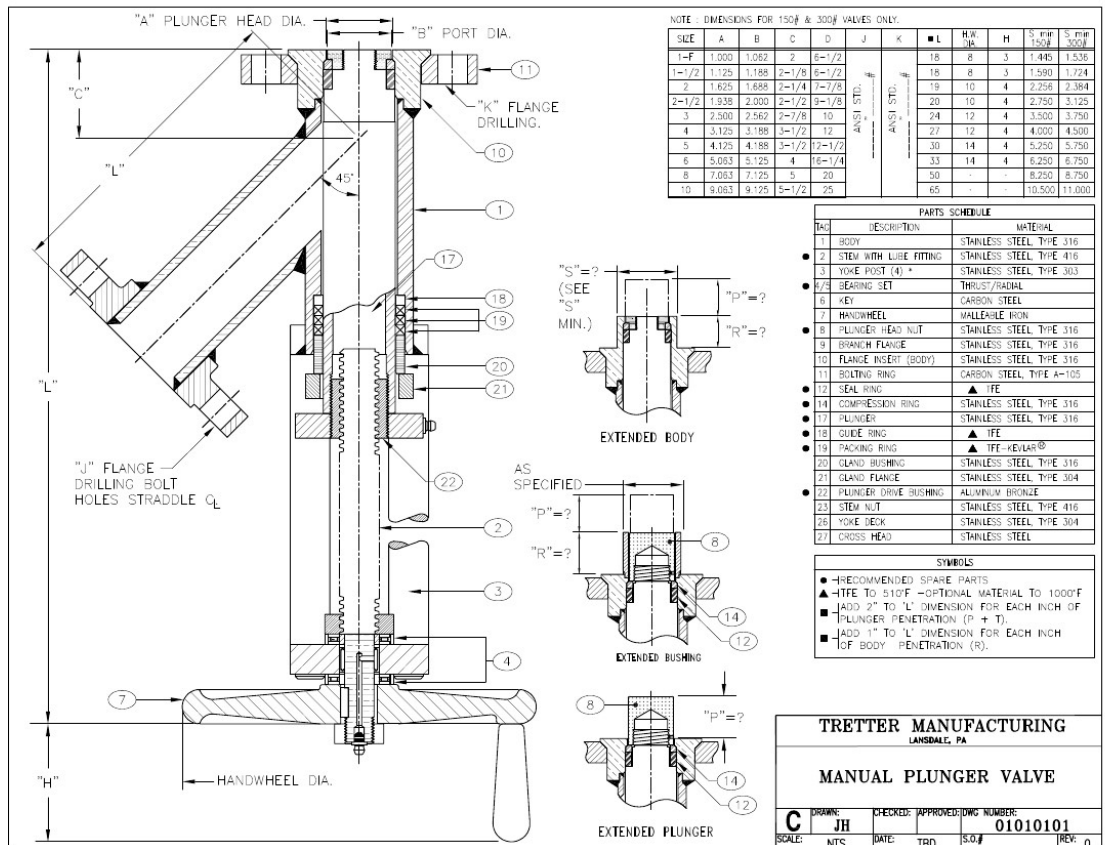
The purpose of a plunger valve is to fill the nozzle or opening to prevent leakage and build up. We have two styles of valves to accomplish this purpose. One design has the seals on the plunger, the other has the seals in the body.

Plunger Seal Designs

By placing the primary seal on the plunger you can vastly improve the valve's seal quality. This design separates the Seal load from the packing load, allowing you to directly load the seal components in the most direct, efficient way. The primary Seal can be metal/metal or metal/elastomer to give you the widest range of temperature /pressure combinations. These valves are to be considered for service from full vacuum to beyond 2500# class and for temperature ranges from Cryogenic to 1000F. Plunger seal valves typically have an extended Body that goes up inside the nozzle or pad to both fill the nozzle and put the seal closest to the process. Properly designing the valve to fit the process starts with fitting the valve to the equipment. Below are three examples of how the valve can be fitted. We will design the valve to fit the process conditions. The materials of construction can be chosen from a wide variety of alloys. Since the seals are retracted out of the flow when open, this valve excels at injection.



Plunger Seal Options:
Full Integral Welded Jacket
Flush ports
Actuation
Electric Motor
Air Cylinder
Air Motor
Hydraulic Cylinder
Gear Drive
Position Ind. Switches
Solenoids
Positioners





Body Seal Designs

The Body seal valve has the seals in the body of the valve.

The plunger is a smooth piston that is drawn through the seals. The seals are energized by both Packing Springs and loads transferred by the plunger/actuator. This design can allow for greater drainage since there is no extended body to reduce the nozzle bore. The valve can be designed to stop at intermediate positions or overextended for crust breaking. Combined with a TFE nozzle liner is a very "clean" design for Pharmaceutical Service.

