

SchuF Fetterolf

Drain & Sampling Valves

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Bottom Outlet and Drain Valves

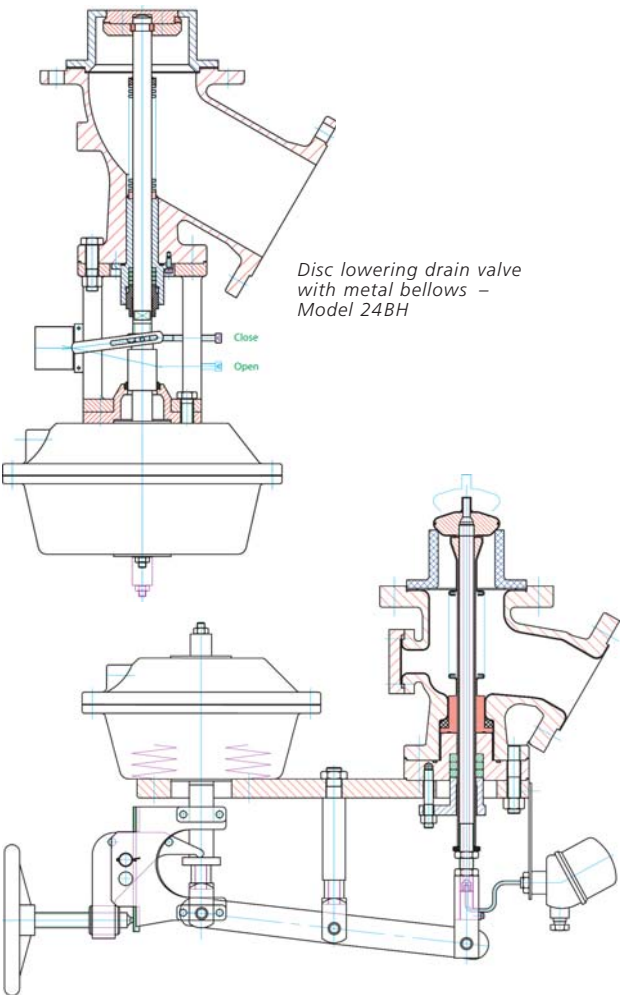
SchuF invented the first industrial class bottom outlet valve 100 years ago. Today SchuF Fetterolf offers tank bottom valves with a disc or piston design in almost any material, pressure class or size and with many options.

Disc Bottom Outlet Valves (DBOV) – Model 18 / 19 / 24 / 25

Application:

Disc bottom outlet valves are commonly used in Pharmaceutical and Fine Chemical processes to drain or feed non-viscous media from vessels or reactors. Reactor considerations such as the position of internal mixing equipment and the nature of the media determine the need to use a disc lowering or disc rising valve variant.

An additional benefit of the latter is that the formation of crust is automatically removed when the disc is moved to the open position.



Disc rising drain valve with side actuation – Model 25BF

Key Advantages for Disc and Piston Bottom Outlet Valves

■ Compact Valve Build

A short stroke disc valve is ideal where space is limited or weight is a concern. Smaller, lighter and faster actuators can be used.

■ Dead Space Free

SchuF drain valves are designed to ensure that the vessel and the valve itself drain completely. There are no spaces for matter to accumulate.

■ Crust Breaking

For media containing crystals or crust forming substances, certain ram and disc valves offer the ability to clear any blockage and ensure problem free flow.

■ Zero Emissions to Atmosphere

Disc valves can be fitted with a metal or PTFE extruded bellows or a PTFE Diaphragm. Leakage of toxic or flammable substances are eliminated.



Ram drain valve – Model 26FR

■ Fast Draining

Full bore unimpeded flow piston valves are ideal to quickly drain reactors, tanks or pipelines.

■ Diverse Sealing Options

Metal to metal or soft seal in the valve body, vessel or with an extended sleeve ensure the right sealing characteristics for different process requirements. Please see page 6.

■ Super Closure

Super Closure is a self adjusting mechanism, that ensures a constant bubble tight seal to atmosphere.

■ Customised Design

Every SchuF valve can be customised to match the exact specification of the vessel, reactor or tank. Material and instrumentation can also be customised for specific plant requirement.

■ Replaceable Valve Seat

The ability to easily change the customised valve seat reduces down-time and saves money.

Options

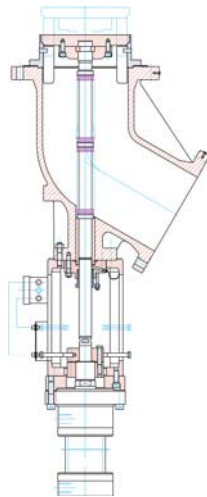
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|---------------------------|------------------------|-------------------------------------|--|
| ■ Fire Safe design | ■ PTFE or glass lining | ■ High corrosion resistant coatings | ■ Contoured pistons |
| ■ CIP (Clean in Place) | ■ Heating jackets | ■ Full automatic control | ■ Position and safety sensors |
| ■ Temperature sensing | ■ Disc grinding | ■ Internal/External polishing | ■ Manual, pneumatic, hydraulic or electric actuation |
| ■ Wide choice of material | ■ Flushing connections | ■ Hard facings | |
| ■ GMP designs | ■ Leak detection | | |

All Disc and Ram valves are available in sizes from 1" (DN25) to 24" (DN600) and up to ASME 2500# pressure class as standard. The outlet angle can be 45°, 60° or 90°. Customised design, larger nominal bore and higher pressure classes are available on request.

Bottom Outlet and Drain Valves

Flush Bottom Outlet Valve Examples

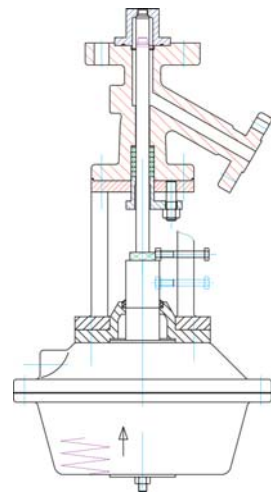
Hydraulic Actuated Disc Valve – Model 25BH



Features & Benefits:

- Powerful space saving hydraulic actuation
- Rising disc with automatic crust breaking
- Metal bellow seal for zero emissions
- Ideal for higher pressure or temperature applications

Short Stroke Ram Valve – Model 28KS



Features & Benefits:

- Short stroke valve with pneumatic actuation
- Ideal where space is limited but fast draining and injection is required

Sealing Method Options

Custom Fit Seat Sealing Options

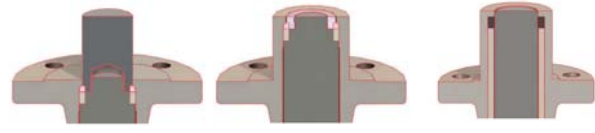


Model 28KV
Radial soft seal in the valve body

Model 28KR
Radial soft seal in the vessel

Model 28KS
Metal seal in the vessel

Integrated Seat Sealing Options



Model 28FX
Extended plunger

Model 28FS
Extended body

Model 26FR
Extended body with a radial seal

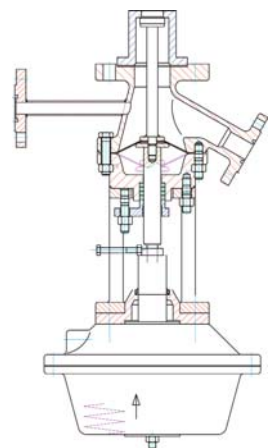
MultiProbe® Valve – Model 25BF



Features & Benefits:

- Infrared (IR) reaction monitoring for Process Analytical Technology (PAT) applications
- Integral IR and temperature sensor in one stem and disc
- Equipped with a unique and patented sealing system

Disc Lowering Valve with Diaphragm – Model 24BM



Features & Benefits:

- Zero leakage to atmosphere with diaphragm inside the valve body
- Flushing connection for in service cleaning
- Typically used in Pharmaceutical applications

A full brochure is available at: www.schuf.com/pdf

Sampling Valves

Sampling Valves

Many chemical and pharmaceutical processes need to be regularly tested during processing to ensure consistent product quality. SchuF Fetterolf sampling valves enable trouble free and safe content sampling of pipelines, reactors, tanks and storage vessels without product loss or cross contamination.