Standard Features:

Energized seal System

17-4ph Hardened Plunger

Custom Plunger Lengths

Large Port Sizes

Long Lasting Seals

Spring Loaded Packing

Body Seal Options

Integral Sample valve

Air Cylinder (spring to close)

Flush port

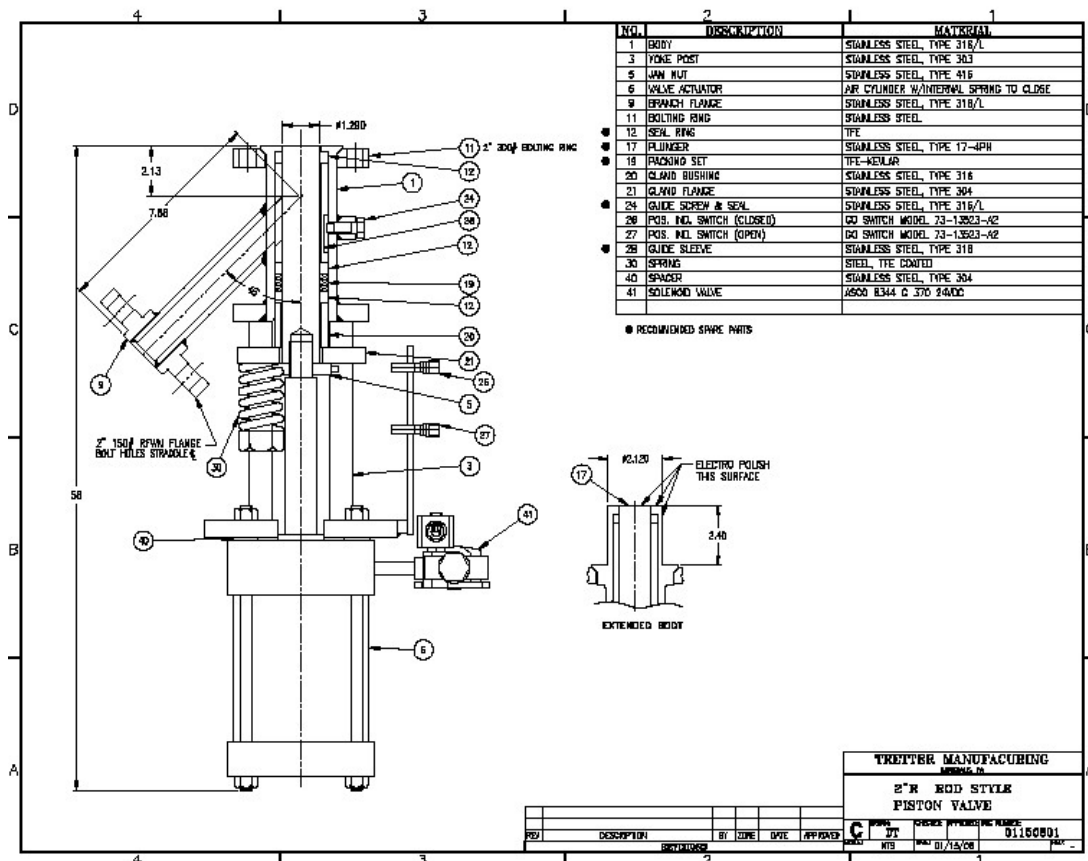
Electric Motor

Gear Drive

Plunger Mounted RTD

TFE Nozzle Filler

Air Motor

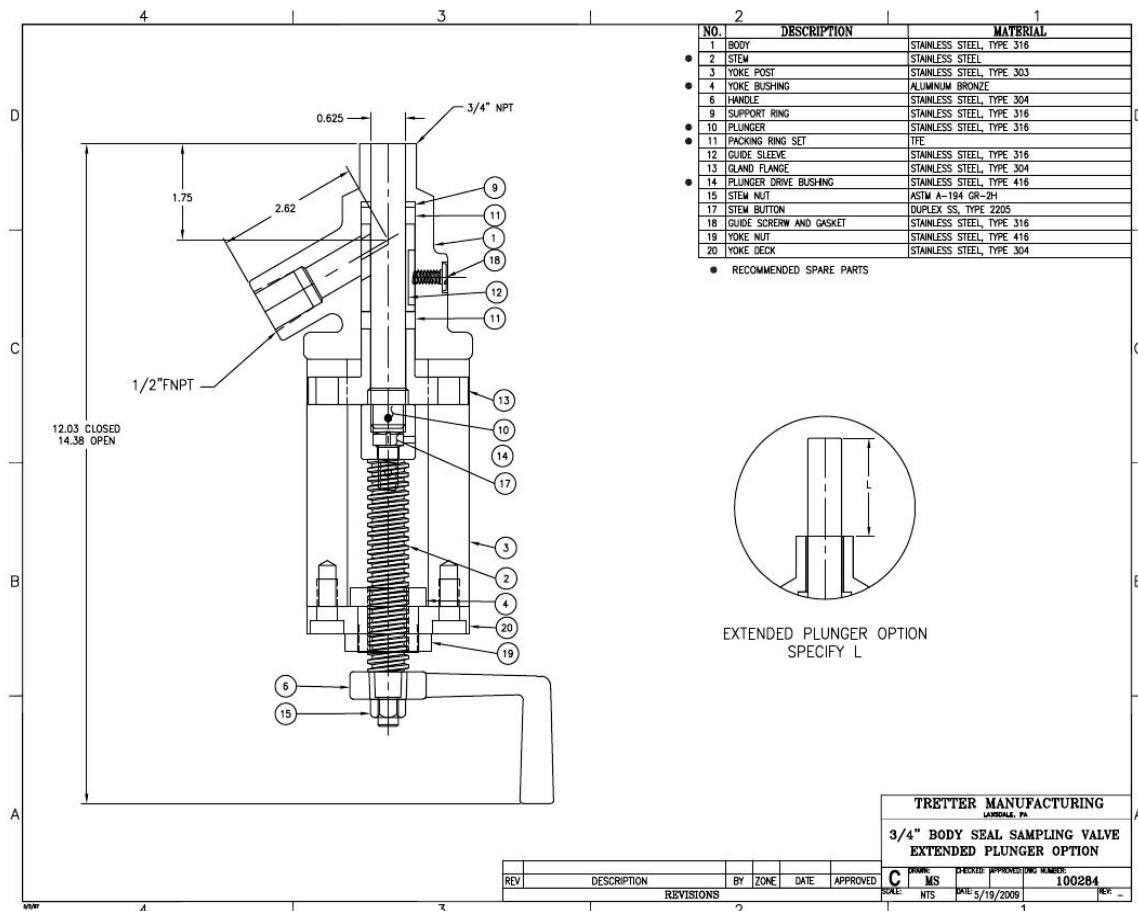


Sample Valves

Body Seal Design

Sizes 1/2" to 1 1/2"

Smooth bore plunger, seatless design