Product Range

Screw-in Sampling Valves – Model 32

- Screw-in or flanged to pipelines, reactors or vessels
- Size up to 1½" and ASME 600#
- Available with different flange and seat options
- Materials: carbon steel, stainless steel and most alloys
- Diverse sealing options include:
 - Metal Seated Ram (32PG)
 - Metal Seated Disc (32PT)
 - Ram PTFE Seal Rings (32FR)
 - Metal Seated Ram with PTFE (32FG)



Core Pipe Assembly – Model 30

- Sampling valve with an integral core pipe assembly & heating jacket
- Sampling under high temperature and pressure up to ASME 2500#
- Vertical or horizontal installation
- Contoured ram options
- Customised assemblies to match your exact sampling requirements



A full brochure is available at: www.schuf.com/pdf

Wafer Sampling Valves – Model 31

- Sampling valve with integral flange insert
- Flange insert is installed into the product line
- Insert size up to 12" and ASME 600#
- Available with any Model 32 sealing options



Key Features:

- Robust construction for longer valve life
- Dead space free, non clogging design
- Class V or VI shut-off
- Standard designs are stocked, customised design on demand
- Heating jacket and optional outlet legs
- Fire safe design according to BS 6755 Pt.2

Customised sampling systems for many applications such as:

- Fixed volume sampling under high pressure and temperature
- Sampling with zero leakage to the atmosphere
- Wet or dry powder sampling
- Visual checks through sight glasses



Company Profile

*“Every SchuF valve
is an innovation in itself”*

Wolfgang Frank
Chairman, SchuF Fetterolf Group

For over 100 years SchuF valves have stood for innovation and quality at the highest level.

Together with our customers, we invent, design and manufacture valves customised to exact tolerances, processes or special operating conditions. SchuF Fetterolf valves can be found in standard and in many severe service applications in the Chemical, Polymer, Pharma, Oil, Gas, Offshore and Refining industries.

... Innovation

The invention of the Lift Plug valve in 1911 and piston & disc bottom outlet valves in the nineteen twenties by the founder of SchuF – Josef Frank – were the first of a long line of valve inventions and innovative designs. Continuing research and development in materials (used in valve bodies and trim), design as well as complex processes enable SchuF today to offer valve solutions for applications with high pressure, high temperature and difficult media; or a combination of all three.

The integration of Fetterolf Corporation in 2004 further broadened the Group’s product portfolio, innovation and geographical reach. Today the SchuF Fetterolf product line includes control, isolation, sampling, switching and safety related valves.

... Quality

The exceptional quality and longevity of SchuF Fetterolf valves is a result of the precise attention to process detail, creative design, and the use of the appropriate high quality materials. In addition to its own high internal company standards, SchuF is ISO 9001, GOST and PED certified and can manufacture according to ASME, DIN, NACE, API, Fire Safe, GMP, JIS or any other internationally recognised standard.

... Worldwide presence

SchuF Fetterolf is represented in over 65 countries worldwide and has design and production facilities in Germany, Ireland, India, Brazil, the United States and the United Kingdom.



Product Portfolio Overview

SchuF Fetterolf has delivered over one million valves during its 100 year history to a wide variety of industries in over 50 countries worldwide. Headquartered near Frankfurt in Germany, the company has additional design and manufacturing centres in Brazil, India, Ireland, UK and the USA.

The SchuF group has sales and agent offices covering almost every country in the world. We manufacture valve products that control, isolate, divert, and sample liquids, gases, powders, and slurries. Our product range of engineered, customised valves includes:

Drain & Sampling Valves	Isolation Valves	Control Valves	Switching Valves	Spray Rinse & Injection Valves	Safety Related Valves
Piston Bottom Outlet Valves	Lift Plug Valves	Angle Control Valves	Y, R & T type Diverter Valves	Spray Rinse Valve	Line Blind Systems
Disc Lowering / Rising Bottom Outlet Valves	TruPlug Valve	Multistage Control Valves	Multiway Diverter Valves	Steam Injection Valve	Changeover Valves
Custom Bottom Outlet Valves	Y- / P-Globe & Straightway Valves	Cage Control Valves	SwitchPlug Valve		Emergency Tank Shut-off Valves (TESO)
Screw-in, Line & Wafer Sampling Valves	High Pressure Angle Valve	In-line Control Valves	ManiFlow Selector Valve		Customised Valves
	Special Gate Valves	Automatic Recirculation Valves	Custom Diverter Valves		

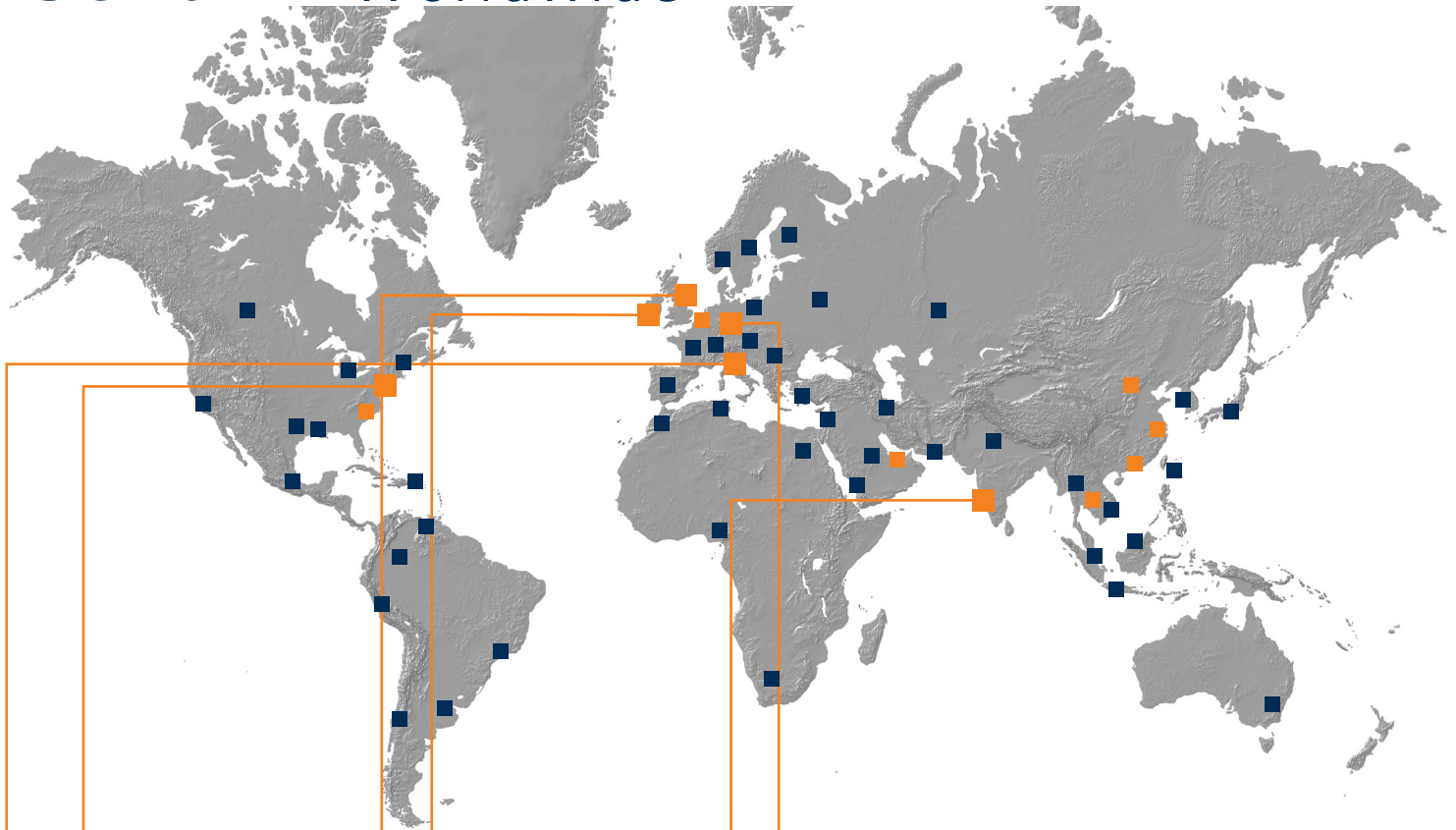
Key Client List:

■ AkzoNobel	■ Glaxo Smith Kline	■ Reliance
■ AstraZeneca	■ INEOS	■ Roche
■ BASF	■ Invista	■ SABIC
■ Bayer	■ Jiangsu Hengli	■ Saipem
■ BP	■ Lanxess	■ Salavat
■ Chevron	■ LG Chemical	■ Samsung
■ Clariant	■ Linde	■ Sandoz
■ DOW Chemical	■ Lukoil	■ Sanofi Aventis
■ Du Pont	■ Lurgi	■ Shell
■ Eastman	■ Merck	■ Shin Etsu
■ Evonik	■ Novartis	■ Sinopec
■ Exxon Chemical	■ Oerlikon	■ Sulzer
■ FCFC	■ Oxy Vinyls	■ Temex
■ Far Eastern	■ Pemex	■ Tuntex
■ Foster Wheeler	■ Petrobras	■ Uhde
■ GE	■ Pfizer	■ Vinnolit



THE LIFT PLUG VALVE –
100 YEARS OF INNOVATION

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