Above example is shown is our Body seal Design it uses resilient seal rings (p/n 11) to seal against the plunger. It is shown as a 60 degree cast body design. It is also available as a 45 degree fabricated body design.

Metallurgy and options available on the back page of the sampling valves brochure (page 8)

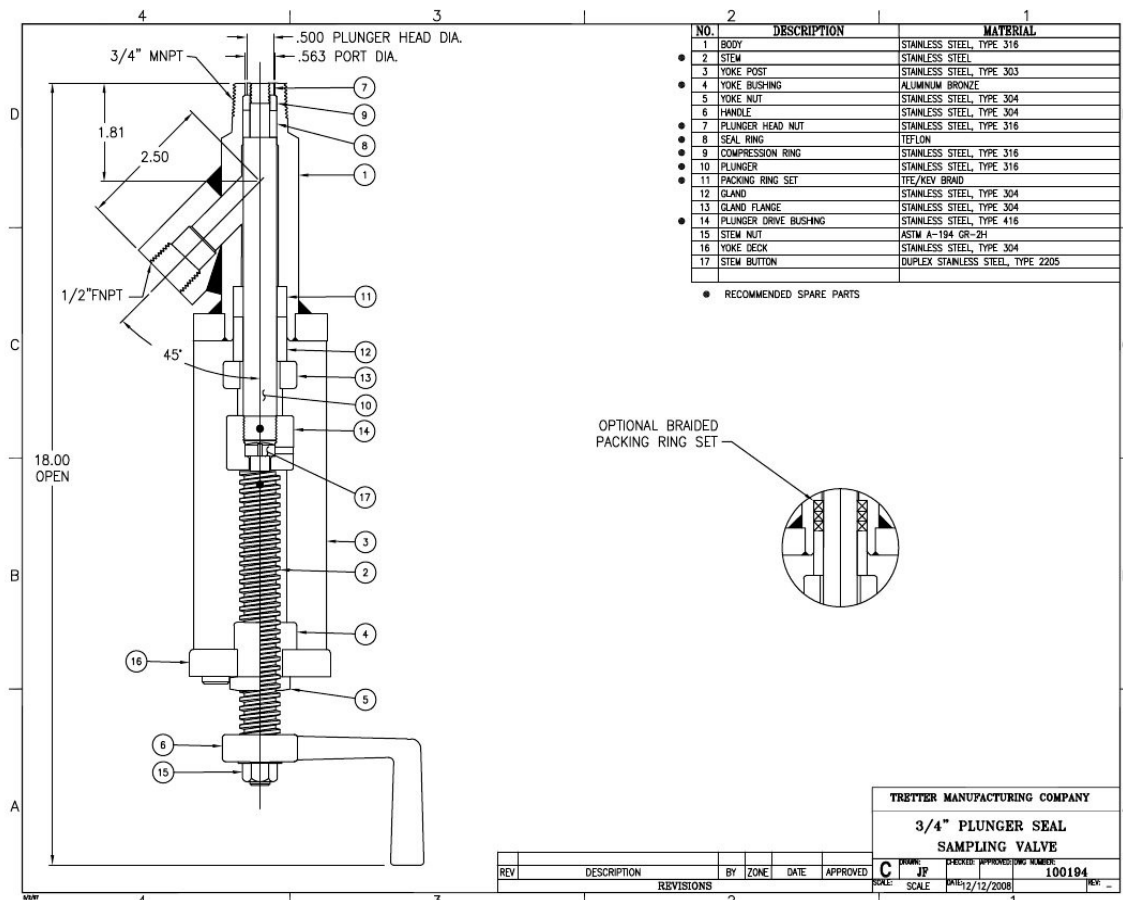
Size	Figure	PORT ID
1/4x 1/4	BS-002-M	.250
3/8x 1/4	BS-004-M	.312
1/2x 1/2	BS-005-M	.432
3/4x 1/2	BS-005-M	.437
3/4x 3/4	BS-007-M	.625
1x 3/4	BS-007-M	.625
1 1/2 x 1	BS-010-M	1.0

Questions Call 610-507-7783

Plunger Seal Design

Sizes 1/2" to 1 1/2"

Seal on plunger, seated design



Above example is our Plunger Seal design it has the seal components on the plunger, so that when the plunger strokes to the open position, the seal parts are retracted out of the flow. It is shown as a 45 degree fabricated body design. It is also available as a 60 degree cast body design.

Metallurgy and options available on the back page of the sampling brochure (page 8)

This Valve design lends it self to the extended body concept that allows custom fitting of the valve to your process connection. The valve port can be reduced to .125" for injection applications.

Size	Figure	Port ID
1/2 x 1/2	PS-005-M	.438
3/4 x 1/2	PS 005-M	.438
1 x 1/2	PS-005-M	.438
3/4 x 3/4	PS-007-M	.562
1 x 3/4	PS-007-M	.562
1 x 1	PS-009-M	.750
1 x 1	PS-010-M	.938
1 1/2 x 1	PS-011-M	1.062

Sample Valves

Sample valve is a general description for an extremely versatile valve. It is generally a smaller diameter plunger valve. Its first function is to make a non-plugging port into a pipe or vessel. The port can then be used for draining a line, injecting a solution, dye or venting the high point in the line. It's uses are limited only by the imagination. Sizes range from 1/8" to around 3". They can be off the shelf standards to complex custom designs. High pressure, high temperature, high alloys are all possibilities. Sample valves come in threaded end w/contoured couplings, socket weld, flanged or welded into core pipe assemblies.

Accessories available

Air Cylinder

Electric Motor

Lock Out Tag Out

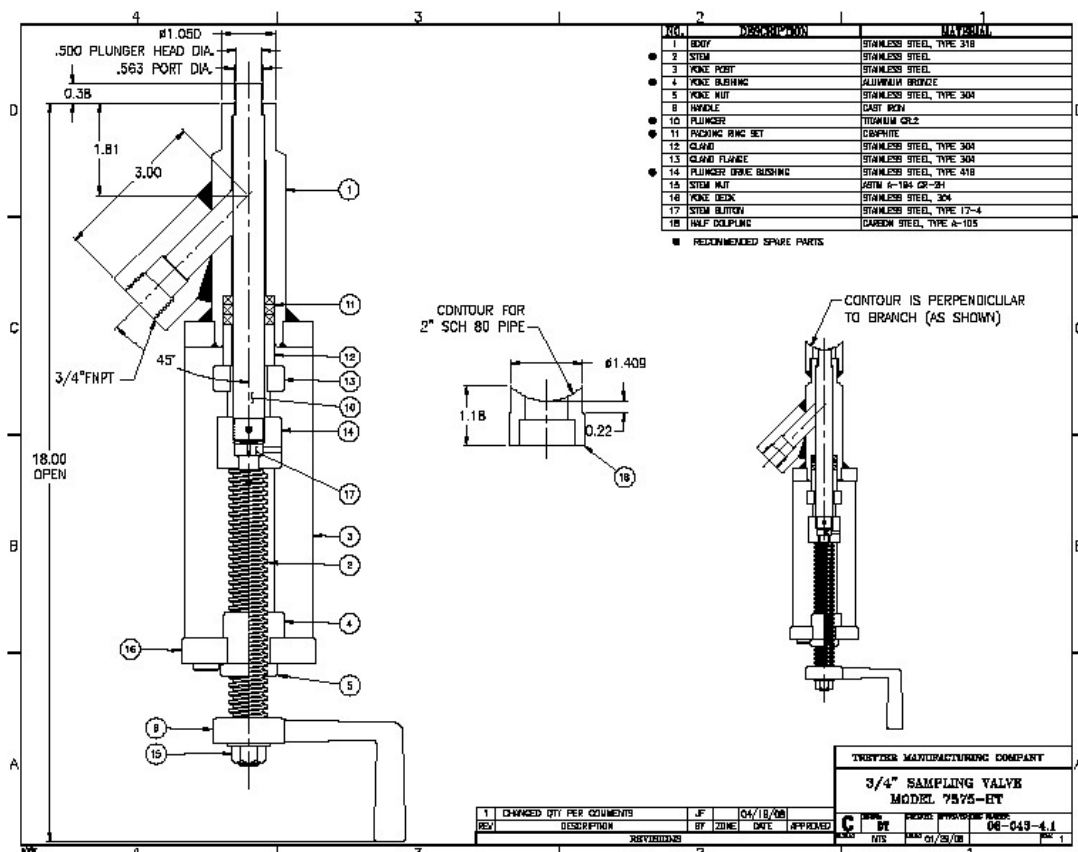
Position indicating switches

Integral Welded Heat Jacket

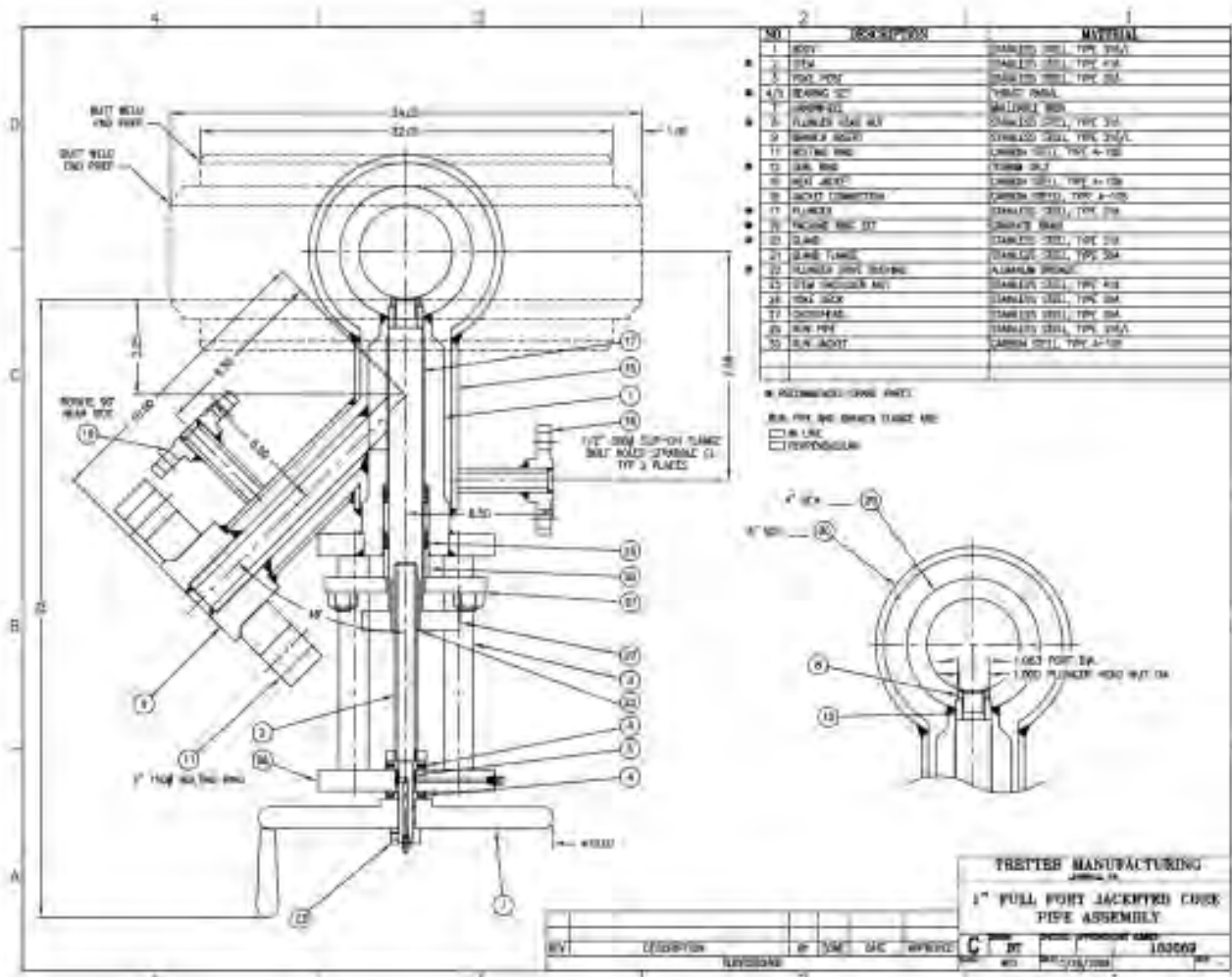
Bottle Adapter

Flush Port

Bucket Hook



Core pipe assemblies are most often used for vent and drain service, or in the smaller port sizes they are excellent for injecting solvents, colorants or additives.

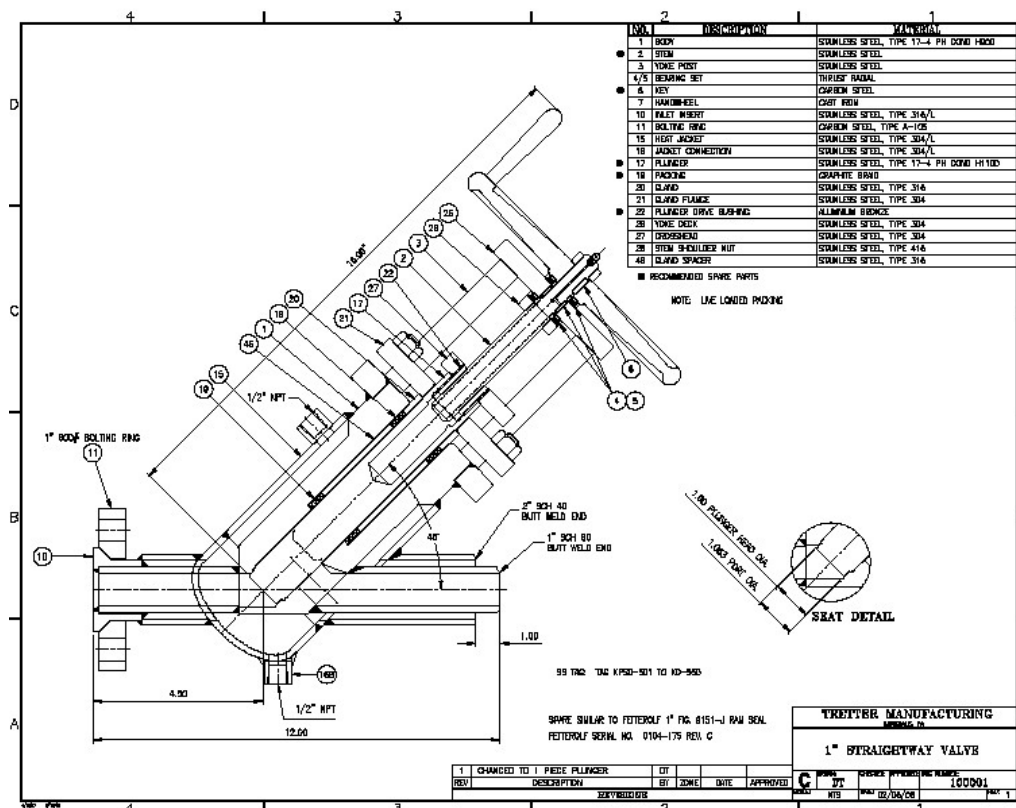


In-line Shut off Valve

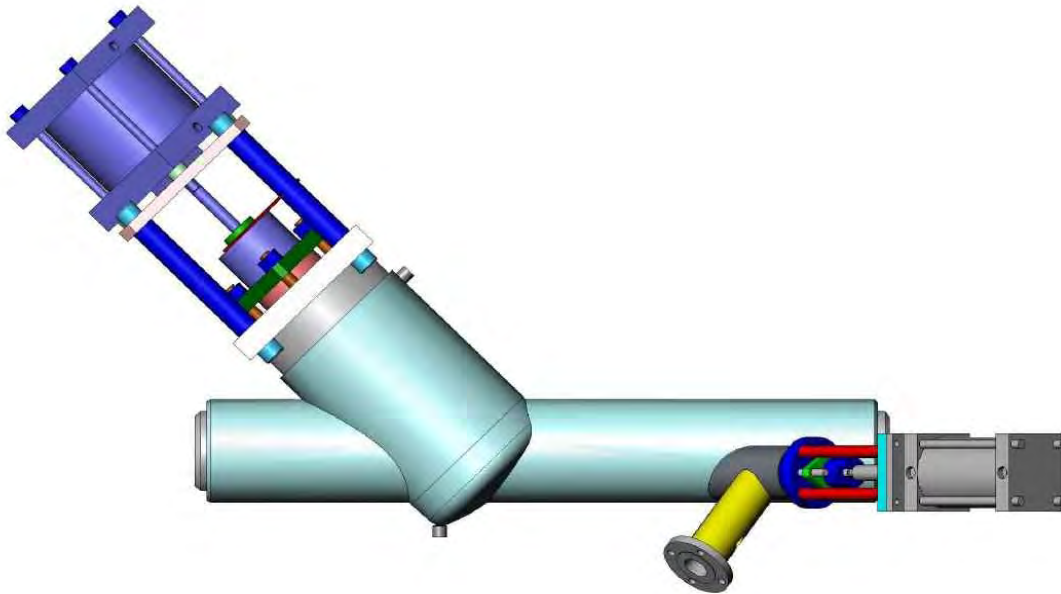
Dead Tight Shut Off
Full fabricated Jackets
Choice of Actuation
Pocket Free Design
Full Port Flow
Contoured Plunger
Long Seal Life
Easy Maintenance
Wide Range of Metallurgy



The In-line Shutoff valve is the perfect choice for situations where you need absolute dead tight shut. The valve has a raised seat so there is no pocket in the line. Other valves have a recess in which product can puddle and degrade. The raised seat makes it so the line is completely drainable on either side of the seat. Combine a line drain with the In-line shutoff valve and you have a perfect situation for polymer shut down. This design uses the plunger seal so it can be used in high temperature / high pressure processes including 2500# @ 1000F. Available in either full port or reduced port designs.

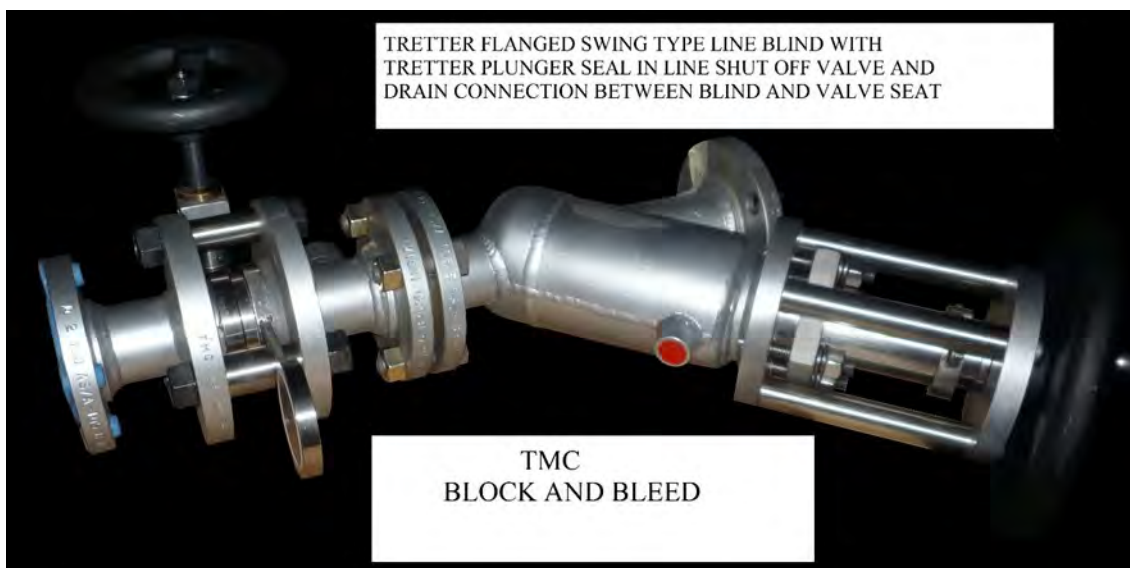


Inline Shutoff Valves



Some of the unique options of the Inline Shut Off Valve are:

- A. The ability to have multiple valves attached to a single core.
- B. Another option can be to have a Thermowell, or RTD to sense the temperature.
- C. We also have the ability to contour the plunger to match any angle and to prevent the build up of residual material.



Diverter Valve

The Diverter Valve is a versatile design that takes multiple drain or shutoff Valves and combines them into an assembly. The combined assembly allow the process to have parallel pumps or filters. By the combined use with Vent and Drain Valves the Diverter Valve can provide bumpless or seamless changeover. The diverter Valve also can be used split or join process lines. There is a wide variety of contouring options to insure smooth , pocket-less flow through the valves. Sizes 3/4" to 14" in 150# to 2500# classes



Available options:

Air, Electric, or Hydraulic Actuators

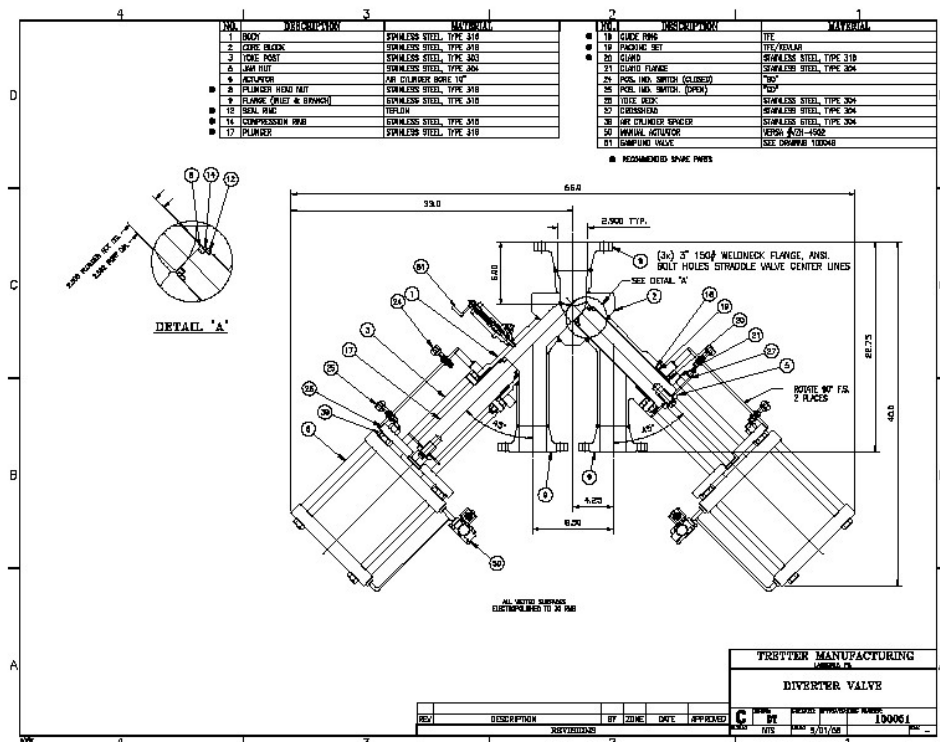
Contoured and Rotating Plungers

High Alloy Construction

Full Integral Welded Jacket

Vent and Drain Valves

Symmetrical or Asymmetrical construction



TMC-CHANGE OVER/SAFETY SELECTOR VALVES



**TANDEM UNIT
WITH INTEGRAL
LINE BLINDS FOR
RAPID RUPTURE
DISK CHANGE
OUT**

TMC CHANGEOVER VALVES MEET THE ASME REQUIREMENTS FOR ALLOWABLE PRESSURE DROP TO THE ACTIVE PRESSURE RELIEF DEVICE.

ALLOWS PRESSURE RELIEF DEVICE MAINTENANCE WITHOUT PROCESS SHUTDOWN.

ROBUST PLUNGER AND ACTUATOR PERMITS RELIABLE SWITCHING OVER LONG SERVICE LIFE.

SOFT SEATS OR METAL SEALS FOR HIGH TEMPERATURE AND HIGH PRESSURE SERVICE. 150# TO 2500# SERVICE.



INTEGRAL JACKETS AS REQUIRED. CHOICE OF ACTUATORS: MANUAL, AIR CYLINDER, ELECTRIC. CARBON STEEL, STAINLESS STEEL, TITANIUM AND OTHER ALLOYS TO MEET SERVICE CONDITIONS.

LINE BLINDS

Line Blinds are an assembly that makes the process of blanking off a line into a simple procedure. Our design accomplishes the task without the use of any tools. The operator simply turns the handle and swings or slides the plate. The blind is designed to be an integral piping component. It is fully ANSI rated and involves no spreading of the pipe. Available in sizes 3/4" to 44". Available in classes to 1500# depending on size. The blind design can be with Swinging as shown below or Sliding in the larger sizes to support the weight of the plate.



Common Applications:

- Tank Farms
- Steam lines
- Cement Plants
- Loading Stations
- Feed lines
- Mining
- Pharmaceutical Plants
- Shipping terminals
- Paper Mills
- Cryogenic plants
- Refineries
- Pipelines
- Pigging Stations
- Cokers

Reasons to use Line Blinds

- A: A line blind can be changed in minutes saving labor costs every time it is used
- B: A line blind gives a visual indicator of line condition
- C: You can Blank a line with one person even in the largest Sizes
- D: No tools required
- E: No spreading of the pipe so no sagging when changing
- F: Since the blind is a solid plate, there is zero down stream leakage

Repair Department



TMC will repair any Brand of Plunger or Disk Valves to like new performance. We will offer you your choice of normal or **Priority Service**. If your process is down and you need to get back up and running fast we will quote you fast track priority service .

For more information or an RMA# contact us at the below address

When you bought your valves , you paid a lot of money for them , if they have been broken or fail to live up to expectations, we will rebuild or modify them to: **ORIGINAL OR BETTER PERFORMANCE.**



